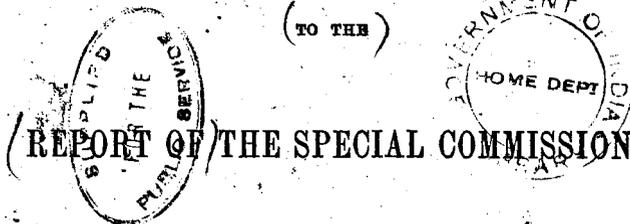


(APPENDICES)

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(TO THE)

(REPORT OF) THE SPECIAL COMMISSION

APPOINTED BY

HIS EXCELLENCY THE GOVERNOR-GENERAL IN COUNCIL

TO ENQUIRE INTO THE

(ORGANIZATION AND EXPENDITURE)

OF THE

(ARMY) IN INDIA.)

(VOL. III.)

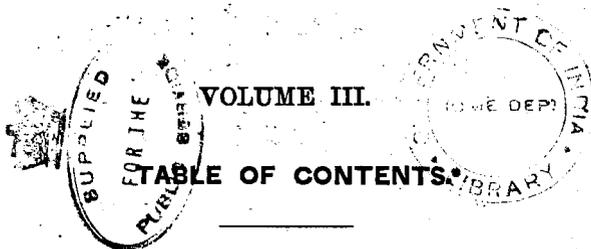
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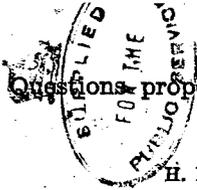
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APPENDIX IV.—(CONTINUED.)

Questions proposed by the Commission, and Replies by Officers of the Army in India.

H. Medical.

K. Ordnance.

I. Commissariat.

L. Horses.

J. Transport.

M. Departmental procedure.

N.B.—The replies of all officers have been arranged under the heads of the several questions to which they relate, the questions being printed in larger type than the answers. Replies have not been received from every officer addressed: and some of those who have answered have not found it possible to send replies to every question.

H.

MEDICAL.

1. What are the statistics of invaliding and mortality of Native regiments stationed in Lower Bengal?

Surgeon-General J. F. Beaton, M.D., Indian Medical Department.

Less favorable than those for the entire Native army in the Bengal presidency, but, after all, not very markedly so, if one set of lines at Barrackpore are left out of the account. The difference in the relative figures is not such as to lead to the conclusion that, as at present constituted, the Bengal-Native army may not be freely employed in Lower Bengal. It was an old custom, possibly quite as much due to half-batta as to very unfavorable vital statistics, to keep no regiment longer than two years at one period in Bengal; but I believe the doctrine of health deterioration has been absurdly over-estimated. In 1875 the 10th Regiment suffered most heavily at Barrackpore—according to one view, from the climate of Bengal, according to another, from under-feeding; and generally it was believed that another year in Bengal would annihilate the regiment. This view, however, did not find acceptance at army head-quarters, or circumstances made transfer impracticable; and the regiment to this hour is in Bengal, at Barrackpore and Dacca, and in very good form!

It was a fortunate circumstance that the regiment was not moved up-country, or its present state of health would unquestionably have been directly attributed to removal from the noxious climate of Lower Bengal, and been cited, in all time coming, as proof of the superior wisdom of the former plan of making the tour of service in Lower Bengal a strictly limited one of two years. A detailed figured statement is appended to show the losses among the troops in Lower Bengal from the several causes enumerated.

Dr. G. Smith, M.D., Surgeon-General, Indian Medical Service, Madras.

A tabular statement is appended (appendix A) which embodies the information called for in questions 1 and 2. Speaking generally, Bengal is one of the most healthy of the military commands of the Madras army.

A warm, dry, sheltered and non-malarial climate best suits the constitution of the Madras sepoy; at the same time experience shows that if well fed, well clothed, and well sheltered, he is able to resist, not unsuccessfully, severe cold and heat. The medical experience of three companies of the Madras sappers and miners in Afghanistan (1878-79) may be adduced in illustration of this view. The B, C and K companies of Sappers and Miners served with the Peshawar Field Force from December 1878 to July 1879 inclusive. Their aggregate strength amounted to 614, including public and private followers; of this number, 23 were European commissioned and warrant officers. During the nine months referred to there were 226 admissions to hospital. Omitting 19 cases of cholera, a few cases of syphilis, and some minor affections, we find in—

December.—Eight admissions from ague, two from bronchitis, and two from diarrhoea.

January.—Sixteen from ague, three from bronchitis, five from dysentery, and five from remittent fever.

February.—Nine from remittent fever, six bronchitis, two from pneumonia, and four from dysentery.

March.—Three from bronchitis, five from remittent fever and four from dysentery.

April.—Two from ague, four from simple continued fever, and eight from general debility (*i.e.*, unable to accompany a possible rapid march to Cabul), seven from diarrhoea, and two from dysentery.

May.—One from remittent fever, four from simple continued fever, five from diarrhoea, and three from dysentery.

June.—(Eighteen from cholera) Eight from remittent fever, five from diarrhoea, one from ague, and one from simple continued fever.

July.—(One from cholera) Two from remittent fever and one from diarrhoea.

The average daily sick of the three companies was 13.60. Mortality:—11 casualties from cholera, 2 from remittent fever, 3 from bronchitis, 1 from disease of heart, 1 from pneumonia and 2 from accident. Excluding the cholera and accident cases, the deaths aggregated 7. Among the followers there were 4 deaths from cholera, 3 from remittent fever, 1 from ague, and 1 from pneumonia. The sepoys of these companies had been carefully selected by the medical officer in the first place, and the results now recorded show that men of this stamp, many of whom are meat eaters, are able to bear with a fair share of impunity alike the severe cold and the scarcely endurable heat of Afghanistan. The same agencies which would certainly produce inefficiency in troops of other races will prove equally potent in the case of the Madras sepoy, as shown in the experience of a wing of the 30th Madras Native Infantry at Vitakri in Beluchistan.

That wing is at present prostrated with severe fever, diarrhoea and scurvy, the result of hard work, exposure, malaria, scarcity of fresh vegetables, and of a bad supply of water and rations.

3. Is there any advantage in keeping up a separate purveyor's establishment for hospitals ?

Surgeon-General J. Ker Innes,
British Medical Department, and
Principal Medical Officer British
Forces in India.

There is no advantage in keeping up a separate purveyor's establishment for hospitals; on the contrary, it interferes considerably in the efficient working of hospitals, and is more expensive than the old steward's system for which it was substituted in 1868. Under the steward's system, the medical officer had entire control over the whole of the hospital establishments and stores, and was held responsible that every thing in connection with the hospital was kept in a serviceable condition, and in accordance with regulations. Under the purveyor's system, the responsibility and charge of stores and establishments is divided between the medical and commissariat departments. At present the medical officer has charge of a portion of the establishment and all the medical and surgical stores; the remainder of the servants and articles of hospital equipment, comprising diets, wines, bedding, clothing, cooking utensils, &c., are under the orders of the commissariat department. The purveyor, while nominally under the medical officer's orders, is entirely a commissariat subordinate, by whom he is employed, paid, pensioned, &c., &c. He is supplied with quarters in the vicinity of the hospital (which he seldom or never occupies), and is permitted to sleep at his home (generally in the bazar, for which he receives house-rent). What with living in the bazar, and having to attend the commissariat office for orders and the commissariat godowns for supplies, the purveyor is seldom in the hospital for more than an hour or two during the 24 hours. In the interval, his duties are carried on by the establishment placed at his disposal, and the consequence is that, in the absence of proper supervision, the work seems to be inefficiently carried on, and much inconvenience is experienced.

To remedy this, the purveyor and his establishment should be under the control of the medical department, and the medical officer held responsible for the efficient performance of all duties in connection with the sick, and for the charge of the whole of the hospital equipment similar to that of the medical and surgical stores.

At present the purveyor is generally of the Bengali Babu class, and consequently will not live in the hospital enclosure unless compelled to do so; and as hospital assistants, many of whom are Bengalis, live in the vicinity of the hospital, there is no reason why an exception should be made in the case of purveyors. In fact, the purveyor grade should be open to any class of men having the requisite qualifications, and who are prepared to live near their work.

The purveyor's establishment, excepting dhobies, should be amalgamated with the army hospital Native corps, which will admit of the numbers being reduced and a better class of men obtained, all amenable to discipline and under the orders of one department.

Such a system, while increasing the efficiency of the hospital, and adding much to the comfort of the sick, would save the State about Rs. 10,000 annually in the item of house-rent to purveyors, for it is not just to Government that permanent quarters should be erected for them (which are seldom or never occupied), and at the same time allow them compensation for living in the bazar.

It is estimated that the cost of the steward system amounted to about Rs. 70,000 annually, that of the original cost of purveyors Rs. 30,000 annually, and that of the present cost of purveyors about Rs. 73,000 annually, being a little over that of stewards. The sum allowed to the commissariat department to conduct the administration of the purveying system should be transferred to the medical department in the event of this proposal being sanctioned.

Surgeon-General J. F. Beaton,
M.D., Indian Medical Department.

A direct categorical answer to this question is somewhat difficult to frame, because of the absence of any indication of the manner in which it is proposed to provide afterwards for the duties of the purveyor.

Under the system which the present one supersedes, a member of the apothecary class, with the title of steward, discharged the duties now devolving on the purveyor, and considering the limited professional training which the subordinate medical department then received, there was nothing absolutely grotesque in the arrangement; but now, when the educational advantages enjoyed during a three years' residence in the medical college have given the Government, in the members of the subordinate medical department, a highly trained class of professional men, it would be, in my judgment, a clear waste of skilled efficiency to revert to the *status quo ante*.

But might not the question be appropriately put in a disjunctive form thus:—Or if kept up, might not the medical subordinates now sanctioned for regiments be reduced? To the latter part of the question so framed, I should, without hesitation, give an affirmative reply. When regiments had few or no absentees in the hills and were actually considerably stronger numerically than of late years, the medical and surgical duties of the hospital were performed by—

- 1. apothecary,
- 1. assistant ditto,
- and 2 apprentices;

whereas now the establishment embraces—

- 1 apothecary,
- 1 assistant ditto,
- 1 passed hospital apprentice,
- and 2 or more hospital apprentices.

The mere numerical statement, however, gives but a very faint conception of the real increase of strength, inasmuch as each of the three senior grades has received a most substantial, almost finished, professional training, rendering the *passed* hospital apprentice perfectly able to perform most efficiently the duties formerly done by the senior subordinate alone. Moreover, the British Medical Department has, more than once, put it on record that the *unpassed* hospital apprentices are of no real use in the regimental hospitals; and therefore, with the sanction of the Government of India, conveyed in letter No. 1214S. Medical Department Subordinate of 11th August 1879, limitation of the num-

bers of this grade to be entertained has already been carried out, by admitting ten only in April last. Apart from those composing the military class students at college at present numbering sixty, only a moderate number will remain for attachment to regimental hospitals during the pre-collegiate period, securing a gain economically, but what is of much greater moment,—the opportunity of sending them to selected hospitals, where the medical staff, commissioned and warrant, are known to take special interest in the training of the lads, and from which, therefore, it may be hoped, they will emerge with not only a respectable practical professional grounding, but also a healthy moral character. Of late years, the improvement in the conduct of these lads during the college course has been most marked and satisfactory, and affords substantial ground to hope for still happier results in the future.

Surgeon-General C. A. Gordon,
Principal Medical Officer British
Forces, Madras.

From my own experience and observation I say—No, there is no advantage in keeping up a separate purveyor's establishment, in so far as the hospitals of British regiments are concerned. It is of course essential that a particular class of employés have charge of, and be responsible for, the stores and equipment of hospitals, exclusive of those of a medical and surgical nature, which are taken care of by the apothecary. Until some ten or twelve years ago, the *steward* had charge of the clothing, bedding, furniture, wines and other stores of a general nature; he, moreover, kept the diet tables, prepared indents for such articles as were required, being, for the performance of his duties, directly responsible to the medical officer in charge, whose countersignature to all requisitions, transfers, and accounts of expenditure was required in order to give validity to such documents. Of late years, the above system has been replaced by that of purveyors, a class of men appointed as agents by the commissariat department, who are in no way responsible or amenable to the medical officer, to whom in fact articles are only issued on requisition, and who, of *right*, does not appear to have access to the stores from which his sick are provided, the result being, as I testify from my own knowledge, that, from one cause or another, the quantity of clothing and bedding actually available in the purveyor's store and fit for immediate use by sick soldiers may be, and at times is, quite different from the quantities shown upon paper to be so. I am not aware of a single advantage in the present system of having hospital purveyors as against that of having stewards, as they formerly were; while to my mind the disadvantages under the existing rule are so many as to indicate the propriety of returning to the conditions in this respect as they formerly existed in the Bengal presidency.

Dr. G. Smith, M.D., Surgeon-
General Indian Medical Service,
Madras.

The system under which the commissariat provides purveyors, or conicopolies as they are called in this presidency, for the wants of Native regimental hospitals works satisfactorily. At single stations there is one purveyor; at large stations, such as Bangalore and Secunderabad, there are two. At the presidency town one suffices for all the Native regimental hospitals including the body-guard and the Port dispensary. If changes be contemplated, I would strongly deprecate the transference to the medical subordinate department of these duties. These medical subordinates have received an expensive professional education, and they perform professional and scriptorial duties of an important kind,—duties which absorb all their time. Were the duties of purveyor superadded, their professional value would be greatly diminished, and they would be exposed, moreover, to temptations which might seriously affect the *morale* of the whole department. To employ such agents as purveyors would be to adopt an agency equally inexpedient and expensive.

Deputy Surgeon-General J. M. S.
Fogo, Officiating Surgeon-General
British Forces, Bombay.

The purveyor represents the commissariat department, and he is the keeper of commissariat stores in the hospital. A medical subordinate performing the duty would be more satisfactory to the medical officer.

In British hospitals, elsewhere than in India, similar duties are performed by the officers of orderlies who are under the orders of the medical officer in charge.

Dr. Colvin Smith, Deputy Sur-
geon-General Indian Medical De-
partment, Madras.

In Madras Native infantry hospital, there is a purveyor or a conicopilly who belongs to the commissariat department; attends and supplies what is required, which system answers well, and is very necessary. One man is sufficient for all the regiments in the station.

Dr. J. Gibbons, Deputy Surgeon-
General British Forces, Meerut
Circle.

The work performed by purveyors is exclusively non-medical, and pertains to the commissariat department. On the principle of relieving medical officers and subordinates from work non-professional, hospital supplies, rations, and clothing should continue in the hands of the commissariat department, and consequently their care and distribution entrusted to servants of that department.

Deputy Surgeon-General S. C.
Townsend, Principal Medical Offi-
cer, Kuram Field Force.

My knowledge of the system on which the hospitals of European troops are supplied is limited to what I have gained during the few months that I have held administrative charge of this force; but, so far as this experience enables me to judge, an establishment of the kind is necessary.

Surgeon-Major T. G. Hewlett,
C.I.B., Acting Deputy Surgeon-Gen-
eral, Sind Division.

I do not think so, as in my opinion a hospital steward is all that is required. A regimental hospital is but a small institution compared with some of our large civil hospitals. For example, at the Goculdass Tejpal Hospital, one of the large Native hospitals in Bombay, where there are 124 beds and a daily average of 112 patients, and where there is only one medical officer to superintend all the work, I managed the entire accounts of the hospital with one steward (a Native), who had to provide his own clerk. I saw and examined the whole of the food and all hospital supplies daily before they were served out to the cooks. I

periodically inspected the store-rooms, &c. I am of opinion that a hospital steward would do all the work of a regimental hospital. I think there is no necessity to have a clothier and a tailor on the permanent establishment. This work can be given out on contract; and I also think the washing should be done by contract. I see no necessity why the purveyor or hospital steward should have a peon. If his stores are arranged systematically, the work is much more easily performed.

Surgeon-Major J. Pictall, M.D.,
Examiner of Medical Accounts,
Bengal.

The system of purveyors was instituted in supersession of hospital stewards in 1868. He is the servant of the commissariat department. His duties are—

- to issue when required to medical officers such articles of equipment and supply as are provided for hospital use;
- to be present in hospital during the day for duty, and to receive the orders of the officer in medical charge with regard to issues;
- to lay out the articles composing the diets and extras for the day in bulk for the inspection of the medical officer at his morning visit, and give over for issue to the sick in good condition and in time for their meals;
- to arrange for the fortnightly tinning of the cooking utensils;
- to issue daily to the hospital sergeant the oil and cotten wicks required for the hospital lamps;
- to see that all articles of hospital equipment are complete according to scale and in serviceable condition;
- to see that no articles, unserviceable or out of repair, are kept in store;
- to see that all hospital bedding and clothing are repaired and washed, and to issue clean articles for patients as often as may be considered necessary by the medical officer;
- to report to the medical officer discrepancies between issued and returned hospital equipment;
- to see that the soiled bedding and clothing used by patients suffering from infectious diseases are disinfected at the hospital and then sent to the washerman;
- to prepare all returns and vouchers connected with his stores and establishment;
- to arrange for the authorized supply of marching or railway equipment when a corps leaves a station.

At the time this class was instituted, it was considered that not only would there be economy in the measure owing to the reduced rates of pay they would receive as compared with that received by the steward, but that being the custodian of the stores and directly amenable to the commissariat department, the security of the stores would be better ensured, the responsibility for the same resting with the purveyor, who is a servant of the commissariat, as already stated. I believe the system of check over articles of hospital equipment which are of great value is generally considered effective, and the result, I think, fully bears this out. Although a better class of men, possessing greater intelligence, could not be obtained for the pay allowed, I believe the men now employed are generally competent for the performance of the duties entrusted to them; and unless much better grounds can be shown for disturbing the present system than I am acquainted with, it does not appear to me desirable to make any change. It can hardly be expected to secure the services of better and more intelligent men without increased outlay.

Surgeon-Major J. H. Porter,
late in Medical Charge of Field
Hospital, 1st Division, Peshawar
Valley Field Force.

None; the purveyor's establishment should be as much part of the hospital as the apothecaries. A separate establishment is a decided disadvantage, more especially on active service, where, under the present system, it is likely to become detached.

Surgeon-Major C. Martin, Army
Medical Department, 13th Hussars.

Under the regimental system they are necessary. Should the general or station hospital system be introduced, one purveyor's establishment would be ample for charge of whole, in a station where four or five corps might be quartered.

4. Can you provide data from the experience of the late campaign of the relative capability—

- (1) Of young and old soldiers to endure fatigue and exposure?
- (2) Of the value of hill stations to health, and of the effect of stations like Peshawar on the health of regiments taking the field?
- (3) Give the Commission your opinion generally on the question of hill stations, their value as sanitarium for the resort of invalids, and for the preservation of the health of young soldiers respectively.

Surgeon-General J. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

The question of the relative powers of old and young soldiers to endure fatigue and exposure in a campaign forms but part of another and larger one, that of our present military organization as an imperial power; and as this seems to me to involve several points of an essentially medical character, and such as can best be determined by considerations and deductions from medical statistics, I desire to touch thereon, although I should trench upon ground that rightly comes within the province of political and military economy.

The main elements of the problem are—given an insular power holding military sway over many and distant colonial possessions, the constitution of the country being inimical to conscription in any form, where recruits must be taken young to be secured, how best to maintain an army of adequate strength and efficient quality, with a reserve available in case of national necessity? To this problem must be added the preponderating consideration from the standpoint of the Indian Government, *viz.*, the military requirements of this country.

The short-service system has the following advantages: it tends to procure a celibate army, thus relieving the State of the expense of barracks, &c., for married soldiers in the future, and of making available the accommodation now taken up by them in the present.

Supposing, what is an absolutely essential element, a sufficient interval of time to elapse, its operation would secure a reserve on a system practically the reverse of that hitherto followed: for in our previous wars (Peninsular, &c.) the places of the veteran troops in the field were taken by immature recruits from home, while now the places of the young troops in the field would be filled up by the older soldiers from the reserve.

On the other hand, the disadvantages are that the men composing an army are manifestly on physiological grounds not sufficiently matured to withstand the hardships and fatigue incidental to field service; they have resiliency enough, but insufficient resistance: they are drilled, but not trained. The difficulty of getting non-commissioned officers of the right stamp, and in requisite numbers, is increasingly great: the expense, so far as the invaliding transport of time-expired men and troop service system is concerned, is great; the composition of a corps is liable to frequently recurring fluctuations, in consequence of men taking their discharge when their training is perfected, the weakening of discipline and organization and *esprit de corps* entailed thereby: and the reserves may deteriorate, or not become available when required.

It will be shown hereafter that, as far as susceptibility to climatic disease on the one hand, and inefficiency in the field from lack of power to withstand fatigue and hardship on the other, the young and unacclimatized corps and soldiers of the present day contrast very unfavorably with the older and acclimatized corps and men of the past or present time. The soldier is subject to the same law as the inferior animals, *viz.*, that the adult and matured possess powers of endurance which the young and immature do not; and a soldier under 23 years of age is consequently relatively inefficient in the field.

It is necessary, however, to avoid exaggerating the effect of age on efficiency. It is a mistake to suppose that a soldier of over ten years' service is better than one of five; he very frequently is not so good. In cheerfulness, fullness of life, and resiliency, the younger man notoriously enjoys the advantage. His physical defect, as far as campaigning is concerned, is want of endurance; his frame and constitution require good food and periodical rest: for a short or a series of short efforts, a young man is quite as capable as an older one, but in sustained effort, or labor, and under privation, he is manifestly his inferior. For many obvious reasons older men are required for the non-commissioned ranks; and it is a State question how such men are to be retained, but physical and moral degeneration are allied and commonly advance *pari passu*. Where the former exists, it is not, as a rule, counterbalanced by superiority either of intelligence or discipline. A corps with time-honored tradition of excellence will best maintain its name by a good supply of fresh physical energy.

In Bavaria and the kingdom of Wurtemberg, the liability to serve commences on the 1st January of the year in which the twenty-first year is completed. In North Germany the age from which service is generally counted is about 20 $\frac{1}{2}$,—a period which usually anticipates actual service by some months. This circumstance, taken in connection with the large majority (90 per cent.) who are rejected by the medical officers as insufficiently matured to stand the hardships entailed by military service, equalizes the age of the North German recruit with those of Wurtemberg and Bavaria.

Assuming ten years as the mean period during which a soldier is at his greatest efficiency, and allowing that period to range, as regards the soldier's age, from 23 or 24 to 33-34, we must further add that a man is, as far as India is concerned, at his best, in regard to physical health and *morale*, after two years' service in this country with an age ranging between 24 or 25 and 31-32.

The disease of which young and unacclimatized soldiers die in this country is enteric fever. The liability in the case of the soldier of over seven years' service in India to die of this disease is 3·87 as contrasted with 82·44 in the young, and 13·69 in the class resident from five to seven years, reckoning the liability at 100.

Taking a strength of 22,758 men, 10,745 of whom are from 20 to 24 years of age, and 4,428 from 25 to 29 years of age, the death-ratio from enteric fever during the first two years of service in this country is 9·77 and 10·16 respectively; consequently, so far as death from enteric fever is concerned, it makes but little difference whether a soldier be 20 or 25 years of age on first landing here.

The average expectation of life diminishes in this country as at home in proportion to age; but a young soldier, say of the age of 20, if he dies within the first two years of his service here, is just as likely to die of enteric fever as of all other diseases put together.

Out of 73 regiments and batteries which came to India between 1871 and 1877, nine only, says Dr. Bryden, from whose reports the foregoing data are derived, remained free from enteric fever in the first twelve months after landing.

A reference to the occurrences hereinafter detailed in regard to the relative efficiency of young and unseasoned as compared with old and seasoned troops, drawn from the experience of the 8th, 17th, 5th, and 72nd Regiments, in the late campaign, will not only serve to indicate, in a general way the points of contrast between the two classes, but the facts detailed in regard to the 17th Regiment bring out very clearly the great relative proclivity of the drafts not only to succumb to a special form of disease—enteric fever—but to become disabled from the more ephemeral forms of disease.

The differences between climatic as contradistinguished from endemic diseases must be borne in mind: the former comprising ailments induced by altered conditions of temperature, locality, clothing, diet, &c.; the latter being special to the district in which they exist, and for the most part affecting both European and Native indiscriminately.

Irrespective of an increased ratio of mortality, with a corresponding increase of age and length of service common to all other countries, Indian climates and conditions of life occasion high and increasing death ratio with increased ages :—

Bodies of men compared.	DEATHS PER 1,000.					
	Under 20.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 and upwards.
Troops in the United Kingdom, 1863 to 1872	2.87	5.42	6.79	12.53	17.76	21.16
Civil male population—England and Wales	7.41	8.42	9.21	10.23	11.63	13.55
Troops in India, 1871 to 1875 ... }	5.64 5.18	12.59 10.33	15.02 12.47	19.80 16.87	29.90 27.12	51.64* 46.97†

Involving British Army of India from 1871 to 1878.

	Loss.	Per 1,000.
1871	2,381	48.62
1872	2,438	43.21
1873	2,434	44.58
1874	2,411	43.73
1875	2,371	40.25
1876	2,276	38.90
1877	2,452	42.25
1878	2,540	44.93
Average	2,413	...

A series of admirable tables illustrating almost every point affecting the health of the British and Native troops are given in Dr. Bryden's Statistical Reports, and that for the British army of India, 1871 to 1876, is especially noteworthy.

Although a healthy man, ordinarily circumstanced, whose age ranges between 23 and 33, will attain his maximum of usefulness after the second year of service in this country, this period is capable of being maintained and prolonged by residence in the mountains, in a climate calculated to maintain his physical powers; and in the case of young soldiers by retaining them in the hills for one or two years, until they had reached the age of 23; before which a man is unfitted for field service, there can be no doubt that they would be saved from much of the disease due to conditions of locality under which they now suffer, and time would be given for the system to become matured while it would be undergoing a process of accommodation (acclimatization) to an Indian climate and life.

The benefits of hill stations may be summed up under three heads: first, they confer a higher standard of health and strength on the young soldier, in addition to diminishing, if not averting, diseases incidental to service in the plains, the debilitating effects of extreme heat, and the removal from the sources of fever; second, they benefit the older and more acclimatized soldier in the same direction; and third, regarded as sanatoria for invalids. In this respect the benefits are more limited. A hill climate is rarely efficacious in restoring health when organic or malarial disease has become established. The absence of amusement and separation from regimental association render hill stations unpopular with the men, who, if weakly, are debarred from the nature of the ground from taking the requisite amount of exercise for health. From a purely medical aspect, residence in the hills during the winter would, in many cases of disease, prove beneficial, but it is attended with disadvantages and grave discomforts. I would not therefore urge the multiplication of hill sanatoria, but would strongly advocate the extension of hill stations for regiments of healthy troops wherever these can be established.

There can be no doubt that it is under the first of these heads that the beneficial influences of hill stations can be best and most profitably developed. If the European soldier be placed in the hills, where heat is not felt and malaria reduced to a minimum, a considerable step would be made towards assimilating his position to that to which he has been accustomed in his own country.

The belief that the efficiency of the soldier is impaired by hill residence when called upon for the endurance of opposite conditions is a fallacious assumption; and the contrast exhibited in the cases of the 5th and 17th Regiments, as compared with the 81st, 70th, and other corps during the late Afghan campaign, conclusively illustrates this [*vide next page*].

The experience of the campaign not only brings out very strongly the adverse influence of previous malarious disease in the constitution in diminishing its power of resistance to cold and exposure, but in increasing the liability to pulmonary disease, and very notably inflammation of the lungs in the case of Native troops. Nor is the effect of residence in a malarious climate limited by these evils; for there are very good grounds for believing that one of the more remote effects of ague in the case of European troops is the development of tubercle (pulmonary consumption): in fact, "residence of a certain duration in India, followed by return to the English climate, exceeds, in its power of producing phthisis, the known effects of the most destructive trades."

The question of hill stations has gained increased importance since the short-service system has become established, and it is clear that a multiplication of mountain stations, mainly for the location

* Inclusive of cholera. | † Exclusive of cholera.

of young and recently arrived soldiers, must directly diminish the number of invalids yearly sent home, as well as the annual death-rates from enteric fever and pulmonary consumption.

It is very difficult to estimate the influence of previous residence in the Peshawar Valley, as contrasted with a residence in hill stations, on the efficiency of troops in the field, in consequence of the presence of a number of other factors, such as age, length of service, &c., all of which would have to be taken into account and would tend to vitiate the conclusion; but the experience of the late war has furnished examples of corps taking the field in which these disturbing elements either did not exist at all or in so insignificant a degree that they may be practically disregarded.

The 70th and 81st Regiments had been cantoned at Peshawar (the former, 70th, taking the field from Mooltan), while the 5th Fusiliers and 17th Regiment had been quartered at Chakrata and Murree Hills respectively, before proceeding on service.

Deputy Surgeon-General Hendley in his report states: "The 70th Regiment previously located in Mooltan, and before that in the Peshawar Valley for three years, was in a most unfit state for such a service. They were very weakly at starting from Mooltan, were exposed to great hardships on the road (which was a very difficult one, *via* the Dera Bagh route) to Quetta, and suffered very much from fever and bowel-complaints. Their doolies were filled each march with their sick, and many available camels were employed in carrying weakly men; 101 men were left behind at the base hospital. When we crossed the Kojak, 67 men were sent to the base hospital at Kandahar on the march out towards Eiorkt, and 24 were sent back to Kandahar from the place they were halted at, and a fresh batch was about to be sent when the regiment was recalled to Kandahar. They were so weakly on the march, that the officer in medical charge of the field hospital seldom had a spare doolie, all being occupied by the sick or weakly men of this regiment, bowel-complaints and fevers the prevailing complaints. There were only three deaths, however, up to the time of the breaking up of the 2nd Division."

Regarding the 81st Regiment, Surgeon-Major Martin reports as follows:—

"When the 81st Regiment proceeded on field service in November last, very few men of immature age proceeded with it. There were many young soldiers, but of these not more than three or four were sent back from the front to the base hospital at Peshawar."

Dr. Martin goes on to add that his experience of the regiment on *field service* was limited, as the men "melted away" rapidly under the exposure to wet and cold during the week following the 21st November. At the end of six weeks the regiment "was sent to the rear as unfit."

Dr. Martin expresses his opinion that age as a factor had nothing to do with the men's power of resistance against "cold and arduous night duty;" and he particularly notes that the men who had passed the previous hot season in Peshawar were the first to succumb, "while those at Cherat and elsewhere resisted the unfavourable circumstances and remained a different class of men up to the end."

In contrast to the above let us take the case of the 1-5th Fusiliers. This fine regiment left Chakrata on the 18th October 1878 742 strong; they reached Peshawar 746 strong; and left behind them at that station 14 men suffering chiefly from sore feet, the result of the long march (28 miles) from Nowshera the previous day.

Up to the 13th May no deaths occurred among them, and very little sickness. A total of 137 men were sent to the field hospitals, about 2.62 per cent. per month, and most of these returned to their duty.

Three hundred men went on each occasion to the Bazar Valley, going through the usual hardships and exposures incidental to such service, such as frequently wading streams, &c.; but in the opinion of Surgeon-Major Tippetts, the medical officer in charge, the health of the men was improved thereby.

1-17th Regiment.—Dr. McWatters says that the great proportion of men whose ages varied between 23 and 26 years, with only two or three years' service in India, caused this regiment to be looked on as "the finest British infantry regiment of the 1st Division Peshawar Valley Field Force"; and there is but little doubt that to the previous residence in the Murree Hills the efficiency of this battalion may for the most part be attributed.

The value of young and unacclimatized as compared with older and acclimatized troops.

The following table gives the composition of the 5th Regiment as regards age and service when the corps joined the Peshawar Valley Field Force:—

	AGE.						Total.	SERVICE.						Total.
	Under 20.	20 to 25.	25 to 30.	30 to 35.	35 to 40.	40 and over.		Under 1 year.	2 to 3.	4 to 5.	5 to 10.	10 to 15.	15 and over.	
	Number of men	5	138	188	256	133		26	746	...	82	72	154		255	183	746

Up to the 13th May the admissions were only 2.62 per cent. per mensem, and there had been no deaths. On this date a draft, 106 strong, joined from England, the composition of which was as follows:—

	AGE.						Total.	SERVICE.						Total.
	Under 20.	20 to 22.	22 to 25.	25 to 30.	30 to 40.	40 and over.		Under 1 year.	2 to 3.	3 to 4.	4 to 5.	5 to 10.	10 and over.	
	Number of men	3	36	47	18	2		...	106	4	71	27	2		...	2	106

From and after the 13th May the sick list of the regiment greatly increased, and the men suffered severely on the march to Abbottabad, both from cholera and fever; but, as Dr. Tippetts remarks, the young soldiers of the draft suffered out of all proportion to the others, as is shown by the following:—

	Strength.	Total Admissions.	Total deaths.	Proportion of deaths to strength per cent.
Men of regiment	746	218	25	3.35
„ of draft	106	86	15	14.15

Out of the 25 deaths among the older soldiers, 21 occurred from cholera, and one man was murdered at Basawal, so that only three men out of 746 died from ordinary causes, as against seven out of 106 among the draft, eight of the latter having died from cholera.

1-17th Regiment.—Dr. McWatters reports that on the 20th January 55 recruits joined the head-quarters of the regiment, their average age being 20½; and service 1½. Of these, up to the 21st July, three men died of disease.

On 21st March 71 recruits joined from England, their average age being 21½ and service 1½; of these five men have died—two from cholera, and three from fever or its effects, and he writes that the average daily sick rate per cent. of strength has been 16.7. No exception is taken to the quality of these recruits, who are stated to have been a fair sample, except that “they were too young and not sufficiently acclimatized for field service;” and his returns show that they suffered severely from the usual diseases of a campaign. It is noteworthy that the cases of enteric fever occurred almost exclusively among these recruits. Diarrhoea was pretty general in the regiment, but occurred to an excessive amount amongst the younger soldiers. Dr. McWatters expresses, however, an opinion that soldiers of the class-denominated “old Indians” are not the best on service, but men of from 23 to 26 years of age, and with only two or three years’ Indian service. These endured fatigue more cheerfully and with less injury to health than men of any other class.”

1-25th King’s Own Borderers.—Dr. Evatt reports that the young soldiers suffered from illness in a far greater proportion than the more seasoned men. He says it appears to be a mistake to allow any soldier under twenty-two years of age to go into the field, and that from that age to thirty seems to be the best for men on active service.

A draft that joined from England in January suffered very much, and since the return of the regiment to the Peshawar Valley the cholera pressed heavily on these men.

The young soldiers chiefly fill the hospitals, while older men are prone to break down altogether.

72nd Highlanders.—Dr. Cotton believes that soldiers under 22 were far less efficient than those between that age and 35. The younger soldiers fell out on the march in a larger proportion, and suffered from ague and remittent fever.

1-12th Regiment.—Dr. Andrew avers that the chief difference between young and old soldiers on service as regards disease consists in the increased liability of the former to attacks of enteric fever, there having been six deaths from that cause among men under 23, and only one among those over that age.

2-60th Regiment.—Dr. Burges having made some long and trying marches with the 2-60th and part of the 59th, nearly all of whom were seasoned soldiers, reports that he had only two men falling out, both of whom were immature boys lately joined. He considers that young and immature soldiers, up to the ages of 21 or 22, are unable to stand the fatigues, hardships and privations of a campaign.

51st Light Infantry.—In this regiment the greater number of admissions and deaths occurred first in the soldiers under one year’s service, and next in those of from one to two years. It is added that, “owing to the immature age of a great number of the men, they succumbed under privation and climate, and were less able to undergo fatigue than the older soldiers, as noticed during the very trying marches from Afghanistan to Peshawar.”

1st Squadron, 9th Lancers.—The men composing this squadron were nearly all of mature age, and suffered very little from sickness of any kind.

The 2-8th Regiment arrived in India in December 1877, and was stationed in Rawal Pindi up to the time of taking the field. Dr. Gibson reports that, on assuming medical charge of the regiment, he inspected and found it composed of a great number of young soldiers lately recruited, of some who had served for five or six years at home, and a small number of veterans, volunteers from the 1-8th Regiment.

The young soldiers were anæmic and suffering from the effects of their first hot season in India. About 220 of these were left behind at Rawal Pindi as unfit for service, and 690 joined the Kuram Field Force.

After the first day’s march, those who fell out were almost exclusively the young soldiers. The number of sick amongst this class increased rapidly, and when the regiment marched into Kohat (106 miles), 125 men were in hospital, and 25 more had to be carried, making 150 inefficient on that day.

The regiment remained three weeks at Kohat; 140 men who had been left behind at Rawal Pindi joined head-quarters, marching with the 72nd Highlanders. The officer commanding the detachment told Dr. Gibson that they were quite unfit to march with such seasoned men as the 72nd; and when the column entered Kohat, only 38 of the 140 men were with it, the rest being either in hospital or straggling in the rear, and 23 men had to be immediately admitted to hospital. 140 men were left behind at Kohat as unfit, and on arrival at Thull 70 more were carried, although the marches were both short and easy; 90 men were left behind at Thull; thus a third of the regiment had been left behind before field operations had been commenced or any privations had been endured. Nearly

all these men were young soldiers, both as regards age and service. He adds, however, that the young men of the regiment were well made and deep-chested, and that in two years they will probably develop their powers of marching and endurance; further, that soldiers under 22 years of age are not suited for field operations in India.

4th Rifle Brigade.—Surgeon-Major Wood reports that soldiers of the 4th Battalion Rifle Brigade, in the late campaign in Afghanistan, who seemed to be of immature age, were chiefly those of a draft which joined from England in April last. According to a regimental return, 10 men under 23 years of age accompanied the battalion into the field; and of the draft 132 men were stated to be under that age: total 142 men under 23.

The draft arrived at Bombay on the 19th February 1879, numbering 309. By the time it arrived at Peshawar, in the end of March, it was reduced to 262, chiefly from sickness. The journey from Bombay to Jhelum, and the march from Jhelum to Peshawar, even in the month of March, had proved trying to the men.

When the draft arrived at Peshawar, the boyish appearance and small average size of the men were subjects of remark. Some 45 men were brought before a medical board as to fitness for the field; only 10 were pronounced by the board unfit or sent to hospital. The draft marched from Peshawar for Jellalabad on the 3rd April 240 strong, having left 12 more men at Peshawar. It reached Jellalabad on the 10th April with 233 men, having left 7 men in hospital on the way. On the 14th April the battalion reached Safed Sang, where sickness began to be more prevalent. Between the 10th April (when the draft joined) and the 30th April there were 68 admissions out of a total of 160 admissions from the draft to the regimental or the field hospital. When in the end of April the entire battalion, then 738 strong, was inspected by a special board of medical officers as to the fitness for an immediate advance upon Cabul, under circumstances demanding endurance, without tents and with a minimum of baggage, 75 of the 197 men rejected belonged to the draft, or nearly a third of its number.

Of 13 men who died of fever in the campaign, all towards its close, eight were young soldiers of the draft.

Of 67 cases of cholera which occurred on the return march, 27 occurred in men of the draft.

Of 30 men in all who died of other diseases than cholera during the campaign and on the return march, 13 belonged to the draft.

Of the total of 87 deaths in the campaign and return march, 36 occurred in men of the draft, who had been in the field less than three months, and had not taken part in any of the trying expeditions in which the battalion had been engaged—the second expedition to the Bazar Valley, that to the Kunar Valley, and the first and second expeditions to the Lughman Valley.

“Up to the present date, as far as I have ascertained from head-quarters of the battalion, the draft which landed in India six months ago has lost by deaths 43 men.”

Strength	...	...	...	...	739
Deaths other than cholera	...	...	...	...	30
Ditto in draft	...	...	...	...	13
Cases of cholera	...	...	...	...	67
Ditto in draft	...	...	...	...	27
Deaths from cholera	...	...	...	...	57
Ditto in draft	...	...	...	...	24
Total deaths during campaign	...	...	...	...	87
Ditto in draft during campaign	...	...	...	...	36
Ditto ditto since landing in India	...	...	...	...	43

Surgeon-Major Catel, 10th Hussars, reports that the regiment consisting of old soldiers, the youngest of nearly two years' Indian service, was joined at end of January by a draft numbering 66 from England, many of whom were growing lads. Later, when an advance on Cabul without camp equipage, most of them were weeded out of the advancing column as unfitted for the work.

The results are best shown in a tabular form:—

Young Soldiers.

Ages.	Strength.	ADMISSIONS.			Days in hospital.	
		Cause.	No.	Ratio to strength.		
Under 20	3	Diarrhoea	6	200	166.6	127
		Pulmonary (bronchitis)	1	33.3		
		Fever, Mal.	1	33.3		
		Diarrhoea	3	33.3		
20 to 21	9	Pulmonary	2	22.2	77.7	87
		Fever, Mal.	1	11.1		
		Others (jaundice)	1	...		
21 to 22	23	Diarrhoea	4	17.3	30.4	75
		Bronchitis	1	4.3		
		Fever, Mal.	2	8.6		
22 to 23	15	Diarrhoea	2	13.3	26.6	86
		Others (boil)	2	13.3		
23 & over	16	Diarrhoea	2	12.5	18.75	18
		Fever, Mal.	1	6.25		
	66		29	43.9		553

Seasoned Troops.

		ADMISSIONS.			Days in hospital.
		Cause.	No.	Ratio to strength.	
Average	... 401	Diarrhoea ...	60	14.9	892
		Pulmonary (Bronchitis Pneumonia ... 22 ... 6)	28	6.98	512
		Fever, Mal. ...	45	11.2	789
		Rheumatism ...	14	6.2	581
		Others ...	11		
			401		158	39.4	2,274

The excessive ratio for boys under 20 of 166.6 per cent. is very striking, steadily diminishing in yearly increments to 18.75 for recruits above 23 years of age.

The chief cause of disability was diarrhoea, ranging from 200 per strength per cent. to 12.5 in proportion to age.

Ague, from which all the Rawal Pindi troops suffered throughout, affected the recruits in a much less degree.

Comparing the ratios for period.

		RATIO OF ADMISSIONS.			Total.	Average days in hospital.
		1	2	3		
		Diarrhoea.	Pulmonary.	Fever, Mal.		
Recruits	... ..	25.75	60.6	7.57	43.93	19.6
Seasoned troops	... ..	14.9	6.98	11.2	39.4	8.87

A marked tendency to pneumonia, the result of previous malaria, among the seasoned troops is indicated in the above. Total percentage from all causes 43.93 as against 39.4, and days in hospital 19.6 to 8.87.

It must be borne in mind that all slight cases were treated in camp, and therefore this report does not show the amount of sickness, but is rather a measure of its severity.

1-25th Regiment.—Surgeon-Major McNalty reports that the 1-25th marched from Jumrood on the 21st March last and returned to India on the 31st May, arriving at Peshawar, on the 1st June 1879.

There were some old soldiers in the 1-25th, and two-thirds of the men who had to be sent to the hills on one occasion from Lundi Kotal were men of long service. There were but few immature soldiers in the battalion, and no privations, properly so called, were encountered by the corps during the late operations.

Until cholera appeared, the principal diseases causing inefficiency were diarrhoea, dysentery and fever, all attributable to an unhealthy camping-ground, exposure, and a changeable climate; and men of all ages and service appeared to be pretty equally affected at Lundi Kotal.

There was very trying work in the Khyber Valley entailed by convoy and night duty, and the men suffered proportionately, not so much at the time, but subsequently from the after-effects, at Peshawar, particularly the younger men.

He estimates the average age of the battalion as it marched, 685 strong, from Jumrood to be about 22½ to 23 years, with a service of 4½ to 5 years. A draft of 141 men, including many young soldiers, from England joined the battalion at Lundi Kotal about a month previous to the return of the corps to India; they had, however, hardly any convoy duty to perform, as about this time the furnishing of escorts devolved exclusively on the Native troops. A relatively large proportion of this draft suffered afterwards at Peshawar from cholera.

Dr. McNalty adds that a soldier must be considered young at least for Indian service until he is 23 or 24 years old; before this period he is more subject to climatic influences and that great source of disability in this country,—enteric fever.

"From 24 to 35 years of age the soldier is at his best, and has the greatest power of endurance; after 35 he begins to fall off, unless indeed he has been made a non-commissioned officer. On the whole, I am in favor of the comparatively young soldiers with a leaven of older men, so as to bring the average to 25 or 26 years of age."

The deductions arrived at by Surgeon-Major McNalty are—

"1. The very young and old soldiers are both most liable to break down under fatigue, climate, and exposure incidental to field service.

"2. A soldier must be considered young for service in India under 23 or 24 years of age.

"3. Twenty-two years of age would be the fittest period of life for the soldier to proceed to India.

"4. The soldier, for his first year in India, should be located in as healthy a station as possible.

"5. The soldier's service in India should be limited to six years.

"6. Young soldiers are peculiarly susceptible to typhoid, but cholera equally affects soldiers of all ages.

"7. A modified short service would be the best calculated to meet the requirements of India."

Surgeon-General J. F. Beaton,
M.D., Indian Medical Department.

The division of the Bengal Native army into young and old soldiers is technical rather than real. Taking ten regiments at random, the figures are given in the subjoined table, an examination of which will demonstrate the fact that the vast majority in the ranks are of the age when men can give, most easily, strength, energy and endurance to their work, without experiencing much injury to health, or *élan*.

The only men of the Native army who are really located in the hills are Goorkhas; they are actually at home when there, and, as a rule, service in the plains tells at first, at any rate, more upon them than on the average regiment which may have been cantoned at an ordinarily healthy station in the plains. Some of this liability to an enhanced rate of sickness is, in my opinion, connected with circumstances capable of being largely obviated, and in chief by affording special facilities to them for obtaining meat rations and spirits in the moderate quantity which they are in the habit of using under ordinary circumstances.

The effect of the climate of Peshawar, and of other stations in the district, is certainly unfavorable to the health of the Native army, acting apparently with an increasing power as the period of residence is protracted. The real measure of the evil influence cannot, however, be every truly gauged by the figured returns; but the truth is revealed when a call is made upon men long subjected to the climate of the station and district.

The intervals of respite between one fever season and another are shorter there than elsewhere; and it would be too much to assert that any year has been a healthy one. The consequence of this more frequent liability to fever is structural derangement of important internal organs, making a rally improbable during the short season of comparative immunity.

The cold season of the Northern Punjab acts beneficially on a man who is simply pulled down, but has received no real wound in important organs; under opposite circumstances, it may be actually hurtful to the recovery of health. I append a table showing the statistics of the Native army in the Peshawar district, putting alongside of it for comparison the figures for the remainder of the presidency, excluding Lower Bengal.

The beneficial influence of residence in the hills of Northern India has always seemed to be very unduly appraised. A healthy man going there during the hot season escapes the *désagrémens* of the plains; and is no doubt very happy in the double enjoyment of a more out-of-doors life, and escape from the routine of duty. But this is a comparatively slight advantage after all, and yet I believe it is the most that can be predicated as the probable result of six months in the hills, at the season when the privilege is obtainable.

There are, however, cases, which do derive very striking benefit, those, namely, where every organ is in good working order, and only debility after acute attacks of fever remains. Also instances of rheumatism contracted in the plains are capable of being greatly benefited by residence over a winter in the hills.

From these sentiments it follows necessarily that I rate the beneficial effects of hill climates much more highly as a prophylactic than as a curative agency, and that, therefore, residence aloft is more desirable for the recruit than for the old soldier hit heavily by sickness. In their cases the effect may be to a limited extent advantageous; but it is palliative only, and simply postpones, without any real compensating benefit, the final measure of change to England.

Young soldiers now-a-days are rushed from ship to barrack by means of railways, and often reach their station when the circumstances of the hot season make confinement to barracks almost compulsory; whereas formerly, when they came out by long sea, and marched to destination, they were hard and fit, and almost experienced in the best modes of securing health in India, before they joined their corps. My belief is that no more effective sanitary measure could at this moment be adopted in India than recurring to the system of marching during reliefs. Not only does camp life prove physically most beneficial, but the soldier has no longer to contend with the distressing sameness and ennui of barrack life; or to endure the monotony of unceasing drill and manœuvring during the season when he should be chiefly employed in recruiting his health, by literally living in the open air with the smallest restraint consistent with the maintenance of discipline.

YEARS.	PESHAWAR DISTRICT.					ARMY EXCLUDING LOWER BENGAL.				
	PER CENT. OF STRENGTH.					PER CENT. OF STRENGTH.				
	Daily sick.	Admissions.	Deaths.	Invalided.		Daily sick.	Admissions.	Deaths.	Invalided.	
For discharge.				Change of climate.	For discharge.				Change of climate.	
1873	4.38	117.1	2.26	7.5	2.4	4.08	131.2	1.5	4.6	1.9
1874	4.9	194.1	1.67	4.6	2.6	4	137.3	1.1	3.6	1.4
1875	4.5	180.5	2.3	3.6	4.9	3.8	126.1	1.5	3.3	1.9
1876	4.8	213.2	1.7	4.2	3.7	3.7	133.3	1.2	2.8	1.6
1877	3.7	162.7	.94	2.7	1.2	3.2	108.4	1.1	2.5	1.4
Average of 5 years	4.45	173.5	1.77	4.5	2.9	3.75	127.2	1.3	3.4	1.6
Difference	.70	46.3	.47	1.1	1.3	...	...	...	...	...

Surgeon-General C. A. Gordon,
Principal Medical Officer, British
Forces, Madras.

(1st) I cannot provide data from the experience of the late campaign of the relative capability of young and old soldiers to endure fatigue and exposure. But taking advantage of the scope for remarks, which appears to me to be given by the instructions of the Commission, I would preface what is to follow by the observation that over and over again, during the different wars in which British troops as well as those of other nations, European and American, have been engaged, the point has been demonstrated that young men as soldiers when employed in their own native country on mere field operations are more active, and, in some respects for a short time, more enduring under fatigue and exposure than are the older men; but that the reverse happens if exertion and exposure are of a more arduous nature, even in their own country, and in all cases where men, who are Natives of a temperate climate, are subjected to the trials of military service in semi-tropical climates such as India. Unless, therefore, the experience of the recent campaign in Afghanistan negatives the result of previous experience, the point, as just indicated, may, I consider, be held as fully confirmed and established.

This subject has engaged my attention for a number of years past, and more specially since the period of the mutiny. The result of my observations and remarks regarding it are embodied in the annexures to this document marked A, and to it I desire to refer the Commission. Besides, however, what is adduced therein, I trust the following remarks may not be without interest with reference to this subject. The question of the relative efficiency of young soldiers and old is itself old as your early campaigns in India. A reference to the history of the period from 1750 to 1798* gives numerous instances of the immense cost in life of the young men of various European nationalities, who, then under engagement for three, five and seven years only, underwent the campaigns connected with the wars then proceeding in Southern India; as also the circumstance that the system of re-engaging soldiers at enhanced bounties for longer periods of service in India arose from the experience thus acquired; and that when in 1797 a proposition was made by Lord Cornwallis to transfer the local European forces of the Company to the Crown, the measure was thrown out, for the reason that, were it adopted, new levies would arrive in numbers in India to replace the *old seasoned* troops then in the pay of Government. It is thus rendered apparent that the system now in force, of having in this country an army principally composed of very young men, is simply a reversion to that which experience had condemned before the present century began. The circumstance also should be noticed that the main purpose intended by the Act of Parliament of 1806 named after Mr. Wyndham, by which pensions were granted to soldiers according to length of service, was to ensure a large proportion of men inured to discipline and conditions of military life being available with their colors. It appears to me that historical references of this kind are important in regard to inquiries like the present. I would formulate, as follows, some of what appear to me the principal objections against the existing system of an army of young soldiers in India as against that of long service men, having reference to sanitation and in connection with the professed scope of the present enquiry, *viz.*—

(a) A large proportion of young lads, such as now arrive in India, are physically unequal to the strain of active service, and, consequently, while they continue so, are not only useless, but receive pay for work that they do not and cannot perform.

(b) Many such have to be sent to hill stations, there to pass one or more years, that is, to all intents and purposes, to be retained in *nurseries* until their physique develops sufficiently to admit of their performing duties for which during the interval they have drawn pay.

(c) Inasmuch as individual regiments have certain duties to perform, to a considerable degree irrespective of the number of effective men present, it follows that the more there are absent at hill stations and otherwise, the heavier become the duties upon those at head-quarters, and in proportion the greater is the wear and tear upon them.

(d) If the ratio of deaths among young soldiers is less than was formerly the case, that of invaliding has increased so enormously that the actual amount of non-efficiency by these combined causes is really greater than it was fifty years ago.

(e) The expenses of transport of troops from and to England has increased to an extent beyond what would, as far as I can judge, supply the means of continuing liberal pensions to old soldiers as formerly; while, if my views are correct, the combined effect of youthful recruiting and short service with regard to India has been to more than counterbalance the effects of all that has been done for the benefit of the soldier in the way of improved sanitation during the last twenty years, including palatial barracks, increase of hill stations, &c., &c.

With regard to this subject, I would lay stress upon the circumstance that, as in regard to some other points of vital statistics, the doctrine of *averages* is not only insufficient in itself but absolutely misleading with regard to actualities, as more fully explained in annexure A. As a matter of fact, some men maintain their health and military efficiency much longer than others; some are in better health in India than they are in England, although of course their number is comparatively small; and as in the case of officers, so there is no reason to doubt that in that of men a year or two at home, say with a depot or linked battalion in the case of soldiers after six or eight years' service in India, would re-establish their physical powers, and by enabling them to continue their service, thus maintain to

* The following particulars regarding the period for which, at the time mentioned, soldiers in India were engaged, and the amount of bounty given, have been kindly communicated to me by Colonel W. Wilson of the Madras Army; they will doubtless be of interest to the Army Organization Commission, namely,—

1760, five years; bounty £10 per man.

1781, Swiss Companies engaged for seven years from date of landing.

1787, Volunteers from Her Majesty's 89th enlisted for three years; 10 pagodas bounty.

1764, Volunteers from several of Her Majesty's regiments in India; 10 pagodas for five years, 5 pagodas for three years.

1788, three years fixed as the period of service; bounty 15 pagodas.

1798, January. The short service having been found to be of no advantage in any respect, but, on the contrary, to be disadvantageous and inconvenient, the term of five years was reverted to; 25 pagodas bounty.

Government a more efficient fighting machine than does the present system, and that too at a diminished cost.*

(2nd) With regard to the first part of this question, namely, the value of hill stations to health, I reply thus: Experience has amply shown that, as in the case of officers and their families, so with soldiers and theirs, their chances of maintaining their health in the cool climate of hill stations is, as a rule, considerably greater than in the hot climate of the plains; nevertheless, that this rule must be accepted with certain limitations and provisos. An adult to derive full advantage of a hill climate in India must be free from organic disease, not of relaxed or scrofulous diathesis, and functionally sound as regards circulation and respiration; even then the change of atmospheric conditions by no means seldom induces an attack of illness of one kind or another, the liability to suffer being in proportion to the length of time the person had previously resided in the plains; while again, persons are by no means seldom met with who, beyond doubt, enjoy better health in every respect in the plains than in the hills. The circumstance is notorious that young children, whether of soldiers taken from the plains to hill depôts, or of officers taken to these resorts, sicken and die in very large proportion, often indeed larger than what happens to those who remain in the plains; nor is the further important fact to be omitted that among all classes of persons, whether young or old, the danger is considerable to them of being attacked with illness on their again descending to the plains, and particularly so to cholera, whenever that disease is prevalent in the district to which they proceed. It may also so happen that, in consequence of a particular season being unhealthy at a hill station, and healthy at a plain station, of a body of recruits arriving from England and sent partly to the one and partly to the other, those who pass the hot season in the plains may at the end of it be in a better state of physique than such as were in the hills; this I personally observed at the beginning of 1878 in respect to Wellington and Secunderabad. Thus we find in reality that the advantages to health which hill stations undoubtedly possess are by no means without their counterbalancing drawbacks; that in fact actual occurrences indicate the necessity of our not expecting too much from hill climates.

With regard to the second portion of the question, namely, as to the effects of stations like Peshawar on the health of regiments taking the field, I can only reply with reference to past experience and observation. Taking Peshawar as an example of what is called a malarious station, at which soldiers, if resident for a considerable length of time, become affected with diseases so designated, the result is that the longer the residence at such a station, the larger the number of men who suffer, the greater the extent to which malarial cachexy, with or without organic disease, becomes confirmed, and thus the fewer the men whose condition enables them to undertake active military service. No doubt the excitement of the field has, in some instances, a remarkable effect upon the physique of individuals, and, on such occasions, some recover their health in a remarkable way; as a rule, however, conditions are more or less nearly such as I have here represented them.

(3rd) My views on the subject of hill stations generally have already been expressed at considerable length, and doubtless my observations on the subject may be obtained as published, should the Army Organization Commission so desire. My opinions with regard to the question of the value of those sanitarium are in part given in the preceding section of the present paragraph. For the sake of convenience of reference however, I summarize them as follows, namely,—

(a) They do not afford to the troops occupying them complete exemption from the fevers more particularly incidental to the plains, although those occur at such sanitarium in decreased frequency and severity as compared with the low country.

(b) Neither are they exempt from epidemics such as prevail in the plains.

(c) When regiments are sent to them from stations in the plains at which they have been visited by severe sickness, the healthy acquire bodily vigor, but the weakly, particularly such as suffer from derangement of the bowels, suffer severely. The higher the elevation and more northern the latitude, the more apparently are the latter class affected perniciously.

(d) In the case of regiments sent to a northern hill station a couple of years after sustaining an outbreak of cholera in the plains, and having passed the interim at unhealthy stations in the plains, the loss by death during the first year at the hill station has exceeded that of either of the intermediate years.

(e) The winter season severely tries men affected with the *sequela* of fever or with organic disease; this applies more to the hill stations in the north of India than to Wellington.

(f) The liability of men who had suffered from periodic fever at Peshawar to be attacked with rheumatism and otherwise be perniciously affected at a hill station, if sent direct to one, was so definite, that in 1854 the plan was adopted of sending such men in the first instance to Ferozepore as an intermediate stage, and, as is recorded, with good effect.

(g) It has so happened that a regiment which has suffered severely from fever in the plains and been sent to a hill station in the hope of getting rid of it has, after a short interval, sustained a more severe attack of that disease than it had in the plains.

(h) As a principle, the climate of a hill station is well fitted to preserve a regiment in good health if sent there direct from England, or after a short residence in the plains.

* The above remarks were written on 19th August 1879. On 23rd of the same month, the subjoined telegram dated, London, 21st, was received, namely—

The preliminary report of the Committee appointed to enquire into the organization of the British army recommends the abolition of linked battalions and the institution* of regimental depôts. Soldiers completing six years' service will be allowed to complete a twelve years' agreement. Certain advantages will be offered to soldiers in India prolonging their service with the colors. The abolition of the compulsory transfer of officers and men from regiment to regiment, the limitation of the volunteering system and the re-establishment of pensions is recommended. The evidence is unanimous as to the necessity of lengthening service in India.

Taking the information thus received as indicating the fact that such arguments as those adduced by me in Appendix A and by the other old officers whose views are collected in proceedings of the Madras Government, Military Department, dated 24th November 1876, have made themselves acceptable to the authorities at home, and thus led to the abolition of a change in the circumstance will, I trust, add weight in the eyes of the Commission to the views I shall express further on in this document against some other recently introduced innovations, to the more or less complete abrogation of conditions that had grown up to meet requirements of service in India, and which, as a matter of fact, completely and satisfactorily fulfilled all such requirements.

† Army Hygiene: Gorlon, page 320; and *Medical Times and Gazette*, 1868, pp. 95 to 168.

(a) Those who are beginning to suffer or whose constitutions have been lowered by residence in the plains will generally derive benefit from a residence in the hills; but those whose constitutions are severely affected, or who suffer from organic disease, will not.

(f) For these reasons, the effects of removing an old service-worn regiment to the hills are not desirable, as visceral diseases are prone to occur in a large proportion of the men.

(k) Such stations are admirably adapted for the acclimatization of the men of newly-arrived drafts and regiments, for strengthening young recruits, and for the restoration of convalescents and of men lowered by certain kinds of disease.

(l) But there are several diseases to persons affected with which hill climates are directly inimical, consequently such cases are, under existing regulations, prohibited from being sent to those places.

(m) Hill stations, by enabling a person to pass through a hot season and to proceed home, thus undoubtedly save lives that would otherwise perish.

(n) It has been observed that regiments suddenly brought from a hill station to the plains had there to undergo a process of *acclimatization* somewhat similar to a regiment fresh from England.

(o) That "there is nothing more calculated to bring Indian hill stations into disrepute and deprive them of the reputation they deservedly enjoy than to over-estimate the merits of their climates"; also that "hill stations for European soldiers had been found somewhat 'disappointing,'" and that "the character attached to the Simla group as a residence for soldiers is less decidedly favorable than had been anticipated."

(p) The general result of observations is that hill stations are in their influence not so much curative of diseases as preventative.

(q) A considerable number of instances are related in which sickly regiments on being moved to healthy stations in the plains, as Rawal Pindi, Bareilly, and even Dum-Dum, recovered their health more speedily and completely than did others sent to hill stations.

(r) As a matter of fact, not only has the ratio of mortality been less in some regiments occupying stations in the plains than of others in the hills, but during the campaign of the mutiny some of the regiments, including all three branches of the service that performed the most arduous service, had never been at a hill station during their period of service in India, amounting in some instances then to fifteen years, while the two regiments that were brought from the hills and immediately exposed to the fatigues of service suffered very severely.

(s) Except, therefore, in the case of young and immature lads, I believe that careful selection is required of cases suitable to the hills, and that no general removal of sick men to such stations is proper; also that, as already remarked, the effect to be looked for of those climates is not so much curative as to prevent the occurrence of illness, and, in the case of young recruits, to enable them to grow into men.

ANNEXURE A.

No. 4, dated Madras, 30th October 1876.

From—SURGEON-GENERAL C. A. GORDON, M.D., C.B., Honorary Physician to Her Majesty, &c., &c., &c.,

To—BRIGADIER-GENERAL R. C. STEWART, Adjutant-General, Madras.

I have the honor to acknowledge receipt of your letter (Confidential) No. 2027, dated 17th October 1876, conveying a copy of a despatch from the Secretary of State for India, on the subject of enlistment, length of service, and re-engagement of British soldiers in India, and requesting my opinion thereon.

2. As enumerated in your letter, the points upon which more particularly my views are solicited are the following, *viz.* :—

(a) At what age is the British soldier of naturally sound constitution of the greatest value in India, considering the nature of the services that may at any time be required of him;

(b) As to the actual age of the individual, and period of residence in India, and how far the most efficient age is affected by length of service in this country;

(c) As to the age and length of service in India at which a soldier of good constitution may be expected to deteriorate in efficiency to such an extent as to render his continuance on the effective list no longer advantageous to the service. In this are to be considered, in reference to their value, military experience, habits of discipline, and all other qualities that go to make a good soldier.

3. In more than one of my published works in connection with army sanitation, I have discussed the relative advantages and disadvantages of young and old soldiers, with reference more especially to the requirements of military service in India.

To the data there brought forward I shall now refer, in order that the grounds upon which I arrive at my conclusions in regard to this important question may be made clear, being well aware that officers of high reputation and of much experience hold opposite views upon it.

4. I premise that the term young soldiers, according to my view, is intended to apply to such as are as yet immature in physical development. Inasmuch, therefore, as the period at which a man attains full physical maturity varies according to nationality, it follows that, while in one country a soldier might be considered young, in another a man of precisely the same age would not be so. Thus, while a Greek or Roman soldier is considered to be fully mature at twenty-three years of age, a German, Frenchman, or Briton is considered not fully mature until he reaches the age of twenty-five to twenty-six.

5. It is also necessary to observe the distinction that exists between the term old men and old soldiers. The old soldier, as observed by General Trochu, is the man of twenty-five to thirty years of age, who, while still retaining his bodily activity and *elan*, has the advantage of military experience, and especially so if he has served in war; the old man is he of thirty-five to forty years of age,

whose spirit and activity have alike failed, and who, in re-engaging, has no further interest in the service than to pass the requisite number of years to entitle him to his *retraite*.

6. It is further considered desirable to observe that, not only is the existing difference great in the climatorial and other conditions affecting military service in India as compared to those in the United Kingdom, but that this being the case, it is fair to expect that the physical state of soldiers must be modified accordingly.

7. The principal sources of military non-efficiency are undoubtedly sickness, mortality, and invaliding. It by no means happens that all these bear a constant ratio to each other. Thus, there may be a high rate of sickness with small mortality and invaliding, or a small numerical rate of sickness with high death-rate. But, besides these, military non-efficiency may arise from incapacity on the part of individuals to undergo the fatigues incidental to service, and yet the fact not appear in statistics. Thus, men may fall out on the march, in some instances have to be carried, and so, to all intents and purposes be non-effective and a burthen in regard to an active force; while, at the same time, there may be nothing in their condition to justify or demand their admission into hospital.

8. Still another point must be alluded to, namely, the insufficiency of mere statistics by themselves to convey a correct impression of what they are often intended to do. Indeed, this fallacy of averages is alluded to in the despatch of the Secretary of State for India.

To illustrate my meaning: I observe that, if we suppose a certain number of soldiers to die or be invalided, say at the end of two years' service in India, an equal number at the end of ten years, we strike an average and find it to give the residence in the country as *six*, a conclusion really at variance alike with the facts on the one side and those on the other.

9. With these remarks I proceed to observe that the relative advantages of young and old soldiers for foreign and tropical service is no new subject; their relative merits and demerits were well understood in ancient times; there were so also in mediæval wars, but, for the purposes of this communication, it is sufficient to refer to more recent times.

10. The late Dr. Robert Jackson records the circumstance that, in the war preceding the French Revolution, several newly-raised regiments were sent from England to the West Indies; that, though not a man of them died by the sword, yet, in the short space of two years, there scarcely was a soldier of them left.

11. The late Sir James MacGregor, discussing the same subject, observes that, in the nine months from August 1811 to May 1812, the 7th Foot lost, also in the West Indies, by death recruits at the rate of 478 per 1,000, old soldiers at the rate of 67 per 1,000: the 40th Foot at the rate of 231 of the former and 59 of the latter.

12. General Changarnier expresses* himself strongly on the same point. Writing of young men, he observes: with such a system, we may have troops of tolerably good appearance, but soft on occasions of fatigue and privations. Were they, he adds, extemporized soldiers, those 50,000 men who, under General Bonnaparte, in the course of fifteen months, gave an account of the Piedmontese and Austrian armies? Were they newly levied, those 130,000 soldiers who, marching from their camp at Boulogne, quickly invested Ulm, and a few days later entered Vienna? And he continues, writing of citizen or young soldiers: "Troops composed of such materials lose many more men by prolonged marches and bivouacs than by the fire of the enemy." Well, therefore, does he put the query—"Are these the armies called economical?" He next quotes the distinction drawn by the first Napoleon between young and partially trained lads for purposes of national defence and those for aggressive war—

"A country never is wanting in *men* to resist an invasion, or to support a great war, but it is often wanting in *soldiers*." The contrast intended to be here drawn between the classes indicated by the words italicized is sufficiently apparent.

13. General Trochu† observes that Napoleon's soldiers who, in his successful war of 1806, including the battles of Austerlitz and Jena, consisted for the most part of men of twenty-five to thirty years of age, who, although young in regard to period of life, were old as soldiers and in experience also; that when in 1807 to 1809 the severe losses to which his armies had been subjected rendered it necessary to fill the ranks with young lads, he found that those immature conscripts became so many drags upon the more efficient part of his legions: hence his urgent demands upon the Senate to send him men, not boys. In his appeal, he gave no statistics of sickness, mortality, or invaliding; he preferred the logic of facts to figures. "Boys serve but to strew the roadsides and fill the hospitals." According to him, the service of the recruit should be extended to ten years, that is, until he has reached the age of thirty. The man should then be liable to serve in the reserve; a man is in his greatest strength from his thirtieth to his fiftieth year. That is the best age for a soldier. It is true that the armies of Napoleon, when these opinions were first expressed, had neither to perform service in India or Algeria, yet the views of such an authority are entitled to very great weight.

14. General Changarnier gives yet another example in illustration: "In 1812, the old army of Napoleon having been reduced to half its numbers before Moscow, he was forced to fill his ranks with conscripts, with the result that, notwithstanding all their devotedness, all their bravery and courage, they suffered more cruelly from the bivouacs and long marches than they did from the battles of Lutzen, Bantezn, Dresden, Leipzig and Hanau.

15. In Chapter XX of my work on the Hygiene and Surgery of the Franco-Prussian War, I collect such particulars in regard to the relative military efficiency of young and old soldiers as the experience of that great campaign enable me to gather. I observed in that chapter that the superior physique of the German as compared with the French soldiers has been dwelt upon by all who have written on that war; as also the superiority thus possessed by the former over the latter on the march and in battle.

It is added that, although hand-to-hand fighting seldom took place, yet, when it did, the odds were in favor of the muscular German. The little Frenchman recoiled like so much India-rubber before the straight, sturdy shoulder-thrust of the Prussian. Of those who were first sent to the frontier to bear the first brunt of the fight, a great number were men of twenty-eight to thirty-five years

* Un mot sur le profit de Reorganisation militaire, Paris, 1867.

† L'Armée Française en 1867.

of age, who had taken part in the campaign of 1866. A contrast is also drawn between the military qualities of the old tried French soldier and his countryman the newly-levied recruit. Eye-witnesses have narrated the obstinate struggles of regular soldiers of the French army against their opponents at Gravelotte, Orleans, and Sedan, and contrasted therewith the results when recently-raised and inexperienced levies, such as constituted the army of the Loire, found themselves opposed to soldiers inured to battle.

It is observed by correspondents and others on the spot that, when that army of young recruits was defeated at Beune la Rolande, the great difference between them and trained soldiers was no less apparent after that reserve.

The difference between regular and trained soldiers was no less evident in regard to the defence of Paris against the Germans: so also the difference was observable in the fighting qualities of newly-raised levies in the early part of the siege, and of the same men later on in the defence, after actual experience had, in a manner, transformed them into old soldiers.

17. With special reference to India, I would repeat what has already been observed in regard to non-efficiency occurring among troops beyond what is indicated by mere statistics of sickness, mortality and invaliding. The circumstance is well known to officers of experience, and has been demonstrated in actual war, that young soldiers and those in their earlier years of residence in the country are less able to bear up against the fatigues incidental to long marches and exposure than are the older men and those of longer residence.

Not only had the first great check been given to the mutiny of 1857 before the young levies afterwards sent out had arrived, but, when in the latter part of that year, and in 1858, newly-arrived regiments came to operate in concert with those of longer residence, the contrast between them became very apparent.

Take, for example, the 10th Foot, in which I then had the honor to serve. It arrived in India in 1842, and had served continuously in the plains. The 84th was another *old* Indian regiment. Both these corps formed part of the field force under the command of Sir Edward Leger, G.C.B. They performed successive marches of great length, often in the day-time; and during the heat of April, May and early part of June they, on some occasions, fairly marched the rebel sepoys down and destroyed them; sickness among them was actually less than it was in some of the more recently arrived regiments that remained in cantonments; and the 10th Foot only lost two men by heat-apoplexy during a period of eight months in the field. On the 4th of June, the action of Chitowrah in the Jugdispore jungles took place. The regiments engaged on that occasion included the 6th Foot but recently arrived in India, and composed to a great extent of young lads, the 10th and 84th, formed almost entirely of old soldiers, who had been in the country eight, ten, and fourteen years. The occasion is selected for notice, for the reason that it seems to me to illustrate the question now in hand.

It is to be observed that the troops were employed in the open throughout the entire day, that the sky was clear, a fierce hot wind blowing, men and officers dressed only in their trousers and shirts, and that, from time to time as opportunity offered, all of us threw water over ourselves, and then proceeded until getting dry, we were glad to repeat the operation. Under such circumstances, the rebels were engaged, defeated, dispersed, and pursued to a distance of not less than two or three miles from the position they had taken up. The men of the 10th and 84th in fair pursuit overtook and bayoneted the fugitives. After a short rest under the shade of trees, they marched back to their camp, doubtless elated with success. Of the 6th, numbers of their men lay on the ground, fagged and unable to resume their march. They were placed upon guns, tumbrils and such other conveyances as were available. I remarked to some of these men that evening, from the Cape as they had come, they ought to have been better able to withstand the heat than they were; the reply was—"Oh! Sir, the heat of the Cape is nothing to this." These facts are related more at length in my book entitled "Experiences of an Army Surgeon in India."

For purposes of illustration, I take the published statistics of three periods in relation to which the sanitary and other conditions of our troops in India presented a very great contrast with each other. In the three years including 1815, 1816, and 1817, sanitation, although urged by army medical officers, obtained little recognition in comparison to what has of late years been accorded to it. In the last-named year, cholera prevailed severely among them; yet for those three years the ratio of deaths per 1,000 among British soldiers was 41.40, of invaliding 25.00, or a total rate of non-efficiency equal to 66.40 per 1,000:

The second period selected includes the three years 1864, 1865, and 1866. It succeeded one of the most virulent outbreaks of cholera on record. Sanitation had taken so great a start, that it may be considered to have been in fashion for the time being; long service was, however, still the rule, nor had the existing line of magnificent troop-ships been established.

We learn, then, that during this period of three years, the ratio of deaths per 1,000 man strength was 23.92, of invaliding 19.80, making a total rate of non-efficiency equal to 43.72. Amateur sanitary reformers, as they call themselves, were jubilant; hopes were expressed with a flourish that the ratio of non-efficiency was about to be reduced to a normal rate of 20 per 1,000. Army medical officers of experience, more guarded in their expressions, knew that after an epidemic usually comes a period of healthiness, for the simple reason that the more delicate and susceptible have been swept away. But at the same time they knew full well that climatorial and other influences affecting the health and life of aliens in India—as British are—remained unaffected.

The third period selected is that including the years 1869, 1870, and 1871. In addition to the fact that measures of army hygiene had been pressed on almost to their utmost; large and palatial barracks at some stations finished, the system of short service introduced, hill stations extensively utilized, transport home had been made easy by means of magnificent vessels already alluded to.

In this period, then, we learn that the rate of mortality was 2.3 per mille, of invaliding 46.11, or equal to a total rate of non-efficiency of 68.41 per 1,000 as against 66.40 in the period for 1815 to 1817; the result seems to me humiliating. I naturally ask myself: Whence comes the cause or causes of this neutralization of all the measures of hygiene that have at vast expense been brought into operation? And can only reply: To shortened periods of service in India and the constant influx into the country of young men that thus becomes necessary. That a similar explanation is virtually accepted as correct and acted upon is, I venture to submit, shown to be the case by the very advocacy

now so general of sending young soldiers to hill stations, in order that for a time they may be there nurtured in the hope of some day becoming fit for military service, for which, be it observed, they are engaged and paid during the very considerable time; in many instances they are, as it were, in those nurseries. Instances have occurred also calculated to raise a doubt whether residence in the hills does actually fit a soldier for immediate service in the field. The circumstance must be borne in mind that when in May 1857 the Bengal Fusiliers were suddenly marched from the Kasauli hills to proceed against the Delhi mutineers cholera attacked the regiment more severely than it did the 75th or other regiments that had been cantoned in the plains. So in the case of the 58th; when in 1869 that regiment was at Allahabad, cholera struck with greater severity the wing that had been at Sinchal than the other which had not been in the hills. The records of cholera generally indicate also that, as a rule, persons who have been longest resident in a particular locality visited by an epidemic of the disease are less liable to attack than the more recently arrived. There are exceptions to this rule, but this is the usual occurrence.

Such are some of the grounds upon which I have formed my opinion in regard to the subjects brought forward in the present correspondence.

These opinions gradually formed are very definite in my own mind; and, in so far as the questions by the Secretary of State for India are concerned, may be concisely stated as follows, viz. :—

- (a) That 25 to 38 is the age at which a British soldier of naturally sound constitution is of the greatest value in India, considering the nature of the service required of him. Under the former he is immature; beyond the latter his activity is impaired by advancing years and by disease.
- (b) Between the above limits I consider that the most effective period of service in India is between 5 and say 14 years' residence in the country. The young soldier of the former period has become accustomed in some measure to the climate and conditions of India. The old soldier of the latter may, it is true, be unequal to running drill and other rapid movements; but he can on a long march pass the younger soldier and fight under a hot sun, while the others crowd the roadsides and fill the hospitals.
- (c) I believe that after 38 years of age, or say 14 years in India, a soldier deteriorates to such an extent as to render his continuance on the active list in India no longer advantageous to the service, even taking into account his military experience and habits of discipline.

Maximum efficiency of the British soldier at a given age with respect to length of service in India.

	AGE.				
	Years.	Years.	Years.	Years.	Years.
	20	25	30	35	40
Years' service in India at which value of a soldier is greatest...	•	•	5	10	•

* *Vide sections (a), (b), and (c) above.*

It is difficult to place in a tabular form the conclusions arrived at in the preceding remarks; yet I trust that by themselves they are explicit.

Dr. G. Smith, M.B., Surgeon-General, Indian Medical Service, Madras.

(1st and 2nd) No data are available from the experience of the late campaign from which to furnish replies to the 1st and 2nd parts of question 4. The opinion is held firmly by all experienced medical officers that it is "costly, wasteful, and cruel" to expose lads to the strain of service in the field. The exigencies of war demand adult seasoned soldiers, not raw unseasoned recruits.

(3rd) The important hill station of this presidency is Wellington on the Nilgiri Hills, situated on the eastern side of the plateau. It has a moderate rainfall, and a clear dry and exhilarating atmosphere. Invalids and young soldiers can spend most of the day in the open air. Young soldiers enjoy good health at Wellington, and are less likely to have their physical development arrested than on the plains. The climate is beneficial to invalids suffering from climatic depression, debility, and nervous prostration, as well as to such as are convalescing from fever. It is, however, unsuited to persons suffering from well-marked organic disease of the brain, lungs, heart, liver, spleen, kidneys, bowels, &c. It is also prejudicial in cases of constitutional syphilis, especially if accompanied by affections of the bones and rheumatic complications. Hamorrhages from mucous surfaces are often increased by a residence on the hills. The recuperative power of the hills is generally over-estimated. It is certainly inferior in many cases to that secured by a furlough to England, and inferior in some instances to that which results from a prolonged sea voyage. Permanent residents on the hills frequently live to a good old age.

Deputy Surgeon-General J. M. S. Foggo, Officiating Surgeon-General, British Forces, Bombay.

Admissions into hospital during the late Afghan campaign.

Corps.	SERVICE IN INDIA.					
	Under 3 years.			Above 3 years.		
	Strength.	Admissions.		Strength.	Admissions.	
		Number.	Per cent.		Number.	Per cent.
63rd Regiment	174	23	13.22	756	165	21.83
1-1st Royal Artillery	32	21	65.62	109	87	79.83
18-8th Royal Artillery	29	8	27.59	66	22	33.33

From the foregoing table it is evident that in all the three corps, and in I-1st Royal Artillery especially, the sickness was greater among men over three years' service.

2nd.—No data.

3rd.—From having seen the benefits, I am strongly impressed with the value of hill sanatoria for invalids with certain diseases—notably for malarious fevers and for patients of climate-worn, and for those with functional diseases of the stomach, as well as for all with surgical diseases; and I am strongly in favor of all young soldiers, and of regiments first arriving from England, being stationed entirely in the hills to the fullest extent possible.

Dr. Colvin Smith, Deputy Surgeon-General, Indian Medical Department, Madras.

No information on this subject in conjunction with the late campaign can be given by me, except from hearsay.

(a) Young soldiers are always more apt to knock up sooner from fatigue and exposure than are old soldiers.

(b) Our hill station for troops, Wellington, is of the greatest value for men weakened by residence in the plains, and where there is no organic disease. Young soldiers have generally had extremely good health on these hills.

(c) Hill stations are valuable as sanatoria for invalids who have suffered from debility caused by residence on the plains, or from disease where there is little organic change; but when there is decided organic disease or syphilis, from my experience on the Nilgiris, I would recommend hill stations to be avoided, although I have known cases of (consumption) phthisis do very well on these hills. The health of young soldiers on the hills is generally remarkably good; and there is no doubt general health is preserved by residence on these hills.

Dr. J. Gibbons, Deputy Surgeon-General, British Forces, Meerut Circle.

No; as I consider in a military sense the European soldiers of the 1st Division, Peshawar Field Force, were not subjected to any undue fatigue or exposure.

Any exposure which took place was to the fierce Afghan sun during April, May, and June, the result of living in tents, which did not afford sufficient protection. This exposure, according to my observation, affected equally young and old soldiers.

There can be no doubt as to the beneficial value of hill stations on bodies of European troops; and this should be capable of direct proof from the vital statistics of the army in India.

The bad effect of previous exposure to the malarious influence of the Peshawar Valley was very marked in some of the regiments comprising the 1st Division, Peshawar Field Force. After a few weeks' service the 81st Regiment was placed *hors de combat*, and removed from the field;—the result of malarious fever and its concomitants. The Rifle Brigade was subjected to similar influences at Peshawar previous to taking the field. The cold nights at Dakka and common contingencies of service at once brought out the fever. The corps became unhealthy; and, with the 10th Hussars, which had suffered from malarious fever at Rawal Pindi, contributed during the campaign two-thirds of the non-effectives of the European portion of the force. The 14th Sikhs, a regiment of the Peshawar garrison, utterly broke down after a few days' exposure, and had to be removed to India. The Guides Infantry and 1st Sikhs during the winter months had from 70 to 100 men daily in hospital; their mortality was large, and in the opinion of the medical officer was directly influenced by previous malarial poisoning.

From an experience of some twenty years, I have come to the conclusion that hill stations, fall very short in accomplishing all the good we should reasonably expect from them, if constituted and administered more as healthy schools of discipline and exercise than as idle lounges for undisciplined boys and weakly, and I am afraid often lazy, soldiers. I believe, as at present constituted, they often exert a deteriorating influence on the *morale* of the soldier, and consequently that their advantages as health resorts are much in abeyance. In most of them the amount of military exercise,—I do not mean parades and drill, but military exercises in the broad sense in which the Romans understood the term,—is *nil*. Soldiers, with their food cooked for them, clothes washed, water drawn, barracks cleaned, are left without employment. Card-playing is rife at hill stations; and when any voluntary exercise is taken, it is too often in the pursuit of liquor about the *khuds* and secluded places. As long as hill stations are retained in their present form, as convalescent depôts, I believe they will not answer their purpose; and am of opinion, in order to develop thoroughly their use as health resorts, the better plan would be to send to hill stations regiments requiring restoration of health from service in the plains or at malarious stations and young regiments fresh from Europe, either entire or in wings, as accommodation exists and it is hoped will be increased. To every such corps or wing two or three convalescent companies should be attached, to consist of the class of men at present sent to the hills as convalescents, to be subjected, as far as health permits, to all the military duties of soldiers and the discipline which obtains in well-ordered corps. In the climate of the Himalayas I see no necessity for Native servants, with a single exception,—sweepers, and those engaged in conservancy operations. The men should draw their water, wash and mend their clothes, cook, garden—above all things, be instructed in marching and climbing.

Deputy Surgeon-General S. C. Townsend, Principal Medical Officer, Kuram Field Force.

The regimental medical officers who accompanied the troops in the field are generally of opinion that the young soldiers fell out on the march in greater proportion than the older and more mature men. But the statistics of the sickness and mortality of the regiments that have been with the column since it crossed the frontier afford no evidence that the severity of the climate, and the amount of fatigue and privation which the troops were called upon to endure, affected the health of the younger men more injuriously in comparison with the older men; on the contrary, both the admissions into hospital and the mortality among the men under twenty-three years of age have been less than among the older men. The truth is that the climate of Afghanistan has proved very suitable to the European soldiers of all ages, but especially to the younger men; and all officers, combatant as well as medical, agree that the young men of their regiments have improved greatly in physique since they entered upon this campaign.

The fault of the present system appears to me to be, not that the men are enlisted at too young an age, but that they are retained too short a time in the service. A youth enlisted at eighteen and taken from a manufacturing town, or even from a country district, and placed on good diet and under good training in healthy quarters in England, or in a hill station in India, will at twenty-one years of age probably be a stronger and better soldier than he would be at twenty-three if he enlisted at twenty. He will continue to improve in physique during the following three or four years; but unfortunately, under the present system, he leaves the ranks just when his physical powers have become most fully developed.

There can be no doubt that hill stations are favorable to the health of European troops; and it is equally certain that stations like Peshawar, in which malarial fevers at times prevail with severity, render troops, both European and Native, unfit to encounter the hardships and exposure of field service. I was at Peshawar in November last when the troops of the Khyber column were being assembled. The hospitals of the 14th Sikhs and 20th Punjab Native Infantry, which had been selected from the Peshawar garrison, were then unable to contain all their sick; and in the course of the previous month or six weeks nearly every man of each regiment had been in hospital with fever. The 14th Sikhs, however, suffered more than the 20th. Both regiments suffered severely from the hardships and privations to which they were exposed during the five weeks of the campaign; but the 14th became so completely ineffective, that it was necessary to send the regiment back; and when I inspected it on its return to Peshawar in the end of December, it had lost upwards of eighty men, chiefly from fever and pneumonia, during the five or six weeks it had been in the field. On the other hand, the 27th, which had been stationed at Nowshera, where fever had been only slightly prevalent, proved to be far better able to endure the hardship and exposure of the campaign. The experience of the Kuram column points in the same direction, but the evidence is not so quite marked. Of the two European regiments that were with the force during the period of active operations, the 2-8th Foot came from Rawal Pindi, the 72nd from Sialkot. Neither of these stations are in ordinary years unhealthy; but in August and September of last year fever was exceptionally prevalent in Rawal Pindi, though of a comparatively mild form. A large number of the 2-8th Foot suffered from it, and recurring attacks continued to be a cause of much ineffectiveness in the regiment during the earlier operations of the campaign. In the 72nd Highlanders ineffectiveness from this cause has been comparatively slight.

Of the Native regiments forming this column, the 23rd Pioneers, which had been quartered at Simla for the two years prior to their coming on this campaign, and the 5th Goorkhas, which came from Abbottabad, have remained in very good health throughout. The 28th Native Infantry also, which came from Moradabad, has been thoroughly effective through the campaign. On the other hand, the 2nd Punjab Infantry, which came from Kohat, where it had suffered much from fever in the autumn months, suffered very severely from pneumonia in the winter, and, becoming ineffective, was sent back. It was thought advisable also to send back the 5th Punjab Infantry during the coldest months for the same reason.

Hill stations are of great value as sanitarium for the resort of men who have suffered from malarial influences or who have been debilitated by acute disease; but they are not suitable for cases of chronic disease produced by long residence in India. The climate of the hills is in my opinion especially favorable to young soldiers. They not only preserve their health, but immature youths, if employed in moderate out-door work, develop in physique and strength of constitution as well, or even better than they would in England. The 2-8th Foot, which contains a very large proportion of young soldiers, drawn chiefly from the manufacturing towns of Lancashire, has garrisoned the Peiwar Kotal since its capture on the 2nd December. The young men have improved greatly in health and physique during their residence here; and the regiment is now a much finer body of men than when it arrived in India, two years ago. The health of the regiment was best during the coldest weather in the months of February and March, when the thermometer frequently showed from 25 to 28 degrees of frost and deep snow covered the ground. During this time the average admissions did not exceed one daily, and for a long time there were only four men in hospital. It is too soon to express a decided opinion upon the climate of the upper part of the Kuram Valley, and the healthiness of the site selected for the new cantonment; but, so far, there is good reason to believe that it will prove very suitable for the location of young troops, provided of course that measures are taken from the very commencement of occupation to secure cleanliness of surface and purity of water-supply.

Surgeon-Major T. G. Hewlett,
c.i.b., Acting Deputy Surgeon-
General, Sind Division.

I have long, in common with every other medical officer I have ever met, been of opinion that the health of the European army in India is by no means kept up to the standard that it might, and would, attain, if only European regiments were stationed on the hills and not on the plains. I shall speak only of my own presidency. With magnificent hill ranges, which could be, and which for civilians are, used as sanitarium, there is not a single British regiment stationed at any one of them. The only hill sanitarium under the Bombay command are the following:—

Taragarh, a small hill above Ajmere, where sick European soldiers from Nusseerabad are sent.

Asirgarh, a hill fort at an elevation of 2,391 feet above the level of the sea, which is the sanitarium for Mhow. There are three barracks intended to accommodate 83 men.

Mount Abu, on the southern extremity of the Aravelli mountains, at an elevation of 3,850 feet above the level of the sea, forms the hill sanitarium for the Northern Division. There are sixteen barracks intended to accommodate 144 men.

Purandhar, an isolated spur near Poona, at an elevation of 4,571 feet above the level of the sea. There are four barracks intended to accommodate 137 men, who are sent here from Poona.

Khandala, a station on the top of the Boreghat, used as a sanitarium for British troops from Poona during the hot weather. General Phayre, c.b., when Quarter-Master-General of the army, pointed out the advantages of utilizing *Mander Deo* as a sanitarium for soldiers from Poona. There is also *Panch Gunny* on the Mahabeshwar range, where Europeans reside all the year round, which would form an excellent sanitarium. I have always maintained that it is not a wise thing to keep European soldiers at all in the plains, and certainly not until they have become acclimatized.

I am strongly of opinion that the proper course to adopt is to send every British regiment on first landing in the country to the hills, and to keep it there in climates especially adapted to the European constitution, and only to allow it to come down into the plains when wanted. As a matter of economy, it would be far cheaper to Government to employ Native holders for all duties in the plains. It might be necessary, for military reasons, to march the European troops down to the plains to camps of exercise to manœuvre with Native troops; and this could be safely done during the cold season, but as a rule, in my opinion, European soldiers should be always kept at hill stations whenever it is practicable. Taking the European army under the Bombay command for example, I think that the European troops at Belgaum are more favorably situated than at most other stations, and that for the present they might be allowed to remain there. I advocated, when acting as Sanitary Commissioner, that the European troops (two companies) stationed at Satara should be placed on Yewateshwar plateau, and think that this would very much improve their health.

The Ghorpuri barracks and officers' houses at Poona are notoriously unhealthy; and when acting as Sanitary Commissioner, I recommended the abandonment of this site. The following extract from a report by Surgeon-Major Girard, in medical charge 2-7th Fusiliers, will show how a regiment lately arrived from England suffers from being placed in unhealthy barracks on an unhealthy site:—

2-7th Fusiliers.

Years.	Average strength.	Average daily sick in hospital.	Per cent. of strength.	Average daily number of weakly men attending hospital or absent at hill sanatorium.	Per cent. of strength.	Average daily total non-effective through sickness.	Per cent. of strength.
1874	853	53-38	6-25	50-00	5-86	103-38	12-11
1875	574	46-23	8-05	84-64	14-74	130-87	22-79

Poona is considered one of our healthiest stations; and yet in it a British regiment lately arrived from home had 22-79 per cent. ineffective through sickness. Now, if this regiment had been stationed on the hills at Mander Deo or Panch Gunny, the men would have retained their strength, and their constitutions would not have been weakened by malaria. The fighting power of such a regiment must evidently be much deteriorated, and its money value be much reduced by being kept in the plains.

Then, again, in the Northern Division, I regard keeping European troops at Baroda, Ahmedabad, and Deesa as a very grievous mistake, and am sure it entails very heavy loss on Government. The capabilities for a military cantonment of Mount Abu are well known; and especially as the railway now in course of construction will run close to its base, I consider that the European troops should be withdrawn from Ahmedabad and Baroda, the climate of which is peculiarly inimical to the European constitution, and that all European troops serving in the Northern Division should be located on the top of Abu.

In Rajputana, the stations of Nusseerabad and Neemuch are also unhealthy for Europeans; and, as I have recommended in my annual report for 1877 as Sanitary Commissioner, I should strongly advise that the European troops for this part of India be placed on the Chittor hills.

Surgeon-Major J. H. Porter, late in medical charge of Field Hospital, 1st Division, Peshawar Valley Field Force.

(1st) I have no statistics to bring forward; but from general observation in three campaigns I consider young soldiers unsuited for campaigning. They are more subject to disease than old soldiers, have not the power as it were of resisting disease, nor the knowledge at first of how to look after themselves.

They are unable to bear long fatigue and exposure. Very old soldiers are, as a rule, physically unfit for campaigning. I consider soldiers of from six to ten or fifteen years' service the best for active service in field campaigning.

(2nd) Hill stations are invaluable for preservation of health. Stations like Peshawar are most injurious to health, and soldiers who have been quartered in them for any length of time are quite unfitted for taking the field. Their health becomes much impaired, and they are liable to attacks of fever and other diseases from exposure. Their physical powers are reduced.

(3rd) The value of hill stations as sanatoria depends upon the cases selected.

When in medical charge of Naini Tal Depot, 1862 and 1863, I found the following diseases derived no benefit from the change:—rheumatism, secondary and tertiary syphilis, with rheumatic pains and disease of the bones, pulmonary disease, especially advanced phthisis, advanced hepatic disease, and bowel-complaints. These cases became worse, or derived no benefit whatever, died, or were invalided to England. Debility after fever, delicate young soldiers, mild cases of secondary syphilis, and other skin diseases derived great benefit.

Young soldiers lately arrived in India would have their health preserved by being sent to a hill station, by which they would gradually become accustomed to the climate of the country.

It is the young and recent arrivals who appear to suffer most by being stationed in the plains.

Surgeon-Major C. Martin, Army Medical Department, 13th Hussars.

1st.—The books of the base and field hospitals of Kuram Valley Force, of which I was in charge, would show admissions at various ages and periods of service. I have no means of reference.

The men of the 28th Regiment chiefly filled the hospital from November to March, and were young.

The 72nd Regiment were older, and more attention was paid to men's clothing (flannels, &c.) ; but besides this they were also more physically fit to endure fatigue and hardship than the other regiments.

2nd.—I am of opinion that regiments on arrival in India should be at once sent to the hills, and kept there for at least two years,—not that, I think, the hills possess any immunity from epidemic diseases, but that it gives the young soldier, of which regiments newly arrived are mainly composed, time to develop; that the climate assimilates closely to that of the place from whence they came; that good food, regular habits, discipline, good air, may mature and develop and set up half-grown immature lads; whereas by sending newly arrived regiments to the plains they at once begin to deteriorate.

Further, it must be borne in mind that enteric, which is the seasoning fever of the young soldier in India, is always most fatal during the first two years of residence, and that liability to attack diminishes after that period.

The fact of this class of disease always appearing at certain hill stations proves nothing, except perhaps bad selections (Sabathu, for instance, merely proves bad selection). Any hill station in the immediate neighbourhood, or dominated by a higher range, must be unhealthy. A station of less elevation, always provided it was the highest of the range, would be preferable and far healthier.

The value of hill stations as convalescent sanatoria in cases of debility from long residence in the plains, or anæmia after fever, &c., &c., it is needless to dilate on.

The malarious nature of the climate of the various valleys on the frontier, *viz.*, Peshawar, Kohat, &c., exercised a very unfavorable influence on troops taking the field. Men who were attacked did not shake it off, were constantly liable to recurrence. Various causes seemed to bring it on. In some cases exposure to sun on sentry; in others at sun-down, when temperature dropped. After two or three attacks men became so debilitated as to be valueless as soldiers.

To maintain health and efficiency, I have no doubt that as many British troops as consistent with military necessities can be should always be stationed in the hills, and that employment other than drills and parades should be provided, *viz.*, road-making, various trades or handicrafts. In the plains it is notorious that cavalry and artillery are always more healthy than infantry, solely because they have more work, less idle time.

For men who have been prostrated by disease, or merely debilitated from the intense heat, there can be no doubt of the value of the hills; but the young soldier, who is to all appearance in fair health, I would keep there as much as possible till he has time to develop and become a man.

5. Are you in favor of substituting a system of station or garrison hospitals for the present system of regimental hospitals?

Surgeon-General J. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

Yes.

Surgeon-General J. F. Beaton,
M.D., Indian Medical Department.

I am not. On the contrary, I am fixedly opposed to any proposition which involves the abolition of the regimental hospital unit, either as regards the *personnel* or *matériel*. I believe the absolutely unavoidable consequence would be to render a regiment inefficient if suddenly ordered to take the field—a very common occurrence in this country, and one which it would be most injudicious to regard as a light matter or improbable contingency.

A station or garrison *dispensary* would, in an economical point of view, be probably a wise innovation, and would be unattended with any serious inconvenience so long as each regimental hospital kept up at all times its field equipment, from which remedies required in severe urgent cases could be promptly issued.

In such general dispensary all ordinary prescriptions would be compounded under the direct supervision of a medical subordinate of the apothecary class, and when made up, would be carried to the hospital by the doolie-bearers in a small covered wagon borne on a bamboo pole supplied with padlock and two keys,—one to be kept by the apothecary, and the other at the regimental hospital by the hospital assistant.

Each regimental hospital would furnish its quota of the establishment required for the general dispensary; and on the corps being suddenly ordered off, such quota would at once rejoin the regimental institution, which would then be as complete and efficient as if it had been maintained distinct and separate while in cantonments. Base, field, and intermediate hospitals are all necessary during war, but they never can absolutely supersede the necessity for a regimental medical staff; and assuredly of all countries, India is the one in which such an experiment ought not to be attempted. With unit efficiency matters could never become desperate, however difficult at times; without it, the forecast I should prefer not to attempt to sketch. The experienced regimental officers who form part of the Army Organization Commission can speak with greater confidence than I can as to the sentiments of the sepoys in regard to general hospitals; but forming my opinion from experience in such institutions during war time, I am convinced that they are most unpopular with the Native soldier.

I can however quite understand their distaste of them being far less in garrison, because *there* of course their own officers, European and Native, would visit them, precisely as they would in the regimental hospital, ascertain their complaints, and see to their being promptly remedied if possible.

Yet accumulating a numerous body of sick in one building seems to me an absolutely retrograde measure—the more strange during the prevalence of the sentiment connected with the segregation of sound men into the smallest possible bodies in half-company, or even, if some enthusiasts had the

power, section barracks. I further believe that the introduction of the system will be the grave of individual efficiency on the part of medical officers of the Indian service, which I honestly consider to have been their most distinguishing characteristic hitherto. Indeed, one British deputy surgeon-general, in his report of some of the young Indian medical officers of the Kandahar force, gives loose rein to his admiration of their extraordinary self-reliance and remarkable readiness under all difficulties, such as one might look for in men of old standing in the service. The reason simply is that, in separate independent charges, they are early thrown upon their own resources, and soon have old heads on young shoulders. Anything calculated to impair such qualities will be dearly purchased at any cost, and will be surely grieved after when the mischief has been accomplished. The very words of the poet expressing the effect of destroying "a bold peasantry, a country's pride," are literally applicable here.

Surgeon-General C. A. Gordon,
Principal Medical Officer,
British Forces, Madras.

I am not only not in favor of substituting a system of station or garrison hospitals for the present regimental hospitals, but most distinctly and strongly opposed to it; my opposition being the result of lengthened personal experience in peace and in war in India, Africa, and France, of military hospitals in China during the expedition to that country, as also in other places, added to much study and observation regarding and of the system as followed in various armies, I having

published* accounts of the system of hospital administration in eleven different armies, European and American, besides entering into details with regard to the working of our own at home, in this country, in New Zealand, and elsewhere.† I trust that the Commission will bear with these egotistical particulars, they being given solely for the purpose of showing that body that my views with regard to army hospital organization are based upon real and actual grounds. With regard to the present question as it affects India, the annexure B to this document contains an expression of my views submitted lately to the Government of Madras with regard to the general subject; also, as I trust, to aid the Commission, I append (C) an article recently written by me in the *United Service Magazine*; and further (D) a translation of an article containing the views of the French *Service de Santé* on the subject of regimental *versus* general hospitals. I believe that the present desire to reintroduce into our army a general system of hospitals is a mistake, based upon conditions which, even were they approved in other European armies, which they are not, are not so well adapted to that of Britain as the dual system, regimental and general, which, until quite lately, was in full and successful operation. As with regard to the subject of young soldiers I referred to past history, so in reference to the present it is, I think, profitable similarly to trace the early development of the institution. I accordingly note that in 1760 the first actual attempt was made in Southern India to organize army hospitals. For garrison purposes a stationary or general hospital with its own staff of medical officers and employés was established; for purposes of war one *field* or general hospital with each force in the field. From that time onwards till the end of the century there existed a constant state of war in what was then known as "the Carnatic," the result being, as regards hospital establishments, that so great had the inconveniences of the then existing system shown themselves to be, that by general orders by Government, dated Fort Saint George, 10th August 1797, *regimental* hospitals were established in supersession of those whose drawbacks had thus early been demonstrated. Shortly afterwards, namely, in accordance with orders of Government, dated Fort Saint George, 2nd January 1799, the system of army hospital establishment, which has ever since then perfectly fulfilled all the requirements of military service, was inaugurated,—namely, regimental hospitals for garrison and field, general or field hospitals for sick and wounded who could not be sufficiently provided for in the regimental hospitals, and station or general hospitals for those transferred from the field hospitals. As a matter of fact, then, so far is the present advocacy of a system of station or general hospitals in supersession of regimental establishments the *new or approved* one it is represented; but, on the contrary, it indicates a desire to reintroduce conditions which, being found unsuited for their intended purpose, had in consequence to be abolished *eighty-two years ago*.

In general terms I remark that no real necessity has hitherto shown itself for reintroducing the general system of station or general hospitals; that the dual system, namely, regimental and general, has heretofore met all requirements of the service, except on certain occasions, when they were *starved*, and in all respects left, through circumstances over which army medical officers had no control, with insufficient *personnel* and *matériel*; in fact, without sufficient means not only of performing their proper functions, but of existing save in name. The formation of station hospitals to the supersession of regimental has hitherto, as I trust is sufficiently shown by the *résumé* of the past contained in the annexures already referred to, proved themselves to be unsuited during peace, and both insufficient and faulty with regard to war. Their defects in European and American wars have been more or less completely covered by means of Red Cross and other associations; but in India it is undesirable to trust to such extraneous help.

I believe that the objections against the system enumerated in paragraph 9 of annexure B are sufficient to prevent the adoption in India of station hospitals; at least in the interests of the sick soldier and of the service I hope they are. Further objections also present themselves in annexure C; but with regard to any *recommendations* they possess, if fully considered, *I say not one*. It is, I think, of great importance to bear in mind the fact that when in 1857 regiments were suddenly and unexpectedly called upon to operate against the rebels, to undertake long marches, and to engage in severe battles, their several medical establishments proved in every respect sufficient for the occasion. Had *station* hospitals then alone existed, it does not occur to me by what possible means mobile establishments, fit for actual work, could have been prepared literally without an hour's notice as those of regiments actually were. I desire to dwell upon such points, knowing, as I do, the desire there at present is in high places to replace regimental establishments by general; and at the same time as the latter failed in former years in this country, as they did in

* Lessons in Hygiene and Surgery from the Franco-Prussian War; also in the *British and Foreign Medical-Chirurgical Review*, Army Hygiene.

Flanders and the Peninsula, as they were found seriously at fault during the Franco-Prussian war, so they *must, and will be, wherever adopted*. I write thus plainly in the hope that the Commission may be induced most seriously to consider my arguments before they determine to abolish what history and experience have alike demonstrated to be the most perfect and serviceable of all establishments connected with the medical department of the army.

ANNEXURE B.

No. 54 O., dated 24th July 1876.

From—SURGEON-GENERAL C. A. GORDON, M.D., C.B., Honorary Physician to Her Majesty,
Principal Medical Officer, British Forces, Madras Presidency,

To—The Quarter-Master-General, Madras Presidency.

In accordance with order of Government, No. 1967, dated 19th April 1876, I have the honor to submit, for the information of the Commander-in-Chief, the following documents called for by the Secretary to the Government of India, dated Fort William, 7th April 1876, No. 395, *viz.*—

I.—A statement of the employment of each medical officer of the British service serving in the Madras presidency on the 1st of April 1876.*

II.—A return showing the places where the sick of two or more corps are treated in the same hospital.*

III.—A statement of the places in the Madras presidency where it would be possible, without adding to existing buildings, to treat the whole of the sick of British troops at the same station in one hospital.*

2. The object aimed at is the possibility of reducing to some extent the present establishment of medical officers of the British service serving in India by the consolidation of regimental hospitals. Table A indicates that of 78 army medical officers borne upon the establishment of this presidency, two are absent on general leave, three on sick leave, and four *en route* to join, or performing general duties. With these exceptions, every medical officer has his specific duties to perform. This, too, in a time of profound peace and freedom from epidemic. Nor is there any margin whatever left for such contingencies, as it is right to be prepared for under the conditions by which British troops occupy India.

3. In former years, in order to provide for casualties and meet emergencies, four medical officers were borne upon the strength of each regiment in India. Now there are only three, while the margin formerly permitted and still required no longer exists.

4. Nor is it by any means clear that the consolidation of regimental hospitals, even were such a measure advisable on other grounds, would justify a reduction of the medical staff connected with British troops in this presidency. Under such conditions a staff of medical officers would be required for the consolidated hospitals, and still that for regiments to be retained. Taking, as an example, the hospitals of the French army on home service, to every 100 to 150 sick one surgeon-major and three surgeons would be necessary, in addition to subordinate establishment, to carry on the ordinary daily duties, still leaving no margin for casualties. The conditions of a regiment in this country would, under any circumstances, require the presence with it of two medical officers over and above the hospital establishment, at least during the hot and trying periods of the year, for the performance of ordinary duties connected with families, barracks, prisoners, &c., so that if my estimate is correct,—and it is based upon much consideration and study,—the constitution of consolidated hospitals would require an increase rather than decrease to our establishments, while in other respects there exist grave objections to such a measure.

5. But it seems to me an easy matter so to arrange that the sick of Native corps should for purposes of medical treatment and supervision be attached to British regiments, the medical officers of the latter taking professional care of them in addition to their ordinary duties. In Africa and the West Indies, medical officers of the British army thus take charge of Native troops; in Ceylon, until recently, they did so of Malays; in China they attended Chinese followers. In India I myself have had charge of sepoys. Very little addition would be necessary on this account to the existing establishment of executive officers of the department, none at all to the administrative; while considerable reductions elsewhere might naturally follow. On active service the intention is that all portions of a military force should be under one medical as well as military administration. What is advisable under such circumstances is equally so in cantonments; and officers of the army medical department, whose whole career has reference to troops, seem naturally those to have such superintendence. As matters are at present, the system followed is anomalous and unnecessarily expensive to the State.

6. The question of station hospitals *versus* regimental has been so mixed up with that of organization of the army medical department generally, that it seems necessary to point out the fact that no necessary connection exists between the two. Experience has shown that a station hospital may be conducted by regimental medical officers under the late *régime*, and that a regimental hospital may similarly be conducted by non-regimental medical officers.

7. With direct reference to the question immediately in hand, the administrative medical officers under my superintendence having in accordance with my request submitted their views in regard to the advantages and disadvantages of station hospitals *versus* regimental in their respective circles, I beg to summarize their opinions as follows, *viz.*—

8. The advantages are said to include—

- (a) Some reduction in the number of medical officers, but, it is added, this must be effected with great care.
- (b) A reduction in the number of medical subordinates, also requiring care.
- (c) A reduction in servants.
- (d) One store of medicines, medical appliances, and instruments.
- (e) One cook-house.

* Not attached to this copy.

- (f) One purveyor's establishment.
 (g) A small reduction in Native servants.
 (h) A large field for practice.
 (i) A possible reduction of clerical work.
9. The following disadvantages have been recorded against the proposed scheme, *viz.*—
- (a) No possible benefit to the sick soldier can arise from it, whatever it may be to Government, as in a saving of money.
 (b) In some of the larger stations, as for example Secunderabad, the scheme could not be carried out in consequence of the great distance between the several barracks.
 (c) The distance at which medical officers would be from their patients, unless quarters were erected specially for them.
 (d) If quarters are so erected, then the distance at which medical officers will be from messes—a very material point in India, particularly during the hot and rainy seasons.
 (e) In times of severe sickness and epidemics, delay and injury therefrom, as well as from exposure of patients to heat or rain, would arise from conveying men to the distance at which station hospitals must necessarily be situated from barracks at least.
 (f) If patients laboring under cholera or heat apoplexy were taken temporarily to the receiving-room near their barracks, in order to meet the requirements of their case all the means of treatment and care that are usually obtainable only in a regularly-equipped hospital would be required there. If they are forthcoming, then such an establishment would be *ipso facto* upon the footing of a hospital, and no further removal ought to be necessary. It is not to be supposed that the responsible authorities would permit the continuance of an incomplete establishment.
 (g) The *personnel* of station hospital being stationary, as also the manner of its administration, provision and arrangements for the requirements of moving body, as an army in the field, would speedily become non-existent.
 (h) On the score of expense, has an actual comparison been made between that of regimental hospitals in India as they formerly existed and station hospitals as they are proposed to be? If so, and the superior cheapness of the latter over the former be the result aimed at, that conclusion is different from what has appeared both in Britain and in France. In Britain formerly not only did the hospital stoppages from sick soldiers cover the expenses of medicines, food, and comforts, but also the pay of the regimental medical officers. In France the restoration of regimental instead of general hospitals has been, and still is, advocated on the ground that sick could be treated in them with less expense to the State than in the larger and more complicated establishments. Moreover, it is well known to medical officers of the British army, who have associated with those of the French that, while ever since the date of the Crimean war, the movement in England has been pressing on to assimilate the system of military hospitals to that of the French, the medical officers of the latter have been steadily endeavouring to replace their cumbersome system of general hospitals for the more convenient regimental hospital after the English model of that day.
- (i) Another objection to station hospitals in this country is, that sick soldiers are removed from their friends and regimental associates at the very times that intercourse with those friends and associates is most needed and valued. It is indeed customary to refer to the American civil war and to say station and general hospitals were on that occasion alone employed. But what has been the result of the experience so gained? General Sherman in "The Military Lessons of the War" observes that "the great majority should be treated on the spot by the regimental surgeon under the eye of the colonel, and as few as possible sent to the division hospital. They receive better care with their own regiment than with strangers, and, as a rule, their cure is more certain."

10. The plea that station hospitals would afford a larger field for practice than is at present given by existing establishments is more apparent than real. They could indeed only do so if more cases of sickness or injuries than occur under the regimental system were to be admitted into them; and on such a contingency it is to be hoped that there is no reason to count. It is at the present time customary in all military stations that army medical officers meet in consultation whenever an obscure or important case is under treatment, and assist each other at the performance of operations. They would do no more than this in a station hospital; while, on the other hand, the readiness to act upon emergencies, by which regimental surgeons of experience have heretofore been distinguished among their civil brethren, would in a great part disappear by the circumstances of a number of medical officers being continually employed in the performance of their duties under one roof. In fact, the feeling of personal responsibility among them would to a great measure be destroyed by such an arrangement.

11. The reduction in *personnel* indicated as among the supposed advantages that would result in a state of affairs, although not hinted at, deserves attention. At present it is for the most part possible without difficulty to make provision of this as of every other nature for bodies of troops in motion; also to despatch aid from one station to another where, for the time being, it may happen to be needed, as on the occurrence of an epidemic, or increased sickness from any cause. Under the proposed system no such possibility will exist, if the reductions, which serve as the basis of the measure, be carried out. If no such reductions take place, then matters will remain as they now are, with this suggestive difference, that, whereas at present hospital establishments are separated from each other, each particular body being under direct control of regimental authorities, in the case of station hospitals they would be congregated as one establishment, for the most part with little or nothing to do; and being so, it is easy to imagine the result.

12. In addition to these objections other points have so forcibly been brought forward by the Principal Medical Officer in the Hyderabad Circle, that his remarks are reproduced. He observes that—

"the regimental system is peculiarly adapted for India, if the welfare of the sick and the proper looking after the men, women, and children in barracks be the chief consideration. If that be a secondary consideration, let large station hospitals, administered by medical officers, who are total strangers to their charge, be inaugurated. The regimental

surgeon, as he used to be, on whom devolved the responsibility of looking after the welfare of his charge, the sanitation of quarters, and the treatment of the sick, was a most important functionary; and the regimental system was a thoroughly satisfactory one, the surgeon working with his charge, aided by the regimental assistants and subordinates, all of them well known to, and well knowing the constitution and previous history of, every member of the regiment. Soldiers *hate* to be treated by strange doctors. Commanding officers, as a rule, get on much better with officers belonging to their corps than with outsiders, and *vice versa*. Large hospitals are a calamitous mistake in India, where the congregation of large numbers of sick is hazardous. Medical officers who have not done duty in regiments are deficient in their ideas of discipline. If, he adds, "the regimental hospital system be the preferable one in time of peace in this country, it is still more desirable to carry it out in time of war. At least, I have not seen it fail under these circumstances; and the opinion of the best and most practical men of my acquaintance (I do not mean theorists) is confirmatory of my own."

13. Paragraph 6 of a letter from the late Principal Medical Officer, British Forces in India, attached to the letter already quoted from the Secretary to the Government of India, Military Department, contains a statement, the importance of which demands careful consideration. According to that paragraph, the present difficulty in this country in the establishment of station *versus* regimental hospitals is the fact that the regimental system has been so long and so firmly established in India. Such is unquestionably the case; and inasmuch as conditions arise from producing causes, the question naturally presents itself, what are those to which is attributable the circumstance that regimental hospitals in this country are "so long and so firmly established"?

14. In tracing back this matter, it amounts to a platitude to observe that all military establishments as they exist have grown up with special reference to the requirements of military service. Military hospitals constitute an important item in those establishments. They have been gradually developed in India, as elsewhere, as conditions dictated. Hitherto they have fulfilled, perhaps better than in any other country, their purposes in times of war and seasons of epidemics, and now during a period of peace it is proposed to alter all this. Most seriously do I inculcate caution ere so great a change be made, and for the reasons which I proceed to record.

15. In one important respect the circumstances of warfare are different in India from what they are in Europe or America. Consequently arrangements that are applicable in either of the latter are unsuited to conditions in this country. There, alike for the most part in war as in peace, a man, whether foe or friend, obtains protection and all things else necessary for his comfort from the moment he falls sick or is wounded. Here, judging from the experience of the past, a soldier wounded in battle has but to expect death should he fall into the hands of the enemy. Among Western nations then the wounded may, as a rule, be safely abandoned, and under the force of agreements and conventions a general understanding exists on the subject; while in India sufficient arrangements must, under all circumstances, exist within a force itself to provide for its sick and wounded, and, if necessary, to carry them along with it if in a campaign, as indeed happened during the mutiny campaign.

16. It is fair to assume that, wherever in this country station hospitals may be established, commanding officers of regiments will look after the interests and well-being of such of their own men as may be under treatment in them. Officers commanding the companies to which they belong will invariably take an interest in and visit them from time to time; and non-commissioned officers will also have occasionally to communicate with them. All this will involve a certain number of visits to them, and the wards in which they are being treated, beyond the visits of officers of the day or week as may be detailed in accordance with station or garrison routine. If the sick of individual regiments are distributed promiscuously among the wards, all this will involve as many visits to each particular ward by officers and non-commissioned officers as there are regiments represented among its patients. Each ward will become more or less a thoroughfare. Patients other than those who are the objects of the particular visit will be harassed by a continuous influx of strangers; those whose cases are severe will be deprived of that rest and quiet which their condition demands, and even the attendants will be interrupted in their duties. Each and all of these occurrences did actually take place in the station hospital as established at Tien-Tsin during the occupation of that city by the British forces in 1860-61. On these grounds the establishment was broken up, and regimental hospitals substituted on my recommendation, I having on that occasion been principal medical officer on the spot. If, on the other hand, it be intended that the sick of particular regiments shall occupy wards together, then in that case I ask why remove them from existing regimental hospitals and discharge regimental establishments merely that the regimental sick should be removed from the immediate neighbourhood of their own barracks and congregated in an establishment administered by strangers to them and to their general conditions?

Is the remark made that the same thing takes place in civil hospitals? To persons fully acquainted with the conditions of military life the fact is well known that a hospital establishment adapted for a stationary population, for objects of charity and professional education, is very different from an establishment the object of which is to meet the requirements of military service. Is the remark further made that large military hospitals exist throughout France? It is answered that their existence is continued in opposition to the majority of medical officers of that army, who look upon their existence as a gigantic evil. But even were they approved of in France, the conditions of a British force in India are obviously very different from those of the French army in its own proper country.

17. Experience has shown that a system of station or general hospitals is itself not well suited for requirements in times of peace and is insufficient for times of war. This holds good in India as elsewhere. As already indicated, the kind of organization that is suitable and necessary for a station or stationary hospital is in its nature dissimilar from that of a moveable or ambulant establishment, to meet the wants of a force employed in military operations over an extensive tract of country. It is true that in times of war stationary hospitals become important establishments, as they are in times of peace; but during hostilities this importance arises from the fact that they become receptacles for sick or wounded evacuated from ambulant hospitals with the force in movement, and afford them accommodation until such time as they are ultimately disposed of.

18. It thus seems evident that in such times station hospitals can only be auxiliary to those of an ambulant nature. They cannot, in actual practice, be substituted for the latter. In former wars in India, and more particularly during the mutiny campaign, stationary hospitals were readily formed, whenever necessity arose, by the simple expedient of detaching portions of regimental establishments, reuniting the portions so detached, the senior medical officer present taking charge as a matter of course.

That such establishments worked efficiently and well, and that no difficulty arose in connection with them, are circumstances that were fully acknowledged at the time.

19. Past experience in this country has shown that regiments and batteries being liable to be suddenly called upon to take the field, they should be at all times ready and fully equipped, medically as in other respects, for such an emergency. During operation against an enemy, experience also teaches that regiments and batteries are constantly liable to act independently of each other, sometimes even to be separated from the force of which at starting they constituted a part. Moreover, that field forces have occasionally to be extemporized from regiments or detachments of regiments withdrawn from their own body and suddenly united for the purpose. Thus, to ensure efficiency in hospital establishments under such circumstances, they must remain upon a footing to admit of completely independent action, and be at the same time adapted for consolidation whenever troops act together in a large body. These conditions were efficiently met by regimental establishments as they existed during the operations connected with the Indian mutiny. It does not appear evident how they can exist if the introduction of station hospitals and stationary establishments to the abolition of regimental is persevered in. It is well, however, to bear prominently in mind the fact that the conditions above related differ considerably in their nature from the operations followed in late wars in the West.

20. But it is observed regimental establishments are cumbrous on service, and impede military operations. Such undoubtedly is the case. Yet so long as it is an object to give succour to the sick and wounded, ample means must be maintained for the purpose. In such a case it matters not as regards their extent and cumbrousness whether they are connected with individual regiments or attached to brigades and divisions on the principle of the ambulance system. In the former, so long as circumstances are favorable, each regimental establishment follows the regiment to which it belongs. In action those of the several regiments of a brigade or division unite together so as for the time being to constitute a field hospital, again to separate when the battle is over. On the line of march before an enemy, the hospital establishments are placed together and occupy a definite position in the general column, yet ready to act separately or unite as emergency may require. In this way, while in reality taking up no more space nor causing any greater impediment to military operations than those organized upon the non-regimental system would do, they are suitable to all purposes of Indian warfare, which the latter are not.

21. The question of station hospitals in lieu of regimental is in reality not new in relation to British troops; but it is important to note the circumstance that these hospitals have hitherto failed wherever and whenever adopted. So far back as 1742, while English troops were engaged in Flanders, general and station hospitals had to be abandoned in consequence of the evils resulting from them, and regimental hospitals instituted in place of them. During the Peninsular war general hospitals, established soon after its occurrence, were abolished and regimental instituted, as far as it was practicable to do so. In England in 1826 regulations were drawn up for establishing station hospitals at the several home garrisons; but the system having proved to be objectionable, the plan was speedily afterwards abandoned. In the Crimea the conditions of a besieging force were in all respects different from those of an army engaged on field service in India. In the former it was itself all but stationary, requiring only establishment of a similar nature; yet the reports officially made in regard to the fixed hospitals connected therewith are such as to supply arguments adverse to, rather than in favor of, their general introduction. At the present time military and other periodicals declare against the system of station hospitals in the United Kingdom. They are held to work unsatisfactorily, and are objected to alike by soldiers, medical officers, commanding and general officers. In France the terse manner in which army medical officers express their objection against such as exist in that country is that in them "the necessities of the sick are sacrificed to the requirements of the administration."

22. I am aware that in writing thus strongly on the subject of station hospitals, I express views adverse to those entertained by various high officials and authorities. Such as I do express have been gathered from personal experience under considerable variety of circumstances, and from a somewhat lengthened study of military medical literature on the subject. In my published works during the past fourteen years, I have from time to time expressed many of the views now embodied in this document; and now, with no personal object to attain, with the prospect of the close of my official career being not far distant, I would, in the interests of the army, record my strong conviction against the propriety of destroying existing regimental medical establishments in India by the substitution of station hospitals. The change, if persisted in, must eventuate in failure, if not also in disaster.

ANNEXURE C.

Army hospital establishments during war.

In briefly reviewing the rise and progress of organizations for the care of and attendance upon sick and wounded of armies, it is only necessary, for the purposes of the present article, to consider those of comparatively recent times, and such as are now in operation. The ambulance or temporary hospital is an establishment created and adapted solely for the purposes of war, and is believed to have been first employed in France, namely, under the administration of Sully in the force before Rouen in 1591. The first actual record of such an organization was in 1629; and we learn that ten years afterwards, namely in 1639, ambulances were improved in various ways; also that, under Cardinal Richelieu regular establishments were appointed for working them. That both ambulances and their *personnel*, however, were upon an inconsiderable scale, and not altogether restricted to a purely surgical staff, is evident from the composition of the latter, consisting, as it did for the Grand Army, of six Jesuits, a cook, five aids, a surgeon, and an apothecary. The transport comprised two carts of two wheels; six sheep per day were allowed as food for *personnel* and patients; and as an important part of the duties of the Jesuits, we learn that they were "charged with the consciences of the sick." During the reign of Louis XIV the ambulances, like all other establishments of the French army, underwent important improvements under the administration of Colbert, who also instituted regimental hospitals for the reception of the sick of individual corps during peace and in quarters, they being altogether distinct from the large military or general hospitals then existing.

Unfortunately, the latter institutions, after a variety of oscillations in favor, were long afterwards reduced to a very subordinate status, although their reintroduction and development never ceased to be advocated by the medical officers of the French army. The ambulances, as then established, were under the care of surgeons, physicians, and ecclesiastics. They were abundantly supplied with medicines, instruments, and appliances; but as at a previous date, so still, the function of the establishment was partly surgical, partly spiritual; for the Franciscan *directors* also confessed the wounded on the field. Up to the middle of the eighteenth century France was far in advance of every other country in regard to arrangements for wounded soldiers. About that time, Austria, Prussia, Denmark, Sweden, and England made attempts with more or less success to introduce a somewhat similar system into their respective armies. Let us then arrange in the form of a narrative some of the more important points in connection with the further progress of ambulance establishments, from that period onwards to our own day, and more especially with regard to the British army, taking a glance at some others as we proceed for purposes of comparison and illustration.

When towards the middle of the eighteenth century the British forces landed in Flanders, the medical arrangements were chiefly regimental, temporary general hospitals being formed at Ghent and some of the other more important positions. While in garrison, the sick of regiments were treated by their own regimental surgeons, the severer cases and soldiers likely to be unfit for further service being sent to the larger establishments; so after battles the wounded were sent to the general hospitals, with the result that severe disease broke out among them and spread to their attendants, while such of the wounded as had been unavoidably detained with their regiments escaped, thus showing the advantages of the latter in a sanitary point of view. On that occasion an agreement was entered into by the Earl of Stair and the Duke of Noailles that the hospitals on both sides should be considered sanctuaries for the sick, and mutually protected. In the succeeding campaign of 1748 two kinds of hospitals were employed, namely, the flying and the fixed. Besides these, hospitals for convalescents were established at a distance from the scene of operations. In 1783 a code of regulations was published, in accordance with which various improvements were effected in the condition of regimental hospitals; but when, as happened then, a large portion of the home army occupied camps, general hospitals in addition to regimental were established, the medical officers with each regiment, weaker in numbers than they now are, being a surgeon and surgeon's mate.

In 1803, in the field, the brigade was furnished with ten medical officers, namely, three battalion surgeons, three battalion assistant surgeons, with the addition of one brigade surgeon-in-chief and three brigade surgeons. Those with the regiment accompanied the troops under fire; those on the brigade establishment were stationed in the rear. The quartermasters of the brigade or battalion superintended the transport of the wounded, pioneers and musicians with stretchers being employed for the purpose, and the place of succour distinguished by a flag. From these the wounded, after being dressed, were evacuated by divisions in spring wagons and other suitable conveyances to the brigade hospitals, under the charge of the brigade assistants, the field hospitals in the meantime advancing with the army. As a result of experience gained in the Peninsular war, from 1809 to 1814, Sir James McGrigor was an advocate for regimental field hospitals on active service rather than those on the general system. Shortly after joining the army of the Duke of Wellington, he became so impressed with the disadvantages of the general system of hospitals, that he caused the greater number of such establishments to be broken up, and others upon a regimental footing to be instituted whenever troops occupied cantonments, supplementing the latter with field hospitals. One of the great drawbacks urged by Sir James McGrigor against general hospitals was thus recorded by himself:—

“The system had to be introduced of appointing, as medical officers to large hospitals, men who had no practical knowledge of soldiers, but who were good medical practitioners. Most of them found that they practised under great disadvantage in a military hospital, in total ignorance of the usages of the service and the diseases peculiar to soldiers. Of these, not a few malingered, played all manner of tricks in feigning diseases which they had not, and exposed the physician to the ridicule of the commanding officer of the regiment as well as of its surgeon.”

When the army went into winter-quarters at Grenada, every regiment and corps had its own hospital, those of each brigade and division under the staff surgeon-in-general's charge; the result being that the march of sick to established hospitals in the rear was stopped. Afterwards, while the forces were in movement, the regimental hospital, complete in its establishment, was always opened during temporary halts, the effective strength of the force being kept up by means of them. At this time the ambulance system was in use in the French army, against which the forces under the Duke of Wellington were operating, it having been introduced in its then improved condition by Barron Larrey in 1793. Prior to that date, the system followed was to collect the wounded at a convenient place, about a league in rear of the field of battle, and as soon as possible to send the ambulance establishments to that point. In practice, however, it was found that the number of equipages belonging to the army, which crowded the intervening road, was such, that together with other difficulties it became impossible to bring aid to the wounded for many hours, and on occasions several days after they had been struck down. It was to remedy this state of matters that the *ambulance volante* was introduced. Regimental establishments were, however, non-existent. Sir James McGrigor had, early in his experience, recommended the adoption of a similar plan with regard to the British army; but the Duke of Wellington was so well satisfied with arrangements as they stood, that he objected to the proposed change, and accordingly it did not take place. In fact, it is now difficult to understand the grounds upon which its introduction into the British service was advocated by this distinguished medical officer, except through a spirit of imitation, such as has frequently manifested itself since his day. As to its working in the French army, the circumstance was placed on record by General Foy that the wounded were often abandoned for want of means of transport, and that, as a result of defective system, they lost in the Peninsula four times more men by disease than they did by the sword of the enemy.

On the occasion of the battle of Waterloo the medical arrangements were somewhat after this manner. There followed the army what was called a wagon-train, one or more such trains being attached to each division. The wagons were employed to carry light stores while the army was advancing, and during the action took up their position on the main road to Brussels. The wounded were lifted into those wagons by their comrades, sometimes blankets being used, sometimes merely by strength of arm. Many of the wounded had to find their own way to places of succour in the rear, their

effective comrades accompanying them in large numbers. Bandsmen were utilized as stretcher-bearers, and bullock-carts pressed into the service. Temporary hospitals were established in farm-houses, the wounded placed upon ticking stuffed with straw or ferns, with plenty of blankets. Attendance and nursing were performed by soldier-orderlies belonging to regiments engaged.

Subsequent to the peace which followed that decisive battle, the Army Medical Department was organized according to the regimental and staff systems, both working together. Difference of opinion existed among the members of the Board of Direction as to the relative advantages of these; and in 1826 an elaborate code of regulations for the latter description of establishment was published. After a brief trial, however, the system was abandoned, the general hospitals reduced to a very few, and for many years the regimental were pre-eminent. No more perfect system than that of the regimental hospital in times of peace was ever established, whether in the British or any other army. The expense of administration was absolutely *nil*, and not only that, but after the charges incurred on account of food, medicine, wear and tear of hospitals, and their equipment had been defrayed, a sufficient sum remained from the stoppages charged against soldiers while under treatment, sufficient actually to meet the pay issued by Government to the regimental surgeon and assistant surgeon. That defects existed in some respects in this comparatively perfect system is quite true, and the circumstance is in the recollection of the older medical officers that the relation of medical officers to their regiments was less close and strictly defined than it might and ought to have been. Little by little improvements in all these respects took place, until 1858 when the late Mr. Alexander placed those relations upon a more satisfactory footing than ever they had been before, and alas! than ever they have been since.

During the long administration of Sir James McGrigor every endeavour was made to raise the qualifications of medical officers in the army. He thus expressed himself upon this point:—

"It is not only in the cause of humanity but that of sound policy that the State should provide all medical or surgical aid for the soldier when sick or wounded. The soldier should not be consigned to the ignorant and uneducated of the profession; he is clearly entitled to the same quality of advice as when he was a citizen."

Accordingly Government found it necessary to increase the pay and half-pay of the medical officers of the army, and to hold out other inducements for a superior class of men to enter as such. They did so in great numbers. A regular curriculum of study was laid down, according to which intending candidates had to pursue their whole course; and although there still existed blots to be effaced, the department was popular at the schools, and "Sir James' list," as it was called, had upon it frequently the names of from one to two hundred from which a selection could be made. But in the long interval of peace which followed, the hospital establishments, like all other departments of the army, were neglected, and so reduced in respect to material and means of mobility, that when in 1854 the outbreak of the Crimean war took place, such establishments as existed were not only insufficient for requirements, but were in other respects unworkable. On the occasion of our troops landing there, the regimental establishments consisted of a mule carrying panniers for each, and an *araba*, the latter having to be obtained among those found straying along the roads. After a time, wagons from England were landed; but their weight was such, that they were unsuitable for the very bad condition in which at that time the roads were. A scale of hospital requirements for twenty sick and wounded per regiment was drawn up by Sir John Hall, but never fully brought into operation; neither were the scales for brigades or divisions prepared by him at the same time. On the one hand, the regimental establishments, as a result of reductions in material carried out through many years, were incapable of fulfilling their parts; but the fault rested, not with the regimental system, but with the parsimony of England, by which that system was crippled through want of means. But what can be said of the *general* hospitals then established? If disaster and failure existed more pre-eminently in any one kind of establishment than another, they did so in regard to the latter. At the battle of the Alma the English wounded passed two nights on the field, partly as a result of carriage being insufficient for their removal. At Scutari the general hospitals were overcrowded; the mattresses touched each other; everything was dirty; vermin swarmed; large buckets supplied the place of chamber utensils; and the approaches to the buildings were poisonous with filth. M. Baudens records the state of the French establishments on the same occasion:—

"It has not been possible," he observes, "to place our ambulances upon a good system. . . . Blankets are numerous; but nearly all of them are contaminated. Sheets are wanting, as well as the means of washing them. Many of the patients are obliged to sleep in their trousers. Our field hospitals are in need of cots, utensils, jugs. . . . slippers, hospital clothing. Surgical necessaries were also but very indifferently provided. Tents did not suffice to protect the patients from the intense cold; their toes were in consequence frost-bitten. In the inadequate and crowded state of our hospitals, the number of men suffering from typhus exceeded all limits, and the medical staff were completely overtaxed. Eighty medical officers were all who were actually available to attend to the wants of sixteen ambulances."

As with our own establishments, the French had not profited by the experience of the past. During their wars in Algeria, from 1830 onwards, constant failures attended the working of their ambulance system, that failure, according to Count Breda, being *inherent in the system itself*; and yet as the system was in 1830, so it was in 1854, and with the same result—disastrous failure.

Most unfortunately, as subsequent events in connection with the army hospital organization have proved, influential persons visited the Crimea, whose acquaintance with regimental establishments was simply *nil*, but whose opinions as to such matters had been formed by observations with regard to the large establishments in London. Neither were the conditions of the Crimean war in reality such as to show any particular necessity for other description of hospitals than the sedentary. Hence views formed from experience of that war were unsuited to conditions in which operations extended over hundreds of miles of territory, as in America, France, Turkey, India, and so on. Neither apparently were they in possession of details with regard to the working of regimental hospitals in times of peace. Thus, on the one hand, the tendency was to press upon the army institutions unsuited for mobility, and on the other to suppress those that were so.

In 1859 a new code of Army Medical Regulations was promulgated. In respect to establishments for active service, the recommendation of Mr. Alexander, afterwards Director-General, was acted upon, namely, that each battalion, brigade, and division should be complete in itself. The scale

according to which medical officers for *corps d'armée* had been sent to the Crimea was also taken as a standard, the modifications made in it being few and unimportant, *viz.*—

	Medical officers per battalion.	Arrangements for sick.	Total medical officers.	Total sick.
21 Infantry Battalions	4	20	84	420
6 Regiments of Cavalry	3	20	18	120
4 Batteries, Horse Artillery	1	6	4	24
11 " " Foot " "	1	6	11	68
7 Divisions, Royal Engineers	1	6	7	42
Total Regimental Medical Officers and sick per corps	...	...	124	672
For a brigade additional to the above equal to establishments of two regiments	8	40	48	240
For a Division Administrative	2	...	6	P
Head-Quarters Administrative	4	...	4	P
Add Reserve at 10 per cent ... ..	...	...	182	912
			18	P
Grand total per <i>corps d'armée</i> ...	...	...	200	912

It is obvious at first glance that these numbers are out of proportion to each other; that in fact divisional head-quarters and reserve establishments have not been reckoned for 1,088 sick and wounded in order to make up 2,000, the proportion for which, according to all calculations, it is necessary to make preparations per *corps d'armée*. It would, as a matter of course, be easy to rectify obvious omission here indicated, nor would any increase be necessary in the numbers of medical officers as stated, inasmuch as those here shown as regimental could be utilized for general purposes; whereas the system has this advantage, that in time of war necessity would exist for the appointment of only 53, including administrative, additional to the ordinary regimental establishments.

The system here laid down was never tested in actual war. In 1860-61 the expeditionary force proceeded to China. On that occasion a large reserve, as well as *depôt* establishments, was formed at Hong-Kong. Besides the hospitals on shore, hospital ships were utilized; and all necessary arrangements entered into for the despatch of non-effectives to England. The medical establishments with the active force consisted in part of those with regiments, in part of "field" hospitals. After the fall of Peking an endeavour was made, and for some months persisted in, to conduct a general hospital at Tien-Tsin, all on a regimental footing being suppressed; but, as a result of the many inconveniences which attended the proceeding, it was broken up, and regimental establishments reinstated, after which all worked satisfactorily. In his report on the departmental establishments during that war, Sir William Muir recorded, as the very first of his conclusions arrived at, "that in a campaign the regimental and the general hospital systems must be both worked." And so they must.

At this time, the French expedition to Lombardy took place. Their ambulance establishments were exactly as they had been as to system in Algeria and in the Crimea. Nor need the results which followed be wondered at. Here are some of those results. After the battle of Solferino, certain surgical operations were rendered impossible by the absence of special instruments, and the necessary instruments for the performance of resections did not arrive until a week had passed. The surgical *personnel* was notoriously insufficient, and the circumstance is said by historians of the war to have helped in a great degree to render the campaign most disastrous. On the 26th of June, namely, the third day after that battle, all the wounded had not been removed from the field, where meantime they had been exposed to the fierce sun without water or other requirements. On the same occasion the severely wounded of the Italian army were, it is said, necessarily abandoned, the necessity being the result of want of sufficient transport for their removal. These and other evil results of the ambulance system, as it existed, were on that occasion witnessed by Mr. Henri Dunant, to whose recital of the conditions described by him, and to the exertions subsequently undertaken by him, belligerents are indebted for whatever good has been effected through the Geneva Convention for aid to the wounded in time of war. On the occasion of the International Conference held at Geneva in 1861, General Dufour gave it as his strongly-expressed opinion that the ambulance system, as it then existed, could only afford very imperfect aid to the wounded in battle, and Dr. Baudens, of the French Army Medical Department, concurred. On the same occasion Dr. Loeffler, Chief Medical Officer of the 4th Prussian *corps d'armée*, appealed to the history of battles during the present century in support of his opinion, that when war is about to break out, it is impossible (with the ambulance system) for the authorities to execute precautionary measures with such rapidity and completeness as are commensurate with possible contingencies. After such expressions, the wonder is that the system thus condemned should still stand unaided by further establishments in France and Germany, as well as in other countries; but still more, that in the army of Great Britain it should be pressed on in supersession of the double system which only wanted sufficient *matériel* to render its working satisfactory as it had been in previous wars. Since that period, voluntary associations of various kinds have come into existence for aid to the wounded in war. The result of their operation so far, however, has been to show that, while even in Europe and America they must be secondary to the regular establishments, they cannot be depended upon for external and distant expeditions; nor do they in any way provide for helping the sick during times of peace. In fact, by their very constitution they are unsuited for the two latter purposes.

Much has been said in favor of the system pursued in the American Civil War of 1861-64, and doubtless a great deal of this laudation is deserved, although a little inquiry will suffice to indicate that the praise is far from due to arrangements as then existed at the outbreak of that war, but rather to the facility with which improvements, found necessary and proposed by the Medical Department,

that branch of the service, as also those of the cavalry, would be attended to in the hospitals of other regiments brigaded with them, or in those of the brigade itself. In reference to these particulars, it is well to observe that like the Regulations of 1859, so in those of 1878, there is in some respects an ambiguity with regard to actual details, which, although only apparent on close examination, would necessarily interfere considerably with the working of the system on actual service. In these remarks, however, the latter scale is considered in relation to its more obvious bearing.

These regulations appear to have been framed with special reference to summer manœuvres of troops, or operations in the neighbourhood of our home camps and garrisons. As we read their details, the questions present themselves, whence the necessity of such elaborate arrangements for the purpose; to what condition of foreign service are they suited; and whence the good of breaking up the old system of regimental arrangement for the purpose of introducing them? The actual equipment rendered necessary under the new organization is considerably larger than what was formerly found sufficient under the combined regimental and general system as laid down in the Regulations of 1859. The description of transport wagons is unsuited for service in either Africa or Asia. The various establishments, consisting of officers and men suddenly thrown together in times of emergency, is thus made up of heterogeneous materials without cohesion or mutual interest. Another and important objection lies in the fact that by the latest regulations abolishing regimental medical officers, the cadres are destroyed from which establishments could be furnished in the emergency of sudden war. It becomes also necessary to have in view the duties to be performed by the Medical Department in times of peace as well as those in time of war. In the former the duties are chiefly such as are connected with hygiene of the troops; in war they are, for the most part, surgical. In war it may happen that a fifth or sixth of the whole force returns wounded from a severely-contested battle, thus demanding suddenly the greatest exertions on the part of the medical officers and the greatest administrative talent on the part of the principal officer. In the case of an advancing army, it becomes necessary to make ample provision for such of the sick and wounded as have to be left behind, as well as for the probable requirements of the force proceeding onwards. Thus it is essential that the medical organization be such as to admit of all these several purposes being readily and speedily fulfilled. During peace, arrangements should be so conducted as that the medical officers concerned shall know who among them are to remain with regiments, who with field hospitals, and who with wounded left behind or sent to the rear. In Continental armies this distinction exists throughout each command. It could be readily introduced into the British service, as indeed it was in former times. The regimental medical officers then knew that their place was their regiment, unless specially ordered on other duty. The staff men were equally well aware that their duties were general or in connection with ambulances. This system is in fact, to a considerable extent at least, in force in India. There, whether a detachment, regiment, or larger body of troops be suddenly ordered on active service, it is always easy by means of existing arrangements to provide it with all requirements for probable sick and wounded.

To carry out the arrangements indicated in our last number, it is necessary that, in the first place, the medical establishments of regiments should be complete, each in itself; also that to each brigade and division, wherever stationed, there shall be a senior and principal medical officer, together with at least a cadre of subordinate establishment pertaining to each. This arrangement is now facilitated by the proposed introduction of the rank of brigade-surgeon equivalent to the staff-surgeon of olden days, and the staff-surgeon, 1st class, of more recent times. In time of war an increase in the numbers of army medical officers would, of necessity, be demanded; a distinct staff would be appointed for the ambulances and other hospital establishments in the rear of an effective force, and at the base of military operations and reserves. With regard to the establishments to be maintained in the mother-country in the event of great and sudden strain, as a result of foreign war, not only should medical officers, upon half-pay, be utilized, as contemplated by the recent War Office Committee, but by preconcerted arrangements between Government and Medical Schools a reserve should be maintained, so that under great pressure the army medical cadre could be filled up. No doubt under such an arrangement many medical men, who, under other circumstances, join Red Cross Societies, would temporarily join the Army Medical Department; but inasmuch as these would naturally have their duties to learn in reference to troops in movement, the amount of actual use they would be, except with establishments in rear of an army, is of the smallest. Nor does the experience hitherto obtained of wars in distant countries as China, New Zealand, India, and Africa justify a belief that many, except the regular medical officers of the army, would care to bestow their services under such circumstances.

• It is somewhat difficult to form a clear idea as to the precise conditions to which the so-called *organization* of 1878 really is adapted. With regard to field operations and autumn manœuvres in the United Kingdom, it is really not required, as the sick being under such circumstances left in garrison and camp hospitals, provision has only to be made for the few casualties that may be expected to occur; and for these the regimental hospital establishments, medical and otherwise, for twenty sick per regiment were amply sufficient. No doubt, however, great advantages accrue from the system recently introduced of having regular transport carriages for the conveyance of the sick, and regularly trained men as hospital attendants; but these are respectively as applicable to individual regiments as they are to what is called "the general system." With regard to foreign service, we have already seen that in *uncivilized* countries the absence of roads precludes the use of such a *train* as is required in connection with the system proposed in 1878. Neither in such countries could the wounded of an invading force be left behind as in civilized countries, except with the certainty that, unless strongly guarded, they would be destroyed; and to leave a sufficient protective force, at different positions along the route of advance, would so weaken the effective portion of the army as to render the measure altogether impracticable. To what precise conditions of warfare, then, are the proposed arrangements suitable? We are left to the very restricted option between the Continent of Europe and America. Assuming that England may some day or other be unfortunately at war with one or other of those countries, the question still remains, what are the circumstances under which a series of establishments, such as have been alluded to, would require to be, or indeed could be, usefully placed at

intervals along a line of advance? Say, for example, that each of the twenty-five separate hospitals already enumerated is detached so as to provide for the sick and wounded of a victorious force, itself progressing on in its career of success; and assuming that a minimum of fifty miles of distance existed between individual establishments, the result would give twelve hundred and fifty miles, over which the career of victory would be carried. This, indeed, is underestimated. Under conditions suitable for the working of such establishments, good roads, and probably railways, would be available. Let us say that in the latter case a hospital establishment existed at intervals of one hundred miles from each other; the distance thus represented would amount to two thousand five hundred miles. We know also that, with armies advancing through an enemy's territory, as for example the Germans in 1870, the Russians in 1878, a special surgical service for the wounded, including railway conveyance and *post* hospitals, become organized altogether irrespective of, and in addition to, establishments with the active force. Where, or when, is such a condition of affairs likely to occur with regard to our forces? Yet for such an improbable, if indeed not impossible, contingency, all the conditions, regimental and other, which have hitherto worked well, whenever they had a fair chance given to them, have been thrown out of gear, in fact abolished.

But it is observed our ambulance establishments, as now constituted, are upon the model which has heretofore worked successfully in America, in Germany, and in France. Have they ever, in reality, worked successfully in either of the two latter? With regard to the first of these two, it is on record that with all their *perfection* of system, wounded on occasions lay upon the field untended for two and more days after a battle; that bedding and hospital clothing were deficient or altogether wanting; that patients affected with small-pox were intermixed with wounded and those who had undergone operations; in fact, that the scenes related by Sir John Pringle in the middle of the past century, and Sir James McGrigor at the beginning of the present, with regard to general hospitals, were repeated during the war of 1870-71; that such conditions as for more than one hundred years it had been the aim and object of all concerned in the administration of the medical department of the British army, to avoid were here reproduced under the operation of a system to which we have reverted.

Is the question asked, what do we propose instead of a system thus shown to be ill-suited for purposes of garrison life in Britain, to be unnecessary for field and autumn manoeuvres in the United Kingdom, unadapted for war in Asia and Africa, and ill-suited for that in America or Europe? The question is by no means difficult to answer. Here is one solution. Let us, for the sake of illustration, assume that a *corps d'armée* is employed on active service under conditions suitable for British regulations being carried out. In such a case, regimental and brigade establishments would consist of *personnel* and *matériel* pertaining to themselves; those for divisions, general head-quarters, and reserve being departmental, and unconnected with either of the former, although directly under the orders of the general officer commanding the force and of the principal medical officer. Thus the several establishments would include the following, *viz.* :—

- (1) Those always present with regiments, accompanying them on the field, and affording first aid.
- (2) Establishments drawn from regiments, supplemented, when necessary, from elsewhere, and capable of affording aid by means of light ambulances, or field hospitals, between the first and third lines of assistance.
- (3) Field hospitals, or brigade ambulances.
- (4) Those of divisions.
- (5) Those of army head-quarters.
- (6) Reserves at the base.
- (7) The establishments connected with the mother-country and communication therewith.

(1) *Regimental*.—Inasmuch as the regiment is the military unit, so for the sake of convenience it is taken as the starting-point in the present summary. For each battalion on its service-footing there should be three medical officers, irrespective of any left behind in charge of sick and non-effectives. In this way one would be available to accompany the troops into action, and two for service with the brigade ambulance, formed, in a measure, from regimental establishments. Smaller bodies of troops, as batteries of artillery, companies of engineers, &c., should be provided with medical officers in proportion, their wounded being looked after by their several brigade establishments. In times of peace the sick of regiments should be attended by the medical officers of their own regiments (and as the most recent recommendations with regard to the French army would have them be).

In war, the great majority of them, and of the wounded, must be sent to ambulances and other establishments already enumerated. The medical officer proceeding with his regiment on the field ought to be attended by a *regimental* orderly, carrying a *field* companion, his own kit being carried on the regimental wagons. Surgeons of regiments engaged should, according to particular circumstances, either follow their several troops independently into action, or unite at a determined point to which the wounded should be brought for aid. In European war it will be found that in most instances they must follow their regiments.

Brancoardiens.—In each company, or body of corresponding strength, there should be two soldiers trained to assist in giving, first, aid on the field and in the removal of wounded: except when required for this purpose, they would be among the effectives and in action. In India doolie and other bearers, under the superintendence of two or more soldiers, are usually thus employed. Musicians may also be so employed.

(2) and (3) *Brigade establishments*.—On active service, the establishments of the several brigades should, when united, form those of divisions. With a view to render it easy to carry out this transition, medical officers serving with regiments in cantonments, other than he who is to accompany each on service, should join the ambulances, together with such men of the army hospital corps as are usually employed in the service of brigade hospitals in quarters, the whole being under the senior medical officer of the brigade. The means of transport should be obtained divisionally. Besides the regimental establishments of medical officers and other *personnel*, brigade establishments should be complete in themselves. Each such brigade hospital should form a third portion of the divisional establishment. It should admit of ready separation into ambulance or flying establishments and field

hospitals; the latter to become sedentary in the event of accumulation of wounded or other circumstance rendering this arrangement necessary. Each brigade establishment should consist of five medical officers, one compounder, three stewards or assistant stewards, two sergeants of the army hospital corps, twelve orderlies to attend on wounded, twenty men of the army hospital corps for non-professional work, one cook, one washerman, one sergeant, and ten soldiers of the army service train, together with equipment for two hundred patients irrespective of, and additional to, regimental establishments.

(4) *Divisional*.—The ambulance establishments for two brigades, and that of the reserve, as above enumerated, should, when united, form the establishment of a division, it being understood that with the reserve there should be a principal medical officer of the division, together with a medical officer as assistant, and a clerk. There ought to be with each division a sufficient reserve of stores, medical officers, and servants to meet emergencies, the reserve of medical officers consisting of those who are unattached, as well as, when necessary, those belonging to, but for the time being detached from, their regiments, and who on the completion of their particular service would rejoin those regiments. Each of the regimental medical officers should have two field orderlies and field companies also belonging to their regiments. The entire establishments proposed to be assembled divisionally, if the arrangements are adapted for European war, would include the following, *viz.* :—

One principal medical officer.

Five surgeons-major, of whom four from regiments engaged.

Sixteen surgeons, of whom twelve from regiments.

Two ward-masters or hospital sergeants.

Eight orderlies for attendance on sick.

Twelve orderlies for other duties, as cooks, stores, &c.

Twenty-eight regimental field orderlies accompanying regimental medical officers.

Seventy-seven brancardiers, including three sergeants and eight corporals.

In India the proportion of attendants, brancardiers, &c., would be made up from Native establishments.

According to German regulations there are twelve divisional field hospitals per *corps d'armée* of 30,000 men, and the arrangement is considered good, as having the special advantage of disseminating sick and wounded. Each divisional hospital as above consists of three portions, namely, one to accompany a division of infantry and one for the reserve; that is, each is capable of sub-division into three *brigade* field hospitals. Each *individual* divisional hospital includes one medical officer, five surgeons-major, ten surgeons, one apothecary, one lieutenant, six purveyors and their assistants, one almoner (*chaplain*), six non-commissioned officers of orderlies, thirty-six orderlies for sick, sixty orderlies for other duties, one pack and other store-keeper, three surgeons, three cooks, three washermen, one blacksmith, one carpenter, three non-commissioned officers of the train, and thirty soldiers of the train. Each hospital of this nature should *hospitalize* 600 sick; each sub-division of it 200; for the entire *corps d'armée* 1,800, without having to fall back upon the reserve hospitals; the latter should provide for 300 more, or utilizing the ambulance battalion, which should take 500 additional to those thus provided for. Thus without the reserve hospitals, which should be a march at least behind an active force, the hospitals at the front should be capable, in an emergency, of receiving 2,000 wounded per *corps d'armée* in an action. In connection with these divisional hospitals, medical officers, other *personnel*, *matériel*, and wagons should be arranged with reference to the establishments being divided into three sections, as above indicated. As soon as possible after a battle, such of the wounded as are transportable should be removed to a considerable distance in the rear, thus leaving those sections at the front ready to provide for further casualties.

For each of the three sections five wagons or conveyances are required, *viz.*, one for instruments, appliances and medicines, one for cooking and food, three for hospital *matériel*. The two first wagons to be for two horses, the three last for four each.

The surgeons, officers, and purveyors of the army hospital corps are conveyed in an omnibus of the train, and it is used during battle for the transport of wounded.

(6) *Reserve general head-quarters*.—According to arrangements suited to European warfare, the reserve with head-quarters of a *corps d'armée* should supplement the requirements of the divisional ambulances; the *matériel* conveyed upon six wagons, that is, one additional to what is required for the three sections of a divisional ambulance, or, say, an establishment equal to an entire divisional ambulance. This establishment should be so arranged as that one part or the whole should be convertible, if necessary, into a sedentary hospital, the other remaining mobile. The *personnel* should be composed as follows, *&c.*, twelve surgeons-major, twelve surgeons, three apothecaries, three assistant apothecaries, nine purveyors and stewards, three military officers to command, three almoners, nine sergeants of orderlies, thirty orderlies for sick, sixty orderlies for general work, thirty-three non-commissioned officers of the train, three baggage-masters, three cooks, three washermen, nine carpenters and joiners, eighteen servants for officers.

(7) *Establishments in rear of a force*.—Under the circumstances in which the British army is likely to be engaged, establishments of this nature would comprise those at the port of landing or of embarkation, as also communications to be kept up with the mother-country. Their organization and *personnel* should be equal to one entire divisional hospital for making provision for the sick and wounded arriving at the port; but over and above this provision would be required for those being transported home, and *matériel* and *personnel* maintained with this view, although, to a great extent, they would be completed by arrangements direct from home. In these establishments also, arrangement should exist for the disposal of men, who, slightly wounded, or recovering from illness, become fit to rejoin the active force.

Let us now turn to India, and endeavour to trace the rise and progress of arrangements for sick and wounded soldiers on active service in that country. The earliest date with reference to which definite information with regard to them is available is 1791. That *field-hospitals* of some kind existed for some time before then is evident from the circumstance that the inconvenience and defects of the system as it existed was matter of notoriety. In that year the total want of any practicable regulation providing for more than the slightest cases of sickness and injury called forth a general order by

Earl Cornwallis, dated 19th of August, inaugurating certain change and improvements in the system, such as it was. It is apparent from that order that each regiment, whether of Natives or Whites, had its own surgeon. An allowance in money was granted to such surgeon; and out of it he was expected to discharge all payments on account of the soldiers under his superintendence, for medicines, hospital diet, attendants, and conveyance. In the field, tents for the sick of regiments, according to regulation, were to be pitched apart from the ordinary regimental ones; and if the former were insufficient, they were to be supplemented by the latter; and when the sick or wounded soldiers were removed from such *field-hospitals* to those that were stationary, all expenses were charged to their regimental surgeons. Each hospital was to be visited daily by a regimental officer, who was to inspect the condition of the establishment, to enforce the performance of all necessary duties on the part of the regimental surgeon, and to see that all the patients were properly attended and taken care of.

With regard to the medical arrangements for the troops employed in the Mahratta and Pindaree campaign, 1817 to 1819, we learn that when the Madras European regiment proceeded from Hyderabad for the Manzoora river, the doolie-bearers provided consisted chiefly of coolies, so that they were unable to carry the sick, who were accordingly placed in country-carts, four and five in each; several tumbled off those conveyances and were left on the road exposed to the sun, until, being missed, doolies were sent back for them. At the battle of Mahidpore there was scarcely a bit of plaster and no surgical instruments, with the exception of those that belonged to individual medical officers; and from the want of proper appliances two out of every three wounded died. Brief and imperfect as these particulars are, they are sufficient to indicate the deplorable state of medical arrangements for the field; and by comparing them with the condition already related in reference to our forces operating under War Office Regulations, the superiority of the latter at the time is manifest.

The first Burmese war occupied the period between 1824 and 1826. At first, and for some time after its occurrence, the troops were next thing to absolutely destitute of all requirements for preservation of health, and for their proper care when sick or wounded. For example, the 38th Foot landed with an allowance of bearers for four doolies, but no doolies were provided, although the surgeon made every endeavour to obtain them. No carriage for hospital purposes was provided from Rangoon to Prome; none for medicines, instruments, clothing, or hospital comforts. Two cow-buffaloes were given to each hospital for the double purpose of providing milk for the sick and carrying loads; but, as indeed might have been expected, they soon died; and after this occurred bullocks were provided, for each of which the surgeons of regiments had to pay out of their own pockets. At a subsequent period two hackeries or country-carts were provided for the conveyance of sick of particular regiments, but all such means fell far short of requirements. As an example of the description of buildings used as hospitals, it is stated that at Arracan the sick of the 47th Regiment were placed in a Native hut insufficiently raised; that underneath it were mice and filth of every description; and that, as a result in individuals lowered by disease, death was induced by the direct influence of an impure and noxious atmosphere. As a more or less direct result of such a condition of things, it is on record that, whereas during the whole war three and a half per cent. were killed in action, the entire loss amounted to seventy-two and a half per cent. of the original force.

In 1839 our forces proceeded to Afghanistan. Each regiment had its own establishment, and, in addition, a general or divisional hospital existed for each divisional force. The white soldiers of the army that marched from Quetta to Kandahar were ill-provided with food and transport; the soldiers, weak and sickly as they soon became, had to carry their knapsacks, and under the load staggered as they marched. Many of the sick who ought to have been carried, had to walk, and on arrival at Ghuznee had to spend a night unsheltered in the adjoining hillsides, the result being that a considerable number of them died. At Cabul the hospital of our troops was the last building completed. The building utilized for the purpose was ill-suited for it, and moreover it was situated in a place excavated from a deposit of filth. During their subsequent march from Cabul to Jellalabad such men as fell sick, as also the wounded, suffered greatly as a result of want of carriage, constant exposure, and insufficient food. Indeed, with regard to the great defects of arrangements for sick and wounded in India, the principal medical officer at this time wrote:—

“It is surprising that, in a country where hostilities have been so long carried on, this most essential branch of the military department is so very deficient and imperfect.”

In 1843 the war against Gwalior took place. On that occasion ample arrangements existed regimentally for sick and wounded; there was also a general hospital establishment, which worked efficiently; and, in addition to both of those, arrangements were made for the conveyance of wounded by country-carts to Allahabad, whence they were despatched by the Ganges to Calcutta, and so to England.

As we see, arrangements in India for sick and wounded on service were, up to this time, extremely defective; as a result, many lives were lost and a great deal of avoidable discomfort experienced. But a change had now taken place; attention was fully awakened to the importance of having all arrangements of soldiers disabled as complete as possible, and henceforth a steady advance in regard to them took place. On the occasion of the Sikh war in 1848, much latitude was left to the Superintending Surgeon, Dr. Macleod of the Indian Medical Service, who was charged with the organization of the medical arrangements connected therewith. In addition to regimental establishments, a large hospital and reserve of stores existed at Ferozepore. It is clear, however, that no regular plan of procedure had been drawn out in advance; for among the instructions issued by Dr. Macleod, he invites: “all medical officers to meet him to organize some plan of combined action.” On the 21st of December of that year the severely-contested battle of Ferozeshah took place. The wounded were in many instances left upon the field from that date till the 24th, the chief reason being insufficiency of carriage: meantime the wounded could not be sufficiently attended to, their numbers being so great and the surgical staff so limited. At the end of that time they were removed by means of country-carts to the neighbouring station of Ferozepore, and there received into regular hospitals. Instead of seventy-six doolies, namely, the proportion which, according to Regulations, should have been provided to the 29th Regiment, and six bearers to each, only twenty-four were actually sent, and to each only five

bearers, these being all that were procurable to meet the sudden emergency of that war. On line being formed by the force, the regimental doolies and establishments took their position in the rear. When wounded began to fall, these establishments halted and all gave assistance, irrespective of regiments, the bandsmen being utilized to bring in the more severely injured. Soon, however, confusion occurred,—officers and soldiers carried away doolies, appliances, and water. Dr. Taylor, c.b., tells us that, for greater convenience, he had placed a supply of instruments, dressings, and restorative in a doolie; that, as night closed in, the surgeons lighted candles, and thus continued their services on the field, but the fire of the enemy being drawn thereby, they found it impossible to proceed; and so, by the aid of doolies, camels, and stray horses, a good many of the wounded were removed, although, as already observed, very many had to be left upon it without aid of any kind. After the battle of Sobraon, 10th of February 1846, a large number of wounded were taken to the general hospital at Ferozepore, where numbers from Ferozeshah still remained. Barracks, as well as hospitals, were used for their reception; but all being overcrowded, hospital gangrene, attributed to the circumstance, broke out among them.

In 1848 the second Sikh war took place. Dr. Rennie, c.b., profiting by the experience of the past, drew up scales of equipment for regimental and field hospitals, which may as well be taken as so many models. Each such scale represented the *personnel* and *matériel* for one hundred sick, or its multiple up to three. A large general depôt and reserve store was established at Ferozepore, including doolies, bearers, and other means of transport, and reinforcements of supplies, these being sent to the front as required. For the troops operating or likely to operate in the hilly country beyond the Jhelum, kajawah or camel litters were provided for the conveyance of sick or wounded. In addition to the ordinary regimental transport, charpoy litters were also used; these, like the ordinary doolie, serving not only for transport of the sick, but as bedsteads for them in the hospital tents. The tents were carried upon camels and elephants. Besides the regimental establishments, a portion of the general hospital from Ferozepore took the field; and at the battle of Ramnugur received the wounded, remaining afterwards stationary. Thus the regimental hospitals alone had to meet all requirements on the occasion of the next battle fought, namely, that of Soodalpoore. In the meantime an outbreak of small-pox threatening, arrangements for an infectious hospital were made in connection with the general establishment. The sick and wounded were, after a little, sent to the rear, and the hospital then moved onwards. At the battle of Chilianwallah, regimental bearers carried the wounded to the general hospital, from which they were in due course evacuated, thus leaving the active army force to act. At Guzerat, regimental and field hospitals alike received wounded, and gave help to those of the enemy left upon the field; and a similar arrangement was observed in respect to the force sent in pursuit of the Sikhs towards Peshawar.

When in 1857 the mutiny of the Native army broke out, arrangements for sick and wounded had to be extemporized out of such establishments as existed in connection with regimental hospitals; and there is little doubt but that, had it not been for those establishments, no adequate provision could, under the emergency of the occasion, have been made. After the first outbreak had been met, field forces were organized, and by them military operations prosecuted simultaneously in a variety of directions. Let the force that advanced through Oudh, from the eastward, be taken as an example. With it the medical establishments were entirely regimental; and at the several actions fought during the advance, all such establishments united gave the useful help to the wounded. One circumstance, however, deserves to be specially noticed. After the rebels had been defeated at Chanda and Umerpore, and the force fairly entered Oudh, the enemy and general population closed in upon its rear, so as to isolate the force. Nor did it again have communication with the outer world until some ten days afterwards it emerged at Lucknow. Thus to leave behind sick or wounded was impracticable. They had to be carried on, their numbers each day accumulating; but, with the regimental establishments complete, all were well looked after and attended to by medical and military officers of the regiments to which they severally belonged. At Lucknow regimental hospitals were supplemented by general establishments; but whenever it became necessary to transfer the wounded from their proper regimental to the general hospitals existing, their lamentations were great; in their own words "they were sent away from among their comrades and friends to be associated with and taken care of by strangers." Lucknow was captured on the 17th of March 1858, and shortly afterwards a force was suddenly organized to proceed to the relief of Azimghur, and as subsequently transferred to pursue Koer Singh across the Ganges and into the jungles of Jugdispore. The hospital establishments connected with it were entirely regimental, stores and equipment being so arranged that they could be readily divided when necessary. The *personnel* was also apportioned according to wings of regiments. Thus whenever smaller portions of the force had to be detached upon special service, the proper hospital establishment accompanied as a matter of course, and without any special organization being required beyond what already existed.

With regard to the ordinary routine of medical duty in India during peace, so strong are the convictions entertained regarding, and justified by experience of, the system of regimental hospitals and administration, that both are strongly advocated and carried out, as far as it is practicable to do so, by means of medical officers simply attached, instead of belonging to, regiments. An important end thus attained is that sick, whether officers, ladies, soldiers, or their families, receive prompt attention when sick, and under all circumstances. A regular hospital establishment, sufficient for the ordinary requirements of the troops, is always at hand and ready to take the field or accompany the corps by sea or land. Let us, therefore, be chary of altering conditions which have thus well fulfilled their functions, and are fulfilling their purposes, to which end their steady onward development has taken place. At the very time these notes are being arranged, there are in full and successful working throughout India upwards of 150 regimental hospitals in Bengal, 64 in Madras and Burma, and 54 in Bombay, or a total of upwards of 274. In the face, therefore, of such facts, it is simply not the case that the days of such establishments are past and gone; exactly the contrary. Let those responsible for such matters, then, have a care to adopt the axiom attributed to a late President in America, and with regard to regimental *versus* station and general hospitals, not to "swop horses crossing a stream.

ANNEXURE D.

Extract on regimental hospitals in the French army from my "Lessons in Hygiene and Surgery from the Franco-Prussian War," page 27.

Regimental hospitals and regimental surgeons in the French army.—Regimental hospitals, as those establishments are understood in England, cannot now be said to exist in France. This was not always the case however; for their history, like that of many other institutions, shows that they have had their periods of popularity and of unpopularity, and that their separate existence dates from a period antecedent to that of the now more favored general hospitals. It will be remembered that Sully established the first ambulant hospital at the siege of Amiens, 1597, under Henry IV; Pignerol the first stationary hospital, under Louis XIII, in 1630; that under the reign of Louis XIV the regimental establishments were extended in number and efficiency; and that in 1788 the general military hospitals were suppressed. From that date till 1792 regimental hospitals furnished the only available means for the treatment of sick and wounded soldiers. But the change that had been made showing itself to have been made of too sweeping a nature, the general hospital system was re-established; and from that time the regimental infirmary has continued to be looked upon as an altogether secondary institution, Marshal Soult being the only military officer apparently who really was alive to the important place they were capable of occupying if conducted as they ought to be. Medical officers have always deprecated the secondary place given to the infirmaries, but hitherto without result. They have represented to the authorities that in quarters they might be made to serve several good purposes; that under more developed conditions sick could be treated in them with less expense to the State than in the large and more complicated establishments; that many men who are sent from general hospitals to duty before their strength has been established would, in a regimental hospital, be permitted to complete convalescence, thus avoiding the risks of the relapse, and diminishing the rates of sickness and mortality in the army. The mutual interest considered desirable to exist between soldiers and their surgeons would be enhanced; and the latter would have opportunities, which they now lack, of gaining practical experience in professional duties as well as in those of organization. Further, as M. Didiot* points out, "the trials already instituted have demonstrated that the health of the troops, discipline, and the public treasury would alike derive great advantages from this institution, provided it received with a wise discretion the development of which it is susceptible." It is well to observe, however, that these establishments are altogether separate from, and independent of, the ambulances organized for, and specially intended to work with, divisions and corps of an army on active military service.

Some years ago the establishment necessary for regimental infirmaries was reconsidered. A few of the recommendations then made have since been carried out, but others still remain to be so; and meantime the conditions are, it is to be feared, anything but satisfactory.

Dr. G. Smith, M.D., Surgeon-General, Indian Medical Department, Madras.

I am opposed to the substitution suggested, on the ground that it is impracticable.

Take Madras, and the same remarks will in principle apply to other large stations such as Secunderabad and Bangalore. The hospital of the Bodyguard is on the Esplanade; one Native infantry regiment is stationed at Vepery, a second at Perambore, and a third, a long distance off, at Royapooram. Let us suppose these regimental hospitals closed, and in lieu of them a central station hospital constituted, and let us place that station hospital at the most convenient spot, it would still follow that every sick or injured sepoy would have to walk or be carried—involving extra expense in coolies or sick carts—from one to two miles before he could find the medical aid and shelter required. How would this arrangement answer in cases of accident, sun-stroke, or severe fever? how in the hot or rainy season? how when epidemic cholera has attacked a regiment? The substitution proposed is inapplicable to single stations, where the regimental hospital system must be retained, and is impracticable in the case of the larger stations in this presidency.

Further, the regiments referred to have each one commissioned medical officer.† Should economy require that that number be lessened, and that one or at most two medical officers be expected to attend, not only upon the sick of the regiments collected in a station hospital, but also upon the officers and their families, and upon the medical requirements of the lines, then it becomes obvious that nothing but disappointment and failure would result. The deficient arrangements would have to be supplemented by some form of medical aid nearer at hand, and by some form of temporary shelter for the sick near the lines; and what would this be but the reconstitution of an objectionable and inefficient form of regimental hospital?

The inconvenience which would result from the adoption of the station hospital system, to the sepoy would be very great, in consequence of the peculiar constitution of the Native army of this presidency. A Madras Native regiment, say of the line, does not occupy barracks but lines of huts, in which with their families and followers the sepoys reside, of the number of from 1,400 to 2,000. This community requires the constant supervision of the medical officer as regards disease, vaccination, and sanitation. Each member of it is entitled to medical aid; and all must submit to the military and medical regulations necessary for the well-being of the lines. When sick, the sepoy is admitted to the regimental hospital, which, as a rule, is situate close to the lines; and his meals, prepared in his own house, are brought to him by members of his own family, who with his friends have, unless the nature of his sickness prevent, free access to him. The Madras sepoy has no objection to the regimental hospital; but he has strong objections to strange hospitals, strange doctors, and to association when sick with strangers. This family constitution of the Native army should not be overlooked. It has its disadvantages, but it has also its advantages. By the substitution of station for regimental hospitals, the existing system of dieting the sick already referred to, which, though somewhat objectionable in theory, works fairly well in practice, would be seriously interfered with, much to the inconvenience and disappointment of the sepoy and of his family.

* "Code des Officiers de Santé."

† The medical officer of the 4th District has also medical charge of the bodyguard.

The existing system works well and economically in the Madras army. It is convenient, efficient, safe to the sick, better suited, from its mobility and expansibility, than the station hospital system for emergencies, military and medical, and more in accordance with the habits, peculiarities, and prejudices of the Madras sepoy. Moreover, inasmuch as the regimental dual system has not been displaced by the general hospital system at present in vogue in Europe, the regimental hospital represents a simple organization suited alike for war and for peace. Let a sudden demand for troops arise, the regiment takes the field with its hospital complete, and with its medical officer and medical subordinates familiar to all and acquainted with the medical history of all, instead of being manned, which it would otherwise be, by medical officers and subordinates who are utter strangers to the regiment. I fail to see any advantage derivable from the institution of station hospitals with their accumulations of sick, in lieu of the present system of regimental hospitals in time of peace; and I have yet to be convinced of their superiority in time of war. All Indian campaigns within the present century, so far as I know, have been carried on with regimental general hospitals; and I am not aware that a better system has yet been devised for the Indian army. I do not deny the possibility of a better system; but until the details of that better system have been thought out and determined, I see no advantage, but much the reverse, in substituting station or garrison for regimental hospitals.

Deputy Surgeon-General J. M. S. Fogo, Officiating Surgeon-General, British Forces, Bombay.

Very much in favor of station hospitals instead of the plan of regimental hospitals, but with regimental medical officers who shall be for general duty in the hospitals under the orders of the senior medical officer, and shall treat their own sick.

Dr. W. G. Hunter, M.D., Surgeon-General, Indian Medical Department, Bombay.

I am quite in favor of substituting a system of station or garrison hospitals for the present system of regimental hospitals, and believe that it would be attended with increased efficiency and considerable reduction of expenditure, not in subordinate establishments only, but in many other ways. For instance, much fewer medical officers would be required, and many petty charges now incurred would be greatly reduced. Such a system would prove of benefit to the medical officer himself; it would give him more occupation, a much desired end, more interest in his work, sharpen his zeal, and necessitate his paying more attention to professional studies than the present system tends to induce.

Dr. Colvin Smith, Deputy Surgeon-General, Indian Medical Department, Madras.

Were everything equal, I should be in favor of substituting a station hospital for the present regimental hospital in India. But the small badly arranged regimental hospital attached to each corps of Native regiment at present could never be converted into garrison hospital. On this account large expensive station hospitals would require to be built. In some of our large stations doolies, sick carts, &c., would then be required to be kept in the lines to convey the sick to hospital. Corps being so far apart, it would be impossible that men from each, when sick, could walk to a "central hospital."

Dr. J. Gibbons, Deputy Surgeon-General, British Forces, Meerut Circle.

A system of station or garrison hospitals is the direct corollary of the unification system; and believing this to be the true economic system, I am in favor of station hospitals being extended to India and formed in all large stations and garrisons.

When it becomes necessary to detach a corps, there is no difficulty in attaching to it for the time a sufficient medical establishment.

Deputy Surgeon-General S. C. Townsend, Principal Medical Officer, Kuram Field Force.

I am of opinion that station or garrison hospitals may with advantage be substituted for regimental hospitals for both European and Native troops.

Surgeon-Major T. G. Hewlett, C.I.E., Acting Deputy Surgeon-General, Sind Division.

Most decidedly; I have given my reasons for this opinion, and have shown what saving in *personnel* would be effected by it in a report* lately submitted to the Army Organization Commission.

Surgeon-Major J. Pictall, M.D., Examiner of Medical Accounts, Bengal.

There is much to be said for both systems on the grounds of economy and efficiency. If the latter essential is to have due weight, my own opinion favors the regimental. If a system of garrison hospitals were adopted, there must be of necessity a reserve of medical subordinates and purveyors to meet any urgent calls such as would arise on a corps being suddenly ordered to move. Where then would be the economy? I consider for this country especially, where a corps is supposed to be ready for service at all times, the regimental hospital is more preferable than would be a system of garrison hospitals. I admit that there would be economy in the latter, but this would be at the expense of efficiency; for unless, as stated, a reserve is maintained, it would be impossible to equip a regiment with the necessary establishments and material when suddenly called upon to move. The medical and surgical equipments also would, I apprehend, have to be kept in store in the garrison hospitals, so that I do not see there would be any saving under this head; possibly there would be a loss through deterioration.

I am of opinion that any attempt to introduce a medical army-corps, or medical unification as it is sometimes called, and copy the system adopted in foreign armies, to be undesirable, if not unnecessary. There is no European enemy to contend with. We are supreme rulers of the country; and a system which is in conformity with the necessities of Indian service surely must be much cheaper than one that is not. Can any one imagine it possible that there are likely to be again campaigns equal in magnitude to those of the Sutlej? If the medical arrangements in force in those days were

found sufficient,—and I am not aware to the contrary,—it appears to me to be going unnecessarily out of the way to introduce a system which may be suited to the necessities of Continental armies, but which under an altogether different set of circumstances adds to expense without, so far as I am able to understand, bringing any corresponding advantage. One of the evils of this system would be to divest medical officers primarily of their responsibilities in connection with the care and supervision of the medical and surgical equipment. As these are always obtained on his own requisition for his special use, it is only proper that there should be no shifting the burden of responsibility on to the shoulders of subordinates. I consider if more attention was given to that minutiae which constitutes so large a part of hospital practice, and less to a desire to assume command and exercise authority over men and matters, which would be best left to others, greater efficiency and economy would be the result. The simpler your hospital arrangements are the better. Again, the introduction of such an elaborate scale of hospital equipment as that laid down in G. G. O. No. 681 of 1877 to be kept complete and serviceable in purveyors' stores for the use of a regiment of British infantry,—a scale that exceeds the cost of that authorized in Military Department letter No. 809 of 27th June 1882 by 78 per cent., rates being equal,—is, I consider, beyond the fair limits of the soldiers' requirements, or what the public ought to be saddled with.

Surgeon-Major J. H. Porter,
late in medical charge of Field
Hospital, 1st Division, Peshawar
Valley Field Force.

I am in favor of substituting a system of garrison hospitals for the present system of regimental hospitals. I believe the station hospital system will be attended by greater economy and with better results to the sick, where there will be opportunities for medical officers to consult with one another on more important cases, and where medical officers would be more likely to have at their disposal every modern surgical appliance and remedy.

Surgeon-Major C. Martin, Army
Medical Department, 13th Hussars.

I am entirely in favor of station or general hospitals, both in time of peace or war.
The regimental system is cumbrous, expensive, and not efficient.

6. If this were done, and the various hospitals in a garrison were placed under the senior medical officer, would there not be both great increase of efficiency and also great economy in subordinate establishments?

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

The formation of station or garrison hospitals in cantonments is advisable, not only financially considered, but also for the purpose of effective administration. It is especially in times of peace that medical officers should receive their training in the system which is to be carried out during war; and unless hospitals are consolidated in cantonments, no system of training is likely to avail.

Unless it can be shown that there are special circumstances attending Indian service which should make it an exception, there appears no reason why the same system which is followed in all other portions of Her Majesty's dominions should not be made applicable to India also. Moreover, no attempt has hitherto been made to assimilate (so far as differences of climate and service admit) the hospital and field equipments of this country and home, although State reasons may hereafter render a repetition of the experiment of the employment of Indian troops in Europe or Asia necessary. The consequence is that an officer arriving in India finds his duties new to him, and after a service of five years in regimental hospitals returns home to find he has forgotten the details of the station hospital system. This cannot be continued without detriment to the medical service as a whole.

The system of treating sick regimentally has obtained partly because it has heretofore been considered necessary to regard all corps as capable of acting as independent units, complete in themselves, ready at any moment to take the field or to undertake marches of long duration, and partly because a single corps may be quartered in a detached post.

I shall endeavour to show presently that under the altered conditions of modern warfare the above-named reasons have lost much of their force. The isolation of a single corps in a station is wholly exceptional, and our railway transport has for the most part obviated the necessity of long marches. Nevertheless, I believe that, however much we may generalize our system of medical administration, it will be always requisite to maintain with regiments of infantry and cavalry at least one medical officer. This is necessitated by the presence of the wives and families of officers and soldiers, the inspection and care of prisoners, and the general sanitary requirements of a corps, &c., &c.

According to the existing system in force in our large stations, there is a repetition of the equipment, &c., for each corps hospital. The waste of material and labor is obvious; and, regarded from a common sense point of view, it can scarcely be necessary to maintain for two or more corps-units, with hospitals in juxtaposition,—it may be under the same roof,—full and complete sets of stores, surgical appliances, and medicines, as well as separate establishments for each independently.

Take the station of Umballa as an example of a station in which all arms of the service are present; although Umballa, from the limited accommodation in each corps-hospital, cannot be cited as illustrative of a station in which the station (garrison) hospital system could be easily applied. The European force is generally composed of—

One regiment infantry,

One " cavalry,

Two batteries of royal artillery treated in one hospital, but with separate equipments.

The equipment of a British hospital may be classed under two heads, *vis.*—

I.—Medical and surgical stores under the custody of the medical department,

II.—Bedding, clothing, cooking utensils, &c., under the custody of the commissariat.

With regard to the first, each corps-unit is supplied with a complete set of surgical instruments and appliances. Were the sick treated collectively, however, the scale of instruments could be reduced to one-half after making provision for any emergency (excepting war) that might arise. As an illustration, take the following costly articles :—

ARTICLES.	Present scale of total force.	Probable requirements of a central hospital.	Reduction.
Electro-galvanic apparatus	4	1	3
Instruments, amputating	6	2	4
Do. do., portable	2	1	1
Do. cupping	6	2	4
Do. cranium dissecting	6	2	4
Do. midwifery	6	2	4
Catheters, silver, sets of 12	4	2	2
Fracture apparatus	4	2	2

So that in 38 cases of instruments, it is practicable to reduce the number to 14, being nearly one-third of the present number.

On the line of march the whole of the medical and surgical stores of a corps is taken with it, thereby not only affecting injuriously the stores themselves, but involving heavy cost for carriage. This is being remedied, a committee at my suggestion having under its consideration the remodelling and consolidation of medical equipment for railway, marching, and field service.

With regard to No. II (bedding, clothing, &c.) there is, under the regimental system, equipment for 119 sick men, being equal to about 11½ per cent. on the *estimated* strength of the garrison. Were the sick treated collectively, 10 per cent. would be ample, thus saving the equipment of 25 beds, the estimated cost of which is Rs. 2,500.

On the line of march, the whole of the bedding, clothing, &c., is left for the relieving troops, and a special marching or railway equipment (for 5 per cent. of sick of former, and 1 per cent. of latter) is taken. The marching and railway equipments comprise such articles only as are *absolutely* necessary.

The Subordinate Medical Department requires to be remodelled, and the details of my proposals under this head will be found in the attached correspondence.*

On the organization of the army hospital corps, the formation of which has received the approval of the Secretary of State for India, there will be a reduction of about 1,000 servants in Bengal—one third of the total number.

As illustrative of the method of reduction in the foregoing, the following table is appended :—
Statement showing the present establishment of hospital servants at the following stations, and the reduction which could be effected on the station hospital system with a more efficient class of servants as proposed on the formation of the army hospital Native corps.

STATIONS.	ORDINARY GARRISON.			Number of servants at present authorized.	Number of servants necessary on amalgamation of hospitals.	Reduction.
	Batteries of Royal Artillery.	Cavalry.	Infantry.			
Umballa...	2	1	1	141	100	41
Meerut ...	4	1	1	171	125	46
Lucknow ...	2	1	2	199	143	56
TOTAL ...	8	3	4	511	368	143

NOTE.—When batteries of royal artillery are serving together in a station, and the sick are treated collectively, a reduction of hospital servants is made under present rules.

Hospital Equipment.

The great saving which may be effected is obvious. The mean daily sick for the European force in Bengal was under 6 per cent. for 1877. Each regimental hospital is, however, provided with a maximum equipment for about 12 per cent. of sick; on the station hospital system, this could be safely reduced to 10 per cent.

Medical Establishment.

If the Subordinate Medical Department be organized and developed as proposed in letter No. B. 785 of 28th July 1879, a reduction of the medical establishment could be effected with an estimated saving of Rs. 2,50,000 annually; but until this has become an accomplished fact, I do not consider any reduction of medical officers practicable. Had the late war continued, with the number of outbreaks of cholera at different stations in the command which has characterized the present year, and with the losses among medical officers from sickness and mortality, the strain on the medical service could not have been maintained even with a considerable addition to the existing establishment. As it is, the administration of the department in this respect is singularly difficult, and the source of no little hardship and inefficiency among the medical officers and medical subordinates. Whilst the troops were passing through Peshawar from Northern Afghanistan, there were no less than 12 medical

* Vide pages 880 to 888 of this appendix.

officers on the sick list at that station at one time, and the percentage of medical officers admitted to the officers' hospital was 38.3 of the whole number.

As the result of statistics extending over 30 years, it has been found that the death ratio among army medical officers was 30 per 1,000 against 15 per 1,000 amongst the combatant branches of the service, to say nothing of the number temporarily or permanently invalidated from this country for diseases remotely fatal. At Lundi Kotal the sickness among the medical subordinates also was at one time 50 per cent., and the average inefficiency in this department was above 10 per cent.

During the late campaign official application was made to Surgeon-General Beatson for the temporary loan of medical officers of the Indian Medical Department; but he was unable to afford any aid, however temporary, to the British medical service.

Briefly, then, consolidation will effect a reduction of *personnel*, and by facilitating the correct performance of minor duties by subordinate labor will in other respects cheapen the cost of the staff.

Economy in the reduction of amount of stores hitherto requisite, and by enabling provision for sick to be made according to large averages instead of being subject to the fluctuations of smaller ones.

By making a reduced number of stationary hospitals do the duty of many ambulant ones, thus effecting saving in the cost of equipment and inevitable wear and tear.

Surgeon-General J. F. Beatson,
M.D., Indian Medical Department.

From the character of my reply to the preceding question, it follows that my answer here must also be negative. I am persuaded that there is in each regimental charge ample scope for the full play of a medical officer's abilities; and that where a regimental medical officer appears to

* have insufficient employment, it is simply because he discharges his duties perfunctorily, without becoming zealous or real completeness.

He who makes the interests of his regiment, and of each unit composing it, essentially his own, will never want as much employment as the conditions of Indian climate in the plains enable him to undertake, and satisfactorily to accomplish.

With such aid as can be got from the hospital assistants attached to each regimental hospital, it is impossible for the medical officer to depute the labor involved in keeping up his records, without so impairing the work as to render it impossible to construct his vital statistics with accuracy, or safely draw practical deductions from the figures.

Nor, in my opinion, would there be any reduction in the subordinate establishments, because of the absolute necessity of maintaining on an efficient scale the regimental hospital *personnel*.

Theory may advance the statement that the menial servants can always be supplied by the commissariat, and doubtless this is the case so far as mere numbers are concerned; but, with reference to real practical efficiency, experience is dead against principle, of trusting at a most difficult time to such haphazard recruitment. But even granting possible efficiency under such a system, men would not be found willing to undertake hospital duties on active service, except on much enhanced wages; and thus the economical results anticipated vanish, while the most serious evils would be inseparable from so faulty a system of organization. There cannot be any cohesion in such a hospital establishment, and therefore, with the first scare, they would disperse, and leave the sick and wounded to find assistance from other directions.

Surgeon-General C. A. Gordon,
Principal Medical Officer, British
Forces, Madras.

Much of this question is answered in my reply No. 5. I believe that were the hospitals in a garrison placed under the senior medical officer in the sense of a *garrison hospital*, not only would there be no increase of efficiency, but, on the contrary, a very serious decrease; and that, instead of economy in subordinate establishments, there would be extravagance and waste as a result of the scale upon which to meet emergencies they would have to be maintained. I observe that under existing conditions, the general superintendence of all hospital affairs in a garrison are really under the senior medical officer; only the details and administration of regimental hospitals are under regimental officers. In paragraph 9 of annexure B, the disadvantages and causes of unsuitability of such hospitals are detailed, and I particularly desire attention to those enumerated under sections *d*, *e*, *f*, and *g* of that document. In annexure C I compare the method of administration in war demanded by such a system as compared with the combined regimental and general, and I trust I make the point clear that, as a matter of fact, not only is a larger number of establishments of the former required with a particular force than of the latter, but that, while with the unified system special arrangements have to be made whenever a body of troops is detached on any particular service, under the *dual* system each regiment or part of a regiment, if required to act on the instant, starts at once with its medical establishment complete and workable on the spot.

But inasmuch as some of the conditions more suitable to a system of garrison hospitals than to regimental have already been introduced with reference to India, notably the disconnection of medical officers from regiments and their relief after short periods of service, it seems to me to be required of me, by the scope of this inquiry, that my personal views being adverse to both of those measures, I should so express myself. Comparing past conditions with the present, I observe that, whereas in former years a surgeon of a British regiment in India had of necessity served many years in the country, under the direct superintendence and *tuition*, as regards the treatment of sick soldiers, of medical officers who had similarly gained their experience of endemic disease, all this is now non-existent. Medical officers are under no such tuition; they come to India for a few years; they are no longer under tuition of their seniors; they have individually to gain their own experience; and when their views regarding the phenomena of endemic disease have begun to clear up, they leave the country, it may be, to return after an interval of years, it may be not at all. I am unwilling to dwell upon what I consider to be the results of this system, not alone with regard to the treatment of sick men, but on the finances of India as influenced by the professional superintendence of the troops.

Dr. G. Smith, M.D., Surgeon-
General, Indian Medical Service,
Madras.

From what has been said; it will be gathered that in my opinion the proposed system will neither be efficient nor economical, and inefficiency is wasteful extravagance. The diminution in the number of medical

officers must be represented by a reserve to meet the exigencies of peace and of war. Medical subordinates could not safely be diminished in number if the lines are to be attended to. There would be little difference in the expenditure of medicines, and very little in the number and expense of hospital servants. A slight saving might be made by a possible reduction in the number of sweepers. The establishment of station hospitals would involve much outlay, especially at the outset, and expense which no warrantable curtailment of the medical staff or of the existing expenditure of regimental hospitals would suffice to meet.

Deputy Surgeon-General J. M. S. Fogo, Officiating Surgeon-General, British Forces, Bombay.

Each station hospital must have its own medical officer in charge. Unless there is one hospital in a garrison sufficient for the station, it may be necessary to have two or more station hospitals, each to furnish one set of returns for any number of corps or batteries in it.

I have known a hospital for five batteries of artillery where there were four separate hospital establishments, because they belonged to four different brigades, and they had to furnish five different sets of returns to keep up battery records. There was great waste of subordinates and of labor.

The old ordnance hospitals, for the royal artillery and royal engineers, under the Board of Ordnance, were station hospitals all over the world, except in India, and were efficient and economical. One set of returns for all admitted to them was sufficient; and this was more scientific, as showing local prevalence or exemption from disease, instead of by battery or corps.

Dr. Colvin Smith, Deputy Surgeon-General, Indian Medical Department, Madras.

It would altogether depend on what kind of a medical officer the senior was, whether there was an increase of efficiency or not. There would certainly be economy at the hospital of subordinates, as fewer would be required, if say three or four regimental hospitals were done away with, and the sick treated in a garrison hospital; but the constitution of the Madras army must be taken into consideration, as to the removal of the regimental subordinates, who have, since first it was an army, been in the practice of attending the followers, both women and children, in the regimental lines, and there would be a great outcry were this privilege taken from them. A subordinate would require to be detailed to attend them, so that there would be no economy in the Madras army so far as the subordinate establishment is concerned.

Dr. J. Gibbons, Deputy Surgeon-General, British Forces, Mesrut Circle.

Yes; the placing of the hospital or hospitals in a garrison under the senior medical officer would tend to increased efficiency, and be economical as regards the Native establishment; but I protest against any hoped-for reduction of either medical officers or subordinates. The present crisis, as also the yearly recurring cholera epidemics, prove there are none too many of either.

Deputy Surgeon-General S. C. Townsend, Principal Medical Officer, Kuram Field Force.

The management and treatment of the sick would, I think, on the whole be carried on with greater efficiency in a garrison hospital under the direction of a well-selected senior medical officer than in the average of regimental hospitals. The system of garrison hospitals would undoubtedly afford greater facility for controlling expenditure of supplies, and would enable the administrative officer to utilize more fully the staff and establishments at his disposal. It would also permit of considerable economy in subordinate establishments; but hospital establishments cannot with safety in this country be fixed on a narrow scale; it will always be necessary to maintain establishments in excess of ordinary requirements in order to meet the sudden contingencies of epidemic outbreaks and seasons of unusual sickness.

Surgeon-Major T. G. Hewlett, C.I.S., Acting Deputy Surgeon-General, Sind Division.

Unquestionably. I have given my reasons in the report alluded to in answer 5.

Surgeon-Major J. Pictball, M.D., Examiner of Medical Accounts, Bengal.

Vide answer 5.

Surgeon-Major J. H. Porter, late in Medical Charge of Field Hospital, 1st Division, Peshawar Valley Field Force.

Yes, there would be great increase of efficiency and great economy in subordinate establishment.

Surgeon-Major C. Martin, Army Medical Department, 13th Hussars.

There would be a great saving to the State, and also increased efficiency.

7. Would the amalgamation of the British and Indian Medical Department be necessary to secure this end?

Surgeon-General J. H. Ker Innes, British Medical Department, and Principal Medical Officer, British Forces in India.

Such a measure must obviously be greatly facilitated by an unified administration, and this is plainly impossible until we have an unified medical service.

Efficiency and responsibility are inseparable. Under existing regulations, the promotion of medical subordinates doing duty under officers of the British medical service is in the hands of the surgeon-general, Indian medical department. Medical officers of the British and local services, respectively, receive their instructions each from a separate head, no control in common belonging to either. Moreover, the hygiene of European and Native troops is directed by a distinct set of officers, although it cannot be doubted that the increased experience gained by the supervision of both Europeans and Natives must add to the medical knowledge, and, therefore, value of any officer under whom these duties are combined.

Surgeon-General J. F. Beaton,
M.D., Indian Medical Department.

I cannot see any necessary connection between the establishment of station or garrison hospitals, and the amalgamation, if that were possible, of the two medical services. Even under the supposition that one medical officer would suffice to discharge the duties of each set of hospitals, European and Native, it would surely never enter into the mind of any practical man to unite the charge of both sets in the person of one medical officer, and this being the case, there can be no necessity for making the one change hinge upon the other, as if they were necessarily and indissolubly united. I further believe that any arrangement which would put Native regimental hospitals under any other management than that of an officer of the Indian medical department will be the sure starting point of much augmented expenditure in their equipment. Nevertheless, I am a firm believer in this view, that an Indian medical staff corps, entirely subordinate to the Indian Government, and managing all the hospitals in the country, European and Native, without distinction, would be most desirable. The management of hospitals would be in no way inferior, while the economy likely to be reaped under a purely Indian Government service would be very solid.

Medical officers of the British service being no longer regimental, there seems no good argument why an additional step forward should not be taken, by having the medical duties of British hospitals discharged by Indian medical staff corps men.

It is impossible to conceive anything more unreal than the stock assertion of Indian medical officers being unequal to the management of European hospitals; though the converse of it is in all likelihood quite well founded. There cannot, I conceive, be any question of the absolute truth of this statement, that if the Indian Government possessed the decision of the question touching the necessary strength of the medical establishment for European hospitals, a very considerable reduction would be an early result. An immense economical saving would be effected; while decided benefit would accrue to every individual officer from the practice of working up to full power, with the delightful consciousness, moreover, that he was truly performing duty somewhat commensurate with his monthly pay.

Surgeon-General C. A. Gordon,
Principal Medical Officer, British
Forces, Madras.

I do not think that an amalgamation of the British, that is, army medical department and the Indian medical service is in any respect necessary or desirable, whether the system of garrison hospitals is forced on, or allowed to drop, as for the interests of soldiers, officers and their respective families, as well as the interests of the service generally, I trust it may be. In paragraph E of annexure B, I indicated what seemed, and still seems to me, an easy and inexpensive way by which the medical requirements of the Native troops could be met by the army medical department. But there is another way in which the same purpose might be fulfilled; and on considering the subject over since I formerly wrote, there appear to me several advantages attached to it, namely, to have the local medical service on the footing of a medical staff corps, those of its members who selected the military branch to stick to it, unless under special circumstances when they might be permitted to exchange into the civil branch, or be by Government selected to fill particular appointments. I believe that as in the military staff corps, so in respect to the military branch of the corps, I suggest exchanges between members of it and those of the army medical department should be allowed, and that, were they so, personal convenience and interests would be better met than they are at present, and the well-being of the service benefited thereby. This is a mere allusion to what strikes me as advisable and feasible; details, including distribution of duties, promotion, retirement, and so on, would have to be worked out hereafter.

Dr. G. Smith, M. D., Surgeon,
General, Indian Medical Service,
Madras.

Amalgamation is not necessary to secure the fullest co-operation of the British and Indian medical services in peace or in war.

The fusion of services so distinct in constitution, pay, pension, &c., as are the British and Indian medical services, could not be effected without the sacrifice of rights and privileges which ought not with justice to be set aside.

The first 54 medical officers in the Madras army list are men who entered the service previous to the transfer of the Government of India to the Crown, and an Act of Parliament* secures them in all their rights and privileges; to them amalgamation would involve radical changes in the constitution of their department, in their promotion, pay and pension, changes which, if carried out, would constitute valid grounds for claiming pecuniary compensation for any loss which might accrue. It is of course within the bounds of possibility that individuals of the class referred to might select amalgamation, but certainly it is not within the bounds

* Clause LVI of Act 21 and 22, Victoria, Cap. VI (the Henley Clause).

of probability considering the assured advantages of their present service and position. Nor do I think that the medical officers who have entered the service subsequent to the transfer of the Government to Her Majesty would willingly accept such amalgamation, inasmuch as by doing so they would leave one of the best public services in the world for a new service which would probably offer fewer advantages with a far less assured and desirable position. It will be remembered that an attempt at amalgamation was made in 1862. In a despatch No. 82, dated 12th March, the then Governor General in Council recommended the formation of an amalgamated service for the united army of Great Britain and India, and submitted a scheme with that object drawn up by Colonel Norman. The Secretary of State for War objected to the proposed fusion, mainly on grounds which excited the astonishment and indignation of every member of the Indian medical services.

The projected amalgamation was abandoned fortunately, I think, for the Indian medical service and for India. The Indian medical service is held in high estimation in England, even though admission to its ranks involves a long exile from home and all the risks of a tropical climate, and this is shown by the fact that the best qualified candidates for public employ select as a rule an Indian career to a career in the British medical service. The first effect of amalgamation would be to alter all this, and to make the Indian amalgamated service unpopular among young professional men.

Amalgamation would seriously injure, if not destroy, the special and most admirable organization of the Indian medical service which, as now constituted, embraces not only a military, but also a civil department. This dual constitution fits it admirably not only for the exigencies of war, but also for the requirements of peace. Its peculiar suitability to the wants of the country is acknowledged by all, and I appeal to the great and progressive work this service has been carrying on in this presidency, as shown by the extension of medical aid to the population generally, by the provision, making and made, of hospitals and dispensaries, and by the number and admitted value of medical agents, public and private, who have been educated. No action of Government has been more popular than that the object of which is to provide medical aid for the masses, and in carrying out this great work it has had the hearty and efficient co-operation of the medical department. The present constitution of the Indian medical department is well adapted to meet the demands of civil life and the exigencies of war, and I should deeply regret the disintegration of the existing system, whether that be effected by amalgamation or by separation of the military from the civil department. If amalgamation is inevitable, it should, in my opinion, be restricted to volunteers from the old and new medical services and to new entrants. Its application to the administrative grades is beset with difficulties. If the numbers of administrative officers are to be reduced, the effect will be that the definite and guaranteed expectations in that direction of the old service would be set aside as regards pay, promotion and pension, and the charge itself would be regarded as a breach of contract. The subject is one which requires most careful consideration at the hands of the authorities. The service has already had its administrative appointments more than once diminished, and further diminution will inevitably lead to remonstrance and disappointment.

Deputy Surgeon-General J. M. S. Fogg, Officiating Surgeon-General, British Forces, Bombay.

Certainly not; the records of the European and Native troops would have to be rendered separately, but that could be done by the medical officer of either service in charge.

Dr. W. J. Hunter, M.D., Surgeon-General, Indian Medical Department, Bombay.

The desired ends, *viz.*, reduced expenditure and increased efficiency, could not be secured as long as two distinct medical departments existed. Each would require its senior medical officer and its separate administrative staff, and so forth. It is true a certain saving and a certain amount of increased efficiency would be effected by amalgamation, but much less considerable than were there but one department. Amalgamation of the British and Indian Medical Departments would not be so effective and complete, as would a system of having but one medical department for this country, as I shall show further on.

Dr. Colvin Smith, Deputy Surgeon-General, Indian Medical Department, Madras.

There would be no necessity, I should suppose, of an amalgamation of the British and Indian medical departments were garrison hospitals instituted. European troops would be treated in one side of the building, Native on the other. Until a few years back the medical officers of the Indian army treated indiscriminately European and Native troops, and there is no reason why they should not do so again. The medical officers of the British medical service would, after a short experience of Natives, be able to do the same. The medical men of the different services would each treat his own men.

Dr. J. Gibbons, Deputy Surgeon-General, British Forces, Meerut Circle.

I see no necessity for amalgamation of the services to secure this end. I believe both services to be essentially separate in their genius and requirements. The peculiar nature of service in India, the constitution of the Native army, its medical wants, the number of different nationalities composing it, the subject of language, caste,—all point to the necessity of a special medical service being retained for India. I believe these conditions are fairly well met by the present Indian medical department, and any attempt at change or making the officers of either service interchangeable will result in disappointment, and is very likely to extend to both departments the discontent which now prevails in one of them.

Deputy Surgeon-General S. C. Townsend, Principal Medical Officer, Kuzam Field Force.

The amalgamation of the departments in all grades would not be necessary, but there would certainly be less danger of friction in the working of the general hospital system if all the medical staff belonged to the same department.

Surgeon-Major T. G. Hewlett,
C.I.S., Acting Deputy Surgeon-
General, Sind Division.

In the report already submitted I have stated my opinion that there should be one medical service for all India, and I recommended in it the withdrawal of the British medical department from India altogether as unnecessary. Any amalgamation of the British medical department with the Indian medical department could only in my opinion be accomplished at a great injustice, if I may respectfully be allowed to say so, to the interests of the officers belonging to the Indian service.

It must be remembered that those officers of the Indian medical department who were on the abolition of the Honorable East India Company transferred to the direct service of the Crown had their rights and privileges guaranteed to them by Act of Parliament under what is known as Colonel Henley's clause. Officers of the Indian medical service elected, in consideration of certain advantages offered to them, to pass their lives in India, and they entered into a covenant with the late Honorable East India Company, which Parliament subsequently ratified. I have no hesitation in saying that many of these advantages and privileges must inevitably be lost to the Indian medical officers if the two services are amalgamated as proposed. It must be remembered that Indian officers have not the opportunity of serving in Europe or Canada or the colonies, but all their service must be passed in India. Even the leave they take is, with exceptions, deducted from their service for pension.

This is far different to the case of officers in the British service, who only come out to India for a tour of five years' service, and who can go home and recruit their health and come back to draw the higher emoluments which accrue to their higher rank. Then, again, it must be remembered that service in the administrative grades as regards the Indian medical department secures an additional pension of £250 a year. It would surely, I would respectfully represent, be unjust to deprive the Indian medical department of appointments which are the sole prizes of the service, and which are given for especial merit and ability after about twenty-six years' service. The prospects of officers in the Indian medical department, as regards promotion would be irretrievably ruined if any amalgamation of the two departments were to take place; and I am strongly of opinion that so unpopular would this arrangement be, that the Government of India would soon have the same difficulty in getting men to join its service as the British Government has in finding young men to join the army medical department.

Surgeon-Major J. Pictball, M.D.,
Examiner of Medical Accounts,
Bengal.

From a careful consideration of this question, I do not see any benefit as likely to arise from amalgamation of the two services. I do not see how this can be carried out. If Government is seeking a real reform which shall be for the benefit of the public service, it will not be discovered in amalgamation.

Surgeon-Major J. H. Porter, late
in Medical Charge of Field Hospital,
1st Division, Peshawar Valley
Field Force.

Yes, under certain conditions, that the training of all medical officers coming to India be alike, as suggested in answer 11.

Surgeon-Major C. Martin, Army
Medical Department, 18th Hussars.

It would not be necessary, and I do not see how an amalgamation of the British and Indian medical services is possible, the divergence in methods of treatment, hospital accommodation, &c., &c., being so marked.

For instance, the British soldier is dieted, has bed, bedding, &c., provided in hospital, whereas the Native has none of these things.

8. What do you consider to be the result of experience in the working of the medical and hospital systems as practised during the recent operations in Afghanistan?

Surgeon-General J. H. Ker
Innes, British Medical Department,
and Principal Medical
Officer, British Forces in India.

The medical requirements of the Indian military service are peculiar, and in some stations there may be no alternative but to perpetuate a modified regimental system. But the arguments in favor of that organization appear altogether to lose their weight when applied to the altered conditions of a body of troops brought together for active service; and the impolicy of perpetuating a system in a time of peace which has not been found adapted to warfare is at once apparent. In a campaign the regimental hospital with its own staff, transport and stores, is but an encumbrance, repeated in its every detail as many times as there are separate regiments and other marching units.

The desiderata of a medical and hospital establishment accompanying a force on active service are manifestly that it shall be efficient, that it shall dispense with needless re-duplication of stores and appliances, and that its transport shall be reduced to the lowest mark consistent with efficiency. In these respects the regimental system cannot compare with a consolidated one; and in India the arguments in favor of the last-named arrangement possess the greater weight, because there is no army hospital corps, as at home, specially trained for relieving medical officers of a mass of duties of an extra-professional character, the carrying out of which necessarily withdraws them from their legitimate work at a time when their services are most needed.

The subordinate medical department is exclusively auxiliary to the hospital (professional) functions of the medical officers, and takes little cognizance of the collateral duties fulfilled at home by men of the army hospital corps. As I have elsewhere shown, the leading advantages of a consolidated system consist mainly in a defined purpose and method in the arrangement of details. Its objects are to equip corps and hospitals with a limited, but adequate, supply of selected materials, duly arranged; to appropriate medical officers and subordinates to positions where they will certainly be most needed in actual warfare, *viz.*, to sick, medical duties, and hospitals, instead of to healthy men of regiments and batteries, and not to waste skilled medical labor, or to encumber a moving column with unneces-

sary impedimenta, whether these consist of stores or sick; and it must be remembered that, while the disposal of wounded men becomes only occasionally needful, the sick of a column are a constant quantity for which provision has to be made.

That I may instance only one, and an essential particular—that of transport—in which the superior economy of a consolidated field hospital over that of a regimental hospital system is shown, I append the following table, based on the Kuram valley column:—

Statement showing the establishment required for the European force of the Kuram valley column on the regimental and divisional hospital systems.

CORPS.	REGIMENTAL SYSTEM.							DIVISIONAL SYSTEM.							DECREASE.
	WITH CORPS.		WITH FIXED FIELD HOSPITALS.		WITH KOHAT BASE HOSPITAL.		GRAND TOTAL.	WITH CORPS.		WITH FIELD HOSPITALS.		WITH BASE HOSPITALS.		GRAND TOTAL.	
	Hospital.	Purveyors.	Hospital.	Purveyors.	Hospital.	Purveyors.		Hospital.	Purveyors.	Hospital.	Purveyors.	Hospital.	Purveyors.		
F-A Royal Horse Artillery	14	6						4	...						
G-3 Royal Artillery	14	6						4	...						
C-4 " "	14	6						4	...						
1-8th " "	7	6						3	...						
Squadron 9th Lancers	14	6	50	14	100	24	525	4	...	85	12	128	38	297	Decrease 228 servants on divisional hospital system.
2-8th Foot	49	12						4	...						
67th " "	49	12						4	...						
72nd " "	49	12						4	...						
92nd " "	49	12						4	...						
Total	259	78	60	14	100	24	525	34	...	85	12	128	38	297	

A consolidated system in the field, if properly and practically worked, is not only the best, but in some cases it is the only system capable of securing the following advantages:—

I. It leaves the corps free of sick, while providing sufficient hospital establishment and hospital necessities to render the medical officer in charge independent for a few days of a divisional field hospital. Provision being made at the divisional hospital by proper reserve of doctors, stores and establishments, it is practicable by temporary regimental augmentation in these respects to meet war contingencies, such as a corps having to act at a distance from and independent of the main body. The morale also of the men of a regiment is secured by the presence of medical aid at hand, while the practical hygiene of the corps can be supervised and medical advice obtained by the commanding officer through the same instrumentality.

II. The divisional field hospital receives the sick and wounded, where they can obtain the greatest amount of attention and comfort, with more benefit to themselves in the way of suitable appliances, skilled, systematic, and combined labor, as well as the outcome of the best consultative professional judgment. In general economy it relieves an army of an unnecessary number of camp-followers, by reducing requirements to one (divisional field) instead of to several (regimental) hospital establishments, causing a corresponding reduction of course in food and carriage for food, tents, baggage, and the sick of the superfluous numbers.

III. The advantages attending the working of the principle of evacuation of sick from the front to the base are generally recognized and sufficiently obvious; so much so, that it has been everywhere adopted by the leading military powers in Europe. The corps, as well as the division, thus disencumbered, is free to advance, and the hospital (divisional) to accompany it in such strength as may be required. By timely notice and telegram, accommodation and transport can be provided out of existing materials, by emptying those hospitals where an influx of patients is to be expected, and by concentrating all available staff and transport at any given point or time.

This principle once recognized, the divisional hospital may be regarded as an aggregation of units all on a uniform plan and design, but divisible into sections of 25 to 50 or even 500 beds, should so many be necessary, according to the strength fixed as the maximum unit, which will be determined by the strength of the force operating together at the same time and place and by the nature of the service itself. Properly understood, it is equally designed for centralization and its opposite. Special accommodation for the isolation of infectious disease can always be improvised by setting apart one or more tents, or even buildings when such are available, as is habitually done in the civil and military institutions in Europe.

Lastly, there is no other method by which the wounded on a battle-field, when once the requisite organization has been attained, can be so quickly or systematically removed; or one which secures at the same time, by the very principle of its working, viz., the dispersion of the sick and wounded, such a relative freedom from that bane of all wars—the aggregation and overcrowding of wounded men.

At a base hospital arrangements can be best perfected, supplies stored, arranged and packed, and the administration of the whole maintained in harmony with the requirements of the field hospitals.

These views have been more exhaustively set forth in the correspondence between this department and the Indian Government.

Campaigns in India differ in many important respects from those of Europe, and notably so in the concentration of an operating force.

It is the composite character of our divisions, and the fact that in exceptional instances only are they combined for offensive warfare, that has contributed to the maintenance of a system which it was

believed could best adapt itself to the requirements of small units. It was this impression which led to the retention of a modified regimental organization in the Kuram and Kandahar Divisions, where its continuance was also promoted by the circumstance that this was the authorized system when the force crossed the Indian frontier, as well perhaps, in some instances at least, as to an imperfect acquaintance with the details of a new principle and its adjustment to the needs of a small unit.

When the précis of field medical service was drawn up, there was neither time to shape it in every particular to manifold necessities, nor did the requisite organization or material exist for anything approaching the adequate fulfilment of the design in view. The existing material and organization had to be adapted perforce to the work already in hand. Under circumstances so adverse, it becomes a matter of surprise that its success was so pronounced, and that its working, as evidenced by the reports of the medical officers which have reached me, was so efficient and satisfactory, that it was subsequently adopted from choice whenever hostile expeditions were anticipated, and notably so in the Kuram Force, where it had before remained to a great extent in abeyance, when a forward march towards Cabul was in contemplation.

I unhesitatingly reply, therefore, to question 8, that the principle set forth in the précis of medical arrangements has received a satisfactory and sufficient test; that it did practically accomplish its design; and that, where it failed, the causes of its failure were apparent, and were clearly not attributable to defects in the system itself (*vide* reply to question 10).

Surgeon-General J. F. Beaton,
M.P., Indian Medical Department.

I consider a chief lesson derivable from experience during the recent operations to be that every force taking the field should be accompanied by the *stock and block* for base, intermediate, and field hospitals; that such establishments should not be left to be extemporized when the hour of pressure has arrived, but that the entire equipment, both in respect of *personnel* and *matériel*, should be organized in advance, and accompany the column in such form that on the order being issued, "*form base hospital*," it should be possible, within a very few hours, to have the establishment in complete working order.

With regard to such hospitals for Native troops, I can speak most confidently that they must be independent altogether of the very tiny equipment that could possibly be contributed by regimental establishments. To trust to such a source would be simply to invite failure, by destroying the regimental provision for the sick and wounded, yet failing to supply a suitable substitute.

Moreover, the very *raison d'être* of these hospitals is connected with the mobility of regiments, a circumstance impossible of achievement if corps had to carry with them the equipment of such semi-stationary establishments.

There have certainly been most serious complaints made of the utter wretchedness of the Native soldiers when thrown in numbers into one of the so-called general hospitals; but I do not personally consider such evils to be necessary features in the system, but to be due rather to the imperfect manner in which the attempt to work it has been made. Bricks cannot be made without straw; and no medical staff, however able or energetic, can effectually treat medical and surgical cases, arriving occasionally in shoals, without having at command every requirement of efficiency, nor do much towards securing the comfort and contentment of the patients, unless the hospitals are properly found in bedding, clothing, and sufficiency of attendants.

The Native regiments were ordered to take the field with six months' supplies, and to secure them against accidents & further provision for three months, in respect of both commissariat and medical store department supplies, was held in readiness.

Cases containing them were prepared *here*, where the severe strain was less felt; and after being accurately numbered, and addressed for each *unit* of the Native forces employed, were forwarded to the commissariat officer at the base station of each column, for distribution to the medical officers concerned, on receiving from them a requisition duly sanctioned by the principal administrative medical officer. The convenience which medical officers experienced from receiving those supplies upon a simple requisition only was very great, and was much appreciated, I believe. Each case contained several thousand pills of approved constitution, and best suited to the ailments rife among the followers, in themselves a host, yet physicked efficiently, without entailing much labor upon camp establishments.

The return march from Afghanistan does, in my opinion, strongly enforce the view of the absolute necessity for regimental hospital efficiency. As complete a division of a force into its component parts as can possibly be managed is unquestionably to be aimed at during an attack by our most formidable enemy—cholera,—yet how can the desirable end be attained if regimental hospital efficiency has been sacrificed in the attainment of the general hospital system. In far too many instances conclusions are formed upon insufficiently tested data, and it would be a fine illustration of the principle if one were rested upon the facts of the Khyber column, which had neither sick nor wounded in such numbers as could have fairly tried the endurance or success of any arrangement. The Kuram column was under the administrative medical control of an officer deeply impressed with the belief that everything hinges on regimental efficiency; and I believe the management and success of the medical department with that force were such as to relieve the commanding general from anxiety and to secure his commendation for complete efficiency. The workmen after all are the chief factors in the problem; the able men will succeed, as surely as the feeble will fail, under any system, however imperfect in the one case or unchallengeable in the other.

Dr. G. Smith, M.P., Surgeon-General, Indian Medical Service, Madras.

From the secondary part played by the Madras Native troops in the recent operations in Afghanistan, the available information is necessarily meagre. Surgeon Sibthorpe, the medical officer attached to the B and E companies of the Madras Sappers and Miners, has submitted a valuable and practical report of the military and medical experience of his charge; and from that report I select the following items of information. The field medical arrangements were made specially applicable to British troops, the principle being followed as far as possible with Native troops with regard to existing regulations. The sick of British and Native troops were to be treated separately. In the précis drawn up by Surgeon-General Innes, C.B.,

the Principal Medical Officer of Her Majesty's British Troops, the hospital organization was to include divisional field hospitals, divisional base hospitals, and rest depôts. The principle of the field hospital being "to disencumber the column of all unnecessary impediments while advancing, all cases not likely to recover speedily should be transferred to the base of operations." As regards the British troops, the principle was fully acted up to, but for several reasons it was found impossible to carry it out fully with the Native troops, "though to a great extent the Native regimental hospitals were evacuated into the field and base hospitals." There were thus two systems in operation side by side,—the field hospital system carried out by the British force, and a mixed system of regimental and field hospitals adopted by the Native force. In the month of February Dr. Sibthorpe reports that an attempt was made to organize field hospitals for Natives, but from various causes, some specified, the effort did not prove to be ultimately successful. These hospitals were not popular with the sepoy. "They were," however, says Surgeon Sibthorpe "extremely valuable for the treatment of followers and others unattached to regiments; and if they had been fully organized and well worked would no doubt have taken the place of regimental hospitals and saved a vast amount in carriage of stores and hospital tents." The results of experience seem to show that it is inexpedient to have two systems of medical organization instead of one when British and Indian troops co-operate on field service. The system required seems to be one which, with unity in essentials, permits, at the same time, some difference in minor details, necessitated by the prejudices and peculiarities of the Native soldier.

The report further shows the absolute necessity of having trained, skilled, and properly equipped in lieu of untrained, unskilled, and faintly equipped bearers and servants of kinds, such as accompanied the force. An army hospital corps appears to be a necessity. The whole question of the medical organization best fitted for Native troops taking the field demands full and careful consideration. Such appears to me to be the prominent lesson which emerges from the experience of recent military operations in Afghanistan.

Dr. W. G. Hunter, M.D., Surgeon-General, Indian Medical Department, Bombay.

I have no data on which to base an opinion except as regards the base hospital at Sukkur, which, during the time it existed, fully met the object for which it was intended, both as regards efficiency and economy in working.

Dr. Colvin Smith, Deputy Surgeon-General, Indian Medical Department, Madras.

I have been told that the medical and hospital systems as practised during the recent operations in Afghanistan answered fairly well.

Dr. J. Gibbons, Deputy Surgeon-General, British Forces, Meerut Circle.

My knowledge on this subject is restricted to one of the columns engaged, the 1st Division, Peshawar Field Force, of which I was the principal medical officer; in it the field hospital system was adopted for the European troops in exact accordance with the instructions and rules laid down by the Surgeon-General, British Troops. I believe all the medical requirements of the campaign were fully met under this system; it was economical in *personnel*, *matériel*, and especially in transport. General and commanding officers were relieved by it from responsibility and care, and the soldier, sick or wounded, was placed in a better position than he would have been in a regimental hospital.

Deputy Surgeon-General S. C. Townsend, Principal Medical Officer, Kuram Field Force.

I was not present with the Kuram force during the cold weather, when the only active operations of the campaign were carried on. When I joined the column in April, the regimental system was in force; but as an advance of the column on Cabul was then probable, it was decided that the field hospital system should be adopted. A field hospital was quickly organized from the *personnel* and *matériel* of the corps detailed for the advance column; and in order to meet the possible eventuality of the force being divided at any time in the course of the expedition, the hospital was organized in sections, each section being complete in itself, and ready at an hour's notice to accompany any force or detachment for which it might be required; and I believe that, had the advance on Cabul taken place, the medical arrangements would have been found in every respect efficient. I am of opinion that the field hospital system possesses greater advantages over the regimental in its more ready adaptability to the varying exigencies of field service, in the greatly reduced amount of stores and of carriage that it requires, and in the greater facility it affords for the control and supervision of the arrangements for the comfort of the sick and wounded and for their transport to the rear. The hospitals of Native corps are so lightly equipped, compared with hospitals for Europeans, that the advantages of the general system are not perhaps so great in their case: a field hospital for Native troops in rear of a column advancing through a hostile country is, however, absolutely necessary, and I was prepared to organize one had the advance on Cabul been decided on.

Surgeon-Major J. H. Porter, late in Medical Charge of Field Hospital, 1st Division, Peshawar Valley Field Force.

Under great difficulties; the system having been only sanctioned a few days before the movement of the troops, the dislike to it by military commanders and in some instances opposition causing much friction. The medical and hospital system as practised in the 1st Division, Peshawar Valley Field Force, during the recent operations in Afghanistan, worked extremely well. When better understood by military commanders, it will be found by them as a means of facilitating their movements, relieving them of their sick and wounded, and rendering their forces unhampered by the attachment of numerous regimental hospitals. The succour of the sick and wounded will be best secured.

Surgeon-Major C. Martin, Army Medical Department, 13th Hussars.

That the base and field hospitals of Kuram valley force worked on the general system answered admirably; that there was economy and greater efficiency than is attainable with any other method.

The general hospital system commends itself in various ways, and the late campaign has proved its value.

If there is a stress of work—either sick, or wounded men; there is a large staff—the work is evenly distributed, and dealt with at once by disencumbering the hospital of useless stores, instruments, clothing, bedding, &c. Transport was reduced by more than half.

Then, as the hospital was formed in sections self-contained, it could act altogether, or a section could be detached and march at an hour's notice with medical officers, establishments, stores, tents, transport complete.

9. How far did the existence of two medical departments, British and Indian, prove disadvantageous to the efficiency of the medical branch, both in administrative and executive work?

Surgeon-General J. H. Ker Innes, British Medical Department, and Principal Medical Officer, British Forces in India.

The mischief which is ordinarily wrought through the separate and divergent interests of two distinct medical departments, was during the late campaign lessened by the appointment to each division in the field of one medical head, selected indiscriminately from either service, to whose orders both British and local medical officers were amenable.

It is true that it was found necessary to draw the larger portion of such officers from the British service, because the Indian lists included but very few who had ever enjoyed opportunities in the past of serving with British troops.

Nevertheless, frequent references were necessary, and these had to be made sometimes to one and sometimes to the other authority, thereby occasioning the manifold inconveniences and delays inseparable from a system which may be best imagined by conceiving a chief of the staff for either service respectively, one located in Calcutta and one with the Commander-in-Chief. The principle of a divided authority was thus sanctioned which might, at any time, through divergence of opinion, have become dangerously obstructive.

It was due to this anomaly that two systems, regimental for Native troops and general for Europeans, obtained, and that the general instructions promulgated by the Surgeon-General, British Forces, on whose advice the Commander-in-Chief depended, and on whom the responsibility for the efficiency of the medical arrangements especially depended, could not be made applicable to Native troops.

Moreover, the Surgeon-General of British Troops, although present in the field and actively employed in carrying out arrangements for disencumbering the fighting force of its sick or wounded, was able to exercise no control over medical officers of the local force, nor over the base hospitals for Native soldiers; yet it was only by means of the timely support rendered by the British service, especially in the case of the base hospital at Peshawar, in *matériel* as well as *personnel*, that that institution was able to render effective service. Nor did this apply exclusively to Peshawar only; for Surgeon Gray of the Indian Medical Department, who was in medical charge of the Native section of the field hospital, accompanying and working in connection with a similar section of the European field hospital, from the beginning to the end of the campaign, reports: "The Native regiments left Jumrood with only one medical officer to each; no depôt hospital was established. Were it not for the help given by the European field hospital to the sepoys falling ill at Ali Musjid and returning to the rear from Daka, the sepoys would have suffered terribly." Again, "between 60 and 70 Native soldiers passed through the Native field hospital"—the nucleus of which was established by Surgeon-Major Davie of the British service—"which was supplied with tents, medicines, and medical comforts from the European field hospital"; and Surgeon Gray adds that at Daka the Native soldiers received medical aid from the European field hospital under Surgeon-Major Evatt; and that at Jellalabad the Native soldiers left behind by the regiments moving on to Gandamak were dependent on the field hospital in charge of Surgeon-Major Porter.

Surgeon-General J. F. Beatson, M.D., Indian Medical Department.

To each separate column of the forces in the field there was but one principal medical officer; and therefore, under the supposition that he had been happily selected, and had sufficient firmness, self-reliance, in short, character for the position, there certainly should have been no distinction of services in practice; but the entire body of the medical staff should have been so entirely welded under his control, that independent action would neither have been attempted nor permitted. Under the orders of the Government of India, the principal medical officer was subordinate *qua* the medical administration of the force to no other than the commanding general; and personally I from the first endeavoured to make each understand that in regard to the Native troops he was *pro re nata* vested with complete medical authority; and that in giving him a sufficiency of medical subordinates according to his estimates of the demands of service as they arose, I was influenced by no other consideration than my power to collect and supply them in sufficient numbers.

The Government of India in letter No. 348K.C., issued from the Viceroy's camp at Lahore, on the 12th December 1878, expressed the hope, as it assuredly had the right to entertain the expectation that officers, administrative and executive, would loyally exert themselves to further the public interests by frank and hearty co-operation; and I sincerely believe from the absence of the shadow of complaints by executive officers of the Indian service, and the hearty acknowledgments of their zeal

and energy in the reports of the British administrative officers, that no friction occurred which was due to a narrow and unbecoming jealousy between the two services.

Two of a *trade* may proverbially differ, but I would fain hope that a body of *educated professional* men would not demean themselves by displaying sentiments of jealousy in the joint discharge of an imperative public duty.

Surgeon-General C. A. Gordon,
Principal Medical Officer, British
Forces, Madras.

In the hope of helping on this inquiry, I remark that throughout the campaign of the mutiny the existence of two departments was in no way disadvantageous to the efficiency of the medical branch, both in administrative and executive work, but that in several respects it really conduced to both, as officers of the Indian medical service understood Native soldiers well and worked with them in a manner perfectly satisfactory. In that campaign also, as in the two wars of the Punjab, and before that in the Gwalior campaign, the same system worked well; Indian medical officers had charge of field and reserve hospitals; and in the case of the wars of 1843, 1845, and 1848, the medical organization of the armies engaged was entirely conducted, and well conducted, by officers of the Indian service. With regard to the mutiny, I myself had charge successively of two different field forces, namely, that commanded by Sir T. H. Franks, and subsequently that by Sir Edward Lugard, so that in respect to them I give the results of personal experience in the field.

Dr. W. G. Hunter, M.D., Surgeon-General, Indian Medical Department, Bombay.

I have hardly any data on which to express an opinion on this question. The medical officers doing duty with regiments belonging to this presidency with the Kandahar column have been entirely placed under the orders of the principal medical officer. No complaints have been made, and I have no reason to suppose that anything has arisen disadvantageous to efficiency either in the administrative or executive work.

Dr. J. Gibbons, Deputy Surgeon-General, British Forces, Meerut Circle.

I am of opinion the reply to this question is for the consideration of the heads of the departments.

No disadvantage was obvious to me, and no hitch occurred in my relations with either.

Deputy Surgeon-General S. C. Townsend, Principal Medical Officer, Kuram Field Force.

So far as I am aware, the existence of the two medical departments has not proved disadvantageous to the efficiency of the medical arrangements of this force, either in administrative or executive work; but I doubt whether, as a permanent arrangement, the supervision and control of the executive officers of one department by an administrative officer of another will be found to work smoothly. I am of opinion that

the Indian establishments would be the more likely to suffer from amalgamation of the administrative grades of the two services. From the greater importance attached to European troops, an administrative officer of the Indian service placed over them must necessarily make himself acquainted with all details of the management of European hospitals; but I can imagine an officer of the British service not much acquainted with India finding it more irksome to make himself acquainted with the rules affecting Native subordinate establishments, and I fear that the members of these establishments will suffer under amalgamation of the administrative grades unless special measures are taken for their protection.

Surgeon-Major J. H. Porter, late in Medical Charge of Field Hospital, 1st Division, Peshawar Valley Field Force.

Personally I am not aware of any disadvantage, as I only looked to one head, the principal medical officer of the division; but from observation I could see it was a great disadvantage having two separate medical departments, both working for the same end, each having certain duties which could have been performed by one head with greater ease and less friction or irritation. When I use these expressions, I mean that having a Principal, Medical Officer from the British service

to administer to the requirements of Native military hospitals, it caused irritation among the medical officers of Native regiments, who disliked the position, as they felt and expressed it that a medical officer of the British service could know little or nothing about the customs, habits, or requirements of Native troops. The same no doubt would occur in the event of the principal medical officer of the Indian medical department administering to British troops. Were all medical officers of one department with the same training, this could not occur.

Surgeon-Major C. Martin, Army Medical Department, 13th Hussars.

I am not aware that any disadvantage accrued.

Unless administrative medical officers of either service, however, had previously been in charge of both British and Native troops, how could they be aware of their requirements?

10. State your views, founded on the experience gathered in the recent operations, as to the efficiency of the arrangements for the transport of the sick both in *personnel* and *matériel*; and give any practical suggestions which may occur to you as likely, if acted on, to improve efficiency, or reduce expenditure.

Surgeon-General J. Ker Innes, British Medical Department, and Principal Medical Officer, British Forces in India.

I consider the arrangements for the transport of the sick, both in *personnel* and *matériel* to have been very inefficient in all the columns, and especially so in some of them. The so-called kahars and doolie-bearers were for the most part physically unfit for the work to which

many of them were wholly new; others either old and infirm, enfeebled in health, or young and immature. Clothing was very tardily issued to them, and in the meantime many perished from exposure; and instead of a body of carefully selected men fitted for arduous work, a large majority of them had never been medically inspected at all. The consequence was that there was great sickness amongst them, and they thus often proved an encumbrance rather than a help.

Such is the general tenor of all the reports received from medical officers, some of whom have personally spoken to me in strong terms on the same subject. Moreover, there was no properly organized staff of non-commissioned officers or men to relieve the medical officers of the physical labor and worry entailed upon them by mustering the kahars and personally superintending their work. According to existing arrangements, the medical officers had on the line of march to begin their morning labors at least an hour or two before *reveille*, in order to get the sick marched off with the troops. This occupation has been represented to me as a false and humiliating position for medical officers to occupy.

A large proportion of the transport animals, camels, and mules appropriated for hospital use were feeble and unfit for the work, which required the strongest animals. On many occasions camels were necessarily abandoned on the lines of march and left to starve, and the mortality amongst them was enormous; the hospital equipment (conveyed in camel trunks) was too heavy and unsuitable for campaigning in a difficult country. It was laid down in the medical précis that "the whole of the sick carriage will be under the orders of the principal medical officer, who will distribute it according to the requirements of the service;" but this it was not always found practicable to carry out. The sick transport of a division, so far from being maintained apart, was constantly diverted to other uses; the sick carriage, both in the Quetta and Khyber columns, was elsewhere appropriated, and hospital tents and equipage, in the instance of Kandahar, were returned to the divisional field hospitals in an unserviceable state. The divisional hospital of the Khyber column was often regarded as an encumbrance and was relegated to Ali Musjid, while the main strength of the division was occupying Daka, having an increasing sick list without adequate means for their comfort or cure.

It would be easy, but unnecessary, to multiply such instances; let it suffice that the reports furnished to this office abound with these and similar statements. Much of it may, perhaps, be accounted for when it is remembered how great was the scarcity of carriage, and that a comparatively small amount of transport, when aggregated with a divisional hospital, formed a tempting bait; while the much larger amount divided amongst individual corps for hospital use would have been more likely to escape observation altogether as belonging to regimental equipment and therefore placed beyond the reach of extraneous interference.

Doolies, however well adapted to the plains and a country where there are roads of any kind, are, generally speaking, unfit for frontier mountain warfare; they are large and cumbersome for steep ascent and mountain tracks with projecting boulders; some of the dandies (hammock dandies) used for Native troops are equally unsuited for the transport of a wounded or sick soldier. The Looshai dandy, however, proved by far the most suitable, in handiness and lightness, for such service. But however important the adaptability of the mere vehicle may be, the efficiency of our sick transport in all border warfare must depend chiefly on the organization of the bearer columns; the collection of kahars must no longer be made at haphazard, but all must undergo careful selection. I think that some sort of wheeled transport, partaking something of the nature of the Chinese wheelbarrow, might be advantageously employed as an adjunct to portable litters in the field. My secretary, Surgeon-Major Marston, has suggested that a light two-wheeled cart or barrow, capable of being pushed by hand or drawn by a pony, in principle like the costermonger's cart with a light removable stretcher or doolie in place of the costermonger's fruit tray, would prove a good and cheap vehicle. These are, however, minutiae which would be out of place here, and should form a special subject of enquiry and report. Still, I may here express my belief that, while the number of bearers hitherto considered necessary with a fighting column might be materially reduced with positive advantage, the general introduction of light and simple forms of wheeled transport for cantonment use, in supercession of doolie carriage, would effect an appreciable saving to the State.

The position of a divisional field hospital, or section thereof, on the line of march, or in camp, does not seem to have been definitely settled: nor does the requisite guard over it on the line of march, as in the case of commissariat stores, regimental and other baggage, appear to have been considered.

It is believed that the adoption of the following suggestions would prove not only financially advantageous, but would secure increased efficiency:—

I. All sick carriage, and in brief everything appertaining to the health department, should be placed at the disposal of, and be directly under the orders of, the principal medical officer, with whom the responsibility for its efficient maintenance should rest, and from whose direction it should never be diverted except by the special order of the general or other officer in command.

II. That the doolie-bearers now separately employed under the commissariat and medical departments be consolidated, with a view to ensuring their instruction in necessary drill for a given period in each year. The men so trained in cantonments, on taking the field, should be replaced by others employed temporarily.

At present the doolie-bearer establishment is divided into two parts, employed and paid by two separate departments, *viz.*, a permanent establishment attached to corps for duty in cantonments, under the orders of the medical department and paid by the pay department, numbering about 1,000 men; and (2) the moveable column establishment of about 4,400 men, employed and paid by the commissariat department.

It is proposed to amalgamate both medical and moveable column establishments of doolie-bearers; place the whole under one department; provide one uniform rate of pay; and drain them in times of peace in the duties required of them in the field. This could be effected by an interchange in the station of men every quarter between the hospital (where the training will be conducted) and the head-quarter centres of the establishment. By this arrangement every bearer might go through a short course of training periodically.

A corps comprising of 5,000 or 6,000 trained doolie-bearers would be sufficient for an army of about 20,000 to 25,000 men, their places being substituted by others temporarily employed in cantonments during war.

To make the bearer corps efficient without extra expense to the State, it would be desirable to reduce the number, and utilize the saving effected for clothing and bedding on field service, with quarters, &c., &c., under the rules recommended for the army hospital corps.

III. The organization of an army hospital Native corps, which has already received the sanction of the Imperial Government, will materially assist in rendering the field organization and transport more serviceable, which will also be much advanced by the remodelling and reduction of field hospital equipment.

Surgeon-General J. F. Beatson,
M.D., Indian Medical Department.

I consider that the carriage supplied for the transport of the sick of the Native forces was very well suited to the purpose, though no doubt the kajawahs were very roughly manufactured, and not sufficiently strong.

The carriage consisted of doolies, Looshai doolies, dandies, and kajawahs, and in amount was quite equal to demand; but whether it was not in excess of regulation is certainly doubtful; at least I am not aware of any authority for giving a regiment of Native infantry with a strength of 507—

Doolies	..	o	...	...	...	...	8
Looshai doolies	...	...	...	...	...	...	16
Dandies	...	...	...	...	...	...	22
Kajawahs	...	...	...	...	...	...	10 pairs.
With a <i>personnel</i> of mates	...	...	...	...	...	...	8
Doolie-bearers	...	...	...	...	...	...	200

which was the establishment of the 15th Sikhs in the Kandahar column, equalling say 13 per cent.

The doolie-bearers were recruited in the Punjab and Hindustan, the former class showing a wonderfully superior staying power all round, a better physique capable of greater exertion, and much less liable to sickness. On the long march from Sukker to Kandahar, only a *single Punjabi* bearer was put *hors de combat* from sickness.

The only article of carriage which seems to me to have come out of the ordeal with complete success, and all but universal acknowledgment of superiority, has been the *Dickens' Looshai Doolie*, which I have brought repeatedly under the notice of Government, as, all round, the article which ought to be most largely, I think exclusively, used in Indian campaigning. It is out and out the most suited to all cases, medical and surgical, can be much better kept in hand, and the bearers, if well fed and clothed, are infinitely less likely to shut up than camels.

It was urged on the long marches towards Kandahar that four bearers for each *Dickens' Looshai Doolie* is too small a complement, but I believe that where six can carry the ordinary doolie, four will more effectually accomplish the same duty with the *Dickens' Looshai* one. As nothing cripples the movements of a regiment, or force, more than insufficiency of carriage for the sick or lame, there should always be excess rather than scarcity of it available in the field, and therefore I am inclined to abjure scales in respect of carriage, and fix it in each case with reference to the nature of the service and the character of the country, contenting myself with the expression of my judgment that 5 per cent. of *Dickens' Looshai Doolies* and a reserve of, say, five camels per regiment ought to be an ample provision for any healthy, suitably clothed, well fed and satisfactorily shod body of Native troops on service in this country.

Surgeon-General C. A. Gordon,
Principal Medical Officer, British
Forces, Madras.

I am unable to speak with regard to Afghanistan. But from experience elsewhere, I am convinced that by no other kind of transport for sick and wounded that I have ever seen is the comfort of the patient so completely ensured as it is by the doolie. I have myself been carried sick in a doolie for many successive marches. I have between the field of battle at Champigny and Paris, on purpose, myself lain between

wounded men in Evans' American ambulance carriage, which to my mind is the most complete and comfortable of all wheeled conveyances, and I give the preference to the Indian doolie. I am aware that, with the changing conditions of India, difficulties are increasing and may be expected to increase with regard to obtaining doolie bearers. If hereafter it should become impracticable to obtain them, then there will be no help for it but to adopt wheeled conveyance, of which there are many kinds. In places where railways exist, transport of sick and wounded by them can be effected, the carriages being fitted up on the American or German models for such purpose. These several methods of transport are described somewhat at length in Chapter VII of my book on Hygiene and Surgery of the Franco-Prussian War.

As to the conveyance of *matériel*, I question if the English-made waggons with their teams of horses and necessary equipment are really so well adapted for the purposes of service in India as are the clumsy-looking carts of the country; but the point is easily tested by experiment. As to reducing expenditure, it seems to me that a rule on this subject which may be applicable enough to one set of conditions of service, including nature of country, state of roads, rate of sickness and of casualties in battle, facilities of *evacuating* non-effectives and so on, may be completely erroneous with regard to others. In order to provide fully for the medical requirements of a force, there must be a certain quantity of *matériel* carried, a certain provision in *personnel* and *matériel* existing for the requirements of the force itself; at some places where troops have always to be kept in readiness, all such establishments are constantly maintained; in others they are engaged as occasion requires, so that whether expenditure can or cannot be reduced in respect depends, I think, upon local circumstances, and as just stated the circumstances of particular expeditions.

Dr. G. Smith, M.D., Surgeon-General, Indian Medical Service, Madras.

So far as the patient is concerned, the most satisfactory of all methods of transport in time of war of those who are seriously sick or wounded is that by doolie manned by a sufficient number of well trained bearers. The Madras doolie is too heavy.

Referring to the subject of sick carriage, Surgeon Sibthorpe remarks: "The muncheel a wooden frame worked with rattan centre hung to a bamboo by chains with a canvas cover was the pattern supplied. It weighs 80 lbs. with its cover, and is well adapted for the carriage of the sick in the plains, but for hill work it is quite unsuited. During the second Bazaar expedition it was found that the patients slipped out of them when going up or down a hill; even empty it was easier for the bearers to carry them on their heads than swinging from the bamboos. The rattan was found to be easily broken and difficult to repair; they had to be sent back to the base at Peshawar to have anything done. Broad country tape would make a much better bed and could more easily be replaced when worn out. A head and foot board to keep a patient from slipping out are much required." Other minor suggestions are also offered. Each company of sappers and miners was provided with 12 muncheels calculated for 10 per cent. of sick. It appears that many different patterns of doolies and dandies were in use by the troops. Each company was also furnished with 6 bamboo stretchers devised by Colonel Prendergast, V.O., C.B., R.E. These stretchers weighed about 8 lbs. each, "and would have been invaluable for carrying wounded men to the rear where doolies could not be brought up as during work in trenches. As they only required two men to carry them, fewer bearers would have to be sent under fire."

Dr. Sibthorpe, in connection with the subject of bearers and their organization, remarks that that each muncheel had four bearers allowed and five mates were sent with the companies, besides a small surplus of bearers to cover sickness. "A very considerable proportion of these men had never carried doolies in their lives before, and many were quite unfitted for their work. None of them had received any previous training. Amongst the bearers sent with the K Company, the only one who was a bearer by occupation was the petty maitry, most of them being discharged cook boys, syces and coolies." Dr. Sibthorpe on arrival at Jhelum established a regular system of training under the name of "ambulance drill," which included instruction touching the lifting, carrying and setting down of the muncheel, the lifting, placing in the doolies a wounded man, and the easiest mode for the sufferer of carrying him over different kinds of ground. The men were found to be willing to work and to be taught, and some of them were subsequently employed at Lundi Kotal to teach the Bengal bearers the same drill. Dr. Sibthorpe adds a practical suggestion to the effect that the 900 bearers borne on the Madras establishment should be put through a course of instruction yearly, and be taught many of the duties they have to perform in camp as pitching tents, repairing doolies, &c. "They ought to have a regular uniform and be thoroughly under the control of the medical department for enlistment, pay, promotion or discharge. They could be utilized in the hospitals where many of them would, with a little training, make efficient sick orderlies for Native troops."

Dr. Colvin Smith, Deputy Surgeon-General, Indian Medical Department, Madras.

I am unable to reply to this fully, but from the reports I have had it is very evident that a hospital corps is much required for the Indian army. The commissariat bearers should be all drilled to their work during peace, so that in time of war they would be the basis on which a transport corps for sick might be formed. This, a suggestion of Surgeon Sibthorpe who accompanied the Queen's Own Sappers and Miners to Afghanistan, should be well considered and acted on if approved. He seems to have drilled his bearers and hospital servants on the way up from Bangalore with very good results. The Madras muncheel has always been found too heavy for service in the field, but it might be made lighter; its present weight complete is 80 lbs., 68 lbs without cover. Dr. Sibthorpe says for hill service it requires a head and foot piece; the chains are defective; ring chains would be better. The cover should be made self-supporting when the bamboos are removed; instead of ratan bottom, broad tape should be substituted; short legs should be added and handles affixed, so that it might be used as a stretcher; if much lighter than at present, it would be very serviceable for carrying wounded men.

The Sooshar dandy of 50 or 56 lbs. was the best dandy in use during the campaign, and has the advantage also that it can be used as a cot, but it requires a light cover, and the canvas of the bed should be strengthened and more easily stretched. A very useful bamboo stretcher was taken up to Cabul by the Madras sappers, made under the supervision of Lieutenant-Colonel Prendergast, M.E., V.C., C.B., entirely of bamboo, extremely light (5 or 6 lbs.), and which can be tied to the bottom of a muncheel. This "makes an admirable stretcher for carrying wounded men on the field to the first line of surgical assistance."

Colonel Hawke's sick cart is the best on the Madras side. The Madras sick railway carriage is good so far as it goes, but there should be doors at either end, so as to let there be easy communication with the carriages when the train is in motion. Dr. Sibthorpe also proposes that cotton wagons be ventilated and arranged with moveable furniture so as to suit for a carriage for the transport of sick in time of war.

Dr. J. Gibbons, Deputy Surgeon-General, British Forces, Meerut Circle.

My experience gathered in the recent operations is that all the arrangements for the transport of the sick were most inefficient and little better than makeshift, and that after the subject of general transport no other in the service needs more consideration. As regards the personnel, nothing could have been worse. When the division marched out of Peshawar, sick carriage for want of kahars was deficient, not more than 5 per cent. all round being available for corps. Kahars could not be obtained, simply because the class is becoming extinct. In lieu of trained bearers, a miscellaneous lot of kahars who had never carried a doolie, and coolies of all descriptions, was got together (induced to serve by the liberal wage) from every town and district in the North-West and Punjab and sent to the front. Commanding and medical officers soon found out that numbers of those so-called bearers were unused to the work, untrustworthy on an emergency, and that it was necessary to put six bearers to a dandy or eight to a dooly when occupied to ensure its keeping up with the marching column. I had the whole number, over 3,000, subjected to medical examination; amongst them were found halt, maimed,

blind, lepers, and imbeciles; fully one-third were unfit for the work, but could not be replaced if sent to the rear, and there was no security against the same men finding their way back again; as it was, about 10 per cent. were found unfit from physical incapacity, disease, and worn out, and it was the opinion of the examining officers that of the whole, not more than 50 per cent. had been in the custom of acting as bearers prior to entertainment. A very certain opinion can be arrived at on this subject by the absence of the shoulder callosity and discoloration, which in some degree is always to be found on the professional bearer.

As regards *matériel*, the various forms of doolies and dandies were almost exclusively used in the 1st Division, Peshawar Field Force. There were a few camel kajawas, but useless from too slight construction; during the evacuation, carts to some extent were used for native sick followers.

Of the doolies, that constructed by Surgeon-Major Hamilton was *facile princeps* convertible into a stretcher on the field, a very comfortable bed in hospital, and taking up much less place in tents than those of the old pattern. As long as roads are fair, no mode of carriage equals the doolie in the safety and ease in which the sick and wounded are borne, but in many of the expeditions during the operations in the Khyber the use of the doolie on precipitous hill-sides and mountain paths was found impracticable, and the dandy had to be used instead.

Of the dandy, three descriptions were in use with the force; all were of faulty construction, and numbers of them old and in bad repair proved quite untrustworthy. During the month of February a few dandies, known as the Looshai pattern, came to the front, and this muster was at once and unanimously recognized as the mode of carriage of its kind, doolie or dandy, best suited for hill work. I consider it should be introduced into general use in the service,—certainly to the exclusion of all the existing forms of dandies.

By the ruling of the Government of India, the sick carriage was placed under the orders of the principal medical officer; this was never thoroughly admitted or subscribed to in the 1st Division, Peshawar Field Force. Some colonels of regiments and their medical officers looked on the sick carriage as essentially regimental, and absolutely refused its use for the conveyance of the sick of other corps on an urgent occasion. The sick carriage should be under the orders of one person, whether he be principal medical officer, head of transport, or head of commissariat department. If brigadiers, commanding officers, local commissariat officers, regimental medical officers all have control, or assume control, confusion must be the result.

In a country where woods exist, or as in the case of the last campaign in the Khyber, where a practicable road has been constructed, the use of wheeled carriage for sick transport at once recommends itself for economy and safety. Where there are no woods or very indifferent ones, there may be a choice between camel and mule carriage, but either are faulty, as not being generally applicable; it would be death or torture to trust particular cases of sick or wounded to caolet or kajawah. I have come to the conclusion that in operations in India or the neighbouring countries bearer carriage in some form and to some extent must be retained, and here the difficulty of efficiency and at the same time reduced expenditure arises. If bearers are wanted for war, they must be trained and maintained during peace.

Deputy Surgeon-General S. C. Townsend, Principal Medical Officer, Kuram Field Force.

I am not aware that there was any actual failure in the arrangements for the transport of the sick and wounded during the operations in the field, but I believe it is generally allowed that they were defective. When among other preparations for the proposed advance on Cabul, the condition of the carriage for the sick and wounded was enquired into; it was found that, although there were some 2,500 doolie-bearers attached to the force, this large body of men was quite without organization of any kind; that a large proportion of them, though entertained as doolie-bearers, were simply coolies who had never lifted a doolie in their lives, and many were physically unfit for the work. Though supposed to be under the orders of the principal medical officer, they were practically attached to the commissariat department, and employed by it at the different stations from Thull to Alikhel in the conveyance of stores and other work. With the view of bringing these men into something like order, as many as were available at Alikhel were collected together, about 1,000 in all, and placed under the superintendence of a medical officer with a small staff of Native non-commissioned officers under him, who undertook to instruct them in the mode of removing wounded men from the field and other duties. Peace was declared shortly afterwards, but enough was effected to show that under good supervision and with a proper staff the efficiency of the bearers as a body could be very greatly improved. When a force of any magnitude is collected for field service, all the bearers attached to it should be organized into a corps, and a medical officer placed in command. The commandant or superintendent should have under him a staff of non-commissioned officers, European and Native; the corps would form an adjunct of the European hospital, and a suitable number would be detailed for duty with each corps or section of the force. Should the force be stationary for any time, there would be no objection to the bearers being employed under the commissariat or engineer department, but the Superintendent should always know where and how they are employed, and be able to recall them to head-quarters when wanted.

The doolies provided for the use of the force were of three patterns, the old pattern, Surgeon-Major Hamilton's and Surgeon-Major Bourke's. Surgeon-Major Hamilton's seemed to me the most serviceable; and of the two kind of dandies,—the Durree and the Bareilly,—the former is I think the best.

In this hilly country the six bearers allotted for each doolie, and the four for each dandy, were found insufficient; to be thoroughly effective, there should be eight bearers to each doolie and six to each dandy.

It was decided, in consequence of orders from head-quarters, that the amount of carriage for sick should be limited to 7 per cent. of strength, half of which was to be bearer-carriage and the remainder by camels. This was, I believe, a dangerously small limit, but it was no doubt of the greatest importance that the length of the column should be reduced as much as possible; and as bearers add to the quantity of food to be carried in proportion to their number, it was most desirable that the force should not be encumbered with more than were absolutely necessary. Moreover, as bearers themselves fall sick on a march in almost larger proportion than the soldiers, it was necessary to

include them in the estimate of carriage to be provided, and to supplement the bearer-carriage of the force largely with camels. In a hilly country, impracticable for ambulance carts, the camel is the only animal which can be rendered available for the conveyance of sick in large numbers; but the riding mule, if furnished with a saddle of a suitable pattern, would form more easy carriage for sick or wounded men unable to walk, but not absolutely requiring a doolie. The mule would be more expensive than the camel, inasmuch as it would carry only one patient, and a muleteer would be required with nearly every mule, but it would be cheaper than the doolie or dandy with its eight or six bearers, for whom food must be carried; and it would, I think, be useful and economical to attach riding mules for the carriage of the sick to a force employed in a hilly country in the proportion of two or three per cent. of strength.

Two kinds of kajawah-chairs were provided for the conveyance of the sick on camels, one after the pattern of Brown's reclining iron chair, the other a straight arm chair of common pattern: it seemed to me that the latter was the most comfortable; others preferred the reclining chair; but neither was tried for any long journey. I do not think that the best possible form of camel-chair has yet been devised; the chairs of both patterns that were supplied were too heavy for use in a mountainous country, each pair being in itself almost a load for a camel in the condition to which most of those belonging to the force have been reduced.

Surgeon-Major J. H. Porter,
late in Medical Charge of Field
Hospital, 1st Division, Peshawar
Valley Field Force.

The *personnel* as regards kahars was most inefficient; in most instances these men had never carried a doolie or dandie, to which they were quite unaccustomed, and from being badly fed and of indifferent physique were physically unfit for such labour. This want of physical power caused much inconvenience to the sick by their being roughly handled and extra labor on the medical officers, who were obliged to drive them like so many slaves. Frequently I have seen eight and ten men staggering under one doolie carrying a European; and in attempting to carry an empty doolie up some of the hills, it has been found necessary to take it to pieces, from inability on the part of the kahars to carry it as a whole. The *matériel* as regards doolies was as good as I have seen in India, some being perfectly new and of modern construction. The dandies were of indifferent material, some of their canvas bottoms being completely rotten. Doolies and dandies composed the chief sick transport in 1st Division, Peshawar Valley Field Force, but during the return march rafts, mules, tattoos, camels, elephants, covered hackeries and engineer wagons formed part of the sick transport, but they were simply used for want of better, at the same time could not be considered justifiable, except in cases of emergency such as existed on the occasion of the return of the troops from Afghanistan. The time has now arrived in India when I consider the subject of wheeled sick transport should be ventilated. Railways and good roads have done away with the race of kahars which formerly existed, and in consequence I am informed it is not possible to obtain the services of such men when required.

I would therefore suggest, except in case of mountain-warfare, that light ambulance wagons be introduced or stretchers on wheels, with hoods and aprons. The stretchers might be so constructed as to be capable of lifting off the wheels, and by means of four short legs would answer for cots in tents in the same manner that doolies are now used.

These wheeled stretchers could be a means of reducing expense in cantonments as in the field, as they would only require at very most three Natives to pull or push them along the road, instead of six kahars which obtains with each doolie. During the recent expedition in Afghanistan (1st Division, Peshawar Valley Field Force) the roads were suitable for artillery, and would therefore have been suitable for light ambulance wagons capable of carrying two in the recumbent position, and three or four sitting up, drawn by horses or bullocks. It would, however, be necessary to maintain a certain proportion of either doolies or dandies for the conveyance of wounded from the field, or in mountain warfare, and for this I would suggest the Looshai dandy, which weighs, 52 lbs., and is well adapted for such purposes; a light covering thrown over the pole would answer for shade, or protection from weather. This covering could be secured round the pole when not in use. There are numerous forms of wheeled stretchers now in use in England; the St. John's ambulance wheeled litter, for instance, in Germany, France, and Austria, but one would have to be specially constructed for India, to admit of its being used as a cot on the line of march.

Surgeon-Major C. Martin, Army
Medical Department, 13th Hussars.

Camel kajawahs I do not approve of for either sick or wounded men; the motion of the beast is torture, and he stands too high for a man whose nerve has been shaken by recent or severe injury to be comfortable on; mule cacolets are better. But I know of nothing so good as a doolie or dandy, and those are preferable which have not too much iron-work about them, and which a mistry or doolie-bearer can repair with an adze or auger.

Some very ingenious doolies were on trial during the late war and failed utterly on this ground, that if the least thing went wrong they could not be repaired, owing to the fittings being cast-iron.

Wheeled carriage of course is not practicable in a mountain country. As a rule, the doolie-bearers were very bad, weakly, and not accustomed to the work.

11. Will you give the Commission the advantage of your experience generally towards improving the efficiency of the Medical Department, and of reducing expenditure either in *personnel* or in medical stores, hospital equipment, &c., &c., both in peace and war?

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

Although the results of experience were indubitably favorable to the advantages of the medical and hospital system practised in Afghanistan, there were several most important respects in which the

working of that system was very incomplete, or at least capable of improvement. These may be ranged under one or other of the following heads, and they will serve as illustrations of defective arrangement and organization which require to be remedied in view of any future campaign :—

- (1) Unpreparedness.—The precipitancy of arrangements, and the late date at which Government sanction was accorded to the Surgeon-General's proposals, and the lack of power vested in the head of the medical service to carry out promptly and decidedly, on his own responsibility, such arrangements as he deemed necessary.
 - (2) Inefficiency and improper distribution of transport, and inadequate control exercised over it by the principal medical officers.
 - (3) Absence of proper extra professional aid to officers of the medical service, in relieving them of duties which wasted their energies on work that did not belong to them, and, as part of the same, want of proper assistance for the principal medical officers of divisions to relieve them of clerical work and other details.
 - (4) Relative absence of field equipment suitable for a campaign.
 - (5) Waste of energy resulting from not providing medical officers with horses.
 - (6) Absence of timely warning of the medical service on the part of the military as to occurrences about to take place.
- (1) As regards the precipitancy with which the medical arrangements had to be made, and the tardiness of the Government in giving its assent to the principles set forth in the Medical précis, I would call attention to the correspondence that has taken place between the Government of India and this office—numbers, &c., as follows :—

Surgeon-General's No. C1089¹, dated 24th September 1878, to Adjutant-General.

Military Department No. 78K., dated 28th September 1878, to Adjutant-General.

Surgeon-General's No. C1103, dated 28th September 1878, to Adjutant-General.

Military Department No. 168K., dated 4th October 1878, to Adjutant-General.

Surgeon-General's No. C1116, dated 8th October 1878, to Adjutant-General.

Military Department No. 418K., dated 19th October 1878, to Adjutant-General.

Military Department No. 681K., dated 5th November 1878, to Surgeon-General.

Military Department No. 756K., dated 8th November 1878, to Adjutant-General.

The troops took the field on the 21st November 1878 for the attack on Ali Musjid, Government sanction to the system set forth in my instructions having only been obtained on the 8th November 1878; and in the meantime General Biddulph's Division had taken the field. And throughout the whole of the earlier part of the operations the same tardiness in assenting to the most essential details characterized the action of Government. Instead of having everything known and arranged as soon as the troops were formed into brigades and divisions, operations had actually commenced, and even terminated, before the sanction of Government was received to some of the recommendations of this office. For example—

I.—Employment of a Native cutler with each division, for keeping the surgical instruments in a serviceable condition and saving the cost and delay of sending them back to the nearest medical dépôt (Meean Meer).

II.—Formation of the Mooltan dépôt hospital for the accommodation of the sick of Generals Biddulph and Stewart's divisions prior to their march to, as well as for the sick and invalids returning from, Quetta.

III.—Formation of a base hospital at Quetta (in connection with the working of the principle of the divisional hospitals) for the accommodation of the sick of the advancing forces.

IV.—Employment of a sufficient number of medical officers on field service. Although Government sanction for a reserve of two medical officers per 1,000 troops was requested on the 11th November 1878 as imperatively necessary, it was not until the 13th of December 1878 that such sanction was received: in the meantime the Surgeon-General, on the urgent and repeated representations of the principal medical officers of columns, was compelled to meet this demand.

At Ali Musjid it is believed that the principal medical officer of the 1st division had not received other than a private copy of instructions under which he was supposed to be acting. Dr. Hendley, on assuming medical charge of the Quetta force, believed that the system to be pursued in the field was to be a purely regimental one.

"The Quetta expedition," he reports, "was characterized by endless wants, all arising out of one, viz., want of preparation. This was painfully apparent everywhere, at Mooltan, along the road, in Quetta, and onwards; in whatever was to be done, the means at disposal had first to be ascertained, and the best possible according to the circumstances was all that could be expected." Further, this officer remarks that "the state of the force in respect to sick carriage was at all times serious. Constituted as the force was, I feel assured it would have been impossible to advance on Herat with such carriage only as we possessed. The formation of hospitals on the general system at the base of operations is an absolute necessity, which was very soon discovered when Native troops ordered to the front were unable to move their sick from Quetta. Nor could the European troops have proceeded without great embarrassment if they had been compelled to take their sick."

(2) With regard to transport, much inconvenience and embarrassment was felt in arranging for the withdrawal of the sick from the front. The inefficiency of the bearers employed has already been dwelt upon. Principal medical officers had not the requisite control over the transport in connection with the hospitals, with the exception of the sick carriage, the consequence being that it was impossible to keep a section of the field hospital ready to move with troops operating at any distance from the head-quarters. It would extend this communication to needless length to discuss the above in detail: it must suffice that they occupy a very prominent position in all the reports from medical officers.

(3) The want of extra European aid was severely felt. Medical officers had the charge and discipline of hundreds of Natives without any military assistance whatever.

Principal medical officers were refused a secretary, thus obliging them to devote much of their time to ordinary clerical and other details.

The appointment of a sanitary officer to each division was also refused, although the necessity of such an appointment has been recognized, and provided for by recent War Office authority, and

notwithstanding that it was proposed in the Afghan campaign to combine the office of secretary and sanitary officer in one.

(4) The cantonment medical equipment was wholly unfitted for active service; and hence it was necessary to procure from England fitted panniers for the conveyance of medical stores.

(5) It is absolutely essential that all medical officers on field service should be mounted, on account of their duties requiring them to proceed to distances at any moment, and it being of the utmost importance that they should not be worn out by fatigue at the end of a march—as was the case, for example, in the return-march of the troops through the Khyber—for it is then that their services are always necessary and, very frequently, most needed. This provision has been made in every European army.

(6) As illustrative of the absence of timely warning for making the medical arrangements, I would cite the following:—

Deputy Surgeon-General Gibbons, Principal Medical Officer, 1st Division, Peshawar Valley Field Force, referring to subjects requiring rectification in future, calls attention to “the necessity for giving the principal medical officer timely notice of movements; and more especially when troops in any force are sent out on military expeditions involving any protracted absence or probable contact with the enemy. Otherwise it is impossible to make the necessary medical and surgical arrangements; and regimental resources may be subjected to a strain they were never intended to bear under the field hospital system.

“A large proportion of the troops of the 1st-division were detached for service in the Bazaar valley. With the exception of an order to send dandies and bearers to Basawal for service under General Tytler, I was left in ignorance of this move, received no information of the starting or composition of the force; nor was I called upon to make any medical arrangements, otherwise than what is stated above. A working section of the field hospital should have accompanied, as one did with the troops of the 2nd division; and had the medical and surgical resources at the disposal of corps been overtaxed, I submit it would have been through no fault of the system.

“With respect to all other expeditions sent out, punitive or for reconnoitring purposes, I make the same statement. I had no official information regarding them, and often was not aware they had left camp until the following morning.

“On notice of the affair at Fatehabad being received in camp, a section of the field hospital was in readiness to start at a moment's notice; I failed to obtain the necessary sanction to send it out.”

Dr. Gibbons goes on to add, however, “that there was happily no neglect of the wounded at Fatehabad. Three medical officers were on the field (the force was about 500), besides medical subordinates. The wounded—some 30—were attended in the field, despatched that afternoon to Jellalabad, and arrived in good care at 6 o'clock next morning.”

The position to be occupied by a field hospital, on the line of march, in camp, and in action, requires to be settled and authoritatively laid down, as well as the provision of a military escort and guard for the same.

The foregoing remarks have a special bearing on field service; and as regards improving the efficiency of the medical department generally, and economizing expenditure, the following summary statement embodies the principal proposals.

The efficiency of the medical department can be improved by—

I.—Vesting the administration of the army medical service in India (British and Indian) under one head.

II.—Placing the apothecary class of the subordinate medical department under one surgeon-general, and increasing its effective strength.

III.—Transferring the purveyor's department from commissariat to medical, as noted in reply to query 8.

IV.—Organizing the army hospital Native corps without any unnecessary delay, as the basis of the scheme has received the sanction of the Home Government.

The difficulty of getting hospital servants under the present rates of pay is daily increasing, and complaints were general during the late Afghan war as to the class of men supplied by the commissariat department. The majority of them had never served in an hospital, could not make up a sick man's bed, much less nurse him; and cooks were employed who had never entered a kitchen before.

V.—Increasing the passed hospital apprentice grade of the subordinate medical department from 60 to 75, and making a corresponding reduction in the unpassed hospital apprentice class, so as to avoid additional expense to the State. This step is very desirable in consequence of the authorized

■ Apothecary.
Assistant apothecary.
Passed hospital apprentice.

numbers of the efficient grades* being much below the requirements of the service, and the pressure of the numerous duties in connection with the sick, together with the extra strain in times of war and cholera epidemics, being such as to seriously affect the health of the members of the subordinate medical department (see reply to question 6). This matter was laid before Government in July 1879; and a reply, dated the 4th September 1879, states that, pending the report of the Army Commission on the question of hospital administration, the Government of India are not prepared to accede to the recommendation.

† Writer.
Nurses.
Hospital sergeants.

tal sergeants in India.

(Copy of correspondence herewith.)

Reduction in medical expenditure by—

I.—Reorganization of the subordinate medical department. [A copy of correspondence on this subject is annexed, by which an estimated saving of over Rs. 2,50,000 annually can be effected, and a further saving of Rs. 1,50,000 by extending the system to Native corps. Total estimated saving Rs. 4,00,000 annually.]

ii.—Medical stores. On the formation of general or station hospitals, it would be no longer necessary to keep up a large and costly supply of surgical instruments for each corps-unit, in the command.

iii.—Hospital equipment: By reducing the scale from 12 to 10 per cent. of sick in all large stations, as noted in the reply to query 6.

iv.—Hill depôts. These are classified under two Heads—

1st class, for 200 men and upwards.

2nd class, for under 200 men.

At present there are 6 first class depôts and 1 second class.

The scale of the former, irrespective of the strength—which varies from 200 to 550, according to available accommodation—is uniform; and being satisfied that the equipment could be reduced, it was recommended that the scale of supplies should be regulated by this department, by which it was estimated that a saving of hospital equipment for about 80 beds, amounting to about Rs. 8,000, might be effected. Government negatived this suggestion, but assigned no reasons for so doing.

v.—Carriage of medical stores on line of march. Under existing regulations, each corps has a distinct store of medical and surgical equipment accompanying it. The bulk of the stores should be left behind for the use of the relieving corps, as in the case of hospital equipment. A medical committee is now sitting for the purpose of arranging the details of this scheme.

vi.—Some saving, together with increased efficiency, in the subordinate service could be effected by sending unpassed hospital apprentices to college direct, instead of waiting three or four years in a military hospital. This measure was also negatived by Government; but I am still of opinion that the proposal should be carried out.

In the preceding remarks I have confined myself to simple and practical details having a direct bearing on the general usefulness of the medical service as at present constituted; but the question under reply has a much wider scope.

The subject naturally ranges itself under two heads, inasmuch as it devolves on the medical services in this country to fulfill the requirements of the military and civil population.

I.—Under the first, the subject is strictly circumscribed within the limits of an improved and more economical *military* organization.

II.—Under the second, it necessitates a consideration of the expediency or desirability of establishing an improved administration on such a framework that the *civil and military* services, while held distinct, should be rendered interdependent, so that the members of the civil medical service might form a reserve to the military available in cases of unusual strain, such as war; and, on the other hand, the military would be equally available in any extra pressure to which the civil medical service might be subjected in times of famine or other need.

From either standpoint it is assumed as a primary and indispensable principle that the military medical should be altogether dissociated from the civil medical service; that the two military medical services should be fused together under one head, a second holding exclusive direction of the civil branch; both being in immediate connexion with the Government, whose advisers they would become, forming together a health department where consultative or combined action was required in all matters relating to the army or civil population. Under such circumstances they would severally be included in the secretariats of the Military and Home Departments; or the military head might appropriately belong to the staff of the Commander-in-Chief.

I.—The present condition of the medical service in this country presents an anomaly not to be found in any other—an anomaly which has survived the period when one portion of the military force was raised and paid by a commercial company whose troops they were, while another formed a portion of the royal army. Since that date, the large and rapidly-growing civil medical wants of each province have greatly increased, and urgent pressure has from time to time been brought to bear on the Supreme Government to appoint administrative medical officers for their exclusive superintendence. The time seems, therefore, to have arrived when the same imperial system which obtains in all the other possessions of the Crown should be followed in this country, and for the civil medical service to form a separate body for which provision should be made in the civil estimates in all that relates to pay and pension. When it is remembered that three-fifths of the medical officers of the Indian service are already employed in civil duties, the change may be regarded rather as one of principle than as effecting any very material alteration in the personal position of the majority of the officers concerned.

It is proposed that there should be—

(a) One Imperial military medical service for all troops, European and Native, constituted and consolidated on one and the same system, and administered by one head: admission to which should be through the same portal.

(b) All members of the existing Indian medical department to have the power of electing for the civil or military service; but, if deciding for the latter, to become incorporated in the Imperial medical service, taking their position therein according to rank and dates of commission.

(c) Those medical officers of the Indian medical department who decline to join either the military or civil branches of the service as newly constituted, preferring to remain as they are and to serve under existing rules and regulations, to form a distinct body, to which there should, however, be no increment: their names to be retained on a separate list, until such list becomes exhausted by the absorption into the Imperial medical service by promotion to administrative appointments in India, apportioned in proportion to their numbers or by death or retirement from the service.

(d) No member of the (unified Imperial medical service to be eligible for an appointment in India until he has qualified in the language (L. S.)

Not only would many obvious advantages in the way of efficiency, simplicity, centralization, and economy accrue from the foregoing arrangements, but the rival competition for candidates, in

which one public medical service has continually to outbid the other, would also be altogether avoided.

II.—If, however, it be deemed desirable (as already indicated) to render the civil and military medical services, while held distinct, nevertheless so interdependent as to be capable of mutually aiding one another in case of need, it is suggested that this result might be best attained by making the Imperial military medical service the portal through which all candidates for the civil service also should pass; and by exacting from them a short introductory qualifying period of service in connection with the military medical service, not only would time be given for acquiring the necessary information regarding the nature of their medical duties in this climate and the customs and habits of the people, but for that which is most essential in view of possible future employment on military duty, *vis.*, a training in the habits of military discipline, which can nowhere be so surely obtained as by service in military hospitals, European and Native. In this way, it is suggested that the members of the civil service would then form a reserve to the military; of *vice versa*, as already pointed out.

Some of the foregoing views, which have been here sketched in outline only, will be found set forth in somewhat greater detail in a communication (copy attached) in which the subject of what is rightly termed a preventive medical service, in addition to a purely curative one, is chiefly handled.

The sanitary department costs in Bengal alone between eleven and twelve thousand pounds a year, and can moreover have no duties that do not legitimately belong to, and could not be quite as well performed by, the civil and military heads of the medical department, separately or conjointly.

If sanitation was so long neglected in India, it was not in consequence of any shortcomings of the medical department or of its officers, but from the unwillingness or inability to carry out recommendations involving expense.

While I have no doubt that the complete fusion of the military medical services into one, and its separation from the civil medical service, are essential, alike on the grounds of efficiency and economy, and that some of the foregoing suggestions on collateral points might be advantageously adopted, it is especially necessary at the same time to guard against being considered the advocate of such an economy as would abolish all high or lucrative appointments, because the duties appertaining to them might be more cheaply performed under other arrangements. Every department of Government must have its just prizes if it is to be adequately maintained from without; and this can only be done by its proffered rewards being of such a character as to entitle it to occupy a desirable position among its other competitors.

ANNEXURES TO ABOVE.

No. 603B., dated 18th January 1878.

From—SURGEON-GENERAL J. H. KEE INNES, Principal Medical Officer, British Forces in India,

To—The Secretary to the Government of India, Military Department.

I have the honor to solicit Government orders for the sanction of the following increase to the establishment of British hospitals in this presidency:—

I.—A writer (soldier) to each detached wing of infantry or cavalry, to each division of royal artillery, and to a 2nd class hill depôt (Pachmarhi), for seven months in each year.

II.—A head nurse (in lieu of the present assistant nurse sanctioned) to each detached wing of infantry or cavalry, and to each division of royal artillery.

2. The clerical duties in British hospitals have considerably increased during the past few years (especially so since the introduction of purveyors), and occupy a large portion of the time of medical officers and subordinates which might more profitably be employed in medical and sanitary duties.

3. When the present edition (1877) of the Bengal Medical Regulations was under compilation, this very important question received due consideration, and the clerical labor was somewhat lessened. There still remains, however, far more than can reasonably be expected from medical officers without the assistance of a clerk.

4. At present a head nurse is only sanctioned for seven divisions (late brigades) of royal artillery, the remaining divisions and detached wings of regiments being allowed an assistant nurse. The duties in connection with the nursing of sick women and children in large hospitals are very onerous, especially during the summer months, and have to be performed *solely* by the hospital nurse. I therefore consider it essentially necessary for the well-being of the sick that a head nurse should be sanctioned for the hospitals mentioned, in lieu of the assistant nurse at present employed.

5. I propose to meet the extra expense which will thus be entailed on the State by the abolition of the brigade hospital sergeants. This non-commissioned officer's duties consisted in preparing the statistical returns and reports of the brigade to which he belonged, the several batteries of the brigade (wherever stationed) furnishing returns for this purpose. As the head-quarters of brigades of royal artillery have been abolished in India, the several returns and correspondence in connection therewith are no longer required. With regard to the hospital duties (in connection with discipline), these can be performed by the *senior* battery hospital sergeant present in a divisional hospital, who should receive an increase to his staff salary* of Rs. 2-8 per mensem.

6. I beg to append herewith a statement showing the effect of these recommendations in a financial point of view, from which it will be seen that I estimate a saving of Rs. 4,087-10-4 *annually* to the Indian Government.

7. As numerous orders have been published from time to time with regard to hospital nurses and writers, I append, for the consideration of Government, a draft general order embodying the above recommendations, the publication of which, in supersession of all former orders on the subject, is solicited.

Schedule alluded to in paragraph 6 of foregoing letter.

	Rs.	A.	P.	Rs.	A.	P.
To average net pay of 2 hospital sergeants of brigades of royal horse artillery for one year	1,231	2	0			
To average net pay of 5 hospital sergeants of brigades of field, heavy, and garrison artillery for one year	2,915	10	0			
Extra duty pay of 7 hospital sergeants at Rs. 7-8 each per mensem for one year	630	0	0			
Allowance in lieu of a free hospital diet of 7 hospital sergeants at Rs. 0-5-8 each per diem for one year	904	14	4			
				5,681	10	4

Hospital Writers.

	Rs.	A.	P.			
By pay of 10 for divisions of royal artillery at Rs. 10 per mensem for one year	1,200	0	0			
Deduct—Pay of 7 already sanctioned	840	0	0			
				360	0	0
Pay of 1 for Pachmarhi at Rs. 10 per mensem for 7 months in a year	70	0	0			
Pay of 3 for detached wings at Rs. 10 per mensem for one year	360	0	0			

Hospital Nurses.

	Rs.	A.	P.			
Pay of 10 for divisions of royal artillery at Rs. 15 per mensem for one year	1,800	0	0			
Deduct—Pay of 7 already sanctioned	1,260	0	0			
Pay of 3 assistant nurses to be abolished	288	0	0			
	1,548	0	0	252	0	0
Pay of 3 for detached wings at Rs. 15 per mensem for one year	540	0	0			
Deduct—Pay of 3 assistant nurses to be abolished	288	0	0			
				252	0	0

Battery Hospital Sergeants.

Extra duty pay of 10 at Rs. 10 per mensem for one year	1,200	0	0			
Deduct—Pay already sanctioned at Rs. 7-8 per mensem for one year	900	0	0			
				300	0	0

1,594 0 0

Annual saving

4,087 10 4

Draft Government General Order.

His Excellency the Governor-General in Council is pleased, in supersession of all previous orders, to sanction the employment of writers and nurses for British hospitals as follows:—

Hospital Writers.

One for each—

- Division of royal artillery.
- Regiment of cavalry.
- Regiment of infantry.
- Detached wing for detachments (equal in strength) of cavalry or infantry.
- First class hill dépôt.
- Second class hill dépôt, for seven months in each year only.

Hospital Nurses when the families are present.

One head nurse to each—

- Division of royal artillery.
- Regiment of cavalry.
- Regiment of infantry.
- Detached wing (or detachments equal in strength) of cavalry or infantry.
- First class hill dépôts during the summer months.

One assistant nurse of each—

- Division of royal artillery.
- Regiment of cavalry.
- Regiment of infantry.
- Detached wing (or detachments equal in strength) of cavalry or infantry.
- First class hill dépôt during the summer months.
- Detached battery of royal artillery.
- Detachments of two hundred men and under the strength of a wing.
- Company of royal engineers.
- First class hill dépôt during the winter months.
- Second class hill dépôt.

In addition to the head nurse when the number of adult patients exceeds ten.

Irrespective of the number of patients.

For detachments of less than 200 men, an assistant nurse will be temporarily engaged, when and for as long as may be necessary.

Whenever it may be necessary to procure the services of extra head nurses for attendance on special cases, such as insane women, women suffering from contagious or infectious diseases, &c., application will be made to the officer commanding the station (through the administrative officer of the circle) for the sanction of the same in station orders.

2. The following is the scale of pay sanctioned:—

Hospital writer (soldier)	...	...	...	Rs. 10 per mensem.
Hospital nurse {	head	...	...	" 15 "
	assistant	...	...	" 8 "

Each nurse (*head or assistant*) is allowed, in addition, a pint of malt liquor daily, or one anna and six pies in lieu thereof.

3. When a soldier writer cannot be obtained, a Native will be employed on Rs. 35 per mensem,

No. 110B., dated Simla, 2nd December 1878.

From—SURGEON-MAJOR JEFFERY A. MARSTON, for Surgeon-General, British Forces in India,
To—The Secretary to the Government of India, Military Department.

In consequence of several representations having been made to this department that an acting hospital sergeant was essentially necessary for detachments of British troops, I have the honor to recommend, in continuation of this office letter No. 603B. of the 18th January last, that, in the event of the appointment of brigade hospital sergeants being abolished, Government may be pleased to sanction a non-effective hospital sergeant, on a staff salary of Rs. 7-8 per mensem, for each detachment of British troops, such detachments under existing regulations not being entitled to one.

2. The duties in connection with detachment hospitals are as important and numerous as those of battery hospitals, for which a non-effective hospital sergeant on a salary of Rs. 7-8 per mensem is authorized.* The soldier selected for this post has in addition to maintaining discipline, &c., to assist in the preparation of the numerous returns, reports, &c., required from the medical department, as no hospital writer is allowed.

3. Under existing rules, the soldier performing the duties of hospital sergeant in a detachment hospital is not entitled to any extra allowances; and it has been represented to this department that eligible soldiers are consequently deterred from accepting such a position.

		Rs. A. P.		
* 6 Gullies for 7 months in each year		815	0	0
Bhagen	ditto	52	8	0
Banikhet	ditto	52	8	0
Fort Lahore	...	90	0	0
Dera Ismail Khan	...	90	0	0
Amritsar	...	90	0	0
Fort Kangra	...	90	0	0
Ftshgarh	...	90	0	0
Fortress Gwalior	...	90	0	0
Saugor	...	90	0	0
Nowgong	...	90	0	0
Moradabad	...	90	0	0
Chunar	...	90	0	0
Hazaribagh	...	90	0	0
Total	...	1,410	0	0

4. I estimate that by giving effect to this recommendation, the annual cost to the State will be Rs. 1,410,† which will be more than met by the saving that will be effected by abolishing the appointment of brigade hospital sergeants in India.

5. I would add that acting hospital sergeants, on a staff salary of Rs. 10 per mensem, are sanctioned for detached wings of cavalry and infantry, and for mixed detachments of 300 men and upwards: see Pay Code for India, Vol. I, Article 1746.

No. 793B., dated Simla, 20th August 1879.

From—SURGEON-GENERAL J. H. KER LYNES, Principal Medical Officer, British Forces in India,
To—The Secretary to the Government of India, Military Department.

Adverting to paragraph 9 of G. G. O. No. 764 of 1879, abolishing the appointment of brigade hospital sergeants in India, as suggested by this department, I have the honor to request that the sanction of Government be obtained to the recommendations set forth in the communications margin-

No. 603B. of 18th January 1878, and No. 110B. of 2nd December 1878.

ally noted with regard to the revised scale of non-effective hospital sergeants and hospital nurses for British hospitals in this command—a measure which I consider to be absolutely necessary for the well-being of the sick.

No. 1519S.C., dated Simla, 5th September 1879.

From—COLONEL H. K. BURNE, C.B., Secretary to the Govt. of India, Military Dept.,
To—The Surgeon-General, Her Majesty's British Forces in India.

With reference to your letters noted in the margin, proposing a revised scale of non-effective hospital sergeants and hospital nurses for British hospitals in the Bengal presidency, I am directed to state that, both on account of the present financial pressure and because the question of hospital administration will be taken up by the Army Commission, the Government of India consider it advisable that any proposals for an increase of expenditure in this direction should be held in abeyance for the present.

No. 603B, dated 18th January 1878.
No. 110B, dated 2nd December 1878.
No. 793B, dated 20th August 1879.

No. 58S., dated Simla, 3rd June 1878.

From—COLONEL H. K. BUENE, C.B., Secretary to the Govt. of India, Military Dept.,
To—The Adjutant-General in India.

With reference to previous correspondence on the subject of the medical establishment required for Her Majesty's British forces serving in India, I am now to request that His Excellency the Commander-in-Chief may be moved to take into consideration the number of medical officers to be maintained in India, on the supposition that no change will be made in the present system of regimental hospitals.

2. As His Excellency is aware, the present establishment, excluding the administrative grades, consists of 373 officers, who were originally, it is understood, distributed as follow :—

50 regiments infantry	...	...	...	150
9 " cavalry	...	...	...	27
13 brigades, royal artillery	...	...	...	13
15 batteries, royal horse artillery	...	...	...	15
43 " royal artillery	...	...	...	43
Staff officers, Bengal	...	...	...	72
" Madras	...	...	...	26
" Bombay	...	...	...	27
Total	...	...	...	<u>373</u>

The number allotted to the artillery varied from the above, owing to the orders contained in G. G. O. No. 32A. of 1869, that when there are two batteries at the head-quarters of a brigade, one assistant surgeon, under the brigade surgeon, should suffice.

3. The complement is thus divided into two parts—first, the establishment of corps and batteries; secondly, a reserve, temporarily posted to various duties, but supposed to be available for filling casualties, that is, for replacing officers on sick or private leave, and for supplementing the medical establishment in cases of emergency.

4. Assuming, therefore, that no change need be made in the regimental establishments, the immediate question for consideration is whether the reserve is sufficient to meet the above object, or whether it is excessive.

5. So far as the Government of India are aware, this reserve was found ample in 1869; since that date two regiments of cavalry, two of infantry, three brigades of artillery, and five batteries royal horse artillery have been reduced without the reduction of a single officer on the reserve list.

6. As remarked above, the question will be considered on the assumption that no change is to be made in the regimental establishment; but His Excellency in Council would be glad of the Commander-in-Chief's opinion as to whether, looking at the comparative strength of regiments of cavalry and infantry, two medical officers should not suffice for the former. They have, it is true, large Native establishments; but for these separate provision is made to some extent in the appointment of a hospital assistant to each corps.

7. The following then would be the fixed establishment :—

9 regiments cavalry	...	...	...	27
50 " infantry	...	...	...	150
15 batteries, horse artillery	...	...	...	15
43 field artillery	...	...	...	43
2 mountain artillery	...	...	...	2
7 depôts, Bengal	...	...	...	7
3 " Madras	...	...	...	3
5 " Bombay	...	...	...	5
Secretaries to surgeon-general	...	...	...	3
Statistical officer, Bengal	...	...	...	1
Total	...	...	...	<u>256</u>

No provision has been made for heavy and garrison batteries, which are not allowed a separate medical officer. Only one medical officer has been allotted to the depôts, as no doubt medical officers on the establishment of regiments are occasionally detached for duty at those depôts. During the winter months only one medical officer would be needed.

These are, however, points on which the Government of India would be glad of His Excellency's opinion before arriving at any final decision.

8. The establishment once fixed, it is necessary to provide a margin for officers absent on leave, for separate wings and detachments, for occasional appointments, and for cases of epidemics. As regards leave, looking to the generally limited period during which officers of the British Medical Service remain in India, 20 per cent. appears to be an ample, if not excessive, reserve on this account. In case of war or epidemics, officers on private leave would of course be recalled by telegram either from England or in this country. What the reserve for miscellaneous duties should be, His Excellency the Commander-in-Chief will no doubt be able to inform Government; but, as at present advised, 10 per cent. would, the Government of India consider, appear to be sufficient.

9. Calculated on this basis, the establishment would stand thus :—

Fixed complement	...	...	...	256
Reserve for leave 20 per cent.	...	...	...	51
" for miscellaneous duties at 10 per cent.	...	...	...	26
Total	...	...	...	<u>333</u>

This establishment would admit of a further reduction of 12 officers, were it decided to maintain only two officers for each regiment of cavalry. It does not include the surgeons-general, the deputies, or the superintending staff surgeons-major.

10. In connection with this subject, I am to beg that His Excellency's attention may be invited to the greatly increased cost of the British Medical Service in India of late years, which renders it imperatively necessary to make any reduction that may be practicable without impairing the efficiency of that service, or endangering the well-being of the troops, both in health and in sickness.

11. The establishment of 373 officers, given in the 2nd paragraph of this letter, consisted formerly of 91 surgeons and 282 assistant surgeons. Subsequently, in 1873, when the rank of assistant surgeon was abolished, and a larger proportion of senior to junior ranks was given to the medical service, the complement of ranks in India was altered to 163 surgeons-major and 210 surgeons at an increased cost to India estimated at £48,000 per annum.

In 1876 a further change was made in the system of promotion, all surgeons being promoted to surgeons-major after 12 years' service; again, with the immediate result, as far as India was concerned, of an increased charge of £30,000 per annum. There has thus been within three years an addition of £78,000 per annum to the military medical charges of this country, without the addition of a single officer to, and apparently without in any way increasing the efficiency of, the British Medical Service in India.

12. This point is not one on which the Government of India propose to take any action at present beyond urging on the Secretary of State that the proportion of the senior to the junior ranks shall not be higher in India than on the home estimates; but it is now brought to the notice of the Commander-in-Chief that His Excellency may be aware why, independently of the expediency of not increasing any expenditure that can possibly be avoided or reduced, the Governor-General in Council is anxious to take early steps to relieve the finances of India from a portion at least of the heavy burden which the late changes in the organization of the British Medical Department have thrown upon them.

13. His Excellency in Council is confident that he can rely on the cordial co-operation of Sir Frederick Haines in attaining this object without, it is hoped, in any degree impairing the efficiency of the service.

No. 1048C., dated Simla, 10th July 1878.

From—SURG.-GENL. J. H. KER INNES, Principal Medical Officer, British Forces in India,
To—The Adjutant-General in India.

I have the honor to offer the following remarks with reference to the proposal made by Government* Military Department No. 588. of the 3rd June 1878, to reduce the establishment of executive medical officers, in so far as it affects the Bengal command.

1. In 1873 the question was carefully considered by the late Surgeon-General G. S. Beatson; and in consequence of the many changes which had up to that period taken place with regard to the strength and disposition of the troops, it was recommended, and finally approved both by the Indian Government and Director-General of the Army Medical Department, that the strength of the executive medical officers for this presidency should be fixed at 230. This number was based on the following scale:—

32 regiments of infantry at 3	...	...	...	96
6 regiments of cavalry at 3	...	...	...	18
33 batteries of horse and field artillery	...	...	...	83
2 batteries of mountain artillery	...	...	...	2
7 head-quarters brigades of royal artillery	...	...	...	7
Secretary to surgeon-general	...	...	...	1
Statistical officer	...	...	...	1
Reserve	...	...	...	72
			Total	230

The reserve of 72 was intended to meet the requirements of—
administrative charges of two circles,*

* G. G. O. No. 381 of 1868.

hill depôts,
detached wings,
a few garrison batteries,
permanent detachments,
absentees on leave, and miscellaneous duties.

2. Since the above strength was sanctioned, the only decrease that has taken place in the troops has been the abolition of the several head-quarters of brigades of royal artillery. This reduction, under ordinary circumstances, would have admitted of the services of seven medical officers being dispensed with; but in consequence of certain changes that have taken place since 1873—such as increasing the number of troops in small detachments in the hills, transfer of the 41st Company of Royal Engineers from the Indian to the British medical service, &c.—it has not been found practicable in the interests of the service to reduce the strength of medical officers below that of 228 (see paragraph 5).

3. Since 1869, one regiment of cavalry, one regiment of infantry, and two batteries of horse and field artillery have been withdrawn from the command; and had it not been for the formation of two batteries of mountain artillery and rest-camp hospitals, the location of a number of men in small detachments in the hills during the summer, and the increase of accommodation of hill depôts, a further reduction in the strength of medical officers would no doubt have been practicable. The changes which have taken place in the distribution of troops during the past ten years have, however, been so important that, had not the regimental system been abolished in 1873, some other arrangement for a redistribution of medical officers, so as to meet the wants of the various circumstances in the command, would have been imperatively called for.

4. Government now desire, while leaving the existing regimental system undisturbed, to reduce the military medical expenditure by making a fresh allotment of medical officers, as follows:—

Regiment of cavalry	...	...	...	2
Regiment of infantry	...	...	...	3

Battery of horse, field, or mountain artillery	...	...	1
Hill depôt	...	...	1
Secretary to surgeon-general	...	...	1
Statistical officer	...	...	1
Reserve for leave	...	...	20 per cent.
Reserve for miscellaneous duties	...	...	10

As regards the provision for infantry regiments, batteries of horse, field, and mountain artillery, the secretary to surgeon-general, and statistical officer no remarks are called for; but each of the remaining items will require to be separately considered.

I. *Cavalry*.—Under the present system, two medical officers would not be sufficient. Although the strength of non-commissioned officers and men is far below that of an infantry regiment, the medical duties are in reality more arduous, in consequence of the large Native establishment (698 men, equivalent to a regiment of Native infantry, for which a commissioned medical officer and two hospital assistants are allowed). The hospital assistant alluded to in paragraph 6 of Military Department letter is in no way concerned with the medical (professional) treatment of the sick: as a subordinate, his duties are simply to carry out the orders of the medical officer. It is more than questionable whether the class and qualifications of men usually met with in the hospital assistant grade be such as to justify their being entrusted with the entire medical charge of a large establishment. In most cavalry corps, moreover, a medical officer is frequently detailed to attend riding school and mounted parades. The duties in connection with the hospital, &c., have therefore practically to be performed by two medical officers, on the senior of whom devolves the supervision of everything appertaining to the

hygiene of the corps, the sanitary inspections, and the responsibility connected with the official returns, reports, and correspondence. Under existing regulations,* the commanding officer may direct the attendance of a medical officer at parades whenever he considers it desirable; but if this order is rescinded (and there appears no reason why it should not), and the medical charge of the large number (636 men) of Native followers is transferred to the apothecary (with the understanding that he is to seek the advice of his superior whenever necessary), two medical officers may then suffice.

II. *Infantry*.—I would only remark that the services of three medical officers are essentially necessary under the present system.

III. *Batteries of royal artillery*.—It is absolutely necessary to attach a medical officer to garrison batteries when these are located in forts, or in stations away from divisions of royal artillery. The following are the stations thus garrisoned by artillery; and to each of them a medical officer must either be provided for in the scale, or the reserve must be increased so as to meet the requirements of this service:—

Delhi Fort.
Agra Fort.
Gwalior Fort.
Lucknow Fort.
Govindghur Fort.
Ferozepore Fort.
Attock Fort.
Calcutta, Fort William.
Darjeeling.

IV. *Hill Depôts*.—The Government proposal is to allow one medical officer to each depôt, and to attach a second during the summer months from among those doing duty with corps. To carry out this suggestion, six regiments must respectively be deprived of one medical officer during the period that his services are most needed. In my opinion it would not only be preferable but most conducive to the interests of the service to allot two medical officers to each first class depôt, the services of the second being made available, as at present, for the charge of rest-camps during the trooping season. If not considered advisable however, to provide two medical officers for each large depôt, it will be necessary to increase the reserve percentages to meet the requirements of both (depôts and rest-camps). Under any circumstances I cannot but consider the withdrawal of medical officers from regiments for this purpose as much to be deprecated.

V. *Secretary and statistical officer*.—No change.

VI. *Reserve for leave*.—Twenty per cent. is proposed by Government as a reserve. If the average number of medical officers who are on leave and who become non-effective through sickness at any one time be taken for the past three years, it will be found that the percentage is rather in excess of 20. It is in fact at the present time about 22 per cent. Whatever might be the case in regard to war, it is certain that, so far as epidemics are concerned, medical officers on private leave in Europe, if recalled by telegram, could not reach this country in sufficient time for their services to be utilized when most urgently required. The fact must, moreover, never be lost sight of that the relative amount of sickness, mortality, and invaliding of medical officers is far in excess of that of combatant officers, who, in consequence of their larger numbers, are also enabled when sick or invalided to obtain long periods of leave for the recovery of their health, while, on the other hand, the maximum amount of sick leave conceded to a medical officer, without transfer to the half-pay list, is six months. It is therefore a matter of very great importance, as the only means for maintaining their efficiency, that medical officers while in India should, in times of peace, be enabled to avail themselves of such leave as the regulations sanction.

VII. *Reserve for miscellaneous duties*.—If a second medical officer is allowed to a first class hill depôt, and one for each detached garrison battery of royal artillery, 10 per cent. will be ample for miscellaneous duties. The miscellaneous duties in connection with British troops are—

- (a) Detached wings of infantry; for whilst three medical officers will suffice for a corps stationed together, four (two to each wing) will be necessary when divided. This will require in all three extra officers.
- (b) One to each permanent detachment, Fort Lahore, Fort Allahabad, Dera Ismail Khan, Amritsar, Fort Kangra, Fatehgarh, Saugor, Nowgong, Moradabad, Chunar, and Hazaribagh. This will absorb 11 officers.
- (c) One to each temporary detachment, *i.e.*, troops located in the hills during the summer months. These are Solun, Bhagsu, Cherat, Clifden, and six gulleys (minus three medical officers attached to the regiment) in the neighbourhood of Murree. This requires seven

officers. [The services of these medical officers would be available for the charge of detachments proceeding from station to station, in relief or otherwise, during the winter months.]

The total number, therefore, required to carry out the miscellaneous duties may be estimated at 25 (equal to about 14 per cent.); but as the charges some of the temporary detachments can be given to the regimental staff, 10 per cent. would be sufficient.

5. Reviewing the above, the following establishment is necessary for the several charges :—

6 Regiments of cavalry at 3	...	...	...	18
32 Regiments of infantry at 3	...	...	...	96
11 Batteries of royal horse artillery	...	...	...	11
22 Batteries of field artillery	...	...	...	22
2 Batteries of mountain artillery	...	...	...	2
2 Detached batteries of garrison artillery	...	...	...	9
1 Company of royal engineers	...	...	...	1
6 First class hill depôts at 2	...	...	...	12
1 Second class hill depôt	...	...	...	1
Secretary to surgeon-general	...	...	...	1
Statistical officer to ditto	...	...	...	1
Presidency and Gwalior Circles.	...	...	...	2
		Superintending surgeons-major*	...	2
<i>Add—</i>				Total
		Reserve for leave at 20 per cent.	...	35
		„ for miscellaneous duties at 10 per cent.	...	17
			Grand Total	228
			Decrease	2
		Present sanctioned establishment	...	230

† Effected through two surgeons-major of over 20 years' service now attached to divisions of royal artillery. This decrease of two medical officers will effect a saving of about £2,500 per annum.†

6. But the maximum number of medical officers in Bengal at any one time has not exceeded 222, or 8 under the established strength, and 6 under the number that I have estimated should be allowed. This decrease has, however, prevented a number of medical officers from obtaining leave, at the cost probably of loss of health and physical efficiency. From a detailed report prepared by Dr. deChaumont, Professor of Military Hygiene in the Army Medical School at Netley, I find that the annual average death-rate of army medical officers, calculated for thirty years, was as high as 30 per 1,000 against 15 per 1,000 of combatant officers—a relation which has even been pronounced by other statisticians to be under-stated; and it follows that the invaliding and sickness amongst this class must be in a corresponding, or even greater, ratio. Such figures afford very strong evidence of the need which still exists for providing medical officers with the amount of leave which is in reality necessary to the maintenance of health, and is therefore to be regarded as an economical precautionary measure for the State.

7. I would submit that if economy in the military medical expenditure is to be effected with a due regard to efficiency, it will be best achieved in another direction, *viz.*, by a reorganization and development of the subordinate medical departments, and by delegating to the members of that department many of the minor charges now held by medical officers. That experienced and properly trained warrant medical officers can efficiently perform such duties is evident from the fact that about 40 are at present in medical charge of civil stations and districts where their duties are certainly as responsible as those appertaining to small detachments of British troops. The services of these warrant medical officers could be utilized (under the supervision of a commissioned medical officer) in the following manner :—

Charge of Native sick in cavalry corps.
 „ detached garrison batteries.
 „ certain detachments, permanent and temporary.
 „ royal engineers.
 „ rest camps.

Doing duty with regiments of infantry in lieu of the third medical officer.

Were such a system introduced, the number of medical officers could be reduced to 178, *viz.* :—

6 Regiments of cavalry at 2	...	...	...	12
32 Regiments of infantry at 2	...	...	...	64
11 Batteries of royal horse artillery	...	...	...	11
22 Batteries of field artillery	...	...	...	22
2 Batteries of mountain artillery	...	...	...	2
6 First class depôts at 2	...	...	...	12
1 Second class depot	...	...	...	1
Secretary to surgeon-general	...	...	...	1
Statistical officer	...	...	...	1
Superintending surgeons-major	...	...	...	2
<i>Add—</i>				Total
		Reserve for leave 20 per cent.	...	25
		„ for miscellaneous duties	...	25
			Total	178
			Decrease	50
		Grand Total	...	228

8. The reduction of 50 executive medical officers would decrease the medical expenditure by *about £50,000 per annum*;* but against this must be set off *about £25,000* required for increasing the number and improving the quality of the members of the subordinate medical department.

* This is based on the average pay of a medical officer in India (the majority of whom are surgeons-major).

about £50,000 per annum;* but against this must be set off about £25,000 required for increasing the number and improving the quality of the members of

9. The available medical and nursing power in this country is capable of enormous development. The organization of the army hospital Native corps, for example, has been too long deferred. With such a corps of trained servants, and a superior class of medical subordinates, I confidently anticipate that no difficulties would follow a reduction of establishment of medical officers, such as I have proposed. What is really required is a multiplication of hands under a reduced number of directing heads; or, in other words, a limited medical supervision of a superior kind for consultative, operative and professional purposes, and for hospital administration generally, working in conjunction with an increased and improved subordinate medical service, for the carrying out of professional details, and the executive work of an ordinary routine character; and the latter can only be obtained by raising the standard and social position of the subordinate service. And here it may be well to notice the increasing difficulty in recruiting suitable lads for the subordinate medical department as it at

† To Military Department, No. B. 833 of 1875.

present exists. This matter was foreseen as far back as 1874, and certain recommendations† were put forward

by Surgeon-General T. Crawford for making the department more attractive.

10. It is impossible to avoid recognizing that, apart from the reductions which might be effected in the employment of more highly skilled and expensive labor by the development (as already indicated) of a less highly educated and less costly subordinate department, which could, however, adequately discharge many of the duties that now devolve upon commissioned medical officers, there is another direction in which a reduction in the number of medical officers could be effected, *viz.*, by a redistribution of the medical duties, by the consolidation and centralization of the several military hospitals in the command. It is obvious that, so long as individual corps, batteries, and detachments are treated as separate units in all points, it is impossible to put forward any scheme of a sufficiently comprehensive character and adequate to fulfil the requirements of the State. Were medical officers appointed and distributed in proportion to the number of sick consolidated in large stations, so far as topographical and other local circumstances would admit of this being done, always remembering that special and ample provision for the contingencies of Indian service must form part of any such scheme, it is only reasonable to expect that a corresponding reduction in the medical expenditure must follow.

11. With reference to paragraphs 11 and 12 of the Government letter, I would observe that it was scarcely a question of "increasing the efficiency of the British medical service" that obtained in 1869, but of maintaining it at all. The Imperial Government had to compete with numerous other sources of employment open to young medical men, and with the more highly paid Indian medical service itself; and had it not been for the increase of pay and other advantages sanctioned by the Royal Warrants of 1873 and 1876, it would have been impossible to have secured the services of a sufficient number of medical officers to meet the requirements of the army. Indeed, the drain established on the British medical service in connection with the large body of British troops maintained in this country has been a source of actual embarrassment to the Imperial Government; for, although the period during which the British medical officer serves here is limited, the direct and remote effects of Indian service on his health and physical efficiency could not fail to manifest themselves in increased expenditure for non-effective service as well as in the difficulty of recruiting for the department itself.

12. Finally, I am unable at once to state precisely what changes could be made in the Madras and Bombay presidencies, as much must, of course, depend upon local circumstances in each of these commands. But I have no reason to doubt that a scheme such as I have here indicated could be made equally applicable throughout the whole of India.

No. 785B., dated Simla, 28th July 1879.

From—SURGEON-GENERAL J. H. KER INNES, C.B., Principal Medical Officer, British Forces in India;

To—The Secretary to the Government of India, Military Department.

In accordance with the request contained in Military Department letter No. 540S. of the 14th September 1878, I have the honor to submit the following scheme, with the twofold object of improving and developing the subordinate medical department, and reducing the military medical expenditure in India.

2. Under existing regulations, candidates, a very large majority of whom are employed with British hospitals, are admitted into the service under the orders of the Indian medical department, and their services are subsequently placed at the disposal of the British service. Their promotion and future advancement remain, however, in the hands of the surgeon-general of the Indian medical department. The first point which obviously presents itself for consideration—and it is one on which the successful working of the scheme must turn—is the necessity for concentrating the administration of the subordinate medical department in the hands of one surgeon-general.

3. The British medical service must employ such members as the Indian medical department may be pleased to transfer to it; and it has happened that some of the subordinates who had been transferred from military to civil employ were returned to the former after their services had been

dispensed with by the civil department in consequence of misconduct, an objectionable proceeding in itself, but rendered still more so by the fact that subordinates of a questionable character employed with British troops have the care and training of the youthful apprentices committed to their charge. Moreover, when a subordinate has been engaged in civil duties for any lengthened period, he becomes to some extent incapacitated for those of a military character, in consequence of their very different nature.

The subordinate medical charge of a British hospital not only is a post of much responsibility, but a long apprenticeship is required before a subordinate becomes thoroughly conversant with the numerous details and duties connected therewith. It should, therefore, be ruled that when transfers to the civil department are rendered necessary, they should only be authorized on the distinct understanding that the transfer is to be permanent, and that the pay, pension, &c., of such subordinates be debited to the civil department.

4. The subordinate medical department has of late years become very unpopular; it is always much below its strength, and the difficulty of keeping it up to the authorized establishment increases day by day. On the 1st April last, there were 2½ vacancies in the hospital apprentice grade, of which number 10* only were filled up at the examination a fortnight later.

* One since resigned.

5. After a careful enquiry, I think the causes to which the unpopularity of the subordinate department may be ascribed are—

- I.—The very low rate of pay offered to apprentices on joining.
- II.—Their loss of pay in not being sent to the medical college after a service of two years in a hospital.
- III.—The loss of one-fourth pay and all allowances while on sick leave in India.
- IV.—The very small proportion of first class warrant officers (senior apothecaries) as compared with other departments.
- V.—The low rate of pension of senior apothecaries and honorary surgeons and surgeons-major as compared with first class warrant officers of other departments, and the absence of progressive advancement.
- VI.—The discomfort experienced in troop special trains, and the insufficient number of servants allowed by the State when travelling on duty by railway.
- VII.—The fact that quarters are considered by the State to be free, while they are in reality rated as part of the allowances.

6. Rupees 16 per mensem obviously offers insufficient inducement to parents to place their sons in a service in which promotion is very slow and the chances of advancement remote. It is true that, in addition to this salary, apprentices receive a hospital diet, quarters, uniform, and a soldier's allowance of bedding; but parents and guardians do not always sufficiently take these advantages into consideration, but look almost exclusively to the amount of salary offered on joining; and it would, therefore, seem preferable to consolidate these allowances into a fixed salary, making afterwards the necessary deductions, as was the rule under the old system.

7. While apprentices receive about the same pay as a private soldier, their expenses are heavier. They receive no free kit on joining the service, are not supplied with either punkahs or taties during the summer months, nor, except at hill stations, with fuel in winter; no lights are allowed for their quarters, all of which are provided the soldier free of cost. These are necessities for which an apprentice cannot afford to pay. The cost of punkah coolies alone can never fall under Rs. 5 per mensem, even when two apprentices are attached to the same hospital, and can divide the expenses—a sum which at once reduces their salary by one-third. When the cost of outfit and of needful fuel is superadded, the hospital apprentice is placed at so obvious a disadvantage with the private soldier, that he justly becomes dissatisfied and anxious to abandon a career barren of promise.

8. The present rate of pay is as follows:—

				Rs.
First year	...	...	...	16
Second year	...	...	...	20
When in college, 1st year	...	...	...	20
" " 2nd "	...	...	...	25
" " 3rd "	...	...	...	30

As apprentices do not join the medical college until they have spent from three to four years in a hospital, they remain on Rs. 20 per mensem for a period of about four years, and do not reach the maximum (Rs. 30 per mensem) much under seven years.

9. I would recommend that, instead of the above salary, apprentices receive a consolidated pay as follows, which it is proposed should be inclusive of allowances for rations and house-rent, both of which may, however, be deducted whenever supplied:—

PERIOD OF SERVICE.	Pay.	Rations.	Quarters.	TOTAL.
	Rs.	Rs.	Rs.	Rs.
First year	20	10	5	35
Second year	25	10	5	40
College, 1st year	30	10	5	45
" 2nd "	35	10	5	50
" 3rd "	40	10	5	55

The increase after the first year to be withheld in the event of the subordinate failing to pass the examination laid down in G. G. O. No. 555 of 1874.

<p>• <i>First issue.</i>— 1 blanket. 1 suttringee. 2 sheets.</p>	<p><i>Subsequent issues.</i>— 1 sheet annually. 1 blanket triennially. 1 suttringee triennially.</p>	<p>10. Instead of the present insufficient allowance of bedding,* each apprentice on joining the service should be furnished with the following articles as a first issue :—</p>			
English blankets	...	...	...	...	2
Sheets	...	...	...	...	4
Suttringee	...	...	...	...	1
Mattress	...	...	...	...	1
Pillow	...	...	...	...	1

and afterwards—

- 1 sheet annually.
- 1 blanket triennially.
- 1 suttringee triennially.

11. A set of two punkah-coolies should be allowed free of cost to such apprentices as may be employed in a hospital.

12. Fuel at the present scale should also be allowed to apprentices whenever it is issued to the troops, whether in the hills or on the plains. An apprentice serving at a hill station already receives fuel, but none when serving on the plains, although in many of the stations (notably in the Punjab) the winter is severe.

13. *Uniform.*—Apprentices are at present allowed one suit of winter and two suits of summer clothing yearly: the latter should be increased to three suits per annum.

14. The loss of pay to apprentices when not sent to college after a service of two years is a sensible grievance; and it was clearly contemplated under paragraph 42 of G. G. O. No. 550 of 1868 that apprentices should enter the medical college after such period. I am nevertheless of opinion that it would on all accounts be preferable that lads on joining the service should proceed at once to college; but as Government have negatived my proposal to this effect, it only remains for me to suggest that the time spent at a military hospital antecedent to college be curtailed to one year, which should amply suffice to determine whether an apprentice is likely to prove efficient or not. At the end of six months in a medical college, where the training should be as practical as possible, and designed to fulfil the special requirements of a medical subordinate's future career (the instruction being mainly clinical and pharmaceutical in character), he should be required to pass a test examination to determine whether he had been fairly diligent; if not, he should be dismissed. Were this rule adopted, the age of lads on joining might be raised with advantage from 16 to 19 years, instead of 15 to 18 years, the present range.

15. The loss of one-fourth of the pay and all allowances while absent on account of ill-health contracted while on service in India is unquestionably a great hardship; and, besides being impolitic, it is regarded as neither equitable nor just that a subordinate should be, in effect, punished for having the misfortune to contract disease in and by the service. Were this corrected, no additional expense to the State need accrue; but the period of sick leave should be limited to six months, thus guarding against abuse. In 1875 a petition from several members of the subordinate medical department was submitted by Officiating Surgeon-General Crawford; but on a report furnished by the Controller of Military Accounts, the appeal, I regret to say, was negatived. In this report the Controller made a comparison of the loss sustained by warrant officers of other departments as compared with that of the medical, from which it will be seen that, while the former lose about one-fifth of their total pay and allowances, the latter forfeit, *exclusive* of quarters, one-fourth, or an average of one-third of their total receipts. The decision of Government was probably influenced by the fact that the Controller considered quarters to be a free gift to medical subordinates, whereas they form part of their allowance. It would be only just that medical subordinates should be able to claim compensation for quarters while absent on sick leave in India.

16. Sick leave being attended with a loss of pay, medical subordinates are prevented from availing themselves of it when rest and relaxation are absolutely necessary; for in the hills, the only places to which invalids can ordinarily resort with benefit, the cost of living is so high as to put sick leave with reduced pay beyond their reach. They consequently remain inefficiently performing their duties until their health becomes so broken as to necessitate furlough to Europe, thereby causing augmented expense and an unnecessary strain on the Medical Department.

17. The following table shows the loss of pay of the warrant officers of other departments as compared with those of the medical while on sick leave in India :—

Other Departments.

GRADES.	Total pay and allowances.	Total loss while on leave.	Proportionate loss.
	Rs.	Rs.	
Deputy Commissary	500	100	} Equal to about one-fifth.
Assistant Commissary	375	75	
Deputy Assistant Commissary	300	60	
Conductor	160	30	
Sub-Conductor	125	22-8	

Subordinate Medical Department.

GRADES.	AMOUNT OF SALARY.			LOSS WHILE ON LEAVE.			PROPORTIONATE LOSS.
	Pay.	Quarters, or its equivalent.	Total.	Pay.	Quarters, or its equivalent.	Total.	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Senior apothecary ...	400	50	450	100	50	150	} Equal to about one-third.
Apothecary, 1st class ...	200	30	230	50	30	80	
" 2nd " ...	150	30	180	37.8	30	67.8	
Assistant apothecary, 1st class ...	100	20	120	25	20	45	
" " 2nd " ...	75	20	95	17.8	20	37.8	

From the above it is apparent that warrant officers of the Medical Department forfeit on an average one-third of their pay and allowances, while those of other departments lose one-fifth only. This wide disparity is unjust to medical subordinates, and is doubtless one of the causes of the unpopularity of the service.

18. With regard to the small proportion of first class warrant officers* as compared with other departments, the members of the subordinate medical department would seem to have just grounds for complaint, as may be gleaned from the following table:—

* Senior apothecaries.

DEPARTMENTS.	NUMBER OF		PERCENTAGE OF 1ST TO 2ND CLASS.	
	First class warrant officers.	Second class warrant officers.		
Public Works	9	35	25.71
Ordnance	9	61	14.75
Commissariat	7	55	12.72
Miscellaneous	4	19	21.05
Subordinate medical	8	198	4.14

The grades of honorary surgeon and surgeon-major cannot, under present rules, be conferred on warrant officers of the Medical Department in regimental employ; and as this promotion when it is conferred carries with it no extra salary, an increase in the number of senior apothecaries would appear to be very desirable. The consolidated salary of a senior apothecary is Rs. 400, and that of the next lower grade (first class apothecary) Rs. 200. As the number of the former is limited to 8 (10 per cent. on strength), it would be preferable to increase the number even on a reduced salary. The grade might, therefore, with advantage be divided into two classes—one on Rs. 300, and a second on Rs. 350 consolidated, with 19 members in each class. To the grade thus created might be delegated some of the duties now performed by junior medical officers in regiments of European infantry and cavalry.†

† One to each corps.

19. The low rate of pensions of senior apothecaries and honorary surgeons and surgeons-major, as compared with first class warrant officers † of other departments, requires to be specially considered; and I am of opinion that it would be found advantageous to place the first class warrant officers of all departments on one footing. The following table shows the disadvantages of the subordinate medical department in this respect, especially when considered in connection with the enhanced rank of the latter:—

† Deputy commissary.
Assistant commissary.
Deputy assistant commissary.

GRADES.	Total pay and allowance.	Annual retiring pension.	INVALID PENSION.		Annual wound pension.	Annual widows' pension.	RELATIVE RANK.
			Annual in England.	Monthly in India.			
	Rs.	£	£	£	£	£	
<i>Other Departments.</i>							
Deputy Commissary ...	500	180	180	240	100	36	Captain.
Assistant Commissary ...	375	120	120	175	70	30	Lieutenant.
Deputy Assistant Commissary ...	300	90	90	140	50	26	
<i>Subordinate Medical Department.</i>							
Honorary Surgeon-Major	350	150	120	175	70	30	} Major and Lieutenant-Colonel. Lient. and Captain.
Honorary Surgeon	rising § to 700	150	120	175	70	30	
Senior Apothecary ...	400	100	80	150	50	26	

§ While in civil medical charge.

It will be seen from the above that a senior apothecary, while receiving in India an excess of Rs. 100 a month as pay over a deputy assistant commissary, obtains £10 a year less invalid pension in Europe; and the pensions of honorary surgeon and surgeon-major also compare very unfavorably with those of deputy commissary. It would therefore seem but fair that the pensions of honorary surgeons-major should be assimilated with those of deputy commissaries; honorary surgeons with those of assistant commissaries; and senior apothecaries with those of deputy assistant commissaries. The ruling contained in article 2426 of the Pay Code for India, Vol. I, should be cancelled, and warrant medical officers should be allowed the pension of their grade, irrespective of the length of service they may have passed in the grade. The restriction contained in the order above cited is not, I believe, applicable to any but *medical* warrant officers.

20. I have already referred to the discomfort to which medical subordinates are subjected while travelling on duty with troops. Their most important duties only commence on the arrival of troops at a rest-camp; and, unless allowed lying down accommodation while travelling by railway at night, they must be unfitted for the proper performance of these at the conclusion of each journey. It is therefore recommended that medical subordinates be provided with lying-down accommodation when travelling on duty with troops by rail.

21. Medical subordinates, with the exception of *unpassed* hospital apprentices, are allowed free conveyance for one servant only when travelling on duty by railway. The majority being married men find it extremely difficult to provide for the comfort of their families with only a single servant in attendance. In 1876 it was recommended by this department that married warrant officers should be allowed passages for two servants, a number that cannot be deemed excessive.

22. The allowances sanctioned in lieu of quarters and tents should be included in the pay of all medical subordinates, equivalent deductions being made when accommodation is provided. This concession would practically involve but little expense, seeing that it would only benefit the very few on leave; but it would remove a source of frequent complaint and an invidious distinction. While on the line of march, warrant medical officers should each be furnished with a necessary tent: the majority of them being married men renders such a provision essential. The necessary tent can be carried with the staff tent furnished: no extra carriage will be necessary.

23. In view of reducing the number of commissioned medical officers, and delegating to the subordinate medical service some of the duties now devolving upon the former, it is thought expedient to introduce a new grade above that of senior apothecary, which may be styled "staff apothecary," the members of which would be eligible for the medical charge of detachments of British troops at those stations only where a European medical officer may be permanently located, to whom they should be subordinate, and under whose supervision and direction their professional duties should be carried on.

24. The grade of staff apothecary should consist of 12 members, divided into two classes—first and second—half in each. The first class should rank with deputy commissaries, with the relative rank of captain; and the second class with assistant commissaries, with the relative rank of lieutenant. The pay of the first class may be fixed at Rs. 500 per mensem, and that of the second class at Rs. 400 per mensem with pensions according to their substantive ranks, thus bringing the subordinate medical department on a par with other Indian departments.

25. The relative rank is mainly recommended with the object of estimating the rates of pensions in accordance with the principles followed by other branches of the service, and with the object of raising the social position of the members of this grade, so that they may not be at a disadvantage when serving in garrisons with first class warrant officers of other departments holding similar relative ranks.

26. [As collateral, but strictly pertinent, to this object, it should be noted that, if this recommendation to appoint staff apothecaries to the medical charge of small detachments of British troops be sanctioned, it will be practicable to make a further, and a comparatively greater, reduction in the medical-military expenditure in India, by appointing members of this grade to the medical charge of regiments of Native cavalry and infantry, *under the conditions noted in paragraph 23*, should it be considered desirable to extend this system to the Native army; and there seems to be no reason whatever why this should not be done, for the charges held by the commissioned medical officers are in practice of a quasi-nominal character: it is presumed that a saving of about Rs. 1,50,000 per annum will be effected in *addition* to that shown in Appendix II. If warrant medical officers are competent to hold, as now, the medical charge of second and third class civil stations and districts, they should be equally so for the charge of Native corps.]

27. It is believed that in the event of Government sanctioning this scheme, it will be practicable to make about ten promotions annually in the grades of senior and staff apothecaries, so that in five years the grade will be made up to its full strength. A corresponding reduction in the number of medical officers could be carried out in communication with the Director-General of the Army Medical Department. It is believed, too, that in this manner a valuable reserve may be formed, capable, in periods of severe famine or epidemic visitation and in time of war, of affording that support to the active medical staff which is now so essentially needed.

28. The test (entrance) examination of candidates for the subordinate medical department might be conducted by the educational department after physical fitness of the candidate for the service had been duly certified.

29. The attestation of candidates was, I believe, introduced in 1862. It is strongly objected to by them; it forms no barrier to their resignation whenever they are so inclined, and experience has proved how futile is the endeavour to retain an apprentice in the service against his will. On the other hand, an apprentice who has successfully passed through a course of collegiate training does not readily adapt himself to other employment. Attestation might, therefore, advantageously be dispensed with.

30. The cost of living in Calcutta being relatively high, it is suggested that, while at college, the apprentices should be furnished with the use of medical works and apparatus (which would form a nucleus for re-issue). The expense of such an arrangement might be met by withholding the issue of the *Indian Medical Gazette** to British hospitals.

31. A special sum as field or travelling allowance might advantageously be given to passed hospital apprentices while employed on field service or proceeding from one station to another. The absolute need of some such allowance was much felt during the late Afghan war. A moiety of the sum now drawn by warrant medical officers would suffice.

* Rs. 1,260 is paid annually on this account. Half this sum would more usefully meet the expense of the proposal.

32. It is proposed to reduce the present number of medical officers with regiments of European cavalry by one, and to transfer the medical charge of the Native establishment to a senior apothecary, the latter receiving an allowance of Rs. 80 per mensem for the extra duty performed. This charge is one-third that now drawn as forage by the third medical officer.

33. A brief *résumé* of the recommendations may be given thus:—

1st.—To vest the administration of the subordinate medical department in the hands of one surgeon-general (*para. 2*).

2nd.—Transfers to the civil department as a rule to be of a permanent nature (*para. 8*).

3rd.—Increase of pay to unpassed hospital apprentices (*paras. 6 to 9*).

4th.—An improved scale of bedding to the same (*para. 10*).

5th.—Allowance of punkah coolies to ditto (*para. 11*).

6th.—Allowance of fuel to all hospital apprentices whenever issued to troops (*para. 12*).

7th.—A revised scale of clothing for all hospital apprentices (*para. 13*).

8th.—The arrangements to ensure apprentices joining the Medical College at a much earlier period than at present (*para. 14*).

9th.—The number of first class warrant officers (senior apothecaries) to be increased to 38 on a reduced rate of pay (*para. 18*).

10th.—The pensions of senior apothecaries and honorary surgeons and surgeons-major to be assimilated to that of first class warrant officers of other departments (*para. 19*).

11th.—Improved accommodation to medical subordinates when travelling on duty in troop special trains (*para. 20*).

12th.—Married warrant medical officers to have a free passage for two servants when travelling on duty by railway (*para. 21*).

13th.—The pay of the subordinate medical department to be consolidated and to include house-rent, deduction for the same being made whenever provided with quarters (*para. 22*).

14th.—Consolidated pay to be allowed for a limited period to medical subordinates while on sick leave in India (*paras. 15 to 17*).

15th.—A superior grade of staff apothecary eligible for employment on duties which have hitherto been assigned to junior medical officers to be introduced (*paras. 23 to 27*).

16th.—The entrance examination of candidates to be conducted by the educational department (*para. 28*).

17th.—The abolition of present form of attestation (*para. 29*).

18th.—Books and apparatus while apprentices are in college to be supplied by the State (*para. 30*).

19th.—A field or travelling allowance to passed hospital apprentices (*para. 31*).

20th.—An allowance of Rs. 30 per mensem to the senior apothecary of European cavalry regiments for the superintendence of Native establishment, &c. (*para. 32*).

34. Appended are attached tables showing—

I.—Present and proposed salaries for the subordinate medical department.

II.—Effect of the recommendations set forth in this communication from a financial point of view.

III.—Table showing the net salary paid monthly to medical subordinates on the present and proposed schemes.

APPENDIX I.

Statement showing the Present and Proposed Rates of Monthly Pay of the several Grades of the Subordinate Medical Department.

	PRESENT PAY.					PROPOSED PAY.		REMARKS.	
	Pay.	Rations.	Quarters.	Total.	Progressive increase.	Consolidated.	Progressive increase.		
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
Unpassed Hospital Apprentice	1st year ...	16	10	7½	33½	...	35*	...	* House-rent reduced from Rs. 7-8 to Rs. 5.
	2nd " ...	20	10	7½	37½	4	40*	5	
	3rd " ...	20	10	7½	37½	...	45*	5	
Passed Hospital Apprentice	1st " ...	25	10	7½	42½	5	50*	5	† House-rent reduced from Rs. 12 to Rs. 10.
	2nd " ...	30	10	7½	47½	5	55*	5	
	3rd " ...	50	10	12	72	24½	70†	15	
Assistant Apothecary	2nd class ...	75	...	20	95	23	90‡	20	‡ House-rent reduced from Rs. 20 to Rs. 15.
	1st " ...	100	...	20	120	25	115‡	25	
Apothecary ...	2nd " ...	150	...	30	180	60	170§	55	§ House-rent reduced from Rs. 30 to Rs. 20.
	1st " ...	200	...	30	230	50	220§	50	
Senior Apothecary	2nd " ...	400	...	50	450	200	300||	80	|| House-rent reduced from Rs. 50 to Rs. 25.
	1st " ...	...	...	...	...	...	350||	50
Staff Apothecary	2nd "	New grade	400	50	
	1st "	New grade	500	100	

* Notes.—1. Passed and unpassed hospital apprentices may, on payment of Rs. 10 per mensem, be provided with a hospital full diet.

2. When supplied with quarters, the following monthly deductions should be made:—

					Rs.
Unpassed hospital apprentice	...	...	...	...	5
Passed hospital apprentice	...	...	...	...	10
Assistant apothecary	...	...	...	...	15
Apothecary	...	...	...	...	20
Senior apothecary	...	...	...	...	} according to relative ranks.
Staff apothecary	...	...	...	...

3. Deductions on account of inferior quarters according to existing regulations.

4. Presidency house-rent according to regulations applicable to other warrant officers* (Bengal Barrack Regulations, paragraph 175), passed and unpassed hospital apprentices receiving a proportionately increased sum.

5. As senior and staff apothecaries will be employed in executive duties, they will not be required to live in the hospital, like other subordinates.

6. Staff or employed, and field or marching, allowances according to existing regulations.

APPENDIX II.

Statement showing the Cost of the Subordinate Medical Department under the Present and Proposed Systems.

	Rs. A. P.	Rs. A. P.	Rs. A. P.
PRESENT ESTABLISHMENT, with modifications suggested in Letter No. 726 of 24th April 1879.			
90 Unpassed Hospital Apprentices.			
Pay of 18 first year, at Rs. 16 per mensem	288 0 0		
" 18 second year, at Rs. 20 per mensem	360 0 0		
" 18 first year, College, at Rs. 20 per mensem	360 0 0		
" 18 second year, College, at Rs. 25 per mensem	450 0 0		
" 18 third year, College, at Rs. 30 per mensem	540 0 0		
House-rent, at Rs. 7-8 per mensem	675 0 0		
Rations, at Rs. 10 per mensem	900 0 0		
Bedding and clothing, at Rs. 2 per mensem	180 0 0		
		3,753 0 0	
75 Passed Hospital Apprentices.			
Pay, at Rs. 50 per mensem	3,750 0 0		
House-rent, at Rs. 12 per mensem	900 0 0		
Rations, at Rs. 10 per mensem	750 0 0		
Bedding and clothing, at Rs. 2 per mensem	150 0 0		
		5,550 0 0	
126 Assistant Apothecaries.			
Pay of 76 first class, at Rs. 100 per mensem	7,600 0 0		
" 50 second class, at Rs. 75 per mensem	3,750 0 0		
House-rent, at Rs. 20 per mensem	2,520 0 0		
		13,870 0 0	
67 Apothecaries.			
Pay of 37 first class, at Rs. 200 per mensem	7,400 0 0		
" 30 second class, at Rs. 150 per mensem	4,500 0 0		
House-rent, at Rs. 30 per mensem	2,010 0 0		
		13,910 0 0	
8 Senior Apothecaries.			
Pay, at Rs. 400 per mensem	3,200 0 0		
House-rent, at Rs. 50 per mensem	400 0 0		
		3,600 0 0	
			40,683 0 0
Add—		Annual Expenditure	
84 copies of <i>Indian Medical Gazette</i> , at Rs. 15 each	.....	.....	4,88,196 0 0
			1,260 0 0
		GRAND TOTAL	4,89,456 0 0

* Assistant apothecary as sub-conductor.
 Apothecary as conductor.
 Senior apothecary as deputy assistant commissary.
 Staff apothecary, 2nd class, as assistant commissary.
 Staff apothecary, 1st class, as deputy commissary.

Statement showing the Cost of the Subordinate Medical Department under the Present and Proposed Systems—continued.

	Rs. A. P.	Rs. A. P.	Rs. A. P.
PROPOSED ESTABLISHMENT.			
90 Unpassed Hospital Apprentices.			
Pay of 18 first year, at Rs. 35 per mensem ...	630 0 0		
" 18 second year, at Rs. 40 per mensem ...	720 0 0		
" 18 first year, College, at Rs. 45 per mensem ...	810 0 0		
" 18 second year, College, at Rs. 50 per mensem ...	900 0 0		
" 18 third year, College, at Rs. 55 per mensem ...	990 0 0		
Bedding and clothing, at Rs. 2 per mensem ...	180 0 0		
		4,230 0 0	
75 Passed Hospital Apprentices.			
Pay, at Rs. 70 per mensem ...	5,250 0 0		
Bedding and clothing, at Rs. 2 per mensem ...	150 0 0		
		5,400 0 0	
126 Assistant Apothecaries.			
Pay of 76 first class, at Rs. 115 per mensem ...	8,740 0 0		
" 50 second class, at Rs. 90 per mensem ...	4,500 0 0		
		13,240 0 0	
75 Apothecaries.			
Pay of 37 first class, at Rs. 220 per mensem ...	8,140 0 0		
" 38 second " " 170 " " ...	6,460 0 0		
		14,600 0 0	
38 Senior Apothecaries.			
Pay of 19 first class, at Rs. 350 per mensem ...	6,650 0 0		
" 19 second " " 300 " " ...	5,700 0 0		
		12,350 0 0	
12 Staff Apothecaries.			
Pay of 6 first class, at Rs. 500 per mensem ...	3,000 0 0		
" 6 second " " 400 " " ...	2,400 0 0		
		5,400 0 0	
			55,220 0 0
			Annual Expenditure ... 6,62,640 0 0
Add—			
Estimated cost of punkah-pullers for hospital apprentices ...			1,500 0 0
" marching allowance for passed hospital apprentices ...			500 0 0
Medical charge allowance of Native establishment of 6 cavalry regiments, at Rs. 30 per mensem each = Rs. 180 per mensem ...			2,160 0 0
Estimated cost of extra bedding and clothing, as proposed in paragraphs 10 and 13 of the letter ...			400 0 0
Estimated cost of fuel to hospital apprentices at stations in the plains ...			200 0 0
Estimated cost of books and apparatus for apprentices in Medical College ...			800 0 0
			Grand Total Annual Expenditure ... 6,68,200 0 0

ABSTRACT.

	Rs.
Cost of present establishment ...	4,89,456
Probable saving by the reduction of 50 medical officers ...	4,38,000
Saving of forage allowance of 1 surgeon-major in each regiment of cavalry ...	6,480
	Total ... 9,33,936
Probable cost of proposed establishment ...	6,68,200
Increase to office establishment ...	2,400
	6,70,600
Estimated Annual Saving ...	2,63,336

Note—There will also be a considerable saving effected annually in the charge of passages of medical officers to and from England, which, it is believed, will meet the enhanced rates of pensions recommended.

APPENDIX III.

Statement showing the net cash payable monthly to each grade in the Subordinate Medical Department on the present and proposed rates of pay, after deducting compensation for rations in the case of Hospital Apprentices, and house-rent in the case of all Medical Subordinates, Senior and Staff Apothecaries excepted, who will not be required to live in the hospital.

GRADES.		PRESENT RATES.		PROPOSED RATES.		
		Net monthly salary.	Progressive increase.	Net monthly salary.	Progressive increase.	
		Rs.	Rs.	Rs.	Rs.	
Unpassed Hospital Apprentice	1st year ...	16	...	20	...	
	2nd „ ...	20	4	25	5	
	In College	1st „ ...	20	...	30	5
		2nd „ ...	25	5	35	5
	3rd „ ...	30	5	40	5	
Passed Hospital Apprentice	...	50	20	50	10	
Assistant Apothecary	2nd class ...	75	25	75	25	
	1st „ ...	100	25	100	25	
Apothecary	2nd „ ...	150	50	150	50	
	1st „ ...	200	50	200	50	
Senior Apothecary	2nd „ ...	400	200	300*	100	
	1st „ ...			350*	50	
Staff Apothecary	2nd „ ...	New Grade	...	400*	50	
	1st „ ...	„	„	500*	100	

Surgeon-General J. F. Beaton,
M.D., Indian Medical Department.

The Bengal medical service is maintained by periodical accessions of strength determined twice annually, in January and July, but which, starting from the revision very carefully made in communication with the Finance Department of the Government of India in 1870, invariably correspond either with new appointments created, and necessarily separate ones, or with vacancies resulting from the several causes of decrease, retirement, resignation, death.

It must therefore be evident that, unless from radical changes introduced into the organization, there cannot fail to be a nice approximation between actual appointments and officers to fill them, and this is really the case, as has been but too often demonstrated when any emergency has unexpectedly arisen. When the troops started for the Mediterranean last year, there was not a single spare officer to proceed as a reserve, and it was necessary to arrange through the Government of India, with all Local Governments and Administrations, to make arrangements for setting free some considerable number of medical officers under them in civil employ, by placing civil stations temporarily in the hands of assistant surgeons and uncontracted practitioners. This measure had to be very widely carried out, in order to afford the necessary medical staff for the active service in Afghanistan; but it is a miserable system, complicated, and most dilatory and withal full of risk to the denuded stations.

It does not fall within the scope of my duty to comment on the gross total of the conjoined medical staff in India; but I am nevertheless clear in one point, that the Indian medical service in Bengal has not one officer too many.

By comparing the strength of executive medical officers on the British rolls, in reference to the strength of the European force with the establishment sanctioned, say 25 years ago, some ground for questioning the need for existing numbers would not improbably be discovered. Formerly, all extraneous duties, other than regiment, were provided for by the establishment sanctioned for corps. Not improbably, the great augmentation of the British medical department is at the root of the increased expenditure under the head of medical establishments, and the fact may have led very erroneously, though perhaps not unnaturally, to suspicion of unnecessary growth of the Indian service.

About three years ago I drew the attention of the Government of India to the fact that divisional staff medical charges, instead of being, as formerly, extra duties with a salary of Rs. 100 per mensem, had been elevated in several instances into substantive charges, involving a monthly outlay, but little short of the annual expenditure in the past.

* Includes house-rent.

As soon as the matter was thus brought under reference, the Government of India ordered that for the future none but a regimental officer was to be appointed to a staff charge; but whether the instruction is obeyed in the *spirit* as well as the *letter*, I am not in a position to say with certainty.

Very considerable reduction of expenditure would directly result from a measure which I consider to be perfectly equitable and indeed called for, namely, to put every British medical officer who was not in India or in the service in November 1864 on unemployed pay during all general leave, as is now enforced in the case of every officer of the Indian medical service whose commission bears date subsequent to that of the despatch of the Right Honorable the Secretary of State for India, No. 340 of 7th November 1864, paragraph 20, and published in G. G. O. No. 1066 of 23rd December following. Similarly, a medical officer of the Indian service, if appointed after 1864, draws between his 15th and 20th years of service in charge of a regiment, Rs. 800; an officer of the sister service is allowed Rs. 825 if only doing duty. Between the 20th and 30th years of service, the former, if in medical charge of a regiment, draws Rs. 1,000, the latter, Rs. 1,056 or Rs. 1,093 as he is below or above 25 years, though "doing duty only," or in charge of a *company of Royal Engineers*, or, *stranger still, on leave*.

I think it is difficult to imagine a principle more radically wrong than that which gives a medical officer full pay on general leave, at any rate, without restriction of the amount of the latter; and I feel pretty confident that G. O. C. before and after June 1864 would furnish curious evidence of the close connection that exists between full pay and increased applications for leave.

In the combatant ranks, an officer invariably drops half staff, and I fail to see any good reason why the medical service should not also, during absence, be put on unemployed pay plus half staff, equal to a moiety of the difference between the consolidated salary and unemployed pay as laid down in G. G. O. of 1867.

Absenteeism would cease to account for 25 per cent., and the establishment might hereafter be pared down to a corresponding extent.

The subordinate medical department in all its branches is clipped of one-fourth of their pay when on leave, and with these two illustrations in support of the principle I cannot conceive any substantial reason for longer dealing exceptionally with the officers of the British medical department, who entered the service since 1864; in fact, all who were not in India at the time when the concession was originally made.

Medical Stores.—Hitherto there has been a scale in force in the Native army hospitals; but, as it had nothing more than departmental authority, the accounts branch could not exert any effective action by enforcing compliance with the suggested quantities. I am, however, engaged at this moment in framing a scale for every Native military charge; and as it will be the direct outcome of my personal scrutiny of every indent submitted, and be further subjected to the judgment of the department, through its most experienced officers, before being laid before the Government for authoritative sanction, I trust that a very considerable decrease of expenditure will result from its introduction. Without a scale there will never be economical indents, and why there should be any hesitancy, as the principle, I myself cannot understand; yet in 1870 the idea of a scale was deprecated by the Surgeon-General, British Forces; though still at home, we see it rigidly prescribed and strictly adhered to.

Here and there I am willing to admit that, in the course of my scrutiny, there have been, in fact, instances of great care in the preparation, and clear evidence of effective check of indents; but the rule is slackness in both directions, and any expectation that expenditure in drugs will be sharply controlled by administrative officers will assuredly end in disappointment.

With a definite scale suited to average circumstances, it is quite easy to spot at once any excess expenditure in particular medical charges, and to obtain full explanation. Without some such landmark as a guide, I am hopeless of effective check. The opposition is founded on a perfectly erroneous conception, that an officer cannot, under any circumstances, obtain more than scale not on the ordinary annual indent certainly, but *lbs. for oz.* by emergent indent, duly supported by the explanatory memorandum, from which the sanctioning administrative officer can at once convince himself of the propriety of giving or withholding the quantities asked for.

The equipment of Native regimental hospitals hardly admits of much curtailment; but on every occasion when a chance of effecting a reduction, without sacrifice of efficiency, offers, it is never permitted to slide: for example, at this moment, having seen reason to doubt the necessity of an *ophthalmoscope* as an article of regimental equipment, I have asked for the opinions of several experienced medical officers as to the propriety of making the issue to *stations*, not to *corps*; one for each station at which one or more regiments may be cantoned. This will effect a reduction of more than 50 per cent. in the numbers to be indented for on England on account of the Native army.

During last year, after working out the scales for field hospitals, I laid before Government, in my letter No. 443 of 8th July 1873, those for units, intending that *both on field service and during ordinary relief movements* only a limited quantity of medical stores should be carried with regimental hospitals. In war the establishment of field hospitals renders it quite unnecessary to have more with regiments than will suffice for the treatment of casual sick or wounded between any two intermediate hospitals; in peace the station or garrison dispensary will afford a similar advantage.

Surgeon-General C. A. Gordon,
Principal Medical Officer British
Forces, Madras.

With regard to the first portion of this question, namely, improving the efficiency of the medical department, the result of my personal experience in, as well as study of the history of, that department leads me to believe that the following are among the measures most required in India to effect that end, namely—

(a) Re-introduction of regimental appointments of surgeons-major and surgeons, allowing them respectively to go home on leave, as formerly was the case, and on its expiration to rejoin their regiments. I am aware that an argument against this system was on the score of expense. I believe that the advantages attending it to the soldier, and thus to the State, far counterbalanced that single one.

(b) Making regimental appointments prizes for efficiency and zeal on the part of medical officers, an essential qualification for charge being lengthened experience in the country, and making the medical officers part and parcel of the regiment as heretofore.

(c) Making it a distinct and defined part of the duty of a surgeon-major of a regiment to superintend and direct the methods of treatment of sick followed by young surgeons. I am aware that in a way this is already provided for by regulations; but I would have it still more so, as also that principal medical officers of districts should be held responsible that it was carried out.

(d) Regimental hospitals having ever proved themselves, when allowed full scope, equal to all requirements of the active portions of a force in this country, should be maintained in tact, all others of a general system being supplementary to them.

(e) Besides regimental medical officers as above indicated, there ought I think to be a certain portion of unattached medical officers for the purpose of filling miscellaneous positions connected with British troops, meeting casualties and so on. In former times such positions were filled by young medical officers of the Indian medical service, subsequently by staff or unattached officers of the army medical department; regimental appointments, as vacancies occurred, would be filled from among them by selection.

With regard to the second portion of the question, namely, as to reducing expenditure either in personnel, equipment, &c., both in peace and in active service, I believe that, under existing conditions, the very minimum practicable for the necessities of the service is maintained in all the respects mentioned; also that, as with respect to personnel so with matériel, not only would no further diminution be practicable under a system of station hospitals, but, on the contrary, that with them an increase would be required. The precise considerations which have led to this conviction on my part are enumerated in paragraph 9 of annexure B,* and I would particularly desire attention to what is stated under

* See answer 5.

section (f) of that paragraph.

I believe that, with regard to personnel and matériel during field service, no reduction is practicable, having due regard to efficiency, than what is at present allowed; also, that very considerable latitude must be allowed in these respects according to the circumstances, topographical and climatorial, of individual forces; thus very different scales would be required for an active force operating, say, in Burma during the rainy season than for one, say, in the Deccan or North-Western Provinces during the cold season. Neither is it a safe criterion to compare establishments required in India with those in western countries. In the former every requirement connected with the sick and wounded of a force have to be maintained in connection with the organization of that force; in the latter not so, as philanthropy of individuals and associations becomes on occasions of war lavish, no account of either stores or personnel thus brought into operation appearing upon the official records of those entertained for the army. Bearing this in mind, I do not see how any reduction is practicable in regard to either as connected with the army of India in peace or in war.

Dr. G. Smith, M.D., Surgeon-General Indian Medical Service, Madras.

The efficiency of the Madras medical department will not be improved, but on the contrary impaired, from a professional point of view, by separating the military from the civil branch of the service. The reason for this view lies on the surface. Military hospitals, as a rule, do not afford that amount and variety of professional practice which is on all hands acknowledged to be absolutely necessary to the preservation

and increase of professional experience. In the Indian Medical Department, as now constituted, this grave disadvantage is avoided in large measure by the employment of the military reserve in civil professional duties, where that familiarity with medical, surgical, and sanitary practice is obtained which makes these officers specially valuable in time of war. The civil branch is thus the necessary complement of the military branch. The constant interchange of the two branches secures a valuable reserve in time of war, a reserve which, constituted as it is of military medical men, is always available; whereas a purely civil department would not be available in time of war. The civil element, the value of which I rate very high, provides many appointments regarded as the prizes of the service, the existence of which induces a higher class of candidates to compete for admission to the Indian service. The question of reducing the expenditure on the personnel of the Madras medical department has already occupied the attention of the Madras Government, and the reasons given for maintaining the department at its present strength are fully detailed in Appendix B.†

† Not printed.

It would be well to consider how far the personnel of the medical department of the British army is susceptible of reduction. That department in this presidency is upon a permanent war footing, and has an administrative department and a proportion of senior to junior medical officers somewhat beyond the requirements of the European force of this presidency.‡ The Indian medical departments must keep their reserve in this country, where it can be most advantageously utilized in the civil department, but the reserve of British medical officers cannot be utilized in India, but might be profitably utilized in England, where, at this moment, the want of medical officers is severely felt.

The Indian medical departments are eminently suited for the needs, military and civil, of this country, and I feel convinced that any sweeping change, such as that involved in the separation of the military and civil branches, would injure alike the efficiency and the popularity of the department. At present it is an efficient and contented service, fully equal to all the duties it may be called upon to perform.

I am of opinion that reductions might be made in the matter of the expenditure in connection with supplies of medical stores. These supplies are purchased by the India Office from the London Society of apothecaries, and the prices charged are higher than are the corresponding charges of Her Majesty's Army and Navy. Where there is no competition, prices will naturally rule high. The possibility of adopting a less expensive system is deserving of consideration. It might be possible to secure through mercantile firms in Madras supplies of medicines and of instruments at wholesale prices for a small commission, and an arrangement of this kind, if effected, would prove to be all the more economical and convenient. As regards hospital equipment in cantonment, a scale corresponding with that in Bengal was recently submitted for remark. The scale seems to be both satisfactory and economical.

The hospital equipment of troops on active service must depend largely on the physical character and climate of the country in which the operations of war are to be conducted. Each campaign must, in this as in other matters, be the subject of special study and of special arrangements if all requirements are to be satisfactorily met and provided for.

All medical equipment should be as light and portable as possible, and recent experience will be of value in directing attention to many points in connection with the transport of the sick and of hospital supplies. Some progress in this direction has been made during the present Afghan war in the substitution of panniers for field medicine chests, in the reduction of the supply of medicines, in the selection of the most useful therapeutic agents, and in the adoption of arrangements calculated to secure efficiency with lightness and portability. War necessitates special arrangements, and these should be elaborated and perfected in time of peace.

APPENDIX C.

	Indian service.	British service.
Average strength of the army	30,700	10,880
Administrative medical officers	7	5
Executive medical officers	67	1*
Of executive medical officers...	92	43
{ Civil	87	39
{ Military	73	5
Proportion of administrative to executive medical officers	1 to 22.7	1 to 8.8
Ditto Army strength	1 to 4385.7	1 to 2,176
Ditto executive	1 to 193†	1 to 247
Ditto military to civil medical officers	1 to 0.72	1 to 0.22
Ditto surgeons-major to surgeon	1 to 0.81	1 to 0.12

* No British medical officer can by rule hold a civil medical appointment. The one noted in the list is a temporary and special arrangement.

† This ratio has reference to the entire executive strength, civil and military.

Deputy Surgeon-General J. M. S. Fogo, Officiating Surgeon-General, British Forces, Bombay.

The efficiency of the medical department would be improved, and the expenditure lessened, I conceive, by the system of station hospitals for British troops as before mentioned; and expenditure certainly by educating and expending the apothecary class and placing them in situations where there are Natives only to treat, as well as having one apothecary with each Native regiment.

The European officers, civil and military, only should require European medical attendance.

Everyone must see that the dual system of medical administration is an anomaly, and that there should be a reduction in its *personnel*.

The medical store depôts should be under apothecaries.

In times of war the medical services in India would require to be augmented according to necessity from home.

Dr. W. G. Hunter, M.D., Surgeon-General, Indian Medical Department, Bombay.

(a) On the grounds of efficiency and economy, I would strongly advocate the desirability of one medical service in this presidency; and considering that the Indian medical service would require considerably less augmentation of its strength to meet the requirements of the service under the proposed new order of things, that it is recruited with tolerable facility, that its officers are conversant with the language, customs,

and habits of the people of the country, which no purely military service could acquire, that the civil and military duties heretofore entrusted to it have been performed efficiently and satisfactorily, the conclusion is that it rather than to the army medical department should be entrusted all the medical duties of the presidency; and I am of opinion that Government might transfer the charge of the European troops serving in the presidency to it with the fullest confidence that the duty would be efficiently and conscientiously performed. This end might be obtained with great ease and at an enormous reduction on existing expenditure. Were the present fixed establishment (143) increased by the addition of 15 surgeons, or a total establishment of 158 medical officers, exclusive of 20 per cent. for contingencies, all the duties now performed by the British and Indian medical departments might be effectually met. The saving by the adoption of this course would be the cost of the army medical department *minus* the salaries of the additional 15 medical officers required to strengthen the Indian medical department to meet the increased duties devolving on it. This proposed fixed establishment pre-supposes the introduction of the station hospital system instead of the regimental and the field hospital system during war.

Instead of such a measure as the above, suppose a *quasi*-amalgamation of the British and Indian medical departments (as has been reported in medical and other journals as not unlikely to take place), i.e., that the military branch of the Indian medical department should be fused with the British to form one service, the civil branch remaining as a distinct department. Such a measure, like most half measures, would, in my humble opinion, be a mistake, whether on the score of efficiency or economy; and I can only regard any suggestion which would divorce the civil from the military department as pregnant with evil to the best interests of the medical officer and the soldier and therefore of Government. Under existing arrangements frequent transfers of medical officers take place between the civil and the military branch. The soldier in this way gains the benefit of an extensive

and varied experience, both medical and surgical, acquired by the medical officer in the various civil hospitals of the country. On the other hand, the professional duties of a medical officer doing military duty during time of peace are very restricted and limited. The sepoy is a picked life, and his mode of life and other causes do not render him so susceptible to disease as the physically weak and ill-fed among the civil population. A capital surgical operation is rare and exceptional, and the practical study of morbid anatomy is virtually a dead-letter, as the instances are exceedingly rare where the relatives of a deceased sepoy will allow a post mortem examination of the body. Were it not so, however, acute disease resulting in death, except from epidemic disease as cholera, is comparatively so rare in Native military hospitals, that the opportunities for studying their course and results are so few as to be of no real practical value to a medical officer. After a few years spent in military employ, an intelligent officer seeks to return to civil work, from which, after the lapse of a few years, he may again, for various reasons, revert to military duty. In this way professional knowledge is kept up among the officers of the service, and which a separation between the civil and military medical departments would prove an insuperable barrier to. The professional efficiency of the medical officer in this country is indeed maintained and secured by the civil institutions to which he has access, and in case of misconduct the reversion to military duty exerts a salutary effect. Each department in its way proves of service in maintaining that high standard of efficiency which the medical officers of the Indian medical department are, as a body, acknowledged to possess. I should view with apprehension any force leaving this presidency on active service provided with medical officers whose experience had been derived solely in military hospitals where disease, generally speaking, presents itself only in its simpler forms, and where a surgical operation of any importance is rarely witnessed. On economic grounds too a partial amalgamation of the two services would, as previously stated, be a mistake. It is obvious that a dual medical department, however economically conducted, must be more expensive than a single one. Many of the existing evils, consequent on a double administration, would be perpetuated. Each would require a separate administrative head and staff. At certain civil stations where a regiment of Native infantry or wing of one or more regiments of Native infantry is stationed, the civil surgeon could perform the entire duties without difficulty, did one medical department only exist. Whereas with two departments, not less than two medical officers must be employed for the duty. I could cite other instances in illustration, but I have probably stated sufficient to show that two medical departments in this country are incompatible with economy and efficiency. It is a question, too, how far an amalgamation of the British and Indian medical services might be detrimental to the recruiting of the latter, and any measure which might possibly disturb this—and but little would be required to do so—should, I venture to think, be very carefully considered before it is acted on.

(b) Consequent on receipt of Government of India Resolution No. 853S, dated 20th September 1878, I submitted to Government certain proposals affecting the commissioned medical service, the apothecary's department and the assistant surgeons' class which under Resolution of this Government, No. 3022, dated 1st August 1879, were forwarded to Government of India. Under the scheme sketched under clause (a) many of the suggestions made in this proposal and accepted by Government would still hold good, as for instance the reduction in the apothecary's establishment and the increase of assistant surgeons' class. Others, on the other hand, must of necessity be abandoned, as, for example, the reduction in the fixed strength of the commissioned officers, *viz.*, 143.

(c) I lately introduced a new hospital equipment into the service which was tried first with the late Mediterranean Expedition, and subsequently with the Bombay troops serving with the Kandahar column in the Afghan War. Deputy Surgeon-General Beatty, Indian Medical Department, Bombay establishment, who was Principal Medical Officer of the former force, reported very favorably on it; and more recently, Deputy Surgeon-General A. Smith, Army Medical Department, and Principal Medical Officer with the Kandahar column, in a letter No. 72B., dated 12th May 1879, reports: "I have been so much impressed with the suitability for field service of both the field panniers and reserve chests supplied to troops belonging to the Bombay presidency as to completeness of fittings and of the materials they contain, that I have fully resolved to recommend, at the close of the expedition, that similar arrangements should be adopted for the Bengal presidency."

The equipment consists of a field medical companion (A), two field panniers (B), two reserve chests (C), and a dealwood box for containing apparatus for fractures and dislocation (D). A description with contents, weight, &c., will be found in the accompanying printed papers* marked A, B, C, D, respectively, which I beg to forward for the information of the Commission, and should be glad to hear that the equipment met with their approval.

(d) The arrangements proposed for the subordinate medical department by Government of India Nos. 176 and 16, dated respectively the 31st August 1877 and 19th January 1878, are on the point of being carried out in this presidency, and when completed will, I am of opinion, meet all requirements.

Further suggestions in compliance with paragraph 4 of confidential letter No. 145, dated 9th August 1879, by DR. W. G. HUNTER, Surgeon-General, Indian Medical Department, Bombay.

I am of opinion many of the recommendations of the "Committee for the Army Medical Department" might, with advantage, be adopted for the Indian Medical Department, more particularly those numbered 9, 10, 11, 12, 13 and 14 at page 24 of the report. Were this done, I feel sure it would tend to improve materially the status and tone of the Department, and attract a large majority of the best students of the medical schools to its ranks, and render the entrance examination really a competitive one, which it can barely lay claim to at present.

2. Another recommendation made by the Committee is worthy of consideration, *viz.*, the right of a medical officer to retire after 20 years' service on £1 a day, allowing 20 months' furlough to Europe to count as service in that period. Considering the great saving the recommendations made will effect, the grant of this slight increase to retiring allowances would be of little moment to the State.

* These tables not printed in Appendix.

Dr. Colvin Smith, Deputy Surgeon-General, Indian Medical Department, Madras.

The Madras medical service has been nearly ruined by the admission into it of East Indians, the greater number of whom have turned out very badly indeed, and many have had to be got rid of for drunkenness and in fact being worse than useless in the department. When ordered on field service, their courage generally fails them; they report sick and use every subterfuge in their power to get off going; or if they are made to go, they seldom do any good. I am therefore of opinion that they should never be allowed to enter the military service. These remarks also apply to Natives. However, we have had few of them, no Madras Native having as yet entered the commissioned service. But a Bengali lately acted as I have above depicted when I ordered him on service.

I would strongly recommend that a *civil* uncoventanted medical service be established which would in every way suit both Natives and East Indians, and on no account should they be allowed to pass for the military service. Into this service let men of good character who have passed a university test where educated enter on nomination. That such a service would be highly popular I am convinced, and they given all the smaller civil stations, the medical charge of which are now held by apothecaries. It would be far better and wiser for all that such a service was established than to allow Natives and East Indians as at present to enter the military service after studying in England, &c. They often leave their *alma mater* here, quite well disposed youths, but on arrival in England get into the worst of bad companies, when they acquire bad habits of drinking, &c., which ultimately leads to their ruin.

I am convinced that such a service, besides being very popular, would be efficient for furnishing medical officers for all the smaller civil stations. The salary of those in it to rise from Rs. 150 or 200 per mensem to Rs. 500 or so, with the usual uncoventanted pension according to length of service. The present medical military service would be greatly improved were nomination again returned to, and an examination before appointment as in former days. The medical officer should in every case serve at least six months in a European regiment on first arrival in the country.

If an extra pension or bonus was offered to old officers who are only waiting on for the day to retire on a competency to live on, some would no doubt retire; but if all leave was allowed to count for service for pension, as I understand has been recommended, and has already been granted to the officers of the late Madras artillery, many would retire, thus causing a great reduction of expenditure, as the seniors are those who draw high pay, and the work might be well performed by juniors. It would certainly be a great boon if the order allowing all leave to count as service for pension up to a certain limit were extended to old officers some of whom after doing good service in the field during war had to return to England in order to regain their health, and are now trying to serve on for pensions on which to live at home.

There was never to my mind shown the least necessity for two administrative medical establishments, that of the British and Indian medical service. When there was only one, it seemed for all purposes sufficient, therefore, to reduce expenditure. I would recommend that the administration of the medical department be again left entirely to the Indian medical service, as being much more likely to be in every way well administered by men who have chosen service in this country and who, when they entered it, looked to be head of the department at the end of their service.

When the Hon'ble East India Company service was taken over by Her Majesty's Government, all the rights and privileges were guaranteed to the officers in the service by Act of Parliament.

Let the administration of the medical department be as formerly and in number as at present, *viz.*, a surgeon-general of the Indian medical service, with six deputies, few enough for the duty they have to perform; but if it is necessary that there should be a deputy surgeon-general of the British service, let there be only one for the Madras presidency, where there are so very few (British) European troops; and if the fine old local European troops are resorted to, there will be still fewer.

Six deputy surgeons-general are indeed a very small complement for the duties they have to perform—duties which save the State a large sum of money yearly.

In the last Royal Warrant an extra pension of £350 was given to all surgeons-general who served in that grade for five years and to deputy surgeons-general £250 on the same terms. It is very difficult to see why this was on these terms given (as it retards promotion, which as far as possible should be expedited for efficiency sake), and not as £50 for every year in the grade of deputy surgeon-general, as has been often recommended. No man, having once entered the administrative grade, will on any account, unless from dire necessity, give up the hold on this extra pension. Even when men are in bad health and feel unable to perform their duty, they stick on, as they lose all unless they serve four and a half years in India on duty. Would it not be far better to give £50 for each year served in the grade, so that a man would be paid in proportion for the duty done in the grade of deputy surgeon-general, that of the surgeon-general being extra to the extent of £350? At present the system is very bad, and retards promotion, which should be encouraged just now as much as possible, as the service is nearly at a deadlock, owing to the mode of giving this extra pension. The change recommended, if acted on, would much reduce expenditure, as men would not serve on for the higher rates of pensions, as they are now obliged to do.

If a change in the administrative grade is contemplated and reductions be made, those in it would be required to be pensioned; but even this would perhaps be a saving to the State.

There should be a marked saving in medical stores by the reintroduction of the first, second, and third class indents, or indents in accordance with the requirements of a hospital, &c. The power of sanctioning medicines should entirely rest with the medical administrative staff, and no revenue officer should have the power to do more than recommend indents to be sanctioned.

There would be an enormous saving in home charges if all stores were got out from England through local agents. A first-rate firm here has lately offered Government to supply everything required at trade cost and prices, and 2½ per cent. extra for their trouble. This would be an enormous saving were it in force, and extravagant home charges would be reduced much.

Dr. J. Gibbons, Deputy Surgeon-General, British Forces, Meerut Circle.

The present state of the department proves the impossibility of reducing expenditure in *personnel* or in any other way; on the contrary, increase the pay and privileges of the subordinate medical department, insisting on a higher standard of qualification; introduce without further delay a corps of trained sick attendants; extend the station hospital system to India; as medical science advances, and people become wiser, they take less physic, and

perhaps a small saving might be effected in drugs. As regards hospital equipment, one has but to contrast a civil hospital or infirmary with the nearest military one to be convenient. There is no luxury of equipment in the latter.

Deputy Surgeon-General S. C. Townsend, Principal Medical Officer, Kuram Field Force.

The short and limited experience which I have had of the working of the British medical department does not enable me to offer with confidence any suggestions in the way of improving its efficiency or reducing expenditure.

The expenditure in European hospitals appears to me excessive. The system of check by rules and scales is complete, so far as it can be made so; but the demands for medicines and hospital comforts vary so greatly, that the scales must necessarily be very liberal, and there is ordinarily great room for economy within them. Economy of this kind, however, must rest with the executive and administrative officers, and the disposition to economize Government stores is not, I think, so common as it ought to be. It seems to me a question for consideration whether scales of hospital supplies do not tend to keep up a high rate of expenditure. The executive officer is apt to think that so long as expenditure is within the scale he has no further responsibility; and consequently it is too generally kept fully up to scale. This is more especially the case with stores supplied by the commissariat through the purveyor. Scales certainly save the administrative officer trouble and responsibility, but they hamper him if disposed to check and economize. Under the general hospital system control and economy in the expenditure of stores would be more practicable than it is at present.

As regards the Indian medical department, I do not think that reductions in the *personnel* of the administrative grades can be effected compatibly with efficiency, or with justice to the claims of all who entered the service as it is at present constituted. The emoluments in the administrative grades are so small compared with those of corresponding grades in the civil and military services, and the appointments so few, that the seniors in the executive grade have, as it is, very little to look forward to; and were these few appointments diminished in value or number, the apathy and discontent already visible among those who have reasonable claims to promotion would be greatly increased. It is moreover a mistake to suppose that duties of the administrative officers of the medical departments are light. In the Rawal Pindi Circle, with which I am acquainted, the deputy surgeon-general of the Indian medical department has now heavier duties than one officer can perform efficiently. Even with the removal of the civil duties to a central office at Lahore, he will still have as much work to get through as can be reasonably expected of him; and it will be quite impossible to combine the duties of the Indian and British Medical Departments, unless some great alteration is made in the constitution of the circle. It will, I submit, be necessary to create an additional circle, which shall include the districts lately annexed; and a considerable increase in office establishment will also be required.

The greater portion of the executive grade of the Indian medical department is at present occupied in civil employ, the proportion being about four-sevenths to three-sevenths in military employ. In the civil branch of the medical service there has of late years been a tendency to an increase of appointments; and as every year the statistics of mortality reveal more plainly the existence among the Native population of a vast amount of disease from preventable causes, the necessity for more complete sanitary supervision will be more urgently pressed upon the notice of Government, and the increased demand for medical officers in civil employ will continue. It will no doubt be profitable to employ Native agency largely in this work; but wherever Native agency is largely employed European supervision is necessary; and I believe that every year the demands upon the civil medical officers for the performance of duties of this nature will increase, and that in many large towns and districts special sanitary officers will be required. Reduction in the civil branch of the medical department I believe to be out of the question.

The great pressure of the demand for medical officers during the late campaign, and the necessity for taking officers from civil employ to meet it, shows that in the military branch also, under the present system, by which the medical requirements of Native regiments are provided for, reduction in number is scarcely practicable. But reduction in the cost of *personnel* might be effected by the substitution of Native for European medical officers in charge of Native regiments; and I am of opinion that this measure might be adopted to a considerable extent without great detriment to efficiency if the general hospital system were introduced. Taking, for instance, a station where the Native garrison consisted of two infantry and one cavalry regiment, the medical staff of the general hospital in which the sick of the above force would be treated might consist of one European medical officer, with two Native assistant surgeons and five hospital assistants and passed medical pupils. One hospital assistant would reside in the lines of each regiment, with a small supply of medicines suitable for emergencies and for the treatment of men who may not be sufficiently ill to come off duty; but he would attend daily at the general hospital, or whenever the officer in charge might require him. The two remaining hospital assistants would reside at the hospital; and all would be available for detachment duty. This staff would probably be in excess of ordinary requirements; but it would be necessary to keep up full establishments in order to meet the exigencies of war and epidemics; and a certain reserve would also be necessary to provide for leave and absence from sickness. At first it would be necessary to provide European medical officers for the charge of single regiments forming the sole garrison of small stations; but eventually these regiments might be committed to the charge of Native surgeons of over six years' service of proved ability and trustworthiness. The Native surgeons would for the most part be licentiates of the Calcutta and Lahore Medical Colleges. They would have military rank corresponding with that of Native commissioned officers of regiments with pay ranging from Rs. 100 to Rs. 200 a month, with perhaps an extra allowance for independent charges. This service would, I believe, prove attractive, and draw a good class of men. I would reserve a certain number of appointments in this higher grade of Native medical officers for hospital assistants of long and approved good service. At present there are no means of rewarding such men but by removing them to civil employ, to the great detriment of the military department in which they have been trained. The question will of course arise whether this system would prove efficient in the field. I am of opinion that Natives of the class this service would attract would, if good training at college and careful supervision in the first years service were ensured, become professionally and morally equal to the duties required of surgeons in the field. In the course of the late campaign more than one of the hospital assistants showed great coolness and presence of mind under very trying circumstances; and I believe that the system above described would bear the strain

of field service. The European medical officers who had held charge of Native general hospitals would become brigade field surgeons. The organization in force in cantonments, but somewhat strengthened in numbers, would in fact be transferred to the field; and with the amount of European supervision it would, I believe, secure very efficient management and care of the sick and wounded. Another question that will arise will be, European medical officers being no longer appointed to the charge of Native regiments, there will eventually be no officers of the Indian Medical Departments having military experience from whom officers for the charge of Native general hospitals can be selected; and how will these very important charges be provided for? For some years the Indian Medical Department would furnish sufficient competent officers for the purpose; and their experience of India and knowledge of Native medical establishments would prove of great advantage in starting, and consolidating the new system. But eventually the European element would have to be provided by the Army Medical Department; and thus the appointment of Natives to the charge of Native regiments would lead to the extinction of the Indian Medical Department as a military service. But if the scheme for the reorganization of medical services which was submitted to the Secretary of State for India nearly two years ago, the chief features of which were the creation of civil administrative appointments under the Local Governments, and amalgamation of the administrative grades of the British and Indian Departments, at the same time placing all medical officers of the Indian Department under the control of the Surgeon-General, British Forces—if this scheme has been approved (as the public papers say it has), the sentence of extinction as a military service has been already passed on the Indian service; for I venture to express my opinion that the scheme alluded to is a half-measure which cannot prove final; that it will not work without great friction, that the jealousies which have always existed, and which appear inseparable from two services working in the same field, will continue; that attempts at encroachments would be made by the dominant service on the privileges of the other, which would keep up constant irritation and ill-feeling. It will, I believe, be better to at once form a distinct civil medical service and an Indian medical staff corps. The medical staff corps would consist partly of Europeans and partly of Natives. At first, until a sufficient number of Native surgeons could be trained, the European element would greatly predominate; but eventually the number of Native surgeons would exceed in the proportion of two to one. The strength of the medical staff corps required for the Bengal Native army would in round numbers be about 100 Native surgeons to 50 Europeans. At first also the European element would consist entirely of officers drafted from the Indian Medical Department; but afterwards, when the due proportion between Europeans and Natives had become established, and vacancies occurred in the European staff, they would be filled from the British Medical Department. The qualifications for admission into the medical staff corps should include five years' service in the army and knowledge of the language sufficient to pass the lower standard examination. Every officer after entering the staff corps would be required to serve one year in a Native general hospital under a senior officer before he would be entitled to the charge of a Native regiment or general hospital.

Officers serving in the staff corps would be entitled in their turn to promotion to the administrative grade, a certain number of circles being reserved for them; and their claims to promotion would be decided on by the head of the department in India, subject to the approval of the Commander-in-Chief.

In the scheme that I have now sketched, I have not thought it necessary to enter minutely into details; indeed, I have not the necessary information at hand or the time to enable me to do so. But if it were adopted, I believe the result economically would be the substitution of from 80 to 100 Native surgeons at salaries ranging from Rs. 100 to Rs. 250 per mensem for European officers at salaries ranging from Rs. 300 to Rs. 1,000 per mensem. The elimination of the military element from the Indian medical department would of course radically affect its constitution; but there should be no difficulty in reconstituting it on terms under which the interests of the present members of the service would be secured from harm, and which would attract able men from the British schools.

Surgeon-Major T. G. Hewlett,
C.I.S., Acting Deputy Surgeon-
General, Sind Division.

Have answered this question partly in the scheme* I have forwarded for submission to the Army Organization Commission; but I would desire to express my opinion that the real way to reduce expenditure in the medical department would be to increase the standard of health in the European and Native armies. It is perfectly sad to see how both European and Native troops are rendered ineffective by preventable disease.

The following table, taken from my report as Sanitary Commissioner, shows the principal causes of admissions into hospital during the six years ending 31st December 1877 among the European army under the Bombay command—

YEAR	1872		1873		1874		1875		1876		1877	
Strength	10,819		10,665		10,639		10,184		10,116		10,061	
Principal causes of admission into hospital, arranged in order of prevalence in 1877.	Number.	Ratio per 1,000 of strength.	Number.	Ratio per 1,000 of strength.	Number.	Ratio per 1,000 of strength.	Number.	Ratio per 1,000 of strength.	Number.	Ratio per 1,000 of strength.	Number.	Ratio per 1,000 of strength.
	Malarial fever	6,612	611.2	5,185	486.1	4,623	436.1	5,278	518.0	4,860	480.4	4,550	452.2
Veneral diseases	1,675	154.9	1,921	181.1	1,796	170.8	1,776	174.4	1,615	170.5	1,578	157.0
Wounds and accidents	878	81.1	1,017	95.4	1,070	101.8	1,159	115.0	964	95.3	1,061	105.4
Diarrhoea	601	55.9	467	43.9	480	45.6	720	70.7	484	47.8	528	52.8
Respiratory diseases	523	48.5	748	70.9	678	64.4	708	69.6	804	79.0	410	41.0
Abscess and ulcers	1,000	92.4	1,103	103.4	1,168	110.9	1,103	108.3	868	85.1	607	60.7
Rheumatism	553	51.1	636	60.2	574	54.5	476	46.7	327	32.3	377	37.5
Hepatitis	376	34.9	556	52.0	506	48.0	411	40.3	406	40.1	306	30.6
Dysentery	374	34.8	326	30.7	350	33.7	295	29.0	271	26.8	288	28.8
Eye diseases	196	18.1	237	22.0	226	21.7	280	27.6	241	23.7	183	18.3
Total of those ten causes	18,568	1,707.7	15,096	1,434.1	11,375	1,080.4	13,140	1,292.1	10,128	1,001.2	10,135	1,007.2
Total from all causes	17,198	1,589.5	14,035	1,318.1	13,543	1,286.2	14,208	1,404.0	13,323	1,317.5	13,096	1,301.3

* Vide appendix XLIII.

In 1877, when the admissions from malarious fever were lower than in any of the preceding years except 1874, it is seen that 33·2 per cent. of the total admissions during the year among European soldiers were caused by malarial fevers; and, as I then said, it would appear that measures to remove local insanitary causes are urgently needed.

Veneral diseases also always occupy the second place among the principal diseases which affect European soldiers. In 1876, 196 men in every 1,000, or 14·4 per cent. of the total admissions, were laid up during the year with some form of venereal disease.

The following table shows the annual loss of service and strength among the European troops under the Bombay command since 1872:—

YEAR.	Average strength.	LOSS OF SERVICE.			LOSS OF STRENGTH.			
		Average annual ratio per 1,000.		Average number of days spent in hospital per man.	Average annual ratio per 1,000.			
		Admissions into hospital.	Average daily sick.		Deaths in and out of hospital.	Invaliding.		
				For change of climate.		For discharge.	Total.	
1872	10,818	1,588	50	18·10	18·86	13·06	9·40	42·46
1873	10,665	1,316	50	17·72	11·72	36·14	7·53	43·67
1874	10,529	1,286	53	18·54	10·64	35·39	9·68	45·06
1875	10,184	1,404	54	20·01	20·92	35·30	5·27	40·57
1876	10,116	1,317	53	19·43	12·36	37·27	10·38	47·65
Mean	10,463	1,382	52	18·77	14·90	35·43	8·45	43·88
1877	10,061	1,361	58	21·17	11·63	36·67	11·63	48·30

In 1877 in the Native army malarious fevers deprived the Government temporarily of the services of 10,956 sepoy of the Bombay army out of a strength of 22,561 men, so that out of every 1,000 men 485 were admitted into hospital during the year from this one cause alone. I am therefore most strongly of opinion that it would be the truest economy if Government were to insist on the European and Native troops being provided with healthy habitations on healthy sites. The sites of many cantonments have been selected without reference to sanitary requirements. Where the tents of the first force sent to reduce the place were pitched, there have been barracks and officers' houses erected. For example, in Poona the cantonment is placed to leeward of a filthy Native city. In Kurrachee the cantonment is situated immediately to leeward of a salt swamp. But though I suppose too much money has been sunk to permit of the hope that the site of these cantonments can be altered, yet much can be done to improve the neighbourhood of barracks and Native lines by surface and sub-soil drainage. These and other sanitary measures of like importance would preserve the health of the army in cantonments; and similarly much can be done to protect the men whilst under canvas. In the present unventilated tents European soldiers are provided the men suffer in health. Let any one go at 4 A.M. into a European soldier's tent where there are 16 men sleeping, and the physical sense of smell will sufficiently indicate, even to non-professional persons, the danger of breathing an atmosphere laden with organic matter given off with the exhalations from the skin and lungs.

There is nothing so expensive to Government as preventable disease. It is this which fills our hospitals, which necessitates the keeping up of a large body of medical officers and subordinates and menial servants, which entails large expenditure for medical stores and comforts. If the standard of health of the army in India was raised, it is evident that there would be a reduced expenditure in the medical department. There is no truer saying, or one which in my opinion Government would more wisely act upon in dealing with the question, than that prevention is better than cure.

Surgeon-Major J. Pichall, M.D.,
Examiner of Medical Accounts,
Bengal.

I have always considered the existence of two medical services in this country as opposed to the best interests of Government; and I think it needs not much demonstration to prove how vastly more costly a hospital has become in its *personnel* and *matériel* in the present day when compared with eighteen or twenty years ago, and will so continue so long as two separate services continue. I shall not, I trust, be accused of any class feeling in stating my views on this question; for, although officially I have to deal with the officers of the two services, I consider myself sufficiently removed from both to look at matters pretty much from a layman's standpoint *plus* my own special knowledge. It has then always appeared to me that the British medical officer, though serving in this country and receiving his pay from Indian revenues, never looked upon himself as amenable to Indian authority where his power of spending was in question. His views were essentially those of a man in the position of a temporary sojourner in a strange land, whose allegiance was due elsewhere; and I consider this position as opposed to those principles which would determine a man to consider what his responsibilities were to the country whose funds he was dealing with.

I look upon the double medical staff both in the administrative and executive grades not only as unnecessary, but downright extravagant; and the sooner it is done away with the better.

There should be, in my opinion, but one medical department; and as from the requirements of the country a local service is a necessity, this department should be Indian. It can hardly be necessary to enumerate the numerous advantages of such a scheme; but amongst the important are the following. The officers belonging to the Government of India would be more under control; they would be more conversant with the nature and peculiarity of the diseases of the country, and also, what I consider of importance, with the ways of the people. Their services could be utilized at all times for duty with any

part of the army, European or Native, or both, at the same time, which is not the case at present. In garrison this last would be of great advantage and be largely economical.

Again, the cost of passage of British officers to and fro would be avoided. Every regiment on landing would have its appointed complement of medical staff attached, which for infantry or cavalry in ordinary times would be not more than two officers.

The administrative grade should be selected from the Indian service on the same grounds. There should be a revision of administrative circles; and, now that the civil medical administration is provided for, the present limits of area will be capable of extension. Thus a great saving may be effected here with perfect efficiency.

There may possibly be some small economy effected by diminishing the number of drugs now in the official list; but I am not fully prepared to give a positive opinion on this point. The practice of medicine does not admit of prescribing by rule; but I maintain that a good practitioner does not want very many drugs. Then, again, as to surgical equipment. I have nothing to suggest on this head. The present scale for military hospitals was prepared by me in 1874,* and has been found sufficient to answer every purpose, and to be economical.

The medical depôts are three in number as against five in 1869-70. I do not think a lesser number would suffice. The withdrawal of the superior cutler's establishment, at the time of revision, from the provincial depôts was, I consider, a mistake. It should not be necessary to send knives, &c., down to Calcutta from Peshawar to be repaired. The principal depôt may not be so fully utilized as it ought to be in the way of manufacturing preparations; but this it would not be possible, I consider, to remedy in the present building, which is too small for present requirements; and, further it would be very undesirable to erect a large pharmaceutical laboratory in the heart of the town, even if available space existed. At some future time it may be a subject for consideration whether the present building should not be sold and the depôt removed to Garden Reach. At such time an extension of the pharmaceutical laboratory should not be lost sight of.

Surgeon-Major J. H. Porter,
late in medical charge of Field
Hospital, 1st Division, Peshawar
Valley Field Force.

To improve efficiency, the existing medical departments of both services should be amalgamated. This would entail all medical officers coming to this country first learning the language, which is as essential for the proper performance of duties with British troops as with Natives. All medical officers on arrival to be instructed in the internal economy, routine, and customs of Native military hospitals, as well as European. The want of this knowledge on the part of medical officers I found most inconvenient in the late campaign in Afghanistan, where, from emergencies, I was obliged to detail a medical officer of the British service to look after Natives, who objected on account of not knowing the language and customs. Again, I had to detail a medical officer of the Indian service to look after Europeans; he objected from not knowing the routine of European military hospitals.

By having station or garrison hospitals there would be greater efficiency and less expenditure. There would be fewer medical subordinates and servants required. It would be unnecessary to maintain separate hospital equipment for each regiment, corps, or battery, as, on one or the other changing stations, they would only have to take with them a small supply of medicines or stores for the march, leaving every thing standing in the station hospital for the regiment or corps returning.

The system of each regiment carrying with it its full equipment required a large amount of transport; and in transit there has always been great loss from breakages alone.

On a regiment moving, all sick should be left in the station hospital till fit to join in a healthy condition or otherwise disposed of. This would prevent the great amount of sick transport usually required when a regiment is accompanied by its sick on active service. The field hospital system would afford greater efficiency and less expenditure as regards personnel, medical stores, hospital equipment, and transport. I beg to submit here a statement showing the establishment and carriage required for a force of 2,840 European troops on active service on the regimental and field hospital systems. The strength is that of the 1st Division, Peshawar Valley Field Force, in May 1876.

By this statement a reduction is shown of 106 servants and 188 camels on the field hospital system as compared with regimental.

Statement showing the establishment and carriage required for the undermentioned force of European troops active service on the regimental and field divisional hospital systems.

1 Battery, R. H. A. ...	...	...	...	...	150
1 " F. A. ...	...	...	...	...	50
1 " H. A. ...	...	...	...	...	90
1 Regiment of cavalry ...	...	...	...	...	850
3 Regiments of infantry ...	...	...	...	...	2,100
				Total	2,840
				Regimental system.	Field divisional hospital system.
Hospital establishment ...	...	...	...	226	148
Purveyors ...	...	...	...	7	4
Purveyor's establishment ...	...	...	...	60	35
			Total	293	187
				Camels.	Camels.
Medical stores ...	...	...	...	40	17
Office records ...	...	...	...	10	1
Hospital equipment ...	...	...	...	177	90
Cooking utensils ...	...	...	...	7	3
Tents ...	...	...	...	66	51
			Total	300	162

* Sanctioned in G. G. O. No. 931 of 1875.

To make hospital transport efficient, and with a view to economy, it should be entirely under the control of the responsible medical officer, in the same manner that horses are under the control of the officer commanding a battery. By this means, men and animals would be properly cared for, and there would be fewer casualties. The absence of this arrangement was very much felt during the recent campaign in Afghanistan, where transport animals were shifted about from day to day, and in many instances were neither watered nor fed.

When required for any movement, indents had to be prepared in the usual manner, which had to be signed by numerous officials; and when sanctioned, it was sometimes impossible to obtain the animals without the greatest labor and trouble.

With regard to the establishments of medical officers and subordinates for the regimental and field hospital systems for the same force as above stated, I beg to submit the following statement, in which there is a reduction of ten medical subordinates by the field hospital system; I do not consider any reduction could be made in medical officers:—

Statement showing the establishments of medical officers and subordinates for the undermentioned force of European troops ordered on active service on the regimental and field divisional hospital systems.

1 Battery, R. H. A.	...	...	...	150
1 " F. A.	...	...	...	150
1 " H. A.	...	...	...	90
1 Regiment of cavalry	...	...	...	350
3 Regiments of infantry	...	...	...	2,100
			Total	2,840
			Regimental system.	Field divisional hospital system.
Medical officers	...	...	15	15
Medical subordinates	...	...	23	13
			Total	28

For the more efficient working of station, garrison, field, or base hospitals, it is essential that an Indian army hospital corps should be organized, composed of Europeans and Natives. With the present arrangement, field and base hospitals are supplied with a European staff consisting of hospital sergeant, pack-store sergeant, transport sergeant, and writer from the ranks of some regiments; and as these men feel they are losing their time by being so employed, their promotion being stopped in the regiment from whence they came, they perform their hospital duties with unwillingness, ever requesting to be permitted to return to duty. Indeed, the men who performed the above duties with the field hospital, 1st Division, Peshawar Valley Field Force, did so as a favor. If, therefore, there was a regular hospital corps, the staff would have been already trained to their duties, and there would have been no dissatisfaction as regards position or future prospects. In the late campaigning it was with difficulty the services of the above staff were obtained, commanding officers objecting to these men being removed from the ranks. The Native portion of this army hospital corps would require earnest consideration. At present the Native servants attached to hospitals are generally allowed to be the worst in any army. They are of a low class, indolent, dirty, and inattentive; nor have they any encouragement to be otherwise. I cannot help thinking that with a properly organized Native army hospital corps, with increase of pay for efficiency, that the sick would be better served, and that the enormous number of servants employed might be considerably reduced and economy enforced.

These servants would be under the European army hospital corps and apothecary in their respective duties, who would be responsible for them. This is a wide subject requiring much detail; but I have merely mentioned the headings with a view to attract the attention of the Commission, as I feel it is worthy of consideration, not alone for efficiency, but for economy.

Surgeon-Major C. Martin,
Army Medical Department, 13th
Hussars.

The adoption of the general system would effect a great saving, and not at the cost of efficiency. It possesses the advantages of centralization and of decentralization; it is mobile and economical.

If station hospitals are established in this country, a regiment changing station in ordinary course of relief would only need a pair of panniers, field companion, and case of instruments to accompany it. This arrangement would be ample, as provision is being made not for invalids but for young, strong, and healthy men ready to march or fight.

On arrival at their destination, they would find a hospital perfectly equipped; and Government would save the expense of dragging material, &c., about the country on from 50 to 60 camels.

In time of war, field hospitals, arranged in sections, possess twice the efficiency, and are only half the expense of regimental hospitals.

Remarks by Lieutenant-Colonel D. B. Young, Officiating Controller of Military Accounts, Bombay.

The question of the Medical Department has, I believe, been the subject of much correspondence and very careful consideration. I therefore approach it with diffidence.

My proposal is, that there should be only one Medical Department, and that purely Indian. To accept any other solution would involve the separation of the army from the civil duties; and for the latter an exclusive Indian establishment, with administrative heads, would be required.

Hence there would, in fact, be still a dual establishment, though perhaps not quite so prominent as now.

I believe it has been proposed to have station hospitals under the Army Medical Department, by which all Europeans, including the officers and their families, of Native regiments should be treated; the men of the Native regiments being treated more immediately by a superior class of Native medical officers or subordinates.

At present the tour of an officer of the Army Medical Department lasts five years, during which time he naturally attains but a modicum of Indian experience and a very slight insight into Native habits or feelings. His knowledge also of climatic and local influences will be limited; and at all times he is an unsettled man, possessed with an earnest desire, unless he be a very senior officer with large allowances, for the completion of his tour of foreign service.

Formerly, when the regimental system for medical officers obtained, it could be argued that it would be against every rule of discipline or hygiene to cause a regiment newly arrived from England to be medically treated by an officer personally unacquainted with the history of each man. But as a regiment is now liable to receive an entirely fresh medical staff on arrival in the country, it may well be held that it would benefit by being treated by members of a body who looked on India as their home, and who had studied the diseases peculiar to the country.

I have heard it contended against this proposal that a medical man who may be long from England is apt to allow his professional knowledge to rust, and not to keep himself up to the home standard. But I question greatly whether the Indian Medical Service, as a body, compares disadvantageously in professional knowledge with its sister-service.

In fact, without making any invidious comparison, it may be considered that the generality of European officers would prefer being treated by an Indian medical officer to one of the Home service.

The Home service has naturally a right to demand that they should have a share of the administrative appointments in India as long as many of their younger ranks are largely employed in India. But by making all service in India to appertain to the local medical service, the difficulty of dual heads would disappear; and the withdrawal of the demand for officers for India from the Home service would at once release a large body for employment in the Home and Mediterranean stations.

At present the Indian service, possibly from its being local, is a favorite, and has no difficulty in obtaining satisfactory recruits. The contrary is the position of the Army Medical Department. The placing of all troops in India under the Army Medical Department would not appear to remove any drawbacks to the Home service. Probably it would only aggravate them—by causing a larger number of officers to be required. And yet it might tend to check the present readiness of students to compete for the Indian service, and would most likely place the Indian Government in a very difficult position.

Were all duties given to the Indian Medical Service, then the European officers and their families of Native regiments might be attended to by the staff of the station or garrison hospital, the Native soldiers being treated by a superior class of Native medical men—a constantly increasing and satisfactory body, who could be supervised by either the administrative or station hospital medical men.

The necessary enlargement of the Indian Medical Service would not, I think, be difficult, as volunteers for the Army Medical Department might be called for.

I.

COMMISSARIAT.

1. What are the main differences, so far as you are aware, between the Bengal Commissariat and those of the other presidencies?

Colonel J. I. Willes, Commissary-General, Bengal.

I am not aware of any material difference beyond what is necessary owing to local circumstances.

Lieutenant-Colonel M. W. Willoughby, Acting Commissary-General, Bombay.

The commissariat department in the three presidencies is organized on the same principle in regard to *personnel*, the establishments of commissioned, warrant, and non-commissioned officers being larger in Bengal and Madras than in Bombay on account of the greater number of executive charges in the former presidency, and in both through warrant and non-commissioned officers being employed on duties here performed by Native inspectors.

The subordinate establishments of clerks, gomashas, called inspectors in Bombay and purveyors in Madras, are also on somewhat the same footing in the three presidencies, except that in Madras gomashas, otherwise inspectors or purveyors, are not employed to superintend the issue of rations to British regiments and batteries, royal artillery, as is customary in Bengal and Bombay.

In theory the procedure of obtaining the required supplies for the army is the same in the three presidencies, *viz.*, by contract, when possible. How far it may differ in actual practice, I am unable to say. In Bombay the contract system obtains almost exclusively.

In the Bombay presidency the commissariat department has to perform duties connected with supply and transport for the civil department and for other departments, which duties in Bengal are not performed by the commissariat department.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

The main differences between the Bengal commissariat and those of other presidencies are in the nomenclature of the Native subordinate agents, the pay of such in other presidencies being, as a rule, higher than those in Bengal. Judging from some papers received by me as president of a commission which was to have assembled last year to inquire into the system of audit, &c., in the three presidencies, a greater latitude or discretion is given to the officers of other presidencies than is accorded to commissariat officers in Bengal.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Upper Circle.

So far as I am aware, there are no main differences, the system in all three presidencies being very similar. It appears that the contract system is more carried out in the Bombay, and I believe also the Madras, presidency, arising, I think, from the circumstance that the stations where British troops are located in these latter are of much longer existence and generally near large Native cities, while in Bengal there are many stations of recent formation whose sites have been chosen chiefly on sanitary grounds; consequently, capitalists and speculators are not so numerous in these latter, especially when situated in and near the hills. The other two presidencies are more limited in area, affording greater facilities for the operations of contractors.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

I am not aware of the differences.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

I am not aware of differences of detail of administration and management. But as different languages are spoken, it would be difficult for an officer of one presidency to manage the duties of another.

Colonel G. J. Dalrymple-Hay, Examiner of Commissariat Accounts, Bengal.

This office is not aware of the main differences between the Bengal commissariat department and those of other presidencies.

Major M. A. Rowlandson, Examiner of Commissariat Accounts, Bombay.

There is a very small diversity of practice between the Bombay and Madras commissariat departments, the main features of both being generally the same. They differ from the Bengal commissariat chiefly on the point of contract *versus* departmental agency. In Bombay and Madras the contract system is employed in every instance where feasible; whereas in Bengal the practice obtained of getting supplies and stores through departmental agency, involving a large expense on the score of establishments.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

I have not served with the Madras commissariat department, and my reply is therefore necessarily restricted to the Bombay and Bengal commissariat departments.

The main differences I have observed are—

(a) In the Bombay presidency supplies are obtained almost entirely by contract, and consequently no necessity exists for the employment of purchasing agents through whom supplies are more or less obtained in the Bengal presidency.

(b) Another difference I have observed is that in the Bombay presidency the warrant officers of the department are placed in direct charge of all station godowns, and under the supervision of executive commissariat officers who are held personally responsible for all stores placed in their charge. In the Bengal presidency warrant officers are absolved from this responsibility, which rests with godown gomasthas—an appointment which is made in the Bombay presidency in cases only where the services of a warrant officer are not available.

(c) I may mention, thirdly, differences in the matter of accounts and returns. My opinion, however, on this subject is that the different systems now obtaining can be easily assimilated.

2. Should not a greater use be made of the contract system ?

Colonel J. I. Willes, Commissary-General, Bengal.

I am a great advocate for contracts, but Government has refused to lay down a hard-and-fast rule, thereby throwing the responsibility of resorting to agency, when tenders appear unfavorable, on commissary-general; and then, when from unforeseen causes the tendered rates proved lower than the actual agency rates, my action has, on representation of audit department, been condemned. Contracts are a lottery; they may prove economical or the contrary. "Heads I win, tails you lose" is too much the principle on which Government acts towards the department; and hence the dissatisfaction existing among the officers.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The contract system is in full operation in the Madras presidency. Articles are only procured departmentally when contracts cannot be obtained on reasonable terms. The exception to this rule is in the case of bread, which is now supplied departmentally at several stations.

Great expense has been incurred in building bakeries and purchasing steam engines; and where this has been done, a contract system cannot be reverted to.

The contract system has its disadvantages, and does not work satisfactorily when the department is entirely dependent on the contractor: e.g., at Bangalore in 1865, during a time of great scarcity, the bread contractor, to whom the only large bakery belonged, threw up his contract, forfeiting his security, on three days' notice.

The departmental supply of bread and meat is safer, and the quality is better; although the contract system may be cheaper.

Lieutenant-Colonel M. W. Wills, Acting Commissary-General, Bombay.

The contract system cannot be extended in Bombay, as the commissariat department already invites tenders for contracts for all its supplies and services, including those required on the line of march for troops, horses, and field-column carriage animals; and only resorts to the system of departmental supply when the rates tendered are unfavorable, or other circumstances necessitate its adoption. Practically the great bulk of the supplies and services required by the department are obtained under contract, and large purchases by agents are virtually unknown. In regard to the departmental supplies of bread and meat, the wheat is obtained by contract, and cattle and sheep at some stations by contract; at others (failing receipt of tenders for the supply) by purchase by, or under the orders of, executive officers.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

In Bengal tenders are, I believe, invited for the supply of every article of supply except for bread and meat, which are supplied under direct commissariat agency; but even in these supplies we invite tenders for supply of wheat, and we offer hides, bones, and surplus meat for sale by contract. The tenders as received are reviewed carefully—

1st.—By executive officer, who records his opinion as to fairness of

rates and abilities of tenderers.

2nd.—By deputy commissary-general, who reviews the facts and opinions given.

3rd.—By examiner, commissariat accounts, who records his opinion as to rates.

4th.—The commissary-general then passes his orders, except in cases of very large contracts, tea, rum, &c., which are submitted for final orders of Government.

I think it a good plan to invite tenders for supply of all articles in this country instead of obtaining such by indents on England; and believe that after a few years the supplies will be effected under favorable terms.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Upper Circle.

A greater use of the contract system could not be made than is made, every possible means being adopted to induce persons to undertake contracts by the frequent and periodical public invitation of tenders for every article required for troops and public cattle; and it is only in the absence of advantageous offers that departmental agency is resorted to. I would here mention that, in my opinion, a system of supply entirely by contract in peace times would have the effect of rendering the commissariat department less elastic and less capable of employing its own agencies in time of war, when, as a rule, supplies can only be obtained departmentally.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

No; the present system is, I consider, the best that could be devised. By it the contract system is used as much as is advisable. Contracts are given to tenderers when the tenders are judged to be fair offers. They are contracted with supplies made by agency, with prices current, and with the last contract. It is certainly most undesirable to do away with agency purchases. As a rule they are, especially as

regards purchase of grain, flour, ghee, &c., the most economical and the best for Government interests; and this will be apparent when it is considered that, to guard themselves from possible loss and ruin, tenderers must tender so as to keep their rates safely above the probable price-current rates of the year for which they tender. The supply of grain is generally so great, that not one tenderer in a hundred can arrange so as to be entirely independent of the bazars; and any rise taking place in the price current above their rates would make it to their interest to throw up their contracts and lose their security deposit. Then agency has to be resorted to.

The inequality of this can be seen at a glance. The contractor's stake is limited to the amount of his security deposit, the limit of which is Rs. 10,000. But if prices fall, he can go on gaining for a whole year, and the profit may amount to five or ten times the above sum, and Government can say nothing. I think the term of grain contracts should be for three months, or at the most six. The risk and security deposit would be much less. There would consequently be greater competition, and better offers might therefore be expected. It would then be possible for a contractor to purchase sufficient grain to render himself independent of the market.

If purchases were entirely confined to contracts, contractors would be likely to combine, as they would know that the executive officer was helpless, and must give the contract to the lowest bidder.

Agency is very useful as a check to this; and I am clearly of opinion that Government is, as a rule, a great loser by giving grain contracts.

Because the price-current rates of grain, owing to the large consumption, may safely be depended upon, therefore agency is very safe for this important supply.

For barrack and hospital miscellanies, durries, blankets, &c., &c., the market rates of which do not really exist, their consumption is so irregular, and they differ so in quality, that contracts are, as a rule, best.

Experience has proved that bread cannot safely be entrusted to the hands of contractors, who understand nothing of its preparation, and are in the hands of their bakers.

And since the introduction of the supply of meat by agency, the quality has been far better than it was when supplied by contract, and the cost less.

I do not recommend contracts for bread; but I think meat contracts might be tried again on a small scale at some stations to see how they work.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

The contract system is made the greatest use of that is possible. But when contractors do not come forward, the agency system has to be resorted to.

Colonel G. J. Dalrymple-Hay,
Examiner of Commissariat Ac-
counts, Bengal.

It is the opinion of Government that supply by contract should be more fully encouraged and developed, and that the employment of agents as purchasers of stores which they have to receive and account for should be, when practicable, positively prohibited. In paragraphs 130 and 153 of the financial review of the commissariat department for 1877-78, it was shown that the loss to Government by the rejection of tenders for the supply of gram and other cattle supplies, stores for Port Blair, and wheat for the bakery at Calcutta, and the substitution of agency arrangements, amounted to Rs. 1,62,008-10-2. A great portion of this loss was doubtless attributable to the exceptional circumstances of the year; but the loss shown does not apparently indicate the extent of the loss which Government sustains by the maintenance of agency arrangements. The contracts which exist do not represent a sound contract system; their existence is opposed to the agent's interests, unless he is admitted to a participation in the profits, and any such arrangement must enhance the rate. The existence of a strong agency must also seriously interfere with the better class of tenderers, men of substance, from the fact that departmental agents being both providers and receivers, and having the interest in their own hands, have presumably acquired an amount of influence which deters contractors from responding to the invitation for tenders. There do not appear to be any sufficient reasons why wheat and cattle supplies, including fodder, should not be as readily obtainable as rice and other victualling supplies; but the introduction of a change in the mode of supply would probably be met by the strong opposition of departmental agents, and therefore necessitate vigorous effort on the part of executive officers in the initiation of a system which would deprive agents of large profits. There are circumstances under which agency must be resorted to, but its extensive employment as a normal mode of obtaining Government supplies is opposed to the interests of Government. A copy of the Commissary-General's letter No. 1157, dated 6th September 1876, addressed to the controller of military accounts, on this subject, and of this office reply thereto, No. 750, dated 13th November 1876, are annexed. The commissary-general's letter was written with reference to paragraphs 78 and 84 of the financial review for 1874-75; transcripts of those paragraphs and of Appendix N referred to in paragraph 78 are also sent.

No. 1157, dated Simla, the 6th September 1876.

From—COLONEL J. I. WILLES, Commissary-General,

To—The Officiating Secretary to the Government of India, Military Dept.

I have the honor to acknowledge receipt of your letter No. 413, Commissariat, dated 19th July 1876, forwarding printed copies of the annual report by the Examiner of Commissariat Accounts for the year 1874-75, and with reference to paragraphs 78 and 84, inviting my attention to the increase in supplies by local agency in lieu of contracts, with the remarks that supply by contract should be more fully encouraged and developed and the employment of agents as purchasers of stores which they have to receive and account for be positively prohibited when practicable.

2. In reply, I beg to state that I am not aware that there has been any increase in the supplies by local agency. The Examiner's report shows the number of contracts compared with agencies for cattle supplies, and I have no reason to suppose that, if compared with similar statistics for previous years, any increase in 1874-75 of supplies by agency would be apparent.

3. Tenders for cattle supplies are invited by the Department, and when none are received supply by agency is unavoidable.

If tenders are received, and the Examiner in reviewing them before despatch to my office shows that the rates are high compared with the cost of previous years and ruling market rates, I, in the interests of Government, reject the tenders, believing that the supply by agency can be effected more cheaply, and the test of the result should be not a comparison with the rejected tendered rate, but with the actual prevailing market rates as shown in prices current. If, however, it is thought advisable to accept the lowest tender even if the rate is shown by the Examiner to be high compared with the cost of the supply in previous years and existing market rates, it will certainly be developing the contract system more fully, and I shall be glad to receive the orders of Government to adopt this course; but as long as discretion is left to me, I shall act as I have hitherto done, believing that I have acted judiciously.

4. As regards the opinion of Government that the employment of agents as purchasers of stores which they have to receive and account for may, when practicable, be positively prohibited, I would beg to point out, if such is to be the rule, another class of men will have to be introduced in all transactions; for instance, a victualling gomashta having to supply eggs and fowls would have to receive them from one class, and other things from another, and so on. A station gomashta again having to supply gram, bhoocha, &c., would have to take them over from other people nominated by executive officers, all of whom would require cash advances. All of these would make their profits, and there would be several to benefit instead of the one agent now employed. I say advisedly many would have to get their profits, for no native ever does anything for nothing, and the more hands stores pass through, the more the Government will lose. There will, too, be great increase of clerical labor in accounting for and checking all these transactions, and executive officers are now overwhelmed with work constantly increasing, notwithstanding the desire of Government to curtail as far as possible clerical labor in offices, to keep pace with which large increase of establishments are about to be applied for to prevent arrears, unless some means can be devised of reducing instead of increasing work under the existing system of rendering and auditing accounts.

5. The men now employed as agents are the most trusted and reliable the Department can deal with; they have never failed us in time of trouble and difficulty; they look, it is freely admitted, to the profit that arises from making purchases; and to enable this to be done they often have large sums out as advances to cultivators; they run all risk of profit and loss, and Government loses nothing; and were such transactions withdrawn, there is not a man who would care to remain in employ; their pay is not the inducement, for many a man is compelled to keep up an establishment to do the work of a treasurer in excess of the pay he receives from the State, and this has been the case since treasurers were abolished.

6. I would urge therefore that the system which has worked so well for more than half a century be allowed to stand. In theory, the system of purchasers not being receivers and issuers of stores is admitted to be correct, but that in practice it can result in either economy or efficiency, there is not an officer, I am satisfied, of my standing, will admit.

No. 750, dated Calcutta, 13th November 1876.

From—The Examiner of Commissariat Accounts,
To—The Controller of Military Accounts.

I have the honor to return the enclosure of your No. 6927 of the 9th ultimo, requesting to be informed whether the supply by agency, as compared with that by contract, has increased or is increasing, and remarks on Commissary General's letter No. 1157 of the 6th of September 1876.

2. With regard to the extent of agency as compared with contract arrangements, I submit the following statement showing the number of contracts and agencies for the chief articles of supply under—

- (1) Wheat for mills.
- (2) Victualling Europeans.
- (3) Dieting sick.
- (4) Feeding cattle in 1874-75, and during the quarter ending June 1876.

3. With regard to wheat for mills and cattle supplies, the number of instances in which bakery or mill agents and cattle gomashas were the suppliers, receivers, distributors, and accounting agents of the stores in the quarter ending June 1876 is also stated.

ARTICLES.	1874-75.		QUARTER ENDING JUNE 1876.		Instances in quarter ending June 1876 in which agents were suppliers and receivers also.
	Supplied by contract.	Supplied by agency.	Supplied by contract.	Supplied by agency.	
Wheat for mills ...	2	15	5	12	9
<i>Victualling Stores.</i>					
Coffee ...	27	14	34	..... 6	
Potatoes ...	No record	kept.	46	6	
Rice ...	36	18	50	5	
Salt ...	24	31	29	26	
<i>Dieting Sick.</i>					
Fowls ...	24	19	33	17	
Chickens ...	26	29	32	20	
<i>Feeding Cattle.</i>					
Atta ...	.....	29	2	21	15
Barley ...	3	22	1	23	20
Bhoosah ...	4	26	4	24	24
Fodder, dry ...	3	32	1	19	19
“ green ...	4	30	.....	17	16
Gram for horses ...	4	23	2	27	.....
Gram for bullocks ...	4	28	4	27	26

4. It is only within the last two or three years that the attention of this office has been attracted to the subject, and that statistics have been collated from which comparison of details is practicable.

5. With reference to paragraph 5 of the Commissary General's letter, reference is requested to the orders issued for the encouragement of contracts for commissariat supplies.

6. In Commissary-General's circular No. 130 of the 8th of April 1861, executive officers are enjoined to adhere as far as practicable to the contract system, and in Military Department No. 110 of the 6th of May 1875, published in Commissary-General's circular No. 79 of 1875, Government directed that as a rule the lowest tender should be accepted if the security for its proper execution is sufficient.

7. The paucity of contracts for wheat and cattle supplies generally, compared with those for victualling and dieting stores, is apparent from the statement in paragraph 3. With regard to these supplies, agency does not appear to be a measure only resorted to where every effort to obtain a favorable contract fails. It is not the ordinary practice to defer final contract arrangements until more favorable offers can be obtained, but after the first rejection of tenders to entrust the supply to an agent for the ensuing year.

8. Although it is manifest that for these supplies there is difficulty in obtaining contracts upon any terms, it does not appear that enquiry has been made to ascertain the cause or to discover why cultivators and dealers are not as willing to supply wheat and cattle stores as to meet the requirements for victualling Europeans and dieting sick.

9. The arrangements for some supplies appear to require special attention from executive officers with reference to the requirements at particular seasons; fodder for elephants, for instance, the expenditure upon which amounts to a large sum. Commissary-General's circular No. 141 of the 17th November 1874 states, with regard to this supply, that there is no objection to tenders for elephant fodder being invited for short periods and to the description required in each season being stated, with the object of informing the tenderers what they will have to give, thus enabling them to fix more precise rates.

10. This order does not appear to be always observed, the invitations being generally for an annual contract, and the supply is ordinarily entrusted to the cattle gomasha for the following year if there is no response to the invitation for tenders, or the rates offered are considered unfavorable.

11. At some stations there appear to have been no contracts for fodder for several years, the supply being in the hands of cattle gomashas. It is desirable that enquiry should be made whether in such cases the cattle gomasha, being both provider and receiver, and having an interest in keeping the supply in his own hands, has not acquired an influence which deters contractors from responding to the invitations for tenders.

12. There do not appear to be any sufficient reasons why wheat and cattle supplies should not be as readily obtainable as rice and other victualling supplies, and the strong opposition of departmental agents who must lose by the arrangement must be expected. That contracts for them are not generally concluded will be seen from the statement submitted with this letter.

13. That agency rates are not generally as favorable as the rates of rejected or annulled tenders is not only the experience of this office, but appears to be clear from the statement forwarded to the Commissary-General with this office No. 141 of the 30th of June 1875. Comparative statements are submitted with this office quarterly reports on the agency arrangements of the department, regarding which the Commissary-General remarked in his No. 631 of the 29th of January 1875: "I have kept them back for further examination and enquiry, and I shall, if there are no good reasons for the higher agency rates, at once take the orders of Government on the subject of accepting generally the lowest tenders without reference to their being considerably higher than those of preceding years. If the statements submitted really represent the rates generally as ruling between rejected tenders and agency rates, I confess my faith in the advisability of ever resorting to the latter when a contract can be obtained is greatly shaken."

14. Subsequently, the Commissary-General requested a comparative statement of rejected tender and agency rates for a whole year to enable him to form a correct opinion on the agency supply. This statement was furnished with the above-quoted letter, and it showed the following results:—

VICTUALLING.

20 Items of agency supply—

Instances in which the agency rates were lower than rejected or cancelled tender rates	...	...	...	...	...	4
Instances in which they were higher	...	...	...	...	...	16
						<u>20</u>

DIETING.

3 Items—

Agency rates lower than tender rates	...	...	...	...	...	...
Higher	...	...	...	...	...	3
						<u>3</u>

FEEDING CATTLE.

32 Items—

Agency rates lower	...	...	...	...	...	7
Higher	...	...	...	...	...	25
						<u>32</u>

15. With reference to paragraph 4 of the Commissary-General's letter, I have the honor to state that the rule which prohibits a supplier being also the receiver has been fully recognized in Government and departmental orders. In paragraph 127 of the chapter on contracts, published with Commissary-General's circular No. 20 of the 9th of June 1862, it is stated that "no official drawing a salary from Government is permitted in any way to be engaged in a contract or to be both supplier and receiver."

In circular No. 6 of the 16th of February 1866, the Commissary-General remarked that the practice by which the purchasing agent is also the accountant of issues opens a door to fraud; and so strongly is the practice deprecated, that the circular directs that grain purchased by agency for artillery horses (of which the purchasing agent would not be the accountant) should be delivered into godown and the issue made from the godown. The principle is also inculcated in Military Department No. 298 of the 7th of January 1873, in which Government direct that purveyors shall draw their supplies from contractors or departmental agents, and that the commissariat officer be held responsible that there is no enlargement on the permission for purveyors to make minor purchases only.

16. The supply by agency of stores for victualling Europeans and dieting, however undesirable as compared with contract arrangements, does not appear to be open to the same objections as the supply by agency of wheat and grain, &c., for cattle. The supplies for victualling and dieting are delivered to the regimental authorities, whose acknowledgments are required in support of the agent's charges. The mill and cattle supplies are received and accounted for by the suppliers themselves.

17. It is not understood what additional labor would be involved in the supply of stores by an agent other than the receiving gomashta, nor what advances would be required which are not now made.

18. The Commissary-General remarks that all engaged in the agency supply would make their profits; but, as their need in no instance be more than one supplying agent, it is not apparent to whom the Commissary-General refers, unless he includes the victualling and cattle gomashtas whose duty it is to receive the stores, for which duty and for their distribution they receive salaries from Government.

19. Agency supply with its varying rates, the check of which is regulated by local prices current, involves additional work in executive offices and this office, but it does not appear that this work would be increased by the nomination of a supplier distinct from the receiver.

The remedy for the work in either case will be found in the extension of contract arrangements; and although the introduction of the change would probably involve vigorous effort on the part of executive officers in the initiation of a system which deprives agents of large profits, the change would eventually afford much relief from the clerical labor in executive offices to which the Commissary-General refers.

20. That the supply is not effected so advantageously by commissariat gomashtas as direct from the dealers appears to be admitted in paragraph 5 of the Commissary-General's letter, in which it is stated that the agents look for the profit arising from making purchases; in other words, the agent's charge does not represent the purchase money. That agents undertake commissariat duties for the sake of unrecognized profits, that their employment necessarily involves such loss, and that the reliance to be placed on their efficient services will ordinarily be proportionate to their profits, may be

conceded; but such concession does not appear to me to afford any fair ground for facilitating the acquisition of illicit gain as for the employment of agency where the supply is obtainable on more advantageous terms by contract.

21. I do not know what establishment paid by the gomasthas are referred to in paragraph 5 of the Commissary-General's letter. The Commissary-General's remark that not a man would care to remain in employ if these agency purchases were withdrawn affords some explanation of the difficulty of obtaining contracts for the supplies in which they have so deep an interest, even if it should appear that their services can be secured by more legitimate inducements. That existing arrangements for supplies are opposed to Government and departmental orders is, I think, indisputable, and the subject was therefore brought to notice by this office.

Extract paragraphs 78 and 84 from Annual Report for the year 1874-75.

CATTLE SUPPLIES.

PARA. 78.—Accompanying statement N shows the items of cattle stores which were supplied by contract and agency during the year.

It will be seen that the supplies were made in the great majority of cases through commissariat agents, who are frequently receivers as well as purchasers of the stores, and whose purchase rates are checked by local prices current.

The following detail shows the number of contract and agency arrangements for this service in the year :—

Grain for horses ...	{ Number of contracts ... 4	Fodder, dry ...	{ Contracts ... 3
	{ Number of agencies ... 23		{ Agencies ... 32
Barley for horses ...	{ Contracts ... 3	Fodder, green ...	{ Contracts ... 4
	{ Agencies ... 22		{ Agencies ... 30
Oats for horses ...	{ Contracts ... 3	Grass and straw ...	{ Contracts ... 4
	{ Agencies ... 4		{ Agencies ... 16
Gram for bullocks ...	{ Contracts ... 23	Hay ...	{ Contracts ... 1
	{ Agencies ... 4		{ Agencies ... 12
Bhoosa ...	{ Contracts ... 26	Atta for elephants ...	{ Contracts ... 29
	{ Agencies ... 10		{ Agencies ... 29
Dhan or paddy ...	{ Contracts ... 10	Rice for ditto ...	{ Contracts ... 10
	{ Agencies ... 10		{ Agencies ... 10

PARA. 84.—With each quarterly report a statement was submitted by this office showing the stations at which the rates of agency supplies exceeded those of tenders which had been rejected, or contracts which had been annulled.

STATEMENT N.

Statement showing what cattle supplies were provided by contract and what by agency in 1874-75.

Stations.	Grain for horses.	Barley.	Oats.	Gram for bullocks.	Bhoosa.	Paddy.	Fodder, dry.	Fodder, green.	Grass and straw.	Hay.	Atta for elephants.	Rice for elephants.
Calcutta ...	Agency	Agency	Agency	Agency	Agency	...	...	...	Contract	Contract	...	...
Dum-Dum ...	...	...	...	Ditto	Ditto	...	...	...	Ditto	Ditto	...	...
Barrackpore ...	Agency	Agency	Agency	...	Ditto	Agency	Agency	Agency	Agency	Agency	Agency	Agency
Cachar ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	Ditto	Ditto
Shillong ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	Ditto	Ditto
Gaiband ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	Ditto	Ditto
Tezore ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	Ditto	Ditto
Debragarh ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	Ditto	Ditto
Dacca ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	Ditto	Ditto
Barjelling ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	...	...
Jalpaiguri ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	...	...
Siligoree ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	...	...
Bass ...	...	...	...	...	...	Ditto	Ditto	Ditto	...	...	...	...
Dinapore ...	Agency	...	Agency	Agency	Agency	Agency	...	Contract	...	...	Agency	Agency
Hazaribagh ...	...	...	...	...	...	Ditto	Agency	Agency	Contract	...	...	Ditto
Bhagalpur ...	...	...	...	...	...	Ditto	...	...	Agency	...	...	Agency
Doranda ...	...	...	...	...	...	Ditto	...	...	Ditto	...	...	Agency
Benares ...	Agency	Agency	...	Agency	Agency	...	...	...	...	...	...	...
Gorakhpur ...	...	...	...	...	...	...	Agency	Agency	...	...	...	...
Allahabad ...	Agency	Agency	...	Agency	Agency	...	Agency	Ditto	...	...	Agency	Ditto
Jubbulpore ...	...	...	...	Ditto	Contract	...	Ditto	...	...	...	Ditto	...
Saugor ...	Ditto	...	...	Ditto	Agency	...	...	...	Agency	...	Ditto	...
Cawnpore ...	Ditto	Agency	...	Ditto	Ditto	...	Agency	Agency	...	...	Ditto	...
Nowgong ...	Contract	...	...	Contract	Contract	...	...	...	...	...	...	...
Lucknow ...	Agency	Agency	...	Agency	Agency	...	Agency	Agency	...	...	Agency	...
Fyzabad ...	Ditto	Ditto	...	Ditto	Ditto	...	Ditto	Ditto	...	...	Ditto	...
Sitapur ...	Ditto	Ditto	...	Ditto	Ditto	...	...	...	...	...	Ditto	...
Agra ...	Ditto	Ditto	...	Ditto	Ditto	...	Agency	Agency	...	...	Ditto	...
Muttra ...	Ditto	Ditto	...	...	...	...	Ditto	Ditto	...	...	Ditto	...
Gwalior ...	Ditto	...	...	Agency	...	...	Contract	Contract	Agency	Agency	Ditto	...
Jhansi ...	...	...	...	Ditto	...	...	Ditto	Ditto	Ditto	Ditto	Ditto	...
Aleerat ...	Agency	Agency	...	Agency	Agency	...	Agency	Agency	Ditto	...	Ditto	...
Delhi ...	...	...	...	Ditto	Ditto	...	...	...	...	...	...	...
Koorkee ...	...	...	...	Ditto	Ditto	...	...	...	...	...	...	...
Laudour ...	...	...	...	...	...	...	...	...	...	...	...	...
Debra ...	...	Agency	...	...	...	...	...	...	...	...	Agency	...
Bareilly ...	Agency	Agency	...	Agency	Agency	...	Agency	Ditto	...	...	Ditto	...
Ranikhet ...	...	...	...	Ditto	...	...	Ditto	Ditto	Agency	Agency	...	...
Umballa ...	Agency	Agency	...	Ditto	Agency	...	Ditto	Agency	Ditto	...	Agency	...
Kalka ...	...	...	...	...	...	...	Ditto	Ditto	...	...	Ditto	...
Jubogh ...	Agency	Agency	...	...	...	...	...	...	Agency	Agency	...	...
Ferozpoore ...	Ditto	...	...	...	...	...	...	...	...	...	...	...
Maellan ...	Contract	Contract	...	Agency	Agency	...	Agency	Contract	Contract	Agency	Agency	...
Dera Ismail Khan ...	...	...	...	Agency	Agency	...	...	...	...	...	...	...
Jalandhar ...	Contract	Contract	...	Contract	Ditto	...	Agency	Agency	Agency	Ditto	Agency	...
Kangra ...	Agency	Agency	...	...	...	...	...	...	...	...	...	...
Lahore ...	Ditto	Ditto	...	Agency	Agency	...	Agency	Agency	...	...	Agency	...
American ...	...	...	...	Ditto	Ditto	...	...	...	...	...	...	...
Sialkot ...	Contract	Contract	...	Contract	Contract	...	...	...	...	...	...	...
Bawalpindi ...	Agency	Agency	...	Agency	Agency	...	Agency	Agency	Agency	Agency	Ditto	...
Campbellpore ...	Ditto	Ditto	...	Ditto	Ditto	...	...	...	...	...	Ditto	...
Peshawar ...	...	...	...	...	...	...	Agency	Agency	Ditto	Ditto	Ditto	...
Attock ...	...	Ditto	...	Agency	Ditto	...	Ditto	Ditto	Ditto	Ditto	Ditto	...
Supplies by ...	{ Contract 4	{ Contract 8	{ Contract 0	{ Contract 4	{ Contract 4	{ Contract 0	{ Contract 3	{ Contract 4	{ Contract 4	{ Contract 1	{ Contract 0	{ Contract 0
	Agency 23	Agency 23	Agency 8	Agency 28	Agency 26	Agency 10	Agency 32	Agency 30	Agency 18	Agency 12	Agency 20	Agency 10

OFFICE OF EXMR. OF COMMT. ACCTS.,
CALCUTTA;
The 16th December 1875.

J. G. TOUCH, Colonel,
Examiner, Commissariat Accounts.

Statement showing the weight to be carried and the amount of transport required by regiments proceeding on field service in the plains of India, under the following headings:—

Description of troops.	CAMP EQUIPAGE.		BAGGAGE.		AMMUNITION.		COOKING UTENSILS.		ENTRENCHING TOOLS.		FOOD FOR FOUR DAYS FOR MEN (NOT FOLLOWERS).		GRAIN (FOR HORSES) FOR TWO DAYS.		TOTAL.		Remarks.									
	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.										
	Mds.	S.	No.	Mds.	S.	No.	Mds.	S.	No.	Mds.	S.	No.	Mds.	S.	No.	Mds.	S.	No.								
British cavalry ...	456	35	86	299	15	60	126	10	23	30	0	6	120	22	25	109	0	22	1,142	2	222	The calculation of the amount of transport has been made with reference to camel carriages only, which is more extensively employed than any other mode of conveyance, such as elephants, carts, &c.	
Native „ ...	6	12½	2	...	...	...	135	11	24	...	...	...	...	...	...	53	26	11	45	23	10	240	37½	47
British infantry ...	784	0	147	568	30	114	595	4	105	40	0	8	10	0	2	237	34	48	...	...	...	2,235	23	424
Native infantry not drawing batta ...	126	10	25	159	0	32	506	23	90	...	...	...	10	0	2	84	4	17	...	...	...	885	37	166
Native infantry drawing batta	126	10	25	...	...	...	506	23	90	...	...	...	10	0	2	84	4	17	...	...	...	726	37	134
Battery horse artillery ...	198	18	38	102	20	21	...	...	...	10	0	2	...	...	...	41	32	9	50	0	10	402	30	80
„ field „ ...	198	18	38	102	20	21	10	0	2	41	32	9	32	20	7	385	10	77		Ammunition for field batteries is conveyed in the second line of wagons: vide paragraph 1146 of the Bengal Army Regulations.
„ heavy „ ...	156	39	32	58	30	12	...	...	...	5	0	1	...	...	...	23	14	5	...	...	...	244	3	50
„ garrison „ ...	111	20	22	56	10	12	...	...	...	5	0	1	...	...	...	23	14	5	...	...	...	196	4	40
„ mountain „ ...	153	20	31	65	0	13	...	...	...	...	...	...	...	...	...	24	28	5	...	...	...	243	8	49
Company of sappers and miners	48	25	10	15	0	3	34	29	7	13	31	3	112	5	23	Sick transport has not been entered in this statement.	

CALCUTTA;
The 8th September 1879.

G. J. DALRYMPLE-HAY, Colonel,
Examiner of Commissariat Accounts.

Appendix IV.]

(1906)

Colonel R. Q. Mainwaring, Deputy
Assistant Commissary-General,
Madras.

In the interests of Government, I am averse to the contract system for the supply of rations. In England, where people in trade have large establishments, daily turning out for the general public a large supply of the articles required, the system may answer; but even there Sir Charles Trevelyan, when Permanent Secretary to the Treasury, gave evidence before the Parliamentary Committee in cir. 1855 that, "where the contractor, the meat-salesman, and the butcher have to gain their profits from the sale, the article supplied must be worse or dearer." I am credibly informed that the departmental supply has been of late adopted at the camp at Aldershot, much to the advantage of the soldier; and I know that corporations have lately dropped contracts in favor of work by their own servants.

In this country to enter into a contract (except for rum, tea, malt liquor, &c., and other large, but not purely, local supplies) is to add one more agent who is not required to the commissariat. The said agent has to lodge a security, the interest on which he adds to the other expenses he is put to, and charges (or supplies) accordingly, having already taken into consideration the chance of losing the security, which too often is borrowed.

Sir Randolph Routh, who was commissary-general to the army in the Peninsular war under the Duke of Wellington, gives it as his opinion that the contract system is not suited for non-commercial countries, as it leads to combination instead of competition. This is certainly the case in this country. In Bangalore in cir. 1864, the few rich people transacting business with the commissariat department combined to throw up the bread contract, and to re-tender for a fresh supply at double the price. The Government established the bakery, and bread has been kept at its normal price ever since. Here the bread and meat contracts were carried on well, and at apparently a fair price; but departmental supply having been established, the saving has been great, though of course at an increase of work for myself and the department.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-
General, Bengal.

Contracts are advertised for all articles except bread and meat. I do not think that the supply of either of these articles can be satisfactorily effected by contract, as a rule; but it would be advantageous, in point of economy, to invite tenders occasionally at different stations in rotation, as a check to the tendency which exists of gradually increasing rates.

The system of framing contracts, I think, needs looking to. It is cumbersome, and affords opportunity to clerks to throw hindrance in the way of tenderers. Earnest-money has to be paid into the civil treasury, and the receipt attached to the tender. The system is so complicated, that a long time elapses before the earnest-money of unsuccessful tenderers can be returned.

A system of putting contracts up to public auction, and of returning all earnest-money on the spot, excepting that of the approved bidder, would, I think, improve matters.

Major M. A. Rowlandson, Exam-
iner of Commissariat Accounts,
Bombay.

The contract system is in force in this presidency for the supply of all articles purchased in the country, and departmental agency is only resorted to on very rare occasions when favorable tenders are not received for the contracts advertised. There is little difficulty experienced in obtaining tenders for contracts for supply of almost every article required, and it is found that the rates at which purchases by contract are made contrast favorably with both the current market rates and the departmental agency.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

A contract system has its advantages and disadvantages. In the Bombay presidency the contract system is carried out to the fullest extent, and from my experience in many stations in that presidency the competition for these contracts is so keen, that it is one of the constant difficulties a commissariat officer has to contend with to keep dealers who have taken contracts at unremunerative rates up to the mark in their supplies; for I may mention that in the interest of the contract system it is considered unadvisable to put an end to a contract without absolute necessity demanding such a step.

I am informed that this eagerness to undertake commissariat contracts does not exist to the same extent in the Bengal presidency, but with no lack in competition. I consider the contract system to be the most advantageous one to Government from an economical point of view. The disadvantage which the contract system carries with it consists in the department being taught to depend too much on contractors, and that it loses in consequence that self-support which is of such importance in times of war, when contracts cannot be obtained and the department has to shift for itself.

Colonel J. F. Hobday, Executive
Commissariat Officer, Kandahar.

No; I think not. It is used in almost all cases where large expenditure is incurred. But it is very necessary to have agents capable of taking up at short notice any supply in event of the failure of a contract which very often leaves an executive officer in a difficult position.

3. Are there not some stations at which commissariat commissioned officers are now employed which are not sufficiently important to necessitate the employment of a commissioned officer?

Colonel J. I. Willes, Commissary-
General, Bengal.

I think not. There are several stations held by warrant or non-commissioned officers where there should be a commissioned.

Colonel R. A. Moore, Acting Commissary-General, Madras.

A conductor is in charge of the department at Moulmein, and a deputy-commissariat at Vizagapatam. All the other stations where commissioned officers are employed are places of considerable importance.

Lieutenant-Colonel M. W. Willoughby, Acting Commissary-General, Bombay.

There are British troops of more than one arm of the service at each of the stations where a commissioned commissariat officer is employed in this presidency; and it is desirable in the interests of Government and of the soldier that the commissariat arrangements should be supervised by a commissioned officer at even the smallest of these stations. At the present moment, and for some time past, owing to paucity of officers and through the exigencies of the service, important posts like the *depôt* at Deolali (a great centre of activity during the trooping season) and the executive charge at Ahmednagar have devolved upon warrant officers; and, however efficient these men may be, I consider they are placed in a false position, as the responsibilities imposed upon them are out of all proportion to their status and salary; and that, in justice to themselves and to the State, they should be replaced as soon as possible in their proper sphere of duty.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

The smallest executive charge is that of Darjeeling; and the presence of an officer at this station was considered necessary owing to the difficulties of obtaining articles of supply, and because it was on the north-eastern frontier.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Upper Circle.

No; there are certainly some stations of minor importance as compared with others, and it might appear that at these commissioned commissariat officers are not required. But my own experience has taught me that Government is decidedly a pecuniary gainer, where the most reliable supervision is exercised over expenditure, the difference of a commissioned officer's pay as compared with that of a subordinate being trifling in consideration of the expenditure involved and the greater efficiency secured by the presence of an officer.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

I think the department is much too weak in its commissioned officers as well as in its warrant and non-commissioned officers and strongly recommended that its present number of all three grades be increased.

The work would go on at such stations as Benares, Dinapore, and Darjeeling under warrant officers; but better management, and therefore greater economy, might be looked for under commissioned officers. Nor would the saving effected be so great, as it would cause an increase in the higher grades of warrant officers, whose pay varies from Rs. 125 to Rs. 500. A sub-assistant commissary-general, 2nd and 3rd class,* draws only from Rs. 150 to Rs. 200 staff. From the superior intelligence, &c., of a commissioned officer it is not too much to expect that he would save Government more money monthly than the small excess of his pay over that of a warrant officer. These small charges are good schools for young commissariat officers.

As warrant officers are not allowed to draw cheques, it would be most inconvenient. For instance, Darjeeling and Dinapore are at too great a distance from Calcutta to be managed from that place with efficiency; and Calcutta has already enough to do.

As it is, the number of officers of all grades is not more than what suffices to carry on the work in time of peace.

In my circle, Calcutta is the only place which has an officer of the department in charge. All the other stations are in the hands of acting men, who must depend much on their head assistants (generally Natives) and their warrant or non-commissioned officers—not a desirable state of affairs where so much money is being expended. It looks like economy, but obviously it is not.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

I know of none. On the contrary, I have five stations in my circle—Jhansi, Nowgong, Fyzabad, Sitapore, and Delhi—garrisoned by European infantry and artillery (not to mention Futteghur, Moradabad, Shahjehanpore, and Roorkee, and the *depôts* of Landour and Naini Tal), which should have commissioned officers in charge of them, and which, under English commissariat department, would have two or three officers of the department attached to each of them.

Colonel G. J. Dalrymple-Hay, Examiner of Commissariat Accounts, Bengal.

The smallest executives are Benares, Dinapore, and Jullundur; but as outposts are attached to each, it does not appear to be advisable to place the charge of these executives in the hands of other than commissariat commissioned officers.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

I am not aware of any such. In fact, I think the department is under-officered, whence its efficiency and capacity for expansion is impaired. I believe that saving to the State would result if more officers were employed.

Major M. A. Rowlandson, Examiner of Commissariat Accounts, Bombay.

At the stations of Ahmedabad, Hyderabad, Ahmednagar, and Baroda the strength of the European troops is barely sufficient to necessitate the services of commissioned commissariat officers. But it must be borne in mind that a commissariat officer cannot be made efficient without considerable practice and experience; and as the junior ranks of the commissioned commissariat officers must be kept full to meet sudden demands, it seems expedient that the present arrangement of placing sub-assistant commissaries-general in charge of the minor stations should be continued.

* Second class sub-assistant commissary-general's pay Rs. 200, and that of third class is Rs. 150.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

My opinion is that the employment of a commissioned officer even in a comparatively small station is found in the end an economical measure. Moreover, by placing junior officers in charge of these stations, they become fitted for the more important stations and posts in the department.

Captain J. F. Hobday, Executive
Commissariat Officer, Kandahar.

Many such stations as are referred to have been made over to warrant officers during the last few years, *viz.*, Sitapore, Saugor, Fyzabad, Barrackpore, Jhansi, Shillong, &c. Perhaps one or two others might be added; but it must be remembered that when the office at any one station is reduced, it only has the effect of throwing more work on the next nearest executive. In this way of late years the tendency has been to increase the work at large central stations; and it has become so heavy at some, such as Peshawar, Rawal Pindi, Mean Meer, Lucknow, Jubbulpore, &c., that it is beyond the power of one officer to do it satisfactorily; and a failure in health is generally the result of attempting it alone. By doing away with officers and their offices at out or small stations, it only necessitates an increase of work, and consequently two officers at the large stations; and these two officers cannot be given owing to the small numbers of the department. The work is too much for, and soon wears out, one man.

4. (a) What is the cost of the *personnel* of the commissariat department at each station?

(b) Give a detail of all officers and persons employed at each station under the several heads, "Supply," "Transport," and "Accounts," and the daily duty of each rank of officer, subordinate, and employé (European and Native) in the department, and of both permanent and non-permanent establishments?

(c) What is the average number of Europeans fed at each station?

Colonel J. I. Willes, Commis-
sary-General, Bengal.

(a) The cost of the European *personnel* (not including office establish-
ment) is—

	Per month.
	Rs.
1 commissary-general (consolidated)	2,500
3 deputy commissaries-general, staff salary at Rs. 1,000 each	3,000
4 assistant commissaries-general, 1st class, staff salary at Rs. 800 each	3,200
4 " " " 2nd " " " 600 " "	2,400
6 deputy assistant commissaries-general, 1st class, at Rs. 500 each	3,000
6 " " " 2nd " " " 400 " "	2,400
12 sub-assistant commissaries, 1st class, at Rs. 300 each	3,600
8 " " " 2nd " " " 200 " "	1,600
8 " " " 3rd " " " 150 " "	1,200
1 deputy commissary (consolidated)	500
1 assistant commissary " "	375
4 deputy assistant commissaries at Rs. 300 each	1,200
20 conductors at Rs. 160 each	3,200
36 sub-conductors at Rs. 125 each	4,500
35 sergeants at Rs. 64-9 each	6,133
Total	38,683

(b) Each deputy commissary-general is in charge of a circle of superintendence.

An executive commissariat officer is in charge of each executive range. When available, one is allowed as assistant to the more important executives, such as Peshawar, Rawal Pindi, Mean Meer, Lucknow, also the more important outposts, &c.

The manner of the employment of warrant and non-commissioned officers is shown in the annexed statement A (circular No. 20 of 1868).

Detailed rules for the guidance of non-commissioned officers on command are contained in annexment B (circular No. 212 of 1877).

The numbers and salaries of all other establishments employed at each station are shown in annexments C, D, E, and F.* Cattle attendants are not included, as their numbers depend on the numbers of cattle present to which they are allotted on fixed scale.

Annexment G contains rules for the guidance of gomashtas, and annexment H those for the guidance of purveyors, the only classes for which rules are necessary; the others are not usually able to read or write.

(c) Statement marked I, annexed, shows the average number fed at each station during 1877-78.

* C, D, E, F reprinted in abbreviated form.

Statement showing the disposition of the warrant and non-commissioned establishment of the commissariat department.

Stations and duties for which required.	Warrant officers.	Non-commissioned officers.	FOR EACH STATION.		FOR EACH EXECUTIVE.		Remarks.
			Warrant officers.	Non-commissioned officers.	Warrant officers.	Non-commissioned officers.	
FORT WILLIAM ... { For depôt godown ... " shipping godown ... " victualling duties ... " general duties ... " cattle and bakery ... " expense godown ... " receiving and despatching stores at Howrah railway station.	1	4					(a) And charge of rest camp at Sahibnugga when it is formed.
	1	4					
	1	...					
	(a)1	...					
	...	2					
DUM-DUM ... For general duties ...	...	...	4	12			
BARRACKPORE ... { For godown and cattle ... " bakery and victualling ...	...	1	1		5	12	
CHINSURAH ... For general duties ...	...	...	(b)1	2			(b) See note (b) below.
BERHAMPORE ... For general duties ...	...	...	1	...	2	(c)2	(c) Parlehnath is not provided for, as it is to be given up.
DINAPORE ... { For godown and cattle ... " bakery and victualling ...	1	(d)2	1	2			(d) One is to have charge of the railway rest camp when it is formed.
HAZARIBAGH ... { In charge of the post ... " For godown and bakery ... " victualling and cattle ...	1	...	2	1			
DARJEELING ... { For godown, victualling, and slaughter cattle at Jallapahar. " bakery at Jallapahar ... " godown, victualling, and slaughter cattle at Sinchal.	1	...			3	3	
	...	1	1	1			
	...	...	...	1			
BENARES ... { For godown and bakery ... " cattle ... " victualling of artillery and infantry.	1	1			(e)1	2	(e) Mysore is not provided for, as it has been given up as a station for locating elephants.
CHUNAR ... For general duties ...	...	...	1	3			
AZIMGURH ... For general duties ...	...	...	(f)1	...	3	3	(f) When there are no troops at the station, he will be at the disposal of the Deputy Commissary-General of the Circle.
ALLAHABAD ... { For depôt and expense godown ... " bakery and miscellaneous duties ... " victualling of artillery and of infantry ... " cattle ...	...	...	1	2	1	(g)4	(g) See note (h) below.
SAUGOR ... { For godown ... " victualling ... " cattle ...	1	1	1	2			
JUBBULPORE ... { For godown ... " victualling and cattle ...	1	1					
NOWGONG ... For general duties ...	...	...	1	1			
SHILLONG ... For general duties ...	...	...	...	...	3	3	
DACCA KHEDDA ...	...	...	...	...	1	...	
For general duty in the circle, at the discretion of the deputy commissary-general.	...	...	...	...	1	(h)2	(h) One is to be allowed for Chinsurah during the cold season, and the other for the railway camp at Allahabad when it is formed.
					20	32	TOTAL FOR THE LOWER CIRCLE.

Statement showing the disposition of the warrant and non-commissioned establishment of the commissariat department—(continued).

Stations and duties for which required.		Warrant officers.	Non-commissioned officers.	FOR EACH STATION.		FOR EACH EXECUTIVE.		Remarks.
				Warrant officers.	Non-commissioned officers.	Warrant officers.	Non-commissioned officers.	
LUCKNOW	For godown ...	1						
	" cattle, moveable column, and bakery	1	1					
	" victualling duties of artillery, of cavalry, and regiments of infantry.	...	4					
	" ditto of detachments in Fort Muchi Bhawn and of military prisons.	...	1					
SITAPORE	For godown and cattle ...	1		2	6			
	" bakery and victualling of troops at the station.	...	1	1	1	3	7	
FYZABAD	For godown and victualling duties ...	...	...	1				
	" cattle and bakery ...	...	...	1	1			
CANNORE	For godown ...	1						
	" cattle and bakery ...	...	1					
	" victualling of troops at the station	...	1					
	" railway and general duties ...	...	(j)1					(g) Regarding Rai Barali, see note as below.
FUTTEHGURH	For general duties ...	...	...	1	3			(j) To have charge of the railway rest camp when it is formed.
BAREILLY	For godown ...	1				2	3	
	" cattle and bakery ...	...	1					
MORADABAD	For general duties ...	...	(k)2					(k) One of these to be available for command as occasion may require.
	" victualling of artillery and infantry.	...	...	1	3			
NAINI TAL	For general duties ...	...	...	1		(l)3	3	(l) Regarding Shahjehanpore, see note as below.
	For general duties ...	...	...	1				
MEERUT	For godown (depôt and expense) ...	1						
	" cattle ...	...	1					
	" bakery and its machinery ...	...	1					
	" victualling of artillery, cavalry, and infantry.	...	3	1	5			
ROORKEE	For godown ...	1				1	1	
	" bakery and victualling	...	1					
LANDOUR	For general duties ...	...	...	1		3	6	
	For godown and victualling of artillery in the Fort.	...	...	1				
	" cattle and bakery ...	...	...		1			
	" victualling of infantry	...	...		1			
DELHI	" of detachments for commands and for rest camp when formed.	...	...		1			
	For godown and victualling of detachment in the Fort.	1				1	3	
	" cattle and bakery ...	...	1					
	" victualling of artillery and of infantry.	...	2					
AGRA	" miscellaneous duties and for rest camp at Toonda when formed.	...	1					
	For general duties ...	...	...	1	4			
MUTTRA	For general duties ...	...	...	1	4	2	4	
	For godown ...	1						
GWALIOR	" cattle and bakery ...	...	1					
	" victualling of artillery, of infantry, and of detachments in the Fortress.	...	3					
JHANSI	For general duties ...	...	...	1	4			
	For general duties ...	...	...	1				
SIPRI	For general duty in the circle, at the discretion of the deputy commissary-general.	...	...			(m)2	4	(n) These men could be posted to Rai Barali and Shahjehanpore if these stations are re-occupied by European troops.
		...	...				1	
						20	32	TOTAL FOR THE CENTRAL CIRCLE.

Statement showing the disposition of the warrant and non-commissioned establishment of the commissariat department—(concluded).

Stations and duties for which required.	Warrant officers.	Non-commissioned officers.	FOR EACH STATION.		FOR EACH EXECUTIVE.		Remarks.
			Warrant officers.	Non-commissioned officers.	Warrant officers.	Non-commissioned officers.	
UMBALLA ... { For godown ... " victualling of artillery, of cavalry, and of infantry. ... " cattle ... " bakery ...	...	...	1	2	1	(n) 4	(n) See note (c) below.
KASAUZI ... { For duties at Kalka ... " Subathu ... Dugsbai ... At Kasauli ...	...	...	1	1	3	1	
JULLUNDUE ... { For godown and cattle ... " victualling of infantry and of artillery and for bakery.	1	2	1	2			
PHILLOVE ... For general duties ...	...	...	1				
KANGRA ... For general duties ...	...	...	1				
DHARMSALA OR BHAGSU. ... For general duties ...	...	...	(o) 1		4	2	(o) To do duty in the Umballa rest camp in the cold season.
FEROZPORE ... { For godown ... " cattle and victualling of artillery bakery and victualling of infantry. " victualling of the arsenal ...	...	...	1	1	1	1	
MIRAN MEEB ... { For depôt godown ... " expense godown, cattle, and bakery victualling of artillery, of infantry, and of garrison in the Fort.	1 1	3	2	3	2	2	
AMRITSAR ... For general duties ...	...	...	1	3	3	3	
SITAPORE ... { For godown ... " cattle and bakery ... " victualling artillery, cavalry, and infantry.	...	...	1	3	1	4	
RAWAL PINDI ... { For godown ... " cattle and bakery ... " victualling of artillery and of two regiments of infantry.	(p) 1	3	1	4			(p) If spare men are not available for the charge of working parties in the hills during the hot season, men of the permanent establishment should be detached and their places taken by temporary transfers from corps.
CAMPBELLPORE ... For general duties ...	...	...	1				
SYDUN BAOLEE ... For general duties ...	...	...	1	1			
MURREE ... For general duties ...	...	...	1	1	3	5	
PESHAWAR ... { For godown ... " cattle ... " bakery ... " victualling of artillery and two regiments of infantry.	1	3	1	5			
NOWSHERA ... For general duties ...	...	...	1				
ATTOCK ... For general duties ...	...	...	1		3	5	
MOOLTAN ... { For godown ... " cattle and bakery ... " victualling of artillery, of infantry, and of detachment in the fort.	1	3	1	4			
DERA ISMAIL KHAN For general duties ...	...	...	1		2	4	
For general duty in the circle, at the discretion of the deputy commissary-general.	...	...	...	...	...	(q) 1	(q) Could be employed at Mukhd when there is occasion for his services at that place.
					22	31	TOTAL OF THE UPPER CIRCLE.
Complement of Lower Circle ...	...	...	...	...	20	32	
" of Central " ...	...	...	...	...	20	32	
" of Upper " ...	...	...	...	...	22	31	
Establishment of the department ...	...	...	...	...	62	95	

B

Circular No. 212, dated Fort William, the 28th November 1877.

In continuation of Circular No. 157 of 1877, the following is added as No. 9 to the List of form letters, and supplies can be obtained from the Superintendent of Government Printing:— Letter of instructions to sergeants proceeding in victualling charge of corps on the march.

(Sd.) L. W. CHRISTOPHER, Lieutenant, for Commissary-General.

No.

Letter of instructions of Sergeant proceeding in victualling charge of on the march from to on the

1. The victualling gomashta with the Gomashta. has been furnished with printed instructions and estimate regarding his duties on the march, and which he has been instructed to produce for your perusal when demanded.

2. You will observe from the letter of instructions what articles of rations and diets are supplied by departmental agency and what by contract. In the case of failure on the part of contractors, you are to be guided by paragraph of the gomashta's instructions, and report the circumstances of the case briefly to the executive commissariat officer at and to the undersigned.

3. The bakery is under charge of the victualling gomashta; and you will be careful to see to the preparation of the bread daily, and that it is issued in a cleanly state, and that the establishment attending the ration-stand appear in clean clothing.

4. You should pay particular attention to the yeast, to ensure its regular and timely exchange, so as to preclude the possibility of the bread suffering in quality. The more kneading the dough gets the better.

5. In the event of rejection of bread on the march, you will be guided by paragraph of the gomashta's instructions regarding a fresh supply, or a substitute of soojee and flour in a kneaded state.

6. Condemned bread should be issued to elephants (should there be any with) in lieu of atta or rice, or to bullocks in lieu of gram. Should there be neither elephants nor bullocks present, it is to be disposed of to the best advantage, and the proceeds sale handed over to the gomashta.

7. The cost of bread sold to soldiers or their families, which is to be recovered by the gomashta at time of sale, is per lb., and for bread sold to individuals per lb.

8. The meat arrangement of the is under charge of Meat. who has also been furnished with instructions regarding his duties on the march, and which he has been instructed to produce for your perusal when necessary.

9. head of cattle and sheep, calculated to last to have been made over to the agent, which you are to inspect before you march for the first encamping-ground. He will obtain further supplies from executive officers en route, if necessary. The scale of fodder for these cattle is for—

Cows	...	...	...	...
Sheep	...	...	...	...

10. The cattle should be driven slowly from stage to stage, and you should be particular in seeing them watered and fed daily, and also to see that the water given them is good and sufficient.

11. You will keep the accounts of the cattle and sheep slaughtered, the rations issued to them, and the outturn of meat, in the forms herewith sent you, viz., Accounts Nos. 29 and 30.

12. These accounts, together with a statement showing the issues to private parties, should be sent by you to the executive commissariat officer at . The price of meat issued to soldiers and their families, which the gomashta should receive at time of issue, is for—

Beef	...	...	...	...	per lb
Mutton	...	...	...	...	per lb
and for sales to individuals—					
Beef	...	...	...	...	per lb
Mutton	...	...	...	...	per lb

13. As the meat will probably keep good for a day, any balance remaining in hand after the day's issue should be issued the next day. Small deficiencies of beef should be made good by killing one or two sheep, if commanding officers do not object.

14. In the event of rejection of meat (which can scarcely occur if the cattle are examined by you daily, and fed in your presence), the gomashta is to pay compensation* at the rate of that being the last rate, plus

per cent. The rejected meat should be sold by auction in the best way possible, and the amount realized handed over to the meat agent. Meat rejected and pronounced unwholesome should be destroyed in the presence of a member of the committee.

15. The following arrangements are made for disposal on the march of hides, skins, &c.—

Cows	{	Hides.	}	Sheep	{	Skins.
		Offals.				Offals.
		Feet.				Surplus mutton.
		Bones.				
		Surplus meat.				

Articles disposed of by contract, if not taken over daily by the contractors, should be put up to auction at each encamping-ground. If the hides do not fetch proper prices, they should be dried, and taken to the next executive *en route*, and made over to the commissariat officer there for disposal.

16. You will be particularly careful to see that the public cattle with the are properly fed and watered, and that their daily rations, as follows, are given them in your presence :—

Elephants	...	...	...	...	...
Bullocks	...	...	...	...	...

The actual description and quantity of fodder given should be entered in the monthly returns.

17. Instruction* for the care and management, &c., of elephants are appended for your guidance.

18. The camels on public command with the should be inspected by

15. In the case of desertion of camels on the march, &c., the commissariat subordinate in charge, under the written order of the commanding officer, is empowered to entertain any carriage available, to avoid any inconvenience to the troops marching; and the cost of the said carriage will be paid by me. you daily on their arrival in camp; and you will see that paragraphs 15 and 23 of the camel chowdry's agreement, marginally extracted, are duly carried out, and also that the

23. This miasidar is invariably to be present at all encamping-grounds on the arrival and departure of the camels, on the pain of forfeiture of the entire pay during the command.

proper number of surwans, *viz.*, one to every three camels, are always present.

19. Carriage for breadstuff and sugar is to be discharged immediately the load is consumed.

20. Government carriage is on no account to be used by contractors for carriage of their supplies on the march.

21. A detail† of carriage and establishments with the is attached, and you will see that all of them are present daily at each encamping ground. Any advances or changes made to or in the establishments are to be duly noted on itlanamahs appertaining to them under your signature.

22. Any carriage, &c., discharged *en route* should be paid up in your presence, and a certificate entered on the itlanamahs thereof, showing amount paid and date of discharge.

23. You will assist the gomashtha in obtaining daily and other indents required by regulations to support his dustee or other accounts of the march; and you will be particular in seeing that the actual quantity of articles purchased daily, the prices paid, and full amount paid, are entered in all neriknamahs, or price current, obtained *en route*.

24. After seeing every morning that the barrack and hospital requirements of the camp have been General. fully supplied, you will proceed, with your establishment, in advance to the next camp, and arrange for all requisite supplies, so that the troops on reaching the next camp next morning may find everything in readiness for them.

25. You are to have a court of enquiry assembled on all loss or damage of Government property exceeding in value Rs. 20; and forward the proceedings, with your own observations, to the executive commissariat officer at destination.

26. You should on all occasions when unauthorized supplies are asked for, or when unauthorized expenditure shall have to be incurred, obtain the orders of the officers concerned in writing.

27. On your arrival at executive stations *en route* you will immediately report yourself to the executive officers, in view to the cattle and stores with the regiment being inspected, and arrangements made for fresh supplies (if necessary) for the onward march.

28. The wood of sugar casks when emptied is to be utilized as firewood for rations or for bakery, and the iron hoops are to be delivered to the commissariat godowns *en route*.

29. It is hoped you will use your best endeavours to give satisfaction to the commanding and medical officers in charge, and that you will pay due attention to the wants of the latter, and also see that the purveyor attends carefully to his duties.

30. All reports connected with the march of the (weekly report included) are to be sent by you to the executive officer at

31. Stationery and postage stamps, as follows, are herewith sent you for use on the march, any balance of which remaining on hand after the march is to be made over to the executive commissariat officer at destination :—

EXECUTIVE COMMISSARIAT OFFICE, }
The _____ 187 . }

Assistant Commissary-General.

* *Vide* pamphlet with Commissary-General's No. 5823, dated 10th October 1877, to three deputies.
† *N. B.*—To be furnished in manuscript by executive commissariat officers.

Regimental establishments and marching allowances, hospital purveyors and marching allowances.

	GOMASHTAS AT			FRONS AT			WEIGHMEN AT			COOLIES AT				CHOWKIDARS AT			EXTRA ESTABLISHMENTS.		Marching allowances.	Total	HOSPITAL PURVEYORS AT		Temporary purveyors.	Marching allowances.	Total	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rest Camps.	Other purposes.			Rs.	Rs.				
	50	40	30	6	5	4	6	5	4	6	5	4	3	6	5	4										
Total numbers ...	56	14	6	5	14	75	7	11	81	1	10	48	5	1	19	25	...	...	(a)	58	32	...	...	(b)	(a) Proposed by Commissary-General's office ... 75,000 (b) Proposed by Commissary-General's Office ... 58,000	
Amount per annum ...	33,600	6,720	2,160	360	840	3,600	504	860	3,888	72	600	2,304	180	72	1,140	1,200	5,178	11,061	2,688	76,827	...	...	6,704	1,612	58,476	

(915)

D

Godown establishment, permanent and temporary.

	GOMASHTAS AT				WRITERS AT				COOPERS AT					Fuchers, at Rs. 6	FRONS AT			WEIGHMEN AT				RUM-MA-SHUBERS AT				COOKIES AT				BHEETIAS AT				SWEEPERS AT				Ch. printer, at 1	CHOWKIDARS AT					Rs. amount to be returned over the wood from the Depot	Total of establishment	Extra and temporary establishment	Grand Total		
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.																
	75	50	40	30	40	30	25	15	16	15	14	12	10		8	6	5	4	3	7	6	5	4	3	2	1	6	5	4	3	2	1	6	5	4	3	2		1										
Total number ...	46	...	8	8	8	1	1	8	8	8	16	41	12	6	16	43	1	1	6	12	29	3	6	48	1	14	40	1	4	17	13	2	7	1	1	1	81	153	98						
Amount per annum ...	3,600	28,800	...	1,800	1,440	1,800	300	168	1,336	1,440	504	2,160	4,920	1,152	384	432	1,140	2,064	96	84	432	720	1,392	288	372	2,880	72	840	1,920	88	288	1,020	624	120	658	120	96	84	2,232	7,080	4,416	1,284	81,372	46,460	1,37,831				

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[Appendix IV,

E

Quartermaster's establishments and marching allowances.

	MOVEABLE COLUMNS.										OTHER QUAR- TERMASTER'S ESTABLISH- MENTS.		OTHER CHARGES ESTIMATED UNDER QUAR- MASTER'S ESTABLISHMENT.										Total.		
	Locarys.			Bhisties.			Buldars.			Sweepers.	Marching batta.	Total.	For detachments.	For rest camp.	Puckall mules.		Cost of packall and terpadullis for mules.	Cost of regimental & all bullocks.	Feed, attendants, and gear of bullocks for water-carts.	Hire of bullocks for water carts.	Peeps, wallahs or bhisties.	Boats.			
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.						Rs.	Rs.								Rs.	Rs.
Total numbers ..	9	184	48	128	66	11	81	10
Amount per annum ..	648	1,104	3,180	7,600	3,168	660	3,888	420	1,141	30,688	5,817	8,023	30,614	70,086	8,917	560	...	...	1,320	798	168	1,56,048	

F

Doolie-bearers and marching allowances.

	MOVEABLE COLUMN AND GULLA AT PESHAWAR.										Marching batta.	Total.	Hired doolie-bearers, for troops marching.	Hired doolie-bearers paid by the Commissariat.	Grand Total.
	Sirdars.			Mates.			Bearers.								
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.						
Total numbers ...	9	7	6	44	50	56	1,169	1,608	1,635	...	...	...	...	...
Amount per annum	864	588	432	3,696	3,600	3,360	84,168	96,180	78,480	7,822	2,79,180	14,322	2,634	2,96,146	

G

No. 2395, dated Fort William, 23rd March 1878.

From—MAJOR J. BARNARD SMITH, for Commissary-General,

To—The Deputies Commissary-General, Lower, Central, and Upper Circles.

I have the honor to forward ten copies of a compilation of rules relating to the Native agents of the commissariat department, and request you will, in communication with executive officers in your circle, call for suggestions of such additions or amendments to the rules as are borne out by orders or other matter that may add to their completeness.

2. The additions and amendments may be made on the copy of the rules sent to each executive commissariat officer, for which purpose they have been printed on half margin; and on return by each executive commissariat officer of the copy sent to him, you will please forward to this office a copy of the rules amended or added to by yourself with reference to the suggestions you may receive.

Rules relating to the Native Agents of the Commissariat Department.

Classes.— 1. There are to be three classes of gomastahs, consisting of 1st, 2nd, and 3rd class, besides the special class of depôt godown gomastah and field purchasing agent.

2. Security to be for 1st class and the special class of depôt godown gomastahs Rs. 1,500, 2nd class Rs. 1,200, and 3rd class Rs. 800, to be in cash or Government promissory notes.

3. Salaries to be for depôt godown gomastahs Rs. 75, for 1st class gomastahs Rs. 50, 2nd class Rs. 40, and 3rd class Rs. 30 per month, with batta at 50 per cent. of salary when proceeding on command (with troops, cattle, stores, &c.) except when the whole journey is by rail.

4. Cattle gomastahs of 1st class stations and all station and godown gomastahs, also victualling gomastahs, of convalescent depôts, regiments, or wings of cavalry or infantry, irrespective of number of men present, or of two or more batteries of artillery, or of parties of European troops of 400 men and upwards, and all gomastahs of rest camps, and camps of the Viceroy, Lieutenant-Governor, and Commander-in-Chief, and command gomastahs with parties of European troops of whatever strength, to be of the 1st class.

5. The 2nd class to consist of cattle gomastahs of 2nd class stations and heavy batteries of artillery, victualling gomastahs of a single battery, whether horse, field or garrison, or a detachment of cavalry or infantry of 100 to 399 men; also command gomastahs with 26 or more elephants, or not less than 100 transport animals of any other description.

Second class.

- Third class.
6. The 3rd class to consist of all other command, cattle, &c., gomastahs, and victualling gomastahs of troops of less strength than 100 Europeans.
7. Cattle or station gomastahs are not required to understand English, but they should be selected more for their influence amongst Natives. These men are generally drawn from the mahajun and Native banker class, and in a time of war are expected to be able to aid materially in the economical collection of supplies.
8. Godown and victualling gomastahs should understand, read, and write English, and be able to keep ledgers and accounts correctly. They are selected from no particular class, but must be respectable men, and men respected by their own countrymen.
9. Cattle command gomastahs are not required to understand English, but must be able to keep accounts in the vernacular, if not in English, and must render their accounts to the office in English at their own expense.
- Cattle command gomastahs need not know English:
- Purveyors. 10. There are to be two classes of purveyors, consisting of 1st and 2nd class.
- Security. 11. Security deposit for 1st class to be Rs. 1,000, and 2nd class Rs. 750.
12. Salaries to be 1st class Rs. 50, and 2nd class Rs. 40, with house-rent of Rs. 10 for 1st class and Rs. 7 for 2nd class; also batta at 50 per cent. of salary when proceeding on command with troops except for the journey by rail.
13. For divisions of artillery, regiments of cavalry and infantry, and convalescent depôts, wings of regiments and a force of artillery consisting of two or more batteries, 1st class purveyors are allowed. For separate batteries of artillery, and for all detachments of European cavalry and infantry with which hospitals are established under medical officers, 2nd class purveyors.
14. Command purveyors are to receive pay of either 1st or 2nd class, as may be sanctioned.
15. Purveyors must be able to read and write, and render accounts in English.
- Knowledge of English necessary.
16. Station or cattle gomastahs will be appointed by the commissary-general, all others and purveyors by the deputy commissary-general of the circle and executive commissariat officers. Appointments by deputy commissary-general will be reported to commissary-general for confirmation, and appointments by executive commissariat officers will be reported to deputy commissary-general for confirmation, who will report the same to the commissary-general. All agents newly appointed will be on probation for six months, and will be confirmed or not according to the report received of them.
17. As a rule, agents should consider themselves liable to be transferred to another station once in every three years. But it rests with the commissary-general to modify this rule at all times, according to the exigencies of the public service.
- Transfer.
18. Such transfers should, as far as is possible, take place on the 1st of the month, for the simplification of accounts.
19. To enable agents to render their accounts promptly and to wind up their affairs, 15 days as a maximum, besides the distance time between the two stations, will be allowed them on full pay, any temporary vacancy thus created being filled up during the interval by the executive commissariat officer or officers concerned.
20. As gomastahs, especially cattle agents, have frequently to enter into arrangements with traders and agriculturists for their supplies, such notice as may be practicable to enable them to terminate or transfer such agreements will be given them.
- Gomastahs' agreements with traders.
21. Transfers within the circle may be sanctioned by the deputy commissary-general, subject to commissary-general's approval, and transfers from one circle to another will be ordered by the commissary-general.
- Authority to sanction transfers.
22. When transferred on the public service, on emergency, or in ordinary periodical relief, besides the full pay during the authorized period for the relief, the agents will be entitled to free passage by rail, 2nd class for themselves, and 3rd class for one servant; also two maunds of luggage for themselves, and half a maund for the servant, or 4 annas a mile when travelling by road. By river steamer they will receive 2nd class passage and passage for servant.
- Travelling expenses by rail, road, or river steamer.
23. If the transfer takes place on private grounds, or by mutual agreement sanctioned by proper authority, both relieving and relieved agents must make their own arrangements.
- Transfer on private grounds.
24. In all cases of certified illness rendering a transfer necessary, such transfer shall be considered as on public grounds.
- Transfer on account of illness.
25. It is to be understood that, under the exigency of the public service, an agent can be ordered to an inferior class station or charge; but in such case, unless the man is to be punished by reduction to a lower class, he will retain his full class pay and privileges. But such transfers will be avoided as much as possible, to prevent permanent complications.
- Transfer to an inferior class station or charge.
26. All agents must implicitly and promptly obey all orders from competent authority transferring them to other stations, or detaching them on any duty whatsoever under penalty of dismissal and forfeiture of security deposit or other penalties of their agreement.
- Obedience of orders.

27. Leave and terms on which granted will be regulated strictly in accordance with the rules laid down for the uncovenanted branch of the service in Supplement F of the Leave Code as revised from time to time by Government, but under clause b, section I, the State is to be put to no extra expense.

28. Leave to agents can be granted by the deputy commissary-general of the circle (a report of the same being made to the commissary-general), executive commissariat officers exercising the privilege in cases of urgent sickness, but subject to the approval of the deputy commissary-general. Agents overstaying leave will not be reinstated, except under permission of commissary-general.

Pensions and gratuities.

29. Pensions and gratuities are to be regulated according to the rules of the Civil Pension Code, as applicable to uncovenanted servants generally.

30. The securities deposited by agents may be appropriated by Government towards liabilities on the part of the agents, such as for fines, retrenchments, or loss of Government property under their charge, they being responsible that stores, &c., placed under their charge are issued and used for legitimate purposes, and that no one misappropriates them for private use or causes them wilful damage or destruction. All cases of dispute can be referred to the commissary-general, whose decision is to be held as final, barring appeal to courts of law.

31. Fines may be levied by executive commissariat officers for delay in rendering accounts, or for acts of carelessness or omission, the agent having the right of appeal to the commissary-general, whose decision is to be held final, barring any appeal to courts of law.

Fines.

32. Accounts are to be rendered in English in triplicate and in the forms, and with the vouchers prescribed from time to time, within prescribed dates, and at the expense of the agents concerned. All bills above Rs. 20 are to be stamped, and any retrenchments enforced by executive commissariat officers must, if the agent objects to them, be appealed against to the deputy commissary-general within six months, failing which Government will not be liable for the incorrectness of the retrenchments. The amount of retrenchments must be made good before the appeal is made.

Accounts.

Duties.

Of cattle and station agent in one person	...	...	Appendix A
Of depôt, godown and station agents in one person	...	...	B
Of victualling gomastahs	...	...	C
Of command gomastahs	...	...	D
Of hospital purveyors	...	...	E

34. All Government or departmental orders that may be in force when agents join the department, or that may be issued during their incumbency, shall be binding on them, as if signed to in their bond or agreement.

Government and departmental orders.

Dismissal.

35. No agent can be dismissed for misconduct, except subject to approval of the commissary-general, to whom all details should be reported for his orders.

36. Agents may be suspended for any period not exceeding six months, or reduced by the deputy commissary-general of the circle on the representation of the executive commissariat officer, a report of the same being made to the commissary-general.

Suspension and reduction in grade.

Misconduct, fraud, &c.

37. All misconduct amounting to fraud or embezzlement, or attempt at such, wilfully falsifying accounts, and taking bribes or illegal gratifications, if proved to the satisfaction of the commissary-general, shall subject agents to loss of appointment and of security deposit, or other penalties of their agreement.

38. No agent can be permitted to take any contract connected with the department, or purchase Government property at auctions, and if they are owners of a Native bank they must arrange for its conduct, so that they may themselves be free to attend to their commissariat duties unreservedly. Nor can any commissariat agent become a partner in a contract, directly or indirectly, under penalty of instant dismissal and forfeiture of security, or other penalties of agreement.

Contract, or purchase of Government property at auctions.

Dismissal notice.

39. No notice of dismissal will be given, but such early intimation as may be practicable, and agents wishing to resign must not quit their posts until relieved.

Regimental officers not to punish agents.

40. Regimental officers are not at liberty to punish commissariat agents or servants.

Term agent applies to gomastahs and purveyors.

41. The term agents means gomastahs and purveyors.

APPENDIX A.

DUTIES OF CATTLE AND STATION AGENTS (IN ONE PERSON).

1. He will attend the office daily at stated hours, for the receipt of orders, rendering highly reports, and for the general convenience of business.
2. He will have personal charge of the cattle lines, the Government cattle, their rations and gear, and will be held personally responsible for all under his charge.
3. If there be a contractor, he will receive over the rations therefrom, granting receipts and will duly account for the supplies thus received, as if they were Government property.
4. He will see that the Government cattle and gear are not unduly exposed to injury, and are kept in good order. He and the cattle sergeant will mutually aid one another in looking after these details, and in seeing that the attendants and menial servants properly perform their duties, as laid down from time to time by the regulations or by the executive officers, and that they carefully groom their cattle.

5. He is under the direct control of the executive commissariat officer, and should carry out his orders explicitly.
6. In the event of contractors tendering inferior supplies of any kind, it is his duty to at once bring the same to the notice of the cattle sergeant, and, subsequently when office opens, of the executive commissariat officer himself.
7. When there are no contractors, the supplies, as a rule, will be arranged for by the cattle gomastah, and he will be held pecuniarily responsible that they are of prescribed qualities, and of full weight or number, &c., and that only a proper price be paid and charged for them.
8. He should see that proper watch is kept in the cattle lines day and night, and report anything amiss, without delay to the cattle sergeant in the first instance, and subsequently to the executive commissariat officer.
9. He will have the appointment in the first instance of cattle attendants and menial servants, subject to the approval of the executive commissariat officer, and he should be careful to engage and retain such only who are respectable, honest, and suited for their special duties.
10. He will see to the correct and punctual preparation of daily reports and returns and monthly vouchers.
11. He will be responsible for the correctness of the Government scales and weights used under his charge.
12. The cattle attendants should be paid by him in the presence of the cattle sergeant as soon as funds are placed at his disposal for this purpose by the executive commissariat officer, and he should carefully keep up an acquittance roll book, which should be filled-in in the presence of the cattle sergeant at the time of payment.
13. He should attend the cattle lines at least twice a day, *i.e.*, morning and evening, at grooming and feeding time.
14. He should be careful to report at once any appearance of sickness amongst the cattle in the first place to the cattle sergeant, and subsequently to the executive commissariat officer.
15. He should report all casualties at the office the day they occur, and account for the hides of the Government bullocks that may die; also for the ivory of elephants deceased, or when the tusks are trimmed.
16. The cattle gomastah should be careful that the Government bullocks are properly branded, and that the marks or brands are renewed when necessary.
17. He should pay special attention to the elephant fetters, that they are always in good and serviceable order.
18. He should muster daily all Government cattle in their lines or at the station, and report all deficiency or irregularities at once to the cattle sergeant and to the executive commissariat officer.
19. He should arrange for the equitable distribution of duties amongst the cattle and their attendants, and see that the Government bullocks are fairly worked and not overmuch.
20. He is to carefully obey all orders issued from time to time by the assistant commissary-general under whom he may be serving.

L. R. CHRISTOPHER, *Colonel,*
Deputy Commissary-General,
Central Circle.

APPENDIX B.

DUTIES OF DEPOT, GODOWN AND STATION AGENTS (IN ONE PERSON).

1. For station duties, see Appendix A.
2. He is personally and pecuniarily responsible for the safe custody and condition of the Government stores, &c., under his charge.
3. All Government stores, &c., should be kept under double lock, one set of keys being in the custody of the warrant officer, and the other set in his charge.
4. He should inspect the stores and stock daily, aided by his establishment, and see that they are in good order, free from vermin or white-ants, &c., and that the rooms are properly cleaned.
5. He should implicitly obey all orders he may receive from the executive commissariat officer, and all departmental orders or rules and regulations laid down for the proper custody and disposal of the Government property committed to his charge.
6. He is required to keep the godown books in English, and according to prescribed forms punctually. All registers or ledgers should be posted daily, and balance signed to as correct.
7. He will comply with all orders as to the repairs, renewals or replacement of stores or stock under his charge, and also as to the procuring of supplies or stock under written orders; and in all such matters he must use vigilance and practice economy, doing the best he can, and at the smallest expenditure possible.
8. He will duly and punctually render to the executive commissariat office, on the dates fixed, the monthly accounts in English, and will report all receipts and issues to the office immediately they occur, and in the manner prescribed for his godown.
9. He will report any irregularities of whatever kind he may observe, first to the warrant officer in joint charge of the godown, and also to the executive officer.
10. He should solicit that all orders of importance or creative of expense be given him in writing, as without such written order his charges cannot be admitted.
11. He will see that the godown establishment perform their several duties properly, and with integrity, reporting any acts of insubordination or carelessness, &c.
12. He will attend the executive office only when required to do so.
13. He is responsible that none but correct measures, scales and weights are used in the godown.

L. R. CHRISTOPHER, *Captain,*
Deputy Commissary-General,
Central Circle.

APPENDIX C.

DUTIES OF VICTUALLING GOMASTAH.

1. He should attend daily at the ration stand and hospital at prescribed hours, and superintend at the former the weighing and distribution of the daily rations. At the hospitals such daily rations, &c., should be made over to the purveyor, and his receipt taken on delivery.
2. He will be responsible for the Government and contractor's stores made over to him, and daily account for the same in a daily register, and at the end of the month, in English, in the forms prescribed for his accounts, which should be given in on prescribed dates.
3. He should see that the dry store-room is kept clean and in good order, and carefully ventilated every morning.
4. He should cause all groceries to be weighed out at time of issue by fixed scales, and is responsible for the correctness of the weights and scales.
5. The victualling gomastah as well as the victualling sergeant should both be present at the opening and shutting of the dry store-rooms and during the whole of the interval that they are open. One key should be kept by the victualling gomastah in his own custody, and the other by the regimental authorities. All doors that are not barred from inside should be furnished with two good English locks.
6. The victualling gomastah should be careful not to expose tea in bags, but should keep it, and the other stores in proper cases or receptacles prepared for the purpose, and all stores taken to the ration stand, &c., should be so in small boxes or canisters suitable for the purpose, and not in bags.
7. He should see that a sufficiency of pure clean sand is ready for the filters when required.
8. He should bring to notice any irregularity he may observe, reporting it both to the victualling sergeant and to the executive commissariat officer.
9. He should be careful to obtain daily indents and receipts for the rations required and actually issued, daily and punctually.
10. He should require all orders creative of expense to be given to him in writing.
11. As he is held responsible for the due accounting of the stores in his charge, his peon and weighmen and establishment generally should be appointed by himself, but he must be careful to keep up the number he charges for.
12. He will attend office when required by the executive commissariat officer, and if necessary assist as a clerk in the office.
13. On a regiment proceeding to Europe or to another presidency, &c., the gomastah and his establishment will be transferred to the relieving regiment, being granted free rail passes or the usual travelling allowances to enable them to join their new corps. They will receive full pay during the interval, as in the case of other regimental establishments, quartermaster's, &c.
14. Artillery gomastahs will belong permanently to their stations, and if required to move with batteries will return to their permanent station on the expiration of the command at Government expense. They will, however, be liable to be transferred to other stations.
15. The victualling gomastah should obey all orders received from the executive commissariat officer, and comply with all rules and regulations laid down for his guidance or for the conduct of his duties.
16. Nothing should be supplied without an indent properly authorized; and no irregular expenditure should be incurred without due authority in writing.
17. Where the victualling gomastah may be required to recover and receive over money, he should do so promptly, and afterwards punctually pay the same into office or the treasury, according to his standing orders; any misappropriation will lead to his instant dismissal.
18. Before leaving his station for the march, he should apply for written instructions from the executive commissariat officer for his daily guidance.
19. When on the march, he should obtain regimental orders, subject to confirmation for all expenditure required to be so supported.
20. He will be careful to obtain prices-current daily whenever any purchases are made by him *en route*, and he should see that the articles purchased, their quantities, cost, rate and amount be all carefully entered in the nerricknamahs by the civil officer on the spot, and at the end of the march (command) or month, if the march is protracted, he will submit his accounts in English as prescribed both as to date and forms, duly supported by these and all necessary vouchers.

L. R. CHRISTOPHER, *Colonel,*
Deputy Commissary-General,
Central Circle.

APPENDIX D.

DUTIES OF COMMAND GOMASTAH.

See Appendices A, B and C for the particular duties which affect them, whether as in charge of cattle or stores or as victualling agents. Command gomastahs should be furnished with written or printed orders for their daily guidance on all points affecting their charge on duty.

L. R. CHRISTOPHER, *Colonel,*
Deputy Commissary-General,
Central Circle.

APPENDIX E.

DUTIES OF PURVEYORS (HOSPITAL).

See the rules (*vide* Circular No. 68 of 1877) for the guidance of purveyors which appear to meet their case.

L. R. CHRISTOPHER, *Colonel,*
Deputy Commissary-General,
Central Circle.

H

RULES FOR GUIDANCE OF PURVEYORS.

- I.—Classification. 1. There are to be two classes of purveyors consisting of 1st and 2nd class.
- II.—Qualification. 2. They must be able to read, write, and render accounts in English.
- III.—Security. 3. Security to be for 1st class Rs. 1,000, and 2nd class Rs. 750.
4. These men will be under the control of executive commissariat officers, by whom they are to be appointed, subject to approval of deputy commissary-general of the circle.
- IV.—Appointment.
- V.—Establishment and appointment. 5. They are to be apportioned, as far as practicable, as follows:—
- 1st class purveyors.—To divisions and brigades of artillery, regiments of cavalry and infantry, large convalescent depots, wings of regiments, and a force of artillery consisting of two batteries.
- 2nd class purveyors.—To separate batteries of artillery, and for all detachments of European cavalry and infantry with which hospitals are established under medical officers.
- A reserve of 15 per cent. to be kept on actual number of posts of purveyors for miscellaneous duties.
6. Their establishment will be as follows:—

	Regiment of infantry.	Regiment of cavalry.	Brigade of royal artillery, or royal horse artillery.	Battery of royal artillery, or royal horse artillery.
Purveyors' servants...	2	2	2	1
Clothier ...	1	1	1	1 } In one.
Tailor ...	2	1	1	1 } In one.
Washermen ...	1 head and 4 ordinary.	1 head and 2 ordinary.	1 head and 3 ordinary.	1 head and 1 ordinary.
And in proportion for parties for smaller strength and for sanitarium, as may be sanctioned by the Deputy Inspector-General of Hospitals.				
Peon ...	1	1	1	1

7. The pay of clothiers, tailors and washermen, who are 2nd class hospital servants, will be fixed by the commissariat department according to circumstances of situation. Controller of Military Accounts' No. 939, dated 26th April 1873, and Medical Code of 1851, Chapter 8. The pay of the purveyors' servants to be Rs. 6, and of the peons Rs. 5, per month.

8. In cases of detachments from European corps with which the full establishments as prescribed by the commissariat department are maintained, proportions of purveyors' establishment are, as far as numbers and description of each class permit, to be furnished from the permanent hospital establishments of corps respectively. Where, however, the requirements of detachments from the same corps exceed the establishments available, application may be made by the medical officer to the deputy inspector-general of hospitals of the circle for such extra establishment as may be shown to be absolutely necessary.

9. Purveyors' establishments will not accompany troops by rail, if they are not to be attached to the troops after arrival at destination, but, with the approval of the medical officer, be discharged; but if the medical officers order the establishments to accompany troops, the purveyor, in such case, should obtain the medical officer's written orders; and if the journey by rail does not terminate at destination, but is followed by route march, the purveyors' establishments will accompany the troops to destination.

10. When troops quitting a station are relieved by troops to which no purveyor's establishment is attached, the establishment of the departing corps, if not required to accompany it, may be retained to do duty with the relieving corps.

11. The permanent purveyors and the establishments of regiments leaving the presidency or going home will be kept on pay until appointed to another regiment, in the same manner as quartermasters and other regimental establishments are, under the provisions of G. O. C. C. No. 155, dated 25th June 1870.

12. Salaries to be 1st class Rs. 50, and 2nd class Rs. 40, with half salary in addition as batta when on the march.

VI.—Pay.

13. When proceeding from one locality to another on duty, other than with regiments (in which case batta is allowed), purveyors' travelling expenses will be governed by the rules that apply to gomastahs.
- VII.—Travelling allowances.
14. The purveyor will be allowed a pal for his own use on the march with a corps.
15. Purveyors will not be required to live in the quarters provided in the hospital compound, but may sleep at their own homes, and occupy the quarters provided for them during the day. To meet the extra expense thus thrown on purveyors, compensation in lieu of quarters, at the rate of Rs. 10 per month for 1st class, and Rs. 7 per month for 2nd class, purveyors, will be drawn.
- VIII.—Quarters.
- M. D. No. 946, dated 31st August 1872, and Commissary-General's Circular No. 63 of 1873.
16. Purveying duties of hospitals are to be performed by the commissariat department through the agency of purveyors, who are to hold the same position to medical officers as victualling, gomastahs to commanding officers of regiments.
- IX.—Duties of purveyors.
17. The purveying duties with detachments, where there is no hospital under a medical officer, are to be performed by the gomastah.
18. Purveyors will attend at the hospital at such hour as may be fixed by medical officers to receive their instructions.
19. A verbal daily report will be made by the purveyor to the commissariat officer, but it should be in writing when there are any complaints to be made to prevent misunderstanding.
20. Though purveyors are entertained and paid by executive commissariat officers, they must attend implicitly to the orders of the medical officer, who, however, has not the power to remove a purveyor. This will be done by the executive commissariat officer on a proper representation by the medical officer through the deputy inspector-general of the division, a report of the circumstances being made at the same time to the deputy commissary-general of the circle.
21. Orders in matters of ordinary daily routine may be given verbally by medical officers and complied with; but in matters not of this character, or which are creative of expense, orders should be given in writing previous to compliance; and as regards orders, &c., which the purveyor considers contrary to regulations, he should point the same out to the medical officer, as laid down at rule 23, with a view to the order being referred to the commissariat officer, who may direct compliance if the case be emergent, on the responsibility of the officer giving it. Purveyors have the right to require that any particular orders should be given in writing previous to compliance. In cases of real emergency, such as may occur in cholera seasons, the purveyor must comply at once, without referring to his superior, with the written order of the medical officer, and on that functionary's responsibility.
22. Purveyors will see that the diets and extras ordered by medical officers are provided.
23. Whenever any article of diet is ordered which may appear to the purveyor unauthorized by regulations, it will be his duty to point it out to the medical officer, who will then be responsible for the issue of the doubtful supply. Omission on the part of the purveyor to do so will not, however, relieve the medical officer of responsibility.
24. Purveyors are directly responsible to commissariat officers for all articles in store, but they have no further concern with articles once issued to medical officers, unless they are returned.
25. Any discrepancies between issue and return to purveyors by medical officers to be at once represented by the purveyor to the medical officer.
26. Purveyors will also see to the tinning of cooking utensils, &c., as required by the medical officer, who will take steps to satisfy himself that the work is properly done; the contractor for tinning utensils for barracks being employed. As to the tinning certificate, see-paragraph 53.
27. Purveyors will accompany corps on the march, performing the same duties as in cantonments.
28. Purveyors are in no way concerned with the following general duties of hospitals:—
- (1) Seeing to the cleanliness and order of hospital buildings, and bringing to notice repairs needed.
 - (2) Seeing to the cleanliness of privies and urinals.
 - (3) That dhuna is properly applied to the pans; that the stool pans are emptied as required, and disinfected when directed.
 - (4) Seeing to the cleanliness of kitchens, cutting up of rations, and distribution of diets duties.
 - (5) Charges of renewal or repairs of furniture.
 - (6) Arrangements of bed-head tickets, cots, chairs, table, close-stools, &c.
 - (7) Lighting of hospitals.
29. Purveyors will have charge of oil for hospitals, and see to its prescribed issue, that is, the purveyors will measure over the prescribed quantities in bulk to the hospital sergeant and oil coolies, when his responsibility will cease.
30. Rule 57 states that purveyors will not prepare diet rolls; similarly purveyors will not prepare requisitions which subsequently become the vouchers for the issue. Survey or committee reports on purveyors' stores will be prepared by the purveyor, but he will not prepare other hospital papers unconnected with his duties; for instance, pay abstracts and muster rolls of hospital establishments. Purveyors will on a march prepare indents for carriage for stores under their custody, but not indents for carriage for sick, or for camp equipage of hospitals, which will be prepared, as heretofore, by medical officers.
31. In the interests of the sick, medical officers will occasionally inspect purveyors' godowns and see that stock is kept up to scale and in issuable order, reporting through deputy inspector-general when necessary.
- X.—Duties of medical officers.
32. Articles of clothing and bedding, hospital, miscellaneous articles, cooking utensils and diet, and table requisites, as per scale authorized, are to be kept in charge of the purveyor, and given out as required by medical officers. The authorized scales of the above articles are to be strictly adhered to by the commissariat officer; but in the event of an excess being required, the commissariat officer will supply them on the authority of the deputy inspector-general of hospitals.
- XI.—Stores.
1. Supply.
- G. G. O. No. 303 of 1872.

When the necessity for the excess supply has ceased, the articles will be returned to the commissariat godown, and be borne on executive commissariat officer's reserve stock return.

33. They will receive for the march a supply of bedding and clothing and miscellaneous articles as per scale laid down for the march in G. G. O. No. 303 of 1872. If on the march any articles of hospital supplies, such as limes and poultice materials, &c., which would need to be fresh, are required, the purveyor will purchase them and hand them over to the apothecary.

34. Purveyors will receive for the march an advance of cash and consumable stores as necessary.

35. Purveyors accompanying troops by rail will be supplied with the hospital equipment authorized for troops proceeding by rail, with exception of the tin of medicines and pocket case, which will be the concern of the medical officer. The rail equipment of troops proceeding home *via* Bombay should be made over to the deputy officer at Deolali or to the executive commissariat officer at Bombay, and his receipt should be forwarded by the executive commissariat officer as his voucher for the issue.

36. An almirah will be allotted in the hospital for the custody of small reserves of the several stores likely to be called for on emergency during the absence of the purveyor; the almirah will be secured by two padlocks, one key being kept by the hospital sergeant, and the other by the purveyor or one of his establishment.

37. In this almirah a sufficient supply of stores will be kept to meet night demands, and in the absence of the purveyor at night or other time one of his establishment will be entrusted with the key, and will be accountable to the purveyor for all issues.

38. Articles of clothing and bedding, hospital miscellaneous articles, cooking utensils, and diet and table requisites as per scale authorized, are to be kept in charge of the purveyor.

39. The authorized stock of the above articles, as well as a sufficient stock of liquors and articles of consumption, will be supplied to the purveyor by the commissariat officer, and will be kept in the purveyor's store-room.

40. Hospital clothing, bedding, and other hospital equipments no longer wanted by troops, will, under the purveyor's system, be received into store by the commissariat: on a corps leaving a station either for Europe or in course of relief, a committee of medical officers, or, if not practicable, a mixed committee, will report on clothing and bedding and other equipments left behind; serviceable articles, as they are or after repair, will be taken over by commissariat for re-issue, and condemned articles disposed of.

41. One shuldari with closed ends will be allowed for the purveyor's stores on the march, instead of the stores being kept in the new pattern private's tent hitherto allowed for both purveyor's and apothecary's stores.

42. The executive commissariat officer will half-yearly inspect the stock of clothing and other articles in charge of the purveyor, and any articles considered unserviceable will be submitted to a board of survey composed of medical officers; if possible, one medical officer must be present under any circumstances. But if during the interval medical officers observe that articles issued for use are becoming unserviceable, they should report the fact to the commissariat officer through the Deputy Inspector-General of Hospitals, with a view to an intermediate supply.

43. New supplies must be surveyed at the commissariat godown before being made over to the purveyor. The medical officer of the regiment to which the purveyor belongs, if available, should be a member of the committee that surveys the supplies, and the purveyor should also be in attendance on the committee. The supplies should then, in the presence of the committee, be stamped "Indian Government," with date of issue.

44. Dieting articles and liquors considered unfit for issue should be submitted to a committee under the rules to be found at page 155 of commissariat manual; but if the articles are not of a greater aggregate value than Rs. 20, they may be disposed of by the executive commissariat officer, without survey by a committee, as directed by G. G. O. No. 966, dated 29th September 1854, in the case of loss, injury, or destruction of Government property. When articles aggregating Rs. 20 in value are disposed of, a detailed statement showing cause of unfitness will be the voucher for striking off the articles.

45. Commissariat officers will arrange to have stock taken monthly by one of their European subordinates, of articles in charge of purveyors.

46. Repairs to hospital clothing and bedding, and hospital miscellaneous articles, cooking utensils, diet and table requisites, will be made by the purveyor, under the supervision of the commissariat department. Charges for repairs to the above articles if less than

● Presidency.	Gwallor.	Allahabad.	repairs to the above articles if less than Rs. 50 in a month in a first* class executive, and Rs. 25 in a month in a second† class executive, will be passed on the counter-signature of the bill by the executive commissariat officer; but if the charge is more, the work must be submitted to a committee, and the charge supported by committee report.
Peshawar.	Lahore.	Rawal Pindi.	
Lucknow.	Meerut.	Bareilly.	
	Kussowlie.		
† Cawnpore.	Sealkote.	Dinapore.	
Saugor.	Agra.	Mooltan.	
Benares.	Ferozpora.	Darjeeling.	
Umballa.	Jullundur.		

Controller of Military Accounts' No. 4209, dated 6th September 1872, to Commissary-General.

47. Purveyors will draw their supplies from contractors or departmental agents according to instructions of commissariat officer, but any very minor articles required for immediate issue, or petty repairs, may, under special sanction of the commissariat officer, be purchased or arranged for by the purveyor. The commissariat officer will be held responsible that there is no enlargement on the permission given for minor purchases or petty repairs being arranged for by the purveyors.

XII.—Diets and extras.

1.—Supply.

M. D. No. 298, dated 7th January 1873.

N. B.—Supplies for outposts may be surveyed at head-quarters of divisions.

48. Articles provided by contractors are to be supplied in presence of purveyors.
49. After approval of the supplies by the medical officer, they should be made over by purveyor to some hospital subordinate to be nominated by the medical officer, who will see to their preparation and issue.
50. Articles of diet and extras are to be supplied by the purveyor on a memorandum with which he will be furnished every morning, signed by the medical officer, specifying the number of sick and the different kinds of diet and extras to be provided.
51. Issues to patients after the morning visit of the medical officer will be shown in the diet roll kept in hospital in the roll sent into the commissariat through purveyors daily, and in the monthly diet roll.
52. Purveyors will be responsible for the quality of articles provided by themselves, but as regards articles supplied by a contractor, or by departmental agents, the commissariat officer will be responsible, and the purveyor will at once draw the attention of the latter to any failure in quantity or quality.
53. Bazaar medicines and hospital necessaries, as per latest sanctioned scale, will be supplied on monthly requisition from medical officers.
- XIII.—Bazaar medicine.
- As a temporary measure, and until the general question of medical commissariat forms is settled by Government, this requisition will be according to Form C attached, which includes a tinning certificate, empty bottle return, and certificate of leeches, and plantain leaves supplied. The month's requirements (except such articles as require to be freshly supplied) will be made over in one instalment to the medical officer, who will place the supply in charge of the apothecary for issue as required.
54. Until the subject of medical commissariat forms is settled, stationery will be indented for monthly, as at present, and received by the medical officer direct from the commissariat officer without the intervention of the purveyor.
- XIV.—Stationery.
55. Before passing the accounts, the commissariat officer will check the entries with the monthly diet roll, which must be made up by the medical officer as hitherto in duplicate, and forwarded to the deputy inspector-general, who will transmit the duplicate to the executive commissariat officer, and the original to the examiner of commissariat accounts. An amended form of diet roll is under consideration, and will be issued at as early a date as practicable.
56. The diet roll sent in daily to the commissariat in accordance with paragraph 7 of G. G. O. No. 772 of 1862 will not be prepared by the purveyor, but by the medical officer or his subordinates, and is to be free from erasures or alterations of any kind. It will be signed every morning by the medical officer in charge and handed to the purveyor, whose voucher it will be in support of his monthly accounts. All blank spaces and columns should have lines drawn across them.
- An amended form of this daily requisition for diet and extras is under consideration, and will be issued at as early a date as practicable.
57. When purveyors' establishments are ordered to accompany troops by rail, the written order of the medical officer must be attached to the pay bill as authority for the charges.
- XVI.—Accounts and vouchers.
58. A daily and bi-monthly balance book of clothing and bedding, hospital miscellaneous articles, cooking utensils, and diet and table requisites, will be kept by purveyor according to Forms A and B* attached, in which all issues to hospitals will be initialled by the medical officer.
59. The account of bedding and clothing and miscellaneous articles supplied for use on the march will also be as per Forms A and B, but curtailed to suit the smaller number of articles.
60. Purveyors will render their accounts to commissariat officers, *viz.*, cash account or dustee as per Form D, account of clothing, bedding and miscellaneous articles, cooking utensils, diet and table requisites as per Forms A and B [the original account (A and B) kept by purveyor will be sent into the commissariat office, and not a copy], and account of liquors and consumable articles as per Form E.
61. These accounts are to be rendered by purveyors monthly not later than 5th of each month, and are to be balanced and closed every month, so that any loss or overcharge may be at once recovered; supplies received by purveyor must be simultaneously credited in his accounts.
62. The vouchers required in connection with purveyors' accounts rendered by executive commissariat officers will be survey report on old and new clothing, &c., with bill for supply, strength of regiment, and average number of sick to be noted in survey report, and a column added for quantity in hand. Survey reports should also show the date each article was originally brought into use, and the committee must state whether the articles condemned appear to have become unserviceable from wear and tear. For fresh or emergent supplies, medical officer's indent, countersigned by Deputy Inspector-General and received by purveyors, will be required. Pay of purveyors and their establishment to be supported by abstract drawn by purveyor, and certified to by medical officer that the men were effective during the whole month. The vouchers for repairs to hospital clothing and bedding and hospital miscellaneous articles, cooking utensils, diet and table requisites, will be indent of the medical officer specifying nature of repairs required, and bill of agent or supplier, countersigned by the commissariat officer, or committee report, under the circumstances explained in rule 46.
63. From purveyor's hospital equipment account, Forms A and B, commissariat officer will compile in abstract receipts and issues and embody the transactions under separate and distinct heads in separate return to be rendered to the examiner as per Form F.* The articles are to be arranged alphabetically, and when the form is printed, blanks will be left after each initial letter to admit of the entry of any additional items.
64. The purveyor's account of liquors and consumable articles, as per Form E,* will be embodied in the commissariat officer's monthly store return, and not submitted to the examiner in a separate account.

* Not printed in appendix.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

(a) *Vide** statement A annexed.

(b) *Vide* statement B annexed.

To give a detailed account of all the daily duties performed by every individual in the commissariat department would take up too much time and space. And it is doubtful whether their multifarious duties could be detailed with perfect accuracy.

(c) *Vide** statement C annexed.

A

Statement of Cost of Personnel of the Commissariat Department in the Madras Presidency as taken from the Budget for 1879-80.

	Rs.	A.	P.
<i>Executive Establishment—</i>			
Officers	3,21,079	10	0
Warrant and non-commissioned officers	73,095	6	0
Office establishment	87,985	8	0
<i>Subordinate Establishment.</i>			
Regimental establishment, marching allowances and contingencies	5,925	0	0
Hospital purveyors	18,660	0	0
Godown establishment	82,109	0	0
Cattle establishment	2,11,961	4	4
Doolie-bearers	1,31,498	14	0
Total	8,82,314	10	4

COMMISSARY-GENERAL'S OFFICE, }
Madras, 27th August 1879. }

R. A. MOORE, Colonel,
Acting Commissary-General.

Madras Presidency, under the several heads Account, Supply and Transport.

SUPPLY.																REMARKS.										
EMPLOYMENT.		WARRANT AND NON-COMMISSIONED OFFICERS.				CLERKS.				GODOWN ESTABLISHMENT.																
Head Peon.	Peon.	Shroff.	Gollah.	Sweepers.	Tolies.	Deputy Commissary.	Asst. Commissary.	Dy. Asst. Commis- sary.	Conductors.	Sub-Conductors.	Regiments.	1st Class.	2nd Class.	3rd Class.	4th Class.	Stock-keepers at Railway Stations.	Copy Writers.	Coiler.	Cooper Ministry.	Coopers.	Faithers.	Peakers.	Measuring & weigh- ing-men.	Shikarhi.	Hammurman.	
1	6	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	35	1	2	2	1	1	1	2	7	11	88	3	31	3	1	48	1	23	1	2	23	1	1	1	1	

TRANSPORT.																REMARKS.										
PUBLIC CATTLE PURVAKORA.				ESPANISHERRY, SLEEMAN.				PUBLIC CATTLE ESTABLISHMENT.				PUBLIC CATTLE ESTABLISHMENT.														
1st Class.	2nd Class.	3rd Class.	4th Class.	Darogah.	Founders.	Mahind.	Cowardies.	Subbahars.	Dubashes.	Surwans.	Camels.	Mules.				Bullocks.				Permanently hired bullocks.						
												Head	Second	Muscadum.	Drivers.	Chucker.	Mules.	Darogah.	Chowdris.	Duffdars.	Drivers.	Artillery Bullocks.	Bullocks.	Deer vans.		
1	2	1	1	1	1	8	10	8	4	55	109	1	4	50	1	100	3	8	9	109	101	47	...	26	To be hired as required.	
1	1	1	1	1	1	5	5	5	6	73	146	1	4	50	1	100	1	1	3	46	68	32	...	74	To be hired as required.	
1	1	1	1	1	1	12	12	12	7	92	185	1	4	50	1	100	1	2	6	81	139	43	...	35	To be hired as required.	
1	1	1	1	1	1	8	27	22	27	8	98	196	1	4	50	1	100	1	4	9	111	131	53	...	307	To be hired as required.
2	4	6	3	1	13	220	207	239	25	863	715	5	20	250	5	500	5	14	48	702	522	376	2	673		

* 1 Supernumerary Dy. Asst. Comy. } will be absorbed by the death of Capt. Magrath, Dy. Comy. † Inclusive of 1 extra cooper.
 † 1 Conductor less.

R. A. MOORE, Colonel,
 Acting Commissary-General.
 a 30

C

Statement of the average Number of Europeans fed at each Station in the Madras Presidency from April 1877 to March 1878.

	Average number of men per day.
Bangalore	1,600 $\frac{1}{2}$
Bellary	715 $\frac{3}{4}$
Calicut	94 $\frac{1}{2}$
Cannanore	595 $\frac{1}{2}$
Kamptee	811 $\frac{1}{2}$
Madras	680 $\frac{1}{2}$
Maliapoorum	90 $\frac{3}{4}$
Palaveram	126 $\frac{1}{2}$
Poonamallee	120 $\frac{3}{4}$
Rangoon	754 $\frac{3}{4}$
Ramandroog	46 $\frac{1}{2}$
St. Thomas' Mount	320 $\frac{3}{4}$
Secunderabad	2,254 $\frac{1}{2}$
Seetabuldee	48 $\frac{1}{2}$
Thayetmyo	564 $\frac{3}{4}$
Tonghoo	401 $\frac{1}{2}$
Trichinopoly	263 $\frac{1}{2}$
Vizagapatam	25 $\frac{1}{2}$
Wellington	891 $\frac{1}{2}$

COMMISSARY GENERAL'S OFFICE,
Madras, 27th August 1879.

R. A. MOORE, Colonel,
Acting Commissary-General.

Lieutenant-Colonel W. M. Wilmoughly, Acting Commissary-General, Bombay.

The present monthly cost is as under, as per budget :—

Stations.	Monthly cost.
	Rs. A. P.
Bombay	6,107 0 0
Bombay Executive	8,823 0 0
Poona	6,223 0 0
Ahmednagar	755 0 0
Mhow	5,575 0 0
Nusseerabad	2,035 0 0
Neemuch	2,475 0 0
Kurrachee	4,337 0 0
Hydrabad	1,558 0 0
Aden	3,532 0 0
Deesa	2,316 0 0
Belgaum	2,843 0 0
Admedabad	1,612 0 0
Baroda	271 0 0
<i>Subordinate Establishment.</i>	
Declali, Subordinate to Bombay	301 0 0
Kirkee " to Poona	189 0 0
Sattara " "	1,090 0 0
Purandhar " "	114 0 0
Malligaum " "	374 0 0
Sholapoor " "	332 0 0
Indore " to Mhow	87 0 0
Asseerghur " "	271 0 0
Rutlam " "	49 0 0
Tarragurb " to Nusseerabad	76 0 0
Chakkur " to Kurrachee	1,198 0 0
Perim " to Aden	84 0 0
Abu " to Deesa	343 0 0
Rajkote " "	479 0 0
Vingorla " to Belgaum	83 0 0
Wudwan " to Ahmedabad	86 0 0

Note.—The grand total of the establishments shown under heads Account, Supply, and Transport will not agree with that of the personnel shown above, as the former includes the cost of the bakery, slaughtery and garden establishments, as also of the purveyor's servants, and which is not provided for in the budget under the head "Personnel."

The details required are given in the three statements attached marked *d*, *e* and *f*.* As requested, the establishments have been divided into the three heads of supply, transport and account, but that is not the way they are usually shown and provided for in the budget.

All the clerks in each of the offices have been shown under the head "Accounts." Supply includes the warrant and non-commissioned ranks (with three exceptions) and all inspectors, purveyors and stores subordinates, whilst transport covers the warrant and non-commissioned officers, inspectors and others employed to supervise field column and commissariat carriage in landing and shipping duties, and in receiving and forwarding stores at railway stations.

* These statements which are very voluminous are not reprinted.

The detail of duty performed by each officer and subordinate has been entered as briefly as possible; but if further particulars are required, they can be supplied at greater length. For the daily duty of an executive commissariat officer, extract para. 28 of the Administration Report for the year 1877-78, commissariat department, Bombay, is given below for the information of the committee :—

"Let us take the ordinary routine life of a commissariat officer, and see how far we can still burden him with work. He rises at 5 A.M. every week day, and up to 9 A.M. he is engaged in visiting his several charges; the inspection of the field column carriage, commissariat draught cattle, wagons, and carts, cattle equipments, forage and grain, and state of the lines generally, the infirmary and the duties of a veterinary surgeon keeping up a medical history of all cases under treatment, the bakery, the slaughter and slaughter cattle, the godowns and the inspection of rations at ration stands,—all cannot be done one morning, and his evenings are also for the most part devoted to such duties, more especially during the periods of the half-yearly inspections and survey of stores and stock.

"At ten he has to be in office and he remains there steadily (and such is the practice at every office in the Bombay presidency) up to 5-30 and 6 P.M., and often much labor, Sundays not always excepted. The office is always a "source of anxious care; its heavy monetary transactions and responsibility, its contract business, its transport duties, its hospital supplies and equipment inspections, its store surveys; its supplies to numerous other departments, its several subordinate charges at out stations, and the executive work proper of the department,—all rest on the shoulders of one man. How is it possible for any one individual to do justice to such multifarious occupations and calls upon his time."

The required information as to the numbers fed at each station is given in the form of a tabular statement (attached), which shows the total number and daily average number of rations and diets issued at each executive and subordinate station and sanitarium in the Bombay presidency during the official year 1878-79. At stations like Deolali rest camp, for instance, the daily average is somewhat misleading, as it is calculated for three hundred and sixty-five days, whereas the bulk of the issues is made in the 5-6 months of the trooping season.

At Poona the garrison was short of its complement for several months, and this was also the case at Kirkee and Ahmednagar.

The number of Europeans fed at any particular station does not accurately gauge the work done by the commissariat department, because the work depends more on the number of separate corps, or arms of the service at a station, than on the actual number of troops rationed; moreover, the supply of rations and diets to troops and hospitals does not constitute the whole duty of the commissariat department in the Bombay presidency.

STATIONS.	PROVISIONS.		DIETS.	
	Number of rations during 1878-79.	Average daily number of rations during 1878-79.	Number of diets during 1878-79.	Averaged daily number of diets during 1878-79.
Bombay	201,318½	552	19,806	54
Deolali	51,624½	141	6,241	17
Poona	405,071	1,110	34,795	95
Kirkee	125,213	343	11,913	53
Purandhar	30,670	84	2,423	7
Sattara	53,633	147	6,028	16
Ahmednagar	82,579	226	9,321	27
Belgaum	267,098	732	27,287	75
Ahmedabad	64,310	176	6,579	18
Baroda	59,924	164	7,286	20
Deesa	223,941½	613	14,890	41
Abu	31,714	87	1,066	3
Mhow	441,559½	1,210	47,355	130
Indore	20,227	55	1,404	4
Asirgarh	14,551	40	1,637	4
Nusseerabad	212,087½	581	19,579	53
Tarragarh	6,214	17	1,753	5
Neenuch	146,749½	402	18,222	50
Kurrachee	261,751	717	22,585	62
Hyderabad	132,252½	362	10,245	28
Aden	294,294½	806	13,843	38

Colonel M. J. Brander, Officiating Deputy Commissary-General, Upper Circle.

(a) As regards this information, the most accurate particulars can be obtained from the examiner of commissariat accounts, and I telegraphed to the Secretary of the Commission to obtain it from that officer on or about the 14th of August.

(b) In reply to the first part, these statistics are also with the examiner of commissariat accounts. As regards the daily duty of each rank, it would be almost impossible from their being so numerous to give these in detail. I therefore restrict myself to the principal commissariat officers in charge of stations, who are responsible as follows under the different heads.

British troops.—That their food-supplies and liquor, including spirits and malt liquor and the diets for the sick, both in quarters and on the line of the march, are of good quality, involving the

careful supervision of bakeries and slaughter-houses, and the frequent inspection of the rations themselves; the supply of hospital clothing and necessaries, bazar medicines, stationary, bedding, and of hospital servants, of barrack supplies, including bedding and lighting, disinfectants and all other barrack necessaries.

Native troops.—Supply of bazar medicines, stimulants for the sick, disinfectants, stationary blankets, *public cattle*—elephants, camels, mules, bullocks—their care, custody, feeding, treatment of the sick, employment, returns connected with them, control and payment of their attendants, preparing service registers, providing and keeping in repair all gear, distribution of them to the troops, &c., on the line of march for which all arrangements have to be made in the provision of Government and hired carriage of all kinds and of bearers for the carriage of the sick. *Horses*, cavalry and artillery, supply of grain and line gear, also of grass occasionally. The supervision of the details connected with the above constitutes the commissariat officer's outdoor duties. During six and eight hours of the day his time is occupied in official correspondence in the supervision of a large number of clerks engaged in the compilation of the store and cash accounts, in attending to the preparation and conclusion of contracts, in furnishing explanations to the examiner, and in compiling returns, reports, &c. *Warrant officers* are placed in charge of outposts, where their duties are similar to those above described in a minor degree, except as regards accounts with which they have nothing to do, these being prepared in the executive office; they are frequently placed in subordinate charge of godowns, and have superintendence also of bakeries, slaughter-yards, public cattle at large stations. *Non-commissioned officers* are also employed as above, being frequently placed in charge of small outposts; one is attached to every regiment, and generally to every battery, for the purpose of supervising the daily issue of rations to the troops and of diets to the sick, and attending generally to their daily requirements.

Native establishment.—*Agents* consisting of three classes: (1) *station or cattle gomashthas*, (2) *godown gomashthas*, (3) *regimental or victualling gomashthas*.

The first have ordinarily the providing of grain and fodder for the public cattle, and of all other articles for which no contracts exist, payment of moveable column establishments and all public cattle attendants, submitting properly vouched bills for the same. The station gomastha has also to perform the duty of moonshoe and treasurer for petty sums to the executive commissariat office.

2nd, godown gomashthas.—These have charge of the stock of rum, malt liquor, tea, sugar, hospital and barrack bedding, clothing, and equipment and other numerous stores, as doolies, kajawahs, tents for departmental use of which a certain stock is always maintained, and are personally and pecuniarily responsible for the above; they also pay all godown establishment, and renders monthly accounts.

3rd, regimental or victualling gomashtha.—One attached to each battery and regiment, has to keep a store of a month's supply of groceries, to attend at the daily issue of rations, and frequently provides minor articles for which there is no contract on the march, such requisites as straw for bedding, firewood, fowls, milk, &c., for the hospital. There are besides the above *bread* and *meat* agents; the former have to provide all materials for bread-making, including flour where no Government mill is available, and are generally responsible for the preparation of the bread and payment and control of establishment therewith connected. *Meat agent* has to purchase cattle and sheep; also to arrange for their grazing and feeding and general care, selection of animals for slaughter, in which he is assisted by a European station butcher, has to account for the general expenditure of meat and pay and control of establishment, cleanliness of all buildings connected with preparation of meat, and the rendering of all accounts connected therewith.

Purveyors have charge of all clothing and bedding in use in hospitals; also of all equipments, including crockery, table appointments, cooking utensils, washing of dirty clothes, and of the issue of the diets, including wines, &c.

CATTLE ESTABLISHMENT.

One jemadar for every 20 elephants, one mahout and cooly to each elephant, duties, care, custody, and feeding and preservation of gear.

				Pay.	Batta.
<i>Camels.</i> —					
1 head jemadar	...	...	...	Rs. 10	2
at stations where there are not less than 300 camels.					
1 jemadar	...	...	...	„ 8	2
per 50 camels.					
1 duffadar	...	...	...	„ 5	1
per 25 camels at stations, or 15 when detached. They are not exempt from surwan duty, and are included in the complement.					

				Pay.	Batta.
1 surwan	...	...	...	Rs. 4	1
per 3 camels; duties as above.					

Bullocks.—One sirdar for every 42, one driver to every 2; duties same as above.

Mules.—One jemadar to every 100, one duffadar to every 50, one muleteer to every 8; duties as above.

Doolie-bearers.—Sirdars one to every 96 bearers, one mate to every 24, six bearers to a dooly, four to a dandy. Where a reserve of these men is kept up during the winter, they are detached with troops moving in course of relief, and in summer are employed in pulling barrack punkhas.

Butchers, bakers, coolies, chuprasis, weighman.—Their names sufficiently indicate the nature of their duties.

Office establishment.—A head assistant, European or Native, is placed in charge of every office, and has a general supervision of all the clerks and the control of all their work, *viz.*, conducting general correspondence, preparation and submission, in proper time, of all accounts and returns connected with cash and stores, preparation of budget estimate, furnishing explanation to Examiner's objections, preparation of comparative statements of tenders and completion of contract-deeds, preparation of cattle returns, of indents to keep up required reserve stock, of articles obtained in India and from Europe, issue of instructions to subordinates in charge of outposts, issue of all orders regarding supplies, and a considerable amount of miscellaneous work, such as invoices, registers, committee reports, &c. The duties of the clerks are divided into the heads of cash, store, check or audit, miscellaneous, the juniors of all being copyists.

Colonel G. J. Dalrymple-Hay,
Examiner of Commissariat Accounts.

(c) The number of troops rationed in each commissariat range in 1877-78 and 1878-79 is recorded below:—

Ranges.	1878-79.	1877-78.
Presidency	1,749	1,833
Dinapore	949	905
Darjeeling	267	221
Benares	518	583
Allahabad	985	962
Jubbulpore	812	937
Lucknow	3,168	3,568
Cawnpore	1,236	1,371
Gwalior	1,764	1,803
Agra	1,245	1,232
Bareilly	1,214	1,232
Ranikhet	1,273	1,437
Meerut	2,173	2,427
Umballa	1,839	1,921
Kasauli	1,753	2,154
Jullundur	647	734
Lahore	1,377	1,855
Ferozepore	930	951
Sialkot	753	1,014
Mooltan	781	799
Rawul Pindi	2,389	2,818
Peshawar	2,232	2,778
Total number	29,904	33,715

Major M. A. Rowlandson, Examiner, Commissariat Accounts, Bombay.

(a) A statement is attached showing the personnel of the commissariat department at each station in the Bombay presidency.

Statement showing cost of the personnel of the Commissariat Department at each station of the Bombay Presidency.

STATION.	Charges passed by the pay examiner as per account for July 1879.			Charges passed by this office as per account for July 1879.			Total for one month.			Total for 12 months.			Amount of Budget assignment of personnel charges for 1879-80.			REMARKS.
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	Rs.	A.	P.		
Presidency	7,406	11	9	1,173	1	6	8,579	13	3	1,02,957	15	1,17,249	2			
Deolali	98	12	9	117	0	0	215	12	9	2,589	9	2,537	0			
Poona	3,481	5	5	3,389	6	5	7,870	11	10	94,448	14	77,725	8			
Sholapur ... ..	...	...	...	55	0	0	55	0	0	660	0	4,146	0		
Malegaon	70	12	6	265	0	0	335	12	6	4,029	6	4,672	0			
Purandhar ... ..	...	...	...	123	0	0	123	0	0	1,476	0	1,372	0		
Kirkee ... ..	...	...	...	236	0	0	236	0	0	2,332	0	1,795	0		
Satara	81	12	0	270	0	0	351	12	0	4,221	0	13,252	0			
Ahmednagar	806	13	6	474	0	0	780	13	6	9,370	2	12,439	0			
Belgaum	1,438	6	5	1,423	1	3	2,861	7	8	34,337	12	36,024	2			
Vingorla	72	2	0	29	0	0	101	2	0	1,213	8	1,244	0			
Ahmedabad	893	14	3	557	14	8	1,451	12	11	17,421	11	22,041	0			
Baroda	121	2	10	210	12	10	331	15	8	3,983	12	4,136	0			
Deesa	1,566	0	0	927	13	5	2,493	13	5	29,926	1	28,621	8			
Abu ... ..	...	...	...	183	0	0	183	0	0	2,196	0	4,156	0		
Rajkot	86	9	6	382	7	3	469	0	9	5,628	9	5,760	0			
Mhow	2,541	12	3	2,847	14	11	5,389	11	2	64,876	6	66,134	8			
Indore ... ..	...	...	...	95	5	4	95	5	4	1,144	0	1,044	0		
Rutlam	2	12	11	49	0	0	51	12	11	621	11	...	...	Included in Mhow.	
Asirgarh	44	10	3	124	0	0	168	10	3	2,023	11	1,894	0			
Nusseerabad	925	2	4	1,059	5	4	1,984	7	8	23,813	12	24,611	0			
Taragarh ... ..	...	...	...	40	0	0	40	0	0	480	0	912	0		
Neemuch	430	5	4	1,076	0	0	1,506	5	4	18,076	0	29,950	8			
Kurrachee	3,441	4	9	1,951	8	3	5,392	13	0	64,713	12	51,540	12			
Sukkur ... ..	...	...	...	606	0	0	606	0	0	7,272	0	14,412	0		
Hyderabad	804	6	6	625	7	7	1,429	14	1	17,158	9	17,632	0			
Aden	1,686	8	5	2,420	9	0	4,107	1	5	49,235	1	55,909	2			
Alligaum Cattle Farm	972	10	8	...	...	...	272	10	8	11,672	0	9,768	0		
-Total ... ..	...	...	...	...	...	...	48,185	12	1	5,78,229	1	6,11,518	2		

(b) A statement is attached.* I am not in a position to describe in detail the daily duties of the various individuals employed at each station.

(c) A statement is attached, showing average number of Europeans fed at each station.

Statement showing the average number of Europeans fed at each station during the year 1878-79.

Name of station.	Number of rations during 1878-79.	Average daily number of rations during 1878-79.
Bombay	201,318½	552
Deolali	51,624½	141
Poona	405,071	1,110
Kirkee	125,213	343
Purandhar	30,670	84
Satara	53,633	147
Ahmednagar	82,579	226
Belgaum	267,093	732
Ahmedabad	64,310	176
Baroda	59,924	164
Deesa	223,941½	613
Abu	31,714	87
Mhow	441,559½	1,210
Indore	20,227	55
Asirgarh	14,551	40
Nusseerabad	212,087½	581
Taragarh	6,214	17
Neemuch	146,740½	402
Kurrachee	261,751	717
Hyderabad	132,252½	362
Aden	294,294½	806

5. Does the organization of the commissariat department meet the requirements of war ; and if not, in what way can it be improved without adding to its cost ?

Colonel J. I. Willes, Commissary-General, Bengal.

Most certainly not. It is insufficient to meet the requirements in time of peace. Many stations with British troops have no commissioned officers. The scarcity of officers rendered it necessary to order out from England, on the war breaking out, every officer whose health permitted of his return. Not half the number necessary could be sent into the field, though Madras and Bombay were freely indented on. This helped us greatly, and this is the way requirements for war can partly be met; but I am not prepared to say that Madras and Bombay did not suffer by the arrangement. Why not have *one* commissariat department for India, like the account department? I believe it would answer well; but there are many details to be worked out before this could be done. I would, as one suggestion, advise no officers except administrative ones being kept in the department after becoming lieutenant-colonels. Few are fit for real hard work after twenty-six years' service; and, in my opinion, no lieutenant-colonel in the army should be an executive officer. The duties are not compatible with his rank. Before the mutiny, only commissary-general, deputy commissary-general, and the senior assistant commissary-general were allowed to remain after becoming regimental majors. Promotion was slower then than now; but it may fairly be assumed the ages of regimental majors then and lieutenant-colonels now were nearly the same. It is only necessary to refer to the army list to see the standing of commissariat officers. If younger men were in the department, it is only reasonable to calculate on more being available for active service when wanted than were available when the war broke out.

The paucity of warrant and non-commissioned officers and Native agents was as much felt as the officers. The ages of warrant officers much militated against their efficiency; though the senior, and therefore I assume the oldest, were as efficient as any. Captain Rubie, the senior warrant officer of the department, served at Dadur all through the war, is 65 years of age, and was only moved into the Upper Bolan when the heat became excessive and he was attacked by fever. The want of more warrant and non-commissioned officers was greatly felt during the late war. Men obtained from regiments, unacquainted with commissariat work, were not satisfactory substitutes for trained men.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The organization of the commissariat department is good; but it is on a peace footing, and it cannot be improved without adding to its cost.

Lieutenant-Colonel M. W. Wiloughby, Acting Commissary-General, Bombay.

The organization of the department is unequal to meet the requirements of war, because the establishments which constitute that organization are essentially on a peace footing, and barely equal to cope with peace duties, and are without the means of efficient expansion. The organization, too, is defective in regard to Native inspectors (gomashtas in Bengal, in Madras purveyors), a most useful class of men, but not now obtainable of required education and intelligence on present rates of pay.

The only way to improve the commissariat department, Bombay presidency, without adding to its cost, would be to confine its transactions

to strictly legitimate duties as an army department, viz., army supply and transport, and to relieve it of the heterogeneous duties on account of the civil and other departments now imposed upon it, namely, supplies to large civil institutions and landing and transport duties for the—

Ordnance department.	Medical department.
Clothing " "	Civil " " (many branches).

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

The present organization of the commissariat is not complete to meet the requirements of war, and requires to be largely increased to meet the many extra demands which are made on its resources. I submit appendices marked A, B, C, and D, showing the establishments which are necessary in cantonments and those which must be entertained as extra in time of war. The extra establishments can generally be collected; but longer notice is required than was given in this campaign to collect and send the agents ahead, as it is necessary to organize depôts and collect supplies. In this campaign many duties have been thrown on this department which, I have submitted, could have been more efficiently and economically performed by direct regimental agency: I allude specially to the provision of grass and wood for all connected with the troops.

These articles the commissariat were directed to buy and supply in a country where there were no markets, and where these articles could only be obtained by foraging parties.

It was pointed out that these duties would occupy the time of commissariat officers and agents which could be more advantageously employed in seeking for food and other supplies for the army, and that regimental officers, having carriage and establishments at their disposal (grass-cutters and others), could arrange to collect these articles far more speedily than could be effected by the interference of this department.

The establishments of grass-cutters moving in a country like Afghanistan in winter are practically useless, and add uselessly to the encumbrances of the army.

A

Scale of bakery establishment recommended for troops going on service.

Class of servants.	For a European regiment.	For a battery.	Pay for each man.			Remarks.	
			Rs.	A.	P.		
One head baker ...	1	1	30	0	0	For foreign territories free rations to be given.	
Kneaders, 2½ per cent. ...	2½ per cent.	2½ per cent.	10	0	0		
Mate ...	1	...	14	0	0		
Bhistie ...	1	1	7	8	0		
Bildar ...	1	1	6	8	0		
Dhobie ...	½	½	7	8	0		
<i>Extra for service.</i>							
Mate ...	1	...	14	0	0		
Dhobie ...	1	1	7	8	0		
Bildar ...	...	...	...	...	...
Kneaders ...	3 per cent. instead of 2½	1	10	0	0		

B

Scale of butchery establishment recommended for troops going on service.

Class of servants.	European regiment.	Battery of artillery.	Pay for each man.			Remarks.	
			Rs.	A.	P.		
Meat agent ...	1	...	50	0	0	A head agent, Rs. 75, with writer, to be with the division, on Rs. 75.	
Sirdar butcher ...	1	1	18	0	0		
Butchers ...	3	1	9	0	0	For foreign territory free rations to be given.	
Coolies ...	4	1	6	8	0		
Cowherds ...	2	1	7	8	0		
Dhobie ...	1	½	7	8	0		
Bhistie ...	1	...	7	8	0		
Chowkidar ...	1	...	7	8	0		
Shepherds ...	2	1	7	8	0		
<i>Extra.</i>							
Sirdar butcher ...	1	...	18	0	0		
Butcher ...	1	1	9	0	0		
Cowherd ...	1	...	7	8	0		
Shepherd ...	1	1	7	8	0		
Coolie ...	...	1	6	8	0	

C

Scale of establishment for depôts, purchasing agents, divisional godowns, brigade godowns for troops going on service.

Class of servants.	C. Purchasing agents.	C 1. Depôt estab- lishment.	C 2. Divisional go- down estab- lishment.	C 3. Brigade go- down estab- lishment.	Pay of each man.			Remarks.
					Rs.	A.	P.	
Head purchasing agent	1	...	...	...	200	0	0	
Depôt agents	...	1	1	...	100	0	0	
1st class agents	1	75	0	0	
Assistant agents	...	2	1	1	75	0	0	
Mutsuddies	...	2	1	1	25	0	0	
Writers	...	2	1	1	75	0	0	
Carpenters	2	1	18	0	0	
Blacksmiths	2	1	18	0	0	
Weighmen	...	20	4	4	7	8	0	
Rum-measurers	2	1	9	0	0	
Bhisties	2	1	7	8	0	
Peons	...	4	2	2	7	8	0	
Coolies	...	10	4	4	6	8	0	
Sweepers	2	1	6	8	0	

D

Extract paragraphs 16 and 17 from a letter No. 789, dated 1st August 1879, from the Deputy Commissary-General to the Commissary-General, Bengal.

The commissariat staff consists of—

- | | |
|---|------------------------------|
| 1. A principal commissariat officer. | 3. An officer at each depôt. |
| 2. An assistant able to keep up accounts and office work. | 4. Ditto with each brigade. |

The warrant and non-commissioned officers should be appointed as follows. All to be permanent men :—

- | | |
|--|---|
| 1. Base depôt.—The staff of the station, with extra men given at commencement of the campaign. | 3. Divisional godown—
1 Warrant officer.
2 Sergeants. |
| 2. Advanced depôt—
1 Senior warrant officer.
1 Conductor.
2 Sergeants. | 4. Brigade godown—
1 Conductor.
1 Sergeant. |

A victualling sergeant with each battery and two men for each European regiment if possible.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Upper Circle.

No; because in peace time the requirements of the *European* troops only, and the cattle permanently attached to the army, have to be provided for; and the establishment is fixed to meet these only, and therefore does not suffice to meet the great additional demand of having to provide for the Native troops and a larger body of camp-followers and baggage-animals, which devolves on the commissariat in time of war. To expand the department, that is, add to its numerical strength in its administrative branches, which is the element at present deficient, in order to meet this heavier demand, without adding to its cost, is necessarily impossible.

Captain J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

The organization is the best I believe that can be devised. It has been proved to be good in many a campaign; and the carriage and other difficulties which occurred in the late campaign are not, I believe, in any way attributable to any fault in the system, but to there being no time given for preparation and to the economies introduced immediately after the mutiny, by which the department was cut down in

officers and establishments so as to render it barely sufficient in times of peace. I have long been convinced that, to make the department really efficient, the number of officers of all grades should be increased. I should recommend an increase to commence below the grade of assistant commissary-general, 1st class, as follows :—

- | | |
|--|---|
| 1 more assistant commissary-general, 2nd class. | 10 sub-assistant commissaries, 3rd class. |
| 4 more deputy assistant commissaries-general, 1st class. | 2 more deputy commissaries. |
| 4 more deputy assistant commissaries-general, 2nd class. | 2 more assistant commissaries. |
| 6 sub-assistant commissaries, 1st class. | 2 more deputy assistant commissaries. |
| 6 ditto 2nd class. | 5 more conductors. |
| | 10 more sub-conductors. |
| | 30 more non-commissioned officers. |

I think with this addition the department would be far more efficient, and its present good organization given a fair chance.

There is one great difficulty the department has to contend with, and which acts very injuriously, as it greatly hinders good, intelligent non-commissioned officers from joining it; and that is the pay and allowances of a non-commissioned officer are so small, that a man is better off with his battery

or regiment, where he has certain advantages as regards servants. This is a well-known fact—so hard is it that it is scarcely possible for a sergeant with a family to make both ends meet. And this throws him into very great danger. He is tempted to take presents or to borrow money; and, once he does this, his hands are tied, and he is worse than useless. Instead of a help, to the commissariat officer and a check on agents and contractors, he joins in their attempts to deceive and mislead; or at least does not tell on them.

This should at once be rectified by giving them an increase of pay and allowance of about 50 per cent. on what they now get. It would not be too much to enable them to live honestly, and to place them beyond the excuse of temptation. All commissariat officers must feel they have some excuse now.

I would also propose increasing the pay and allowances of all first-class station agents. They get only Rs. 50 a month, or little more than they have to pay for a treasurer and munshi, which they have to maintain for the office and themselves. These two offices were abolished soon after the mutiny; but that it was a mistake every officer in the department can testify. Such agents should not receive less than Rs. 150, and the munshi and treasurer should be paid by Government. As it is, these men can claim a right to gain on their charges to meet their needful official expenses. They should be left without excuse. Agents, too, in charge of the largest godowns should get not less than Rs. 75 a month. And at all stations, where there is not less than a regiment of infantry and a battery of artillery, the station gomashas should receive the same.

I am aware I have gone beyond the question; but I make these recommendations for the improvement of the department, having long been convinced of their necessity. It will be seen that I deem it utterly impossible to improve the department without adding to its expense; but the additional expense recommended is, I believe, necessary both for efficiency and economy.

It is, I need not say, sound policy not to have insufficient assistants or under-paid subordinates when business has to be done and large sums of money expended. It should not, in reality, add so much to expense. Government interests should be better guarded, and expenditure better checked and controlled.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

It does, as far as 50 men can do the work of 100.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

I consider that the system of organization of the department does meet the requirements of war. But that the peace establishment, as regards European officers, warrant and non-commissioned officers, as well as Native agents and clerks, is so small, that its expansion in time of war occupies too much time.

As regards Native agents and clerks, I think that stricter scrutiny into their capacity is necessary. Men whose work in cantonments goes on satisfactorily are found to be incompetent on service; the reason being that in cantonments they procure a good deal of their work to be done for them by others. I cannot suggest material improvement without additional cost.

Major M. A. Rowlandson, Examiner, Commissariat Accounts, Bombay.

The present organization of the commissariat department of this presidency has met the requirements of such campaigns and expeditions as have hitherto fallen to its lot; the trained men of the department have conducted the special duty connected with the war, whilst the ordinary peace duties have been entrusted when necessary to officers and men temporarily employed.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

The organization of the department is entirely fixed upon peace requirements, and consequently does not allow a sufficient number of officers and establishments to meet the requirements of war when the demands on the department are very greatly augmented. Not alone have Native cavalry and infantry who in time of peace make their own arrangements to be provided for, but the immense number of followers

and transport animals of all descriptions who form part of an Indian army in the field is proverbial. Even in time of peace the number of officers is found insufficient to allow of any being detached from current work for special purposes.

I am of opinion that all departmental arrangements necessary in case of a campaign, the probability of which is foreseen for years previous, should be worked out in time of peace in detail.

Further, that the experience deduced from former campaigns should be recorded; and all possible information relative to the nature of the country, its resources, and the customs prevailing with the inhabitants in their dealings, be collected, and ready to be placed at the disposal of commissariat officers when summoned into the field. I may take this opportunity to mention that it appears to me that sufficient attention is not paid to the manufacture of compressed provisions in India—a subject to which so much importance is universally paid in European armies now-a-days. With regard to insufficiency of establishment, I can only say that experience has proved that any attempt to carry out the heavy extra work which in times of war devolves upon the department with an establishment admittedly inadequate for the purpose must result in utter confusion and lamentable disorder.

The only course I can suggest to improve matters without adding to present cost is, that the work in the department in the three presidencies be assimilated to such an extent as to enable the establishment of one presidency to fill readily its place if called upon to serve in another presidency. A larger field would thus be afforded from which a field establishment could be drafted. The difficulty which obtains at present is, that the presidency which is called upon to furnish a field force can only withdraw establishment from the stations in which a departmental officer remains in charge; for, as a matter of fact, the officers nominated to fill temporarily the places of those officers taken away from service are

almost entirely dependent upon the establishment, and it is considered consequently unadvisable to impair the efficiency of the latter.

Captain J. F. Hobday, Executive
Commissariat Officer, Kandahar.

Owing to constant calls for reduction during the last ten years, the department has been reduced to the lowest extremity, and even beyond the bounds of efficiency; and being barely efficient in times of peace, it can scarcely be considered to meet the requirements of war. Untrained men have to be hurriedly entertained; and as but few come forward, their quality is not of the best. The pay of all writers and subordinates is already too low to entice the class of men that are wanted; and to hope to improve matters without extra expense is unreasonable.

The promotion amongst the subordinates is so slow, that men do not willingly leave their regiments to join the department; and the best men likely to make efficient warrant officers seldom now join it at all.

To improve the efficiency of the department, it is first necessary to improve the status, and so get good men, who will work willingly. To do this, a higher rate of pay should be given to the sergeants on first joining, and steps should be taken to improve their promotion.

As regards gomashtas, each year produces a worse class of men. The speaking and writing of English are necessary for appointment as a gomashta, and men can generally find more lucrative employment elsewhere. Gomashtas are often treated badly by officers in command, who look on them as any other Native, only to be abused; and on a campaign they are threatened with flogging and otherwise treated as beneath consideration. The consequence is, that few decent men will accept the post; and at the commencement of a campaign, with active service before them, and when a number of new gomashtas are required, no trained men are forthcoming; and, with the exception of a few who have relations in the department and join in the hope of future employment, the greater numbers who come forward are the riffraff of different bazars. Nothing will improve this but an increase of salary, and stringent rules regarding the position of and treatment of a gomashta, more especially on active service.

6. How can expansion in time of war be provided for?

Colonel J. I. Willes, Commissary-
General, Bengal.

See answer to question 5.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

Only by entertaining fresh hands new to the work, and by purchasing and hiring transport. The hired transport would consist of pack-bullocks and country carts. Neither camels, elephants, nor mules are procurable in this presidency.

Lieutenant-Colonel M. W. Wil-
longhy, Acting Commissary-Gen-
eral, Bombay.

(a) By providing for a periodical return to regimental duty of all commissioned officers employed in the commissariat department. This, after a time, would give a certain number of officers serving regimentally, who would be acquainted with the working of the department, and whose services might be secured in time of war.

(b) By registering the names of regimental officers desirous of entering the commissariat department, and who might gain a certain knowledge of commissariat duties by attending executive commissariat offices whilst serving with their regiments.

(c) By detailing a certain number of men in each regiment as office clerks, bakers, and butchers. Under this system each regiment would take the field independent of any extra establishment, would be complete in itself, would draw its supplies in bulk from the commissariat, and would account for them. The men, too, being trained soldiers, would be an assistance, not an incumbrance to the army in the field.

(d) A register of pensioned clerks and subordinates should be kept in view to employing them (if capable) for performance of cantonment duties on emergencies, thereby freeing for active service the younger men in present employ.

(e) By improving the pay and the position of the Native inspectors, whereby men of the required class would be attracted to the service.

(f) By transference of clerks (temporarily for cantonment duties) from the offices of other departments of Government—the public works department for instance.

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

The reply to this question has been included in the reply to the last, and a reference solicited to appendices.

Colonel M. J. Brander, Officiating
Deputy Commissary-General, Upper
Circar.

As at present, by withdrawing a large number of commissioned officers and European and Native subordinates and agents from the various stations, the places of the latter being filled up temporarily as far as possible. In the late campaign the Bombay and Madras presidencies had to be drawn on for officers. This, however, only partially provides for the requirements, and the engagement of temporary establishments as purchasing and other agents has to be resorted to to a large extent; men obtained under these circumstances and on short notice being frequently inefficient and untrustworthy, increasing greatly the labors of the commissariat officers in the field.

Colonel K. Eber, Deputy Commissary-General, Lower Circle, Bengal.

The commissariat needs trained officers of all grades. Fresh hands are next to useless—sometimes worse than useless. The increase I have recommended would, I trust, meet all requirements in time of peace and war. In time of war it would still be necessary to obtain some fresh hands to supply the places of officers of all grades on service; and this is the only kind of expansion, in a limited degree, that I consider safe.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

Only by increase of the department and extra expense.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

Expansion in time of war can, in my opinion, only be provided for by retention of the peace establishment on a more ample footing, instead of reducing it to a minimum. Some provision might, however, be made by means of a system of additional paid apprentices, clerks and agents on small salaries, and by attaching subaltern officers and non-commissioned officers temporarily, in turn, to commissariat executives, granting them some small staff allowance while so employed.

Major M. A. Rowlandson, Executive, Commissariat Accounts, Bombay.

I would suggest that officers of the Indian army under the rank of captain should be required to pass an examination in commissariat duties in the same manner that they now pass in military law, elements of tactics, &c., &c.; and they should be attached for a stated period to one of the large commissariat offices for instruction. By this means a reserve of officers with some knowledge of commissariat duties would be formed, and become available for the assistance of the regular department in time of war.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

The present way is to withdraw permanent establishment and to complete by engaging extra establishment.

To obtain efficient men in the short time which is generally granted to the department for its arrangements is impossible; and the generality of men thus enlisted are in the course of a campaign found useless, and in some cases dishonest, and often prove more an incumbrance than an assistance to the commissariat officer. The only way to remedy matters in this respect is in my opinion to draft field establishments to a larger extent from station establishments, and to fill up the vacancies created in the latter locally. The way to enable this being done on a larger scale than at present, I have pointed out in my reply to the previous question.

Captain J. F. Hobday, Executive Commissariat Officer, Kandahar.

To rapidly expand the agency of the department on an outbreak of war is of course impossible; but much can be done by insisting that all troops going to the front shall have with them permanent commissariat agents, i.e., victualling sergeants, gomashtas, assistant gomashtas, and purveyors. There is a tendency on the part of Natives to shrink active service and to keep a berth in a station, letting men temporarily engaged go with the troops.

By sending away all permanent men with troops going forward and letting their places in cantonments be taken by temporary men, a large increase to the department is at once gained; and these men soon learn their work, and are available to be pushed on in turn. The value of an appointment in the commissariat is, however, so small, that men will throw it up rather than proceed on active service; and as they are only hired by the month's wages, there is no hold on them (excepting the confiscation of their security), and they cannot be forced to retain their appointments.

The increase of the warrant and non-commissioned grade previous to war could be arranged by 20 or 30 non-commissioned officers from regiments being placed at the disposal of the commissary-general so soon as war was determined on. These men could be sent to the different large depôts, and would soon become efficient, provided that, in the first instance, they could read and write well and keep accounts and had passed a colloquial examination in Hindustani. These men would not, however, come forward on the present rate of staff pay, i.e., Rs. 20 a month, as they are separated from their mess and have to keep up a servant and buy cooking utensils, &c.

7. Is there any advantage in keeping a separate purveyor's establishment for hospitals?

Colonel J. F. Willes, Commissary-General, Bengal.

I consider the purveyors a great mistake, and so, I believe, do the medical officers. As a rule, the old stewards were much preferred. The introduction of purveyors has added greatly to the work of the department, and their accounts are very lengthy and cumbersome. I should be glad to see them abolished.

Colonel R. A. Moore, Acting Commissary-General, Madras.

Hospital purveyors are required for hospitals, and could not well be dispensed with.

Lieutenant-Colonel M. W. Winghamby, Acting Commissary-General, Bombay.

As the purveyor is responsible for the washing, mending, &c., of the hospital clothing, it is necessary that he should have the control of the servants who are detailed to these duties, and who compose the purveyor's

establishment. If the servants are allowed to merge in the general hospital establishment, he would probably have some difficulty in getting their work out of them. I am however of opinion that the purveyor system is faulty; the men, as a class, are not good enough for their work. They have replaced a better and more costly servant. I consider that a better class of men should be introduced as purveyors, and that he should keep the accounts and render them to the examiner, and supervise the whole establishment of hospital servants under the orders of the medical officer of the regiment, and without the intervention of the commissariat department.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

The purveyors now perform many of the duties which devolved on the stewards formerly attached to hospitals. I consider that the purveyors should be simply assistant commissariat agents, and should be attached to the victualling agent of the regiment, who should be responsible for supplies to the hospital as well as for the men in barracks. In this campaign, when regimental hospitals were broken up, the purveyors were all used as assistant commissariat agents on various detached duties, and were found most useful.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Upper Circle.

Certainly. This department was constituted to obviate the loss found to arise from the employment of stewards—a class of men frequently found dishonest and who furnished no pecuniary guarantee, and who before had charge of hospital stores. The purveyor's system, while it has imposed much extra work on the commissariat department, has effected, I believe, great pecuniary saving, the men now in charge of hospital clothing and supplies being directly responsible to commissariat officers.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

There must be a purveyor's establishment, or one to do the same work. I think it should be, as formerly, under the medical officer, and not under the commissariat officer.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

Unless the medical department will take over the purveyor's duties, the useful and necessary work done by the purveyor cannot be done cheaper and better.

Colonel R. Q. Mainwaring, Deputy Assistant Commissary-General, Madras.

The hospital purveyor is of the greatest assistance to a doctor (particularly one newly arrived from home) in many ways which prevent irretrievable confusion in the issue of diets and accounts.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

I do not think that the purveyor system has any advantage over the old system, in which the work was done by the regimental commissariat agent and the hospital steward. It is, however, necessary that the regimental agent should have an assistant for hospital work.

Major M. A. Rowlandson, Examiner of Commissariat Accounts, Bombay.

If there were no separate purveyor's establishment, the duties performed by that class of servants, both on the march or in cantonment, would have to be performed either by the medical subordinates or by the commissariat inspector attached to the troops. The objection to the medical subordinates is obvious, as they are fully engaged in the discharge of their special duties, both professional and scriptural, and have no time to devote to the care of the numerous stores of clothing, bedding, articles of diet, wine, &c., &c., which belong to an hospital. The commissariat inspector has to issue rations and diets after obtaining the same from the contractors or by purchase. He has also to arrange for the retail issue of spirits on the line of march, and is responsible for all camp contingencies, such as supply of straw, &c., oil, &c., &c., and his time is too fully taken up to allow of his undertaking the purveyor's duty.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

Yes, I believe so. Purveyors are directly responsible to commissariat officers for the care and custody of the stores entrusted to them. They are, in fact, subordinates of the department, which the stewards who were formerly employed were not.

Captain J. F. Hobday, Executive Commissariat Officer, Kandahar.

Yes.—The purveyor and his establishment are constantly at work; and if they were done away with, some one else would have to do the work, such as a hospital steward.

8. What are the quantities of reserve stock maintained by the commissariat, and why?

Colonel J. I. Wiles, Commissary-General, Bengal.

Principally only tea, English beer, rum, blankets, and hospital clothing are kept. Tea only three months, English beer six months, rum one year; blankets and hospital clothing—the former for extra issues, and the latter on fixed percentage. Reserves of supplies from Europe, or those not readily obtainable, are necessary to meet any failure of

estimate; and owing to the great extent of country over which the distribution occurs, rum is kept in reserve to age, as fresh rum is objected to by medical authorities.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The reserves kept up are principally of such articles as are procured from England. A reserve is required to prevent our running short, and to allow time for distribution to outposts.

Malt liquor.—A three months' reserve in India; six months' in Burma.

Rum.—Eighteen months' stock. New spirit is unwholesome, and this reserve should be increased, not diminished.

Tea.—Three months' reserve in India; six months' in Burma.

Salt meat.—Three months' stock.

Preserved potatoes.—One year for troops in Burma.

Hospital clothing.—One year's stock.

Carbolic acid.—10,775 lbs. on an order of Government, dated 1st April 1874, and G. O. dated 4th November 1872.

McDougall's disinfecting powder.—32,090 lbs., G. O. dated 1st April 1874 and G. O. dated 4th November 1872.

Warm clothing—

3,000 blankets, | 6,000 flannel banians,
6,000 flannel drawers, | 3,000 pairs shoes,

on a special order of Government, dated 22nd August 1873, owing to there being no stock of warm clothing in store when required for troops proceeding on service to Malta.

Lieutenant-Colonel M. W. Wilmoughby, Acting Commissary-General, Bombay.

Obtained from England through Secretary of State.

Porter in wood	...	} Six months' reserve, plus the quantities required for a year's consumption.
Beer in bottles	...	
Brandy, French	...	
Port wine	...	
Sherry wine	...	
Hops	...	
Essence of beef	...	} No reserve; the quantity for a year's consumption is obtained in instalments.
Salt meat	...	
Carbolic acid	...	} 2,000
Blankets	...	
Bedding	...	} Six months, plus the quantity required for a year's consumption.
Rum	...	

A small reserve of provision articles for European and Native troops and public followers is stored in the fortress at Asirgarh as a precautionary measure.

The articles obtained from England through the Secretary of State are drawn on indent, which includes a reserve of six months' stock, with exception of salt meat, carbolic acid, and blankets; but as the indents are complied with by instalments, the six months' reserve is not always in hand. This reserve was fixed to meet emergencies, or loss of supplies in transit by sea.

As regards rum, which is a local supply, the six months' reserve is to meet the contingency of the contract breaking down.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

Reserve stock of certain articles only is kept up where these articles are not readily procurable on the spot, such as tea, rum, sugar, hospital necessaries; and other reserve stock is kept up at frontier posts where there is a prospect of their being cut off temporarily for their supplies. The quantity of reserve stock is not in my opinion excessive, and at certain frontier stations I recommend the provision of a larger supply of all articles required for equipment of troops. The hasty collection of inferior articles is a most expensive mode of meeting a want, and impairs the efficiency of the arrangements for putting an army in the field.

As follows :—

Reserve of stock articles kept by Commissariat.

Rum	... 1 year.	Disinfectants	... 6 months.
Malt liquor	... 6 months.	Cooking utensils	5 sets.
Tea	... 1 month.	Hospital clothing	20 & 30 pr. ct.

A certain reserve also of kerosine oil and tea is also kept in Calcutta. These reserves are maintained as a measure of ordinary care and precaution.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

As follows :—

Articles.	Stock kept up.	Reason for the reserve stock being maintained.
Malt liquor (English) ...	Twelve months' consumption and a reserve equal to six months' expenditure.—(<i>Military Department No. 420S., dated 16th May 1877.</i>)	To guard against interruption in issue from late receipts from England and from reduction of stock from condemnation.
Rum ...	Twelve months' consumption and twelve months' reserve.—(<i>Military Department No. 210, dated 9th November 1877.</i>)	To ensure spirits of sufficient age being issued: new rum is injurious and so also old.
Tea ...	Twelve months' consumption and one month's reserve.—(<i>Military Department No. 1049, dated 21st January 1878.</i>)	To ensure continuous supply.
<i>Dieting articles issued to military hospitals—</i>		
Port wine ...	No reserve stock is maintained where the supply can be effected by local contracts or by purchase; but of articles which have to be obtained from Calcutta a three-months' stock, calculated on average consumption of past two years, is kept up to ensure continuous supply.—(<i>Commissary General's Circular No. 50, dated 22nd March 1877.</i>)	
Sherry ...		
Brandy ...		
Gin ...		
Champagne ...		
Claret ...		
Hospital clothing and bedding.	A fixed reserve of some principal articles is maintained.—(<i>Vide Appendix K, page 236, Bengal Barrack Regulations.</i>)	To replace condemnations and to meet emergent demands on outbreaks of epidemics.
Barrack supplies ...	For articles supplied under contract no reserve is kept; but where the supply is by purchase, a reserve, within a limit of ten per cent., is kept.	To replace condemnations and meet emergent requisitions. When, however, the supply is effected by contract, the reserve is kept up by the contractor.
MacDongall's powder and carbolic acid.	Stational reserve, as per scale in paragraph 724, section 7, page 117, Bengal Barrack Regulations.	For issue on outbreak of cholera or other epidemic diseases.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

Quantities of reserve stock are ordered by Government for so many months or years to ensure the regular and efficient supply to the troops.

Colonel G. J. Dalrymple Hay, Examiner of Commissariat Accounts, Bengal.

The following quantities of reserve stock are maintained by the department :—

Imported malt liquor.

Reserve equal to 6 months' consumption, based on the actual consumption of English beer and porter: 11,000 hogsheads were indented for in 1879-80, of which 3,668 may be taken as the reserve for 6 months.

Tea.

Reserve equivalent to one month's consumption, which, according to the estimated requirements for 1879-80, may be reckoned at 38,923 lbs.

Rum.

320,425 gallons, eighteen months' reserve, based on the annual consumption.

In paragraph 3 of Military Department letter No. 210, dated 9th November 1877, addressed to the commissary-general, it is observed that the fresh spirit should be kept in store for two years to render it wholesome before issued to canteens.

Disinfectants.

Carbolic acid, 12,875 lbs.

Disinfecting powder, 57,680 lbs.

These disinfectants are specially intended for times of epidemic sickness, and when such sickness threatens, for use in barracks, latrines, drains, and in any other places and ways considered desirable by the local medical authorities.

Disinfecting powder, 7,000 lbs.

} To meet contingencies when they arise.

Statement showing the reserves of stores kept up by the Commissariat Department, Bombay presidency.

Names of articles.	Quantities indicated for the year 1880-81.	Average quantities of consumption for one year.	Quantities of reserve provided for.	Remarks.
Porter ... hhd's.	14,520 0	13,531 0	6,765 26	Six months' reserve: <i>vide</i> G. R. No. 3011, dated 21st July 1873.
Pale ale in quarts ... doz.	750 0	1,253 0	626 6	Six months' reserve.
Ditto in pints ... "	720 0	2,289 0	1,144 6	Ditto.
Port wine ... "	281 0	464 10	232 5	Ditto.
Hops ... lbs.	500 0	498 12	249 6	Ditto.
Burners ... No.	330 0	220 0	110 0	Ditto.
Chimneys ... "	16,350 0	10,884 0	5,442 0	Ditto in addition to 15 per cent. more provided for to meet excess breakages chargeable to troops.
Wicks ... "	39,900 0	72,528 0	36,264 0	Six months' reserve.
Carbolic acid ... lbs.	1,044 0	2,185 0	5,125 0	Epidemic reserve: <i>vide</i> G. R. Nos. 160 and 2192 of 14th January and 12th June 1874, and No. 2705, dated 2nd July 1875.
Blankets, brown, Europe, No.	16,331 0	15,360 0	2,000 0	Reserve: <i>vide</i> G. R. No. 4801, dated 6th November 1872, in addition to the reserve of cold weather to the extent of 4612, therein provided for: <i>vide</i> G. G. O. No. 572 of 1872.
Biscuits ... lbs.	...	...	22,000 0	Kept up for Bombay Marine. Kept up as a reserve for Asirgarh, which is a hill fort, agreeably with G. R. No. 1846, dated 19th April 1875.
Dhall, toor ... "	...	...	4,845 12	
Rice ... "	...	...	20,702 8	
Wheat ... "	...	...	32,598 0	
Ghee ... "	...	...	2,127 0	
Salt ... "	...	...	1,223 0	
Wood... .. "	...	...	88,020 0	

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

The only place in which a reserve stock of supplies is kept up to any extent in the Bombay presidency is, so far as my knowledge goes, Aden, where, for political reasons, it has been considered advisable.

It is true that in all godowns malt liquor and rum is kept in larger quantities than are required for immediate consumption; but this can hardly be called a stock reserve, since it is simply for the reason that the cold weather is the season in which the least wastage is likely to occur in transit that the year's supply is made to the different stations at this time of the year.

9. What are the grounds for giving Commissariat subordinates, clerks, &c., extra pay on proceeding on service?

Colonel J. I. Willes, Commissary-General, Bengal.

The expense arising therefrom. Commissariat clerks are constantly on detached duty; are, as a rule, worse paid than in most other departments of the Government service; have harder and more responsible work. All clerks of Government offices, it is believed, get extra pay on leaving the presidency to cover their additional expenses.

Colonel R. A. Moore, Acting Commissary-General, Madras.

They have to provide themselves with marching kit, and have to make provision for their families left behind.

Lieutenant-Colonel M. W. Willeughby, Acting Commissary-General, Bombay.

Extra pay is given to commissariat clerks and subordinates to meet—

(a) the increased expenditure consequent on their leaving their families behind whilst they are on service;

(b) to recoup them for the increased responsibility, labor, and hardship they in most cases incur on service.

In this presidency hitherto there has been no fixed scale of extra pay to commissariat clerks and subordinates. Formerly when occasions of field service arose, the Commissary-General, under the orders of Government, fixed the rates of pay to be allowed to the several clerks and subordinates; and such establishments were made up partly by transfer

of hands from the permanent establishments and by entertainment of new men. On the occasion of the Afghan campaign, the Government of Bombay fixed the extra pay to clerks at fifty per cent. of their substantive pay (Government Resolution No. 5767, dated 25th November 1878), and reported to Government of India; and this is in accordance with the rate of *batta* allowed in Bengal to *gomashas*, and in Bengal and Bombay to purveyors on command, *i.e.*, on ordinary service away from their station, and appears to be the lowest extra remuneration that should be allowed.

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

The agents and others in this campaign have only received the same increased pay as they would receive when going on an ordinary march in India; and clerks serving in Afghanistan in the army are placed on the same footing as clerks moved from Calcutta to Umballa. I conceive the clerks accompanying an army on service should receive greater remuneration than those serving quietly in cantonment. The desertion and resignation of many subordinates proves that extra inducements must be held out for men ordered on service.

Colonel M. J. Brander, Officiating
Deputy Commissary-General, Upper
Circle.

Commissariat subordinates, European and Native, receive no more pay when on service than they do when accompanying troops marching in ordinary times or at camps of exercise, except that all clerks, agents, and other establishments when on service get free rations extra. The additional marching pay is given to enable subordinates, clerks, &c., to meet the additional expense incurred in having to provide themselves with marching equipment, and to maintain a second establishment for their families, who are seldom able to accompany them, their pay proper being originally fixed as suitable for the performance of their duties when stationary.

Colonel J. Keer, Deputy Com-
missary-General, Lower Circle,
Bengal.

Even with the 50 per cent. extra pay allowed clerks, it is most difficult to get Native clerks to go on service. They and other subordinates, if married, are put to extra expense while on service, having to maintain two establishments. I don't think economy can be effected in this *with safety*. Establishments simply would not go on service, without the inducement of pay. Warrant and non-commissioned officers receive but very little extra whilst on service.

Colonel G. S. Macbean, Deputy
Commissary-General, late in Com-
missariat charge of the Khyber and
Kuram Forces.

Custom, necessity, and justice.

Colonel G. J. Dalrymple-Hay, Ex-
aminer of Commissariat Accounts,
Bengal.

Please see paragraph 30, section xxiv, page 240 of the Pay Code of 1849.

Colonel R. Q. Mainwaring, Deputy
Assistant Commissary-General,
Madras.

The clerks, &c., are put to an expense by separation from their families, which clerks in stationary offices never incur.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-Gen-
eral, Bengal.

Extra pay to commissariat subordinates, clerks, &c., proceeding on service is given on the ground of their being put to serious extra expense. They are indifferently paid men, and on service they have to maintain their families separately.

Major M. A. Rowlandson, Ex-
aminer of Commissariat Accounts,
Bombay.

The majority of such men are married and have families. Their pay in ordinary times is sufficient for the support of all their households; but when required to go on service they have to leave their families behind, which entails the keeping up of two establishments; and, in addition to this, field service demands an extra expenditure on account of field kit, &c., &c.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

Commissariat, warrant and non-commissioned officers, *gomashas*, and agents get no more on service than on ordinary movements; nor clerks more than if they were detached from their own stations for camps of exercise, &c. The reason for giving this extra allowance is that when the pay of these subordinates was fixed, it was not considered sufficient to cover extra expenses which are incurred by marches, &c., and which necessitate a separation from their families, and consequently keeping up two establishments.

Captain J. F. Hobday, Executive
Commissariat Officer, Kandahar.

The men are generally Bengalis and Hindus. They have a great dislike to active-service or any kind of roughing it; and many of them would resign rather than go on their ordinary pay. Those selected to go, whether on increased pay or not, would prefer to remain where they are. As it is an understood thing that all Native establishments, such as *doolie*-bearers, &c., get extra pay on command, it is supposed the system has also been applied to office clerks.

The pay of clerks in the public works, pay, and other departments is better than in the commissariat; and the department is therefore not much sought after.

10. What economies are possible in the purchase and repair of barrack bedding, lighting of barracks, punkha-pulling, &c. ?

Colonel J. I. Willes, Commissary-General, Bengal.

None, except by reducing quantity. I believe the old bedding was much preferable to the new.

Colonel R. A. Moore, Acting Commissary-General, Madras.

Barrack bedding is not repaired, and is procured at a moderate cost. The blanket now issued is inferior to what was formerly issued, and costs less.

The lights formerly used in barracks were merely night lamps, not giving sufficient light to read by. Kerosine lamps are now being introduced, and barracks are being properly lighted from 6 to 10 p.m. Improvements of this kind necessarily cause extra expense.

The cost of punkha-pulling and watering tatties is reported on yearly by standing barrack committees, and their recommendations have not generally been complied with.

Government has usually given a lump sum, considerably under that asked for, and said it must suffice.

Economies can only be effected by those who are on the spot and know the requirements of each building.

Lieutenant-Colonel M. W. Wilmoughby, Acting Commissary-General, Bombay.

Barrack bedding consists of—

English blankets ...	}	Obtained from England through Secretary of State.	
Cotton sheets		}	Obtained by commissariat department by local contract at cheapest rates.
Cotton sutrunjees ...	}		Hitherto obtained from England by Quarter-Master-General through Secretary of State; now obtained by commissariat department by local contract at cheaper rate than home supply.
Bed covers		}	
Pillow cases			
Leather strap with buckle.	}		
Lighting barracks ...			}
Punkha-pulling ...	}	The commissariat department supplies doolie-bearers when available; otherwise contracts are entered into for punkha coolies. Unless some mechanical contrivance for pulling punkhas is invented and introduced, I see no prospect of economy in this item.	

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

These are supplied by contract or obtained on indent from England. The only economies possible are those which can be made in reducing the number of lights, or utilizing Native establishment more freely.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Upper Circle.

Maintaining the present quality of the bedding, I do not see how economy can be effected. It is in part obtained from England under arrangements made by the Secretary of State and in part in India; in the latter instance invariably by contract under the system of public competition.

Lighting.—I can suggest no economy in this respect, except by reducing the number of lights and the quantity of oil allowed, as the oil itself is obtained in the largest markets at the cheapest rates.

Punkha-pulling.—This work is not in any way arranged for by the commissariat department. What assistance can be given is given by detaching all available doolie-bearers for this work.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

I can think of none. We only supply these articles. It is for regimental authorities to answer this question.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces

On the existing orders none. Patterns of bedding, numbers of lamps, and punkhas being fixed for the commissariat department to supply, the supply is made in the cheapest manner possible.

Colonel G. J. Dalrymple-Hay, Examiner of Commissariat Accounts, Bengal.

This office can suggest no economies under these heads; but it Examiner's No. 798, appears to be desirable to ascertain whether it is dated 24th November not practicable to reduce the present scale of kerosine oil for lighting barracks and hospitals. The cost of barrack bedding supplied to a soldier under the old and new scales is about the same, except at those stations where extra bedding is supplied during exceptionally cold weather.

Colonel R. Q. Mainwaring, Deputy Assistant Commissary-General, Madras.

The khus-khus tatties in barracks are practically useless, as they are not watered, except when an officer is by; and the men frequently move them during the day and break holes in them.

Major M. A. Rowlandson, Examiner of Commissariat Accounts, Bombay.

This information may be more satisfactorily gained from executive officers, departmental and regimental, as they have practical experience of the requirements of the troops. A saving has lately been made by the introduction of kerosine oil and new scales of lights.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

I see no way in which the expenses incurred can be reduced in the instances quoted in the question.

I am however of opinion that reductions are feasible in the case of hospitals and supplies made to them. Instead of the present separate regimental hospital, I would suggest a station hospital for Europeans and another for Natives to be established. In the matter of supplies, I am of opinion that the scale fixed by Commissary-General's circular memorandum No. 8080 of 1873 is more liberal than necessity calls for. I allude more particularly to the complete set of clothing therein directed to be kept up for females and children.

Captain J. F. Hobday, Executive Commissariat Officer, Kandabar.

From year to year for the last ten years every possibility of retrenchment or economy has been sought out and adopted. Committees have been held at each station with a view to recommending and adopting any plans to ensure economy. It is believed that the purchase of bedding has this year been made in India, which will effect a saving; but to further reduce expenses of lighting and punkha-pulling is impossible, unless by doing away with punkhas, except in hospitals, or the invention of a machine to pull them.

11. What is the actual price of the various articles of the soldier's ration by "contract" and by "agency"?

Colonel J. I. Wilkes, Commissary-General, Bengal.

I don't understand the question. In probably every station some portion of the ration is supplied by contract, some by agency—in no two corresponding. It is therefore impossible to give the information required.

Colonel E. A. Moore, Acting Commissary-General, Madras.

The cost of ration articles at the several stations is shown in the annexed statement D.

Supplies cannot be made both by contract and agency at the same time and place. The two methods of supply cannot, therefore, be accurately compared.

D

Statement showing the actual price of the various articles of the soldier's

ARTICLES.	BANGALORE.						BELLARY.						CANNANORE.					
	BY CONTRACT.			BY AGENCY.			BY CONTRACT.			BY AGENCY.			BY CONTRACT.			BY AGENCY.		
	Per	Lbs.	oz.	Per	Lbs.	oz.	Per	Lbs.	oz.	Per	Lbs.	oz.	Per	Lbs.	oz.	Per	Lbs.	oz.
Bread	Re.	8	8	Re.	9	8	...	...	...	Re.	10	0	...	...	...
Beef	Re.	13	5	...	Do.	14	14	...	...	Do.	10	12	...	...	...
Mutton	Do.	8	2	...	Do.	9	2	...	...	Do.	8	14	...	...	...
Sugar	Do.	8	0	...	Do.	8	11	...	...	Do.	8	4	...	...	...
Rice	Do.	15	12	...	Do.	13	8	...	...	Do.	16	10	...	...	...
Coffee	Do.	2	9	...	Do.	2	3	...	...	Do.	2	6	...	...	...
Potatoes	Do.	15	10	...	Do.	7	12	...	...	...	...	...	...	...	...
Salt	Do.	25	1	...	Do.	14	8	...	...	Re.	19	0	...	...	...
Mixed vegetables	Do.	45	0	...	Do.	38	12	...	...	Do.	18	13	...	...	...
Firewood	Do.	187	0	...	Do.	1,000	0	...	...	Do.	237	8	...	...	...
Tea	R. A. P. 0 13 2 per lb.	...	...	...	R. A. P. 0 12 0 per lb.	...	...	...	...	R. A. P. 0 15 0 per lb.	...	...	...	...	...

ARTICLES.	SECUNDERABAD.						THAYETMYO.						TONGHOO.					
	BY CONTRACT.			BY AGENCY.			BY CONTRACT.			BY AGENCY.			BY CONTRACT.			BY AGENCY.		
	Per	Lbs.	oz.	Per	Lbs.	oz.	Per	Lbs.	oz.	Per	Lbs.	oz.	Per	Lbs.	oz.	Per	Lbs.	oz.
Bread	Re.	10	0	...	...	...	Re.	12	4	...	...	...	Re.	9	12
Beef	Re.	12	2	...	Re.	6	8	...	...	Re.	5	8	...	...	...
Mutton	Do.	10	2	...	...	...	A. P. 102 40 1/2 per lb.	...	...	...	...	...	A. P. 13 8 2 1/2 per lb.	...	...
Sugar	Do.	7	9	...	Re.	5	4	...	...	Re.	5	4	...	...	...
Rice	Do.	12	15	...	Do.	26	8	...	...	Do.	27	0	...	...	...
Coffee	Do.	3	1 1/2	...	Do.	1	14	...	...	Do.	1	14	...	...	...
Potatoes	Do.	18	0	...	Do.	5	8	...	...	Do.	5	0	...	...	...
Salt	Do.	20	0	...	Do.	41	0	...	...	Do.	40	0	...	...	...
Mixed vegetables	Do.	40	0	...	Do.	40	0	...	...	Do.	22	0	...	...	...
Firewood	Do.	261	0	...	Do.	435	0	...	...	Do.	335	0	...	...	...
Tea	R. A. P. 0 12 4 per lb.	...	...	...	...	...	...	...	...	R. A. P. 0 12 5 per lb.	...	...	...	...	...

COMMISSARY GENERAL'S OFFICE ; }
Madras, 27th August 1879.

* Including carriage

ration by contract and by agency in the Madras presidency for 1878-79.

KAMPTER.						MADRAS.						RANGOON.					
By CONTRACT.			By AGENCY.			By CONTRACT.			By AGENCY.			By CONTRACT.			By AGENCY.		
Per	lbs.	oz.	Per	lbs.	oz.	Per	lbs.	oz.	Per	lbs.	oz.	Per	lbs.	oz.	Per	lbs.	oz.
Rs.	18	4	...	...	...	...	...	...	Rs.	12	0	...	...	...	Rs.	12	4
Do.	11	8	...	...	...	Rs.	12	9	...	...	...	Rs.	15	7	...	...	...
Do.	5	0	...	...	...	Do.	8	3	...	...	...	Do.	1	12 1/2	...	...	...
Do.	5	0	...	...	...	Do.	10	9 1/2	...	...	...	Do.	0	0	per lb.	6	4
Do.	20	9	...	...	...	55 Rs. per candy	10	10	...	...	...	Do.	20	0	...	...	...
Do.	2	2 1/2	...	...	...	Do.	2	8 1/2	...	...	...	Do.	2	4	...	...	...
Do.	14	0	...	...	...	R.A.P.	18	1	...	...	...	Do.	10	0	...	...	...
Do.	17	9	...	...	...	Do.	20	12 1/2	...	...	...	Do.	52	0	...	...	...
Do.	70	0	...	...	...	R.A.P.	37	12	...	...	...	Do.	20	0	...	...	...
Do.	220	0	...	...	...	Do.	217	5 1/2	...	...	...	Do.	241	0	...	...	...
...	0 12 10	per lb.	...	...	...	R.A.P.	11 1/2	1	...	...	...	...	0 12 0	per lb.	...	...	...

TRICHINOPOLY.						VIZAGAPATAM.						WELLINGTON.					
By CONTRACT.			By AGENCY.			By CONTRACT.			By AGENCY.			By CONTRACT.			By AGENCY.		
Per	lbs.	oz.	Per	lbs.	oz.	Per	lbs.	oz.	Per	lbs.	oz.	Per	lbs.	oz.	Per	lbs.	oz.
Rs.	11	7	...	...	...	Rs.	9 1/2	0	...	...	...	Rs.	5	6	...	...	...
Do.	15	2	...	...	...	Do.	6	6 1/2	...	...	...	Do.	5	6	...	...	...
Do.	8	2	...	...	...	Do.	8	9	...	...	...	Do.	3	0	...	...	...
Do.	6	...	...	...	...	R.A.P.	0 2 10	per lb.	...	...	...	Do.	5	1	...	...	...
Do.	28	3	...	...	...	Rs.	16	8	...	...	...	...	...	...	Rs.	8	0
Do.	2	7	...	...	...	Do.	2 1/2	0	...	...	...	...	...	...	...	...	...
Do.	15	4	...	...	...	Do.	10	4	...	...	...	...	...	...	Rs.	20	0
Do.	19	14	...	...	...	Do.	20 1/2	0	...	...	...	Rs.	16	1	...	...	...
Do.	52	4	...	...	...	Do.	60	0	...	...	...	Do.	25	0	...	...	...
Do.	240	0	...	...	...	Do.	200	0	...	...	...	Do.	220	0	...	...	...
...	0 12 4	per lb.	...	...	...	R.A.P.	0 12 6	per lb.	...	...	...	A.P.C.	12 3 27	per lb.	...	...	...

hire except Madras.

R. A. MOORE, Colonel,
Acting Commissary-General.

Statement showing the price of the various articles comprising soldier's rations at the following stations by contract and departmental agency.

Station.	RATE PER POUND.					RATE PER MAUND AT 28 POUNDS.						RATE PER 1,600 lbs.	Remarks.
	Bread.	Beef.	Mutton.	Tos.	Salt.	Rice.	Sugar.	Potatoes.	Onions.	Vegetables, Europe.	Vegetable, country.			Firewood.
Bombay ...	0 1 6 ^D	0 2 2 ^D	0 2 11 ^D	0 9 11	0 1 0	1 10 0	4 2 0	1 1 0	0 11 0	...	1 1 0	10 10 0	At Bombay cattle for slaughter are purchased and paid for by a commissioned officer of the department. Sheep for slaughter are obtained under a contract.
Deolali ...	0 1 6	0 1 9	0 3 2	0 9 11	0 0 10	1 12 0	4 10 0	1 6 0	1 0 0	...	0 4 0	7 0 0	
Poona ...	D	D	D	0 9 11	0 0 9	1 14 0	4 5 10	1 0 0	...	...	0 8 9	12 0 0	The wheat for bread-making at Poona is obtained by contract. Poona supplies bread to Kirkee and flour for bread-making to Purandhar. The cattle and sheep for slaughter at Poona, Kirkee, and Purandhar are purchased under the supervision of the officer, honorary captain, entrusted with the duty of the meat supply.
Kirkee ...	0 1 4	0 1 6	0 2 3	0 9 11	0 0 9	1 14 0	4 5 10	1 0 0	...	...	0 8 9	12 0 0	
Ahmednagar ...	0 1 10	0 1 6 ^D	0 2 5	0 9 11	0 1 0	2 2 0	4 15 0	1 1 0	...	...	0 11 0	8 8 0	At Ahmednagar the cattle and sheep for slaughter are purchased by the warrant officer temporarily in charge of the Commissariat Department at that station.
Satara ...	0 1 10	0 1 4	0 2 7	0 9 11	0 1 10	2 4 0	4 5 10	1 8 0	...	...	0 2 0	8 0 0	
Purandhar ...	D	D	D	0 9 11	0 0 9	1 14 0	4 5 10	1 8 0	...	...	0 12 0	7 8 0	See remark opposite Poona in regard to bread and meat.
Mhow ...	0 1 4	0 1 6	0 2 3	0 9 11	0 0 9	1 14 0	4 5 10	1 8 0	...	...	0 12 0	7 8 0	
Nuseerabad ...	0 1 6	0 1 3 ^D	0 2 0 ^D	0 9 11	0 0 11 ^D	2 0 9	4 14 6	1 2 6	...	1 4 0	0 12 6	6 5 0	At Mhow the purchase of sheep is effected principally by the executive officer and partly by sending departmental subordinates into district to buy. The above remark applies to Nuseerabad; also as regards the purchase of sheep and cattle.
Nuseerabad ...	0 1 0 ^D	0 1 4	0 1 5 ^D	0 9 11	0 0 8	1 15 5	4 15 0	1 10 8	0 6 6	0 7 0	0 6 3	9 0 0	
Neemuch ...	0 1 3 ^D	0 1 1 ^D	0 1 8 ^D	0 9 11	0 1 0	2 10 0	5 5 0	2 11 0	0 12 0	...	0 10 0	6 3 0	The remark against purchase of slaughter sheep at Mhow and Nuseerabad apply to Neemuch also. The departmental supply of onions and country vegetable is arranged for as far as possible to the so-called departmental supplies.
Indore ...	0 1 6	0 0 9 ^D	0 1 5	0 9 11	0 1 0	2 7 0	4 14 6	2 8 0	...	1 8 0	1 0 0	9 12 0	
Taragarh ...	0 1 3	0 1 4	0 1 5 ^D	0 9 11	0 1 0	2 4 0	4 15 0	1 14 0	0 8 0	0 4 0	0 8 0	13 0 0	The slaughter cattle and sheep are supplied by the executive commissariat officer at Nuseerabad; see reply against that station.
Asirgarh ...	0 1 8	0 1 4	0 2 8	0 14 0	0 1 3	2 0 0	4 14 6	3 0 0	0 14 0	...	0 12 0	5 0 0	
Kurrachee ...	0 1 0	0 1 10 ^D	0 2 8 ^D	0 9 11	0 0 8	2 1 2	4 7 0	1 3 5	...	0 9 11	0 9 11	6 15 2	Wheat for bread-making obtained by contract; also cattle and sheep for slaughter.
Hyderabad ...	0 1 1 ^D	0 1 7	0 2 1	0 9 11	0 0 9	2 3 0	4 7 0	1 12 0	0 12 0	...	0 4 0	5 9 3	
Aden ...	0 1 8 ^D	0 3 5	0 4 0	0 9 6	0 0 4	2 10 6	4 1 9	2 5 0	1 5 0	...	0 15 8	8 0 0	Flour for bread-making sent from Kurrachee.
Perim ...	0 2 0	...	0 9 6	0 12 0	0 0 3	2 15 10	6 9 0	3 8 0	3 8 0	...	...	11 8 0	
Deesa ...	0 2 0	0 1 11 ^D	0 1 10 ^D	0 9 11	0 0 3	2 1 6	5 2 0	2 8 0	0 9 6	...	0 8 0	4 11 6	Biscuit is issued at Perim in lieu of bread.
Abu ...	0 2 7	...	0 2 3	0 9 6	0 0 8	2 14 0	5 2 0	2 10 0	0 14 0	...	0 14 0	5 4 0	
Ahmedabad ...	0 1 10	0 1 5	0 1 9	0 9 11	0 1 0	2 4 0	4 14 0	1 9 0	0 12 0	...	...	9 8 0	Slaughter sheep obtained by contract, and cattle by purchase, principally by the executive commissariat officer.
Baroda ...	0 1 7	0 1 2	0 1 8	0 9 11	0 0 7	2 1 0	4 10 0	1 5 6	0 11 8	...	0 14 0	7 0 0	
Belgaum ...	0 2 1	0 1 2 ^D	0 2 2	0 9 11	0 1 8	1 8 0	3 15 0	1 3 3	0 14 6	1 3 6	0 11 0	6 7 9	

The rates marked D are for departmental supplies; all other articles are obtained by contract. Rum is obtained by contract from Shahjehanpore from Messrs. Carew & Co. at the uniform rate of Rs. 1-7 per imperial gallon 5° over proof, deliverable at all the stations in the presidency.

M. W. WILLOUGHBY, Lieut.-Col.,
Acting Commissary-General, Bombay.

Inspection-Colonel M. W. Willoughby, Acting Commissary-General, Bombay.

The actual price of each article of soldier's ration in the Bombay presidency is given in the accompanying tabular statement. The articles supplied otherwise than by contract are marked by the letter D, but from the remarks entered in the statement opposite these items it will be observed that there is no systematic supply by direct Native agency, and that the contract principle is applied as far as possible to the so-called departmental supplies.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

The Commissary-General will reply to this question; but I am confident the supply of meat and bread by agency is economical, and is most satisfactory in the interests of the soldier; although the extra work thus entailed on executive officers in effecting these supplies by agency is very great, and is a duty of which they would gladly be relieved.

Statement showing cost of rations supplied to troops at the undermentioned stations in the Upper Circle.

Stations.	Bread.		Beef.		Mutton.		Rice.		Salt.		VEGETABLES.		Firewood.	Sugar.	Tea.	Coffee.	COST OF A FULL RATION.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.					On issue of beef.	On issue of mutton.
Umhalla, per 100 lbs.	8 13 4	9 12 3	15 5 10	7 3 11	9 12 0	4 6 10	.....	0 5 6	16 10 6	75 0 0	38 0 6	0 5 1	0 6 1					
Kasull "	7 8 10	14 3	17 10 10	6 12 3	6 9 2	3 2 0	.....	0 7 10	16 3 4	75 0 0	.....	0 4 6	0 6 1					
Jalundar "	11 7 6	10 0	13 1 1	5 13 6	5 10 6	3 5 0	.....	0 7 8	16 2 4	75 0 0	.....	0 5 7	0 6 1					
Perampore "	5 12 10	6 7 0	14 11 3	7 3 11	4 14 0	5 15 0	1 3 11	0 11 8	16 2 4	75 0 0	.....	0 4 0	0 5 4					
				8 4 0	4 12 0	5 8 11	1 9 0	.....	0 19 12									
Mooltan "	6 14 11	8 1 2	11 4 2	8 1 0	3 12 11	8 5 3	.....	0 7 11	15 10 0	75 0 0	.....	0 4 7	0 5 1					
Meen Meer "	7 12 1	8 12 3	13 16 10	7 7 8	4 3 9	7 0 0	.....	0 8 0	17 3 0	75 0 0	62 8 6	0 5 4	0 6 0					
Rawal Pindi "	7 1 2	10 6 11	15 13 11	9 14 0	4 12 0	5 1 0	.....	0 9 8	16 2 4	75 0 0	.....	0 4 8	0 5 6					
				11 1 9	5 3 6	5 1 10	.....	0 13 0	21 14 0	75 0 0	.....						

The rate given is what is called "stock" rate; the actual rate is probably about Rs. 80.

a Agency. | c Contract. When neither is given, means the system in use is not known.

M. J. BRANDER, Colonel, Offg. Depy. Commy.-Genl., Upper Circle, Bengal.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

The prices vary every month at every station. There are no fixed rates for bread and beef. These depend upon cost of wheat and cattle, &c. But I give below the price of a soldier's ration at Fort William for June 1879:—

30 0	bread	at	7 14 7½	per 100 lbs.	Rs. A. P.
26 0	beef	at	9 12 11	"	2 8 9½
4 0	mutton	at	17 0 6½	"	0 10 11
90 0	wood c	at	0 10 5	"	0 9 4½
7 8	rice c	at	6 11 0	"	0 8 0
1 4	salt	at	5 0 0	"	0 1 0
80 0	potatoes	at	4 13 9	"	1 7 4
4 11 c	sugar	at	0 2 8½	per lb.	0 10 7
1 5½	tea c	at	0 12 0	"	1 0 0
Total					9 14 0

* * * The items marked c are supplied by contract.

Colonel G. J. Dalrymple-Hay, Examiner of Commissariat Accounts, Bengal.

The contract rates for the supply of tea and sugar in 1878-79 were as follows:—

Tea	{	Delivered at Calcutta	Rs. A. P.	} per lb.
		" at Meerut	0 8 0	
		" at Ranikhet	0 8 6	
Sugar	{	" at Ranikhet	0 9 3	} per lb.
		At all stations from Calcutta to Hazaribagh	0 2 3½	
		At all stations from Benares upwards	0 2 7	

The other articles which form a soldier's ration are—

Bread.	Salt.
Meat.	Potatoes, or other vegetables.
Rice, or an equal quantity of flour.	Firewood.

Bread and meat are supplied by agency; the average agency rates per hundred lbs. in 1878-79 throughout the presidency were—

Bread	Rs. A. P.
Beef	6 1 4½
Mutton	7 11 7½
	15 10 1½

These averages are specially struck for report in the financial review of the department.

The other articles are supplied by contract or agency, as may be decided by the Commissary-General. The rates which vary at the different stations are not compiled, neither are averages struck as in the case of bread and meat.

Colonel R. Q. Mainwaring, Deputy Assistant Commissary-General, Madras.

Agency.	Contract rates offered for 1879-80.
Bread 15½ lbs. per rupee	14 lbs. per rupee.
Beef 15 "	14½ "
Mutton 8 "	6½ "
Rice	21 lbs. per rupee.
Coffee	Rs. 0-7-4 per lb.
Sugar	6½ lbs. per rupee.
Potatoes	15½ lbs. "
Curry vegetables	60½ lbs. "
Firewood	255 lbs. "
Salt	19 lbs. "

Major M. A. Rowlandson, Esq.
 Cashier of Commisariat Accounts,
 Bombay.

The following statement shows the actual price of each article of a soldier's ration obtained by contract. None are obtained by agency in this presidency, except bread and meat at the stations noted in the statement.

Statement showing the actual price of the various articles of the soldier's rations by contract.

Station.	Bread.	Beef.	Mutton.	Rice.	Sugar.	Tea.	Salt.	Onions.	Potatoes.	Firewood.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Bombay	0 1 8½ per lb.	*1 0 0 per 7½ lbs.	*1 0 0 per 5½ lbs.	1 10 0 per 28 lbs.	4 2 0 per 28 lbs.	0 9 11 per lb.	0 1 0 per lb.	0 11 0 per 28 lbs.	1 1 0 per 28 lbs.	11 4 0 per 1,600 lbs.
Deolali	0 1 8 "	0 1 9 per lb.	0 3 2 per lb.	1 12 0 "	4 10 0 "	0 9 11 "	0 0 10 "	1 0 0 "	1 6 0 "	7 0 0 "
Poona	*1 0 0 per 11½ lbs.	*1 0 0 per 10½ lbs.	*1 0 0 per 7½ lbs.	1 14 0 "	4 5 10 "	0 9 11 "	0 0 9 "	0 8 9 "	1 0 0 "	10 8 0 "
Purandhar	*1 0 0 per 10½ lbs.	*1 0 0 per 10½ lbs.	*1 0 0 per 6½ lbs.	1 14 0 "	4 5 10 "	0 9 11 "	0 0 9 "	0 12 0 "	1 8 0 "	7 8 0 "
Satara	0 1 10 per lb.	0 1 4 per lb.	0 2 7 per lb.	2 4 0 "	4 5 10 "	0 9 11 "	0 1 10 "	0 14 0 "	1 8 0 "	8 0 0 "
Ahmednager	0 1 10 "	*1 0 0 per 10½ lbs.	*1 0 0 per 6½ lbs.	2 2 0 "	4 15 0 "	0 9 11 "	0 1 0 "	0 11 0 "	1 1 0 "	8 8 0 "
Dolgaum	0 2 1 "	0 1 2½ per lb.	0 2 2 per lb.	1 9 0 "	3 15 0 "	0 9 11 "	0 1 8 "	0 14 6 "	1 3 8 "	6 7 9 "
Ahmedabad	0 1 10 "	0 1 5 "	0 1 9 "	2 4 0 "	4 14 0 "	0 9 11 "	0 1 0 "	0 12 0 "	1 9 0 "	9 8 0 "
Baroda	0 1 7 "	0 1 2 "	0 1 2 "	2 1 0 "	4 10 0 "	0 9 11 "	0 0 7 "	0 11 8 "	1 5 6 "	7 0 0 "
Dessa	0 2 6 "	*1 0 0 per 9 lbs. 2½ ozs.	*1 0 0 per 8½ lbs.	2 1 6 "	5 2 0 "	0 9 11 "	0 0 3 "	0 9 8 "	2 8 0 "	4 11 6 "
Abu	0 2 7 "	†	0 2 3 per lb.	2 14 0 "	5 2 0 "	0 9 6 "	0 0 8 "	0 14 0 "	2 10 0 "	5 4 0 "
Mhow	0 1 6 "	0 1 3½ per lb.	*1 0 0 per 7½ lbs.	2 0 9 "	4 14 6 "	0 9 11 "	0 0 11½ "	10 12 6 "	1 2 6 "	6 5 0 "
Indore	0 1 6 "	0 0 9½ "	0 1 5 per lb.	2 7 0 "	4 14 6 "	0 9 11 "	0 1 0 "	11 0 0 "	2 8 0 "	9 12 0 "
Asirgarh	0 1 3 "	0 1 4 "	0 2 8 "	2 0 0 "	4 14 6 "	0 14 0 "	0 1 3 "	0 14 0 "	3 0 0 "	5 0 0 "
Nusseerabad	*0 1 1 "	*1 0 0 per 11 lbs. 12½ ozs.	*1 0 0 per 10½ lbs.	1 15 5 "	4 15 0 "	0 9 11 "	0 0 8 "	0 6 6 "	1 10 8 "	9 0 0 "
Neemuch	0 1 3½ "	0 1 1½ per lb.	*1 0 0 per 10 lbs. 12½ ozs.	2 10 0 "	5 5 0 "	0 9 11 "	0 1 0 "	0 12 0 "	3 11 0 "	6 3 0 "
Kurrachee	*1 0 0 per 16½ lbs.	*1 0 0 per 8½ lbs.	*1 0 0 per 6½ lbs.	2 1 2 "	4 7 0 "	0 9 11 "	0 0 8 "	0 9 11 "	1 3 5 "	7 13 4 "
Hyderabad	*1 0 0 per 14½ lbs.	0 1 7 per lb.	0 2 1 per lb.	2 3 0 "	4 7 0 "	0 9 11 "	0 0 9 "	0 12 0 "	1 13 0 "	5 9 3 "
Aden	*1 0 0 per 9 lbs. 7½ ozs.	50 3 5 "	0 4 0 "	2 10 6 "	4 1 9 "	0 9 6 "	0 0 4 "	1 5 0 "	2 5 0 "	8 0 0 "

* Departmental agency rates.

† Salt beef and salt pork are issued once a week at Abu.

‡ Vegetables.

§ Salt beef and salt pork are issued once a week at Aden.

12. Do you see any reason why the commissariat officer in a division or district should not come more directly under the orders of the general officer ?

Colonel J. I. Willes, Commissary-General, Bengal.

In all matters of discipline, commissariat officers are as directly under the orders of commanding officers as any others. If my opinion is asked as to whether we should all prefer to be under the orders of the Commander-in-Chief instead of Government, I unhesitatingly say the former; though I am aware there are difficulties and objections to such an arrangement. Lastly, if my views as to economy in working the department are wanted, I would say appoint a commission to enquire into its whole working, including accounts as rendered and audited; take in the examiner's office and so much of the controller's as pertains to the commissariat; and let it be considered whether the present cumbersome system of accounts and audit cannot be improved and economized to the great relief of executive officers, whereby possibly no increase to their offices would be wanted, and large reductions could be made in the immense establishments retained by the examiner to perform work that could well be dispensed with. I firmly believe much is done that is absolutely worthless, and which benefits no one but the army of clerks kept up.

Colonel E. A. Moore, Acting Commissary-General, Madras.

The general officer ought not to interfere with the duties of commissariat officers as public accountants, but in other respects they are under the general officer.

Lieutenant-Colonel M. W. Wilmoughby, Acting Commissary-General, Bombay.

The commissariat officer of the division or district is already under the orders of the general or commanding officer, and his position as a member of the staff has been lately defined by Government of India letter No. 241, dated 19th February 1877.

This condition should be fully and unreservedly recognized. Under it the status of the department and the military spirit of the offices will be maintained. Commissariat officers have to refer matters of departmental detail for the orders of the Commissary-General; but this should not, and need not, interfere in any way with their duty and relation to the general officer, from whom the commissariat officer should receive his orders direct, and not through the medium of another staff officer.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

I consider it most desirable for the interests of the service that the commissariat officer should be regarded as a staff officer of the general, and that his relations with the general should be of the most intimate and confidential nature. The general officer remembering that while he has to watch over the interests of the soldier, he must not forget the financial result of orders he may give; and in this matter the commissariat officer can prove his best adviser.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Upper Circle, Bengal.

The functions of commissariat officers chiefly consisting in being disbursers of the public money for the purchase of supplies and hire of carriage for the army, it follows that their action must be restricted by the rules of Government under the above heads, and that, unless general officers are invested with discretionary power as to the expenditure which they do not now possess, I do not see how the officers of the commissariat in the above capacity can come more directly under the orders of the military authorities. At the same time, I beg to offer my opinion that it would be greatly to the personal advantage of the officers of the commissariat department if they could be placed more directly under the orders of their generals, and recognized more thoroughly as members of the immediate staff, than they are at present; for then there would probably be a better prospect of their services in the field, necessarily of an important nature, being recognized equally with other members of the staff.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

Commissariat officers are bound to obey all orders of the general commanding the division or district. I think it will be inconvenient and likely to retard work if they are under more masters than at present. Their work is generally so incessant and heavy, that I would strongly advocate their present position being left as it is, especially as I cannot conceive in what way the service will be benefited by a change such as the one suggested.

Colonel R. Q. Mainwaring, Deputy Assistant Commissary-General, Madras.

By the Madras Commissariat Code, Section I, paragraph 10, commissariat officers in charge of divisions and stations are subject to the orders of the general or other officer commanding on all matters that are not of a purely departmental nature. Anything more than this would cause as much friction in work as the interference of a man in his domestic household affairs.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

I do not see how the executive commissariat officers of a division or district can come more directly under the orders of the general officer unless the entire constitution of the department is altered, and it ceases to be a civil department of the army.

Such an arrangement would throw enormous work upon the Quarter-Master-General's department, which department apparently has enough to occupy it at present.

Major M. A. Rowlandson, Examiner of Commissariat Accounts, Bombay.

The commissariat officer of a division or district should in all possible ways carry out the wishes of the general officer, but it would be practically impossible for him to accept the orders of inexperienced men on points on which he himself alone possesses the requisite technical experience and knowledge. It is the part of general officers and others to make known their requirements to a commissariat officer, but he should not be trammelled by orders in his mode of meeting the same.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

The general desire of officers in the department is to be placed more directly under military commanders; and the opinion prevails that the present system places them at a personal disadvantage, since recognition in the way of decorations for services rendered in the department are considered to be out of the sphere of hope for officers in the department. At the same time I am unable to see how the present system can be altered without Government handing over the control of military expenditure to the Commander-in-Chief.

Captain J. F. Hobday, Executive Commissariat Officer, Kandahar.

The commissariat officer in a division is most directly under the orders of the general officer commanding in every way, except only in the matter of expenditure of public money. Even in this he is under the general's orders; but it is his duty to point out where any order entails extra expense to Government. In all other matters relating to supply he is entirely under the general.

13. Please give what you consider to be the English equivalent of the Native name used either for any of the Native *personnel* or in the work of the department.

Colonel J. I. Willes, Commissary-General, Bengal.

No equivalent would convey a correct idea of the work of the Native subordinate. But I should better be able to furnish the information (if practicable) if I had a list of the English *employés*, corresponding with whom it is desired to know in what capacities Natives are employed.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The petty officers of the bullock establishment are called—

Duffadars,
Chowdries,
Darogahs,

for which there are no suitable equivalents in English. The darogah is the highest rank.

The camel attendants are called—

Surwans (camel-drivers),

and the petty officers—

Dubashies.

The elephant attendants are called—

Mahouts (elephant-drivers),
Cowardies (elephant coolies),

and the petty officers in charge of 10 or 12 elephants—

Fouzdars.

The petty officers in charge of mules are called—

Muccadums.

The petty officers of the dooly bearer establishment are called—

Petty maistries and head maistries.

The writers who keep the accounts of the public cattle department are called—

Mutsuddees.

The Native medicines issued to public cattle are called—

Massalals.

The Madras nomenclature of store and stock articles contains very few Native names. The following common words are used :—

Goglets.
Howdahs (elephant).
Salectahs.
Chatties.
Cawady sticks.
Charsahs.
Jhools.

Lieutenant-Colonel M. W. Wil-
longhby, Acting Commissary-Gen-
eral, Bombay.

Native name.	English equivalent.
Bhistie	Water-carrier.
Bhundaree	A cook on vessels.
Begaree	Labourer.
Coolie	Elephant attendant.
Chowkidar	Watchman.
Dhobie	Washerman.
Dhungar	Shepherd.
Fouzdar	Head of elephant drivers.
Havildar	Chief of peons.
Hammal	Porter.
Hullali	Cattle slaughterers.
Jemadar	Chief of elephant drivers.
Lascars	Seamen.
Muccadam, head	Overseer over 100 Government cattle and 50 attendants.
Muccadam, second	Overseer over 25 Government cattle and 12 attendants.
Muccadam	Overseer of elephants.
Mahout	Elephant driver.
Mochee	Leather worker.
Mallee	Gardener.
Motewalla	Driver of bullocks at a draw-well.
Maistry baker	Head baker.
Moolla	Sheep slaughterer.
Naik	Head peon or office messengers.
Nalbund	Farrier.
Nowgunnies	Labourers carrying heavy loads by pole and slings.
Puggie	Watchman.
Ramosis	Watchmen.
Shroff	Cashier.
Surwan	Camel driver.
Topas	Sweeper.
Tupalwalla	Postman.

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

I have no memorandum by me showing the constitution of the English commissariat; but I believe all the duties performed by our Native gomashtas or agents are conducted by subordinate commissariat officers or clerks in the English commissariat.

Colonel M. J. Brander, Officiat-
ing Deputy Commissary-General,
Upper Circle, Bengal.

To adopt English synonyms for the present Hindustani words in use, would, it seems to me, obtain no advantage, inasmuch as, in addressing Native subordinates, the latter would have to be adhered to from their general ignorance of English.

I will, however, give a list of some that occur to me.

Native name.	English equivalent.
Gomashta	Agent, ordinarily used.
Pulladar	Weighman, ditto.
Chuprassi, or peon	Messenger.
Duffry	Record-keeper.
Chowdry (cart)	Agent or contractor forearts.
Jemadar (elephant)	Head elephant-keeper.
Mahout	Elephant-keeper.
Surwan	Camel-driver.
Bhistie	Water-carrier.
Puckali	Water-bullockman.
Puckal	Water-bag.
Doolie	Portable field-cot.
Dandy	Portable hammock-cot.

English terms are usually employed to describe the various kinds of work of the commissariat department.

Colonel R. Q. Mainwaring, Deputy
Assistant Commissary-General,
Madras.

Personnel.	Anglicæ.
Mutsuddy	Cattle establishment. Agent and accountant.
Fouzdar	Elephant establishment. Superintendent.
Mahawat	Driver.
Cawardy	Forage-cutter, &c.

		<i>Camel establishment.</i>	
Dubashy	...	...	Overseer.
Surwan	...	...	Driver.
		<i>Mule establishment.</i>	
Head muccadam	...	...	Superintendent.
Second muccadam	...	...	Overseer.
Muleteer	...	...	Driver.
Chuckler	...	...	Collar-maker.
		<i>Bullock establishment.</i>	
Darogah	...	...	Superintendent.
Chowdry	...	...	Head overseer.
Duffadar	...	...	Overseer.
Driver	...	...	Ditto.
		<i>Bearers' establishment.</i>	
Head maistry	...	...	Superintendent.
Petty maistry	...	...	Foreman.
Bearer	...	...	Porter and general laborer.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-
General, Bengal.

I have used only English names in this report. But I subjoin a list of such terms:—

		<i>Establishment.</i>	
Munshi	...	...	Native writer and translator.
Duftry	...	...	Office attendant.
Peon or chaprasi	...	...	Messenger.
Chowkidar	...	...	Watchman.
Gomashta	...	...	Native agent.
Sirdar	...	...	Headman.
Tindal	...	...	Headman of lascars.
Coolie	...	...	Porter.
Mutsuddy	...	...	An assistant Native writer.
Maistry	...	...	Master of any craft.
Mochee	...	...	A cobbler or shoemaker; any worker in leather.
Jemadar	...	...	The headman of mule or elephant attendants.
Naib-jemadar	...	...	Assistant headman.
Mahout	...	...	Elephant driver.
Syee	...	...	Groom.
Chowdry	...	...	A headman.
Naib-chowdry	...	...	Assistant headman.
Missaldar	...	...	Native record-keeper.
Thokedar	...	...	Manager of a batch of camels or cattle.
Surwan	...	...	Camel driver.
Charundar	...	...	A man sent in charge of stores from one place to another.
Jorawallah grass-cutter	...	...	A grass-cutter who supplies grass to two horses.
Salootrie	...	...	Farrier.
Shooter-sowar	...	...	Camel rider.
Kahar	...	...	A caste of Hindus employed principally for carrying palkies and doolies.
Banghyburdar or banghywalla	...	...	A Native porter, who carries loads on his shoulder by a pole laden at either end.
Goorga	...	...	Hospital scullion.
Dhobie	...	...	Washerman.
Bhistie	...	...	Water-carrier.
Bildar	...	...	A digger.
Lascar	...	...	Native sailor or tent pitcher.
Kotwal	...	...	Mayor of a town or city.
Gwalla	...	...	Cowherd.
Moolla	...	...	Mahomedan priest.
Peepawalla	...	...	A cask porter.
Nalbund	...	...	Horse shoer.
Batta	...	...	An extra allowance of pay.
		<i>Articles.</i>	
Soojee	...	...	Granulated flour.
Chunam	...	...	Lime.
Nainsook	...	...	A description of cotton cloth.
Gumla	...	...	An earthen basin.
Jallas	...	...	A water jar.
Naunds	...	...	A larger earthen basin.
Soorabie	...	...	Earthen water goblet.
Ghurra	...	...	Globular water vessel of earthenware.
Handi	...	...	A small earthen pot.
Chilumchee	...	...	Brass washhand basin.
Doosooty	...	...	A description of cotton cloth undyed.
Kharooa	...	...	A red ditto ditto.
Madapalam	...	...	A fine kind of country cotton cloth.
Massala	...	...	A mixture of spices or ingredients.
Khus-khus	...	...	The root of a kind of grass used for tatties.

Khullie	...	...	Oilcake.
Kurbee	...	...	Dry stocks of jowar plant.
Mote	...	...	A leather bag used for drawing water.
Pattie	...	...	A long piece of cloth of any kind.
Tant or gunny	...	...	Coarse country canvas.
Moonj	...	...	A kind of grass used for making strings and ropes.
Sirkee	...	...	A grass with thick stalks used for thatching.
Newar	...	...	Broad tape woven from cotton thread.
<i>Store articles.</i>			
Atta	...	...	Flour of wheat or other grain.
Bhoosa	...	...	Chopped straw.
Dhall	...	...	The grain of various kinds of "vetches."
Ghee	...	...	Clarified butter.
Suttrunjee	...	...	Bed carpet.
Missa bhoosa	...	...	Chopped straw and leaves of "vetches."
<i>Stock articles.</i>			
Bullies	...	...	Small beams of timber.
Kajawahs	...	...	Crates for carrying loads on camels.
Pullie	...	...	A square piece of rough country canvas from which cattle are fed.
Saffees	...	...	Small dusters used by kneaders.
Sulleetahs	...	...	Rough country canvas bags or tent cases.
Phowrahs	...	...	Country hoe.
Puckals	...	...	Camel, mule, or bullock water bags.
Purdahs	...	...	Curtains or screens.
Doolies	...	...	Litter carried by four bearers.
Dandies	...	...	A kind of hill litter carried by two bearers.
Kurries	...	...	Beams of wood.
Chicks	...	...	Bamboo curtains like screens.
Dole	...	...	A leather bucket.
Petarahs	...	...	A square tin box in skeleton wooden cases.
Jhampans	...	...	A hill litter carried by two bearers.
Punkha	...	...	A large fan swinging from the roof.
Tatties	...	...	A bamboo frame covered with khus-khus for cooling houses.
Banghies	...	...	A pole used by coolies for carrying loads at either end.
Sepoy pâl	...	...	Sepoy's tent.
Sungahs	...	...	Poles used by hillmen for carrying loads.
<i>Elephant gear.</i>			
Guddela	...	...	The lower elephant pad.
Guddie	...	...	The upper ditto.
Churaoh	...	...	A pair of hides, a water bag.
Tawah	...	...	Iron plate for baking cakes for elephants.
Numda	...	...	A kind of felt pad.
<i>Fetter.</i>			
"Bherie," "bhundur," "kannas"	...	...	Elephant fetters.
<i>Equipment.</i>			
Jhobas	...	...	A covering for elephants or bullocks.
Siree	...	...	A ladder.
Goorbund	...	...	Elephant cover.
Gyanee	...	...	A part of the elephant's gear.
Pidwat	...	...	Sword.
Howdah	...	...	} Litters strapped to the back of the elephants.
Charjama	...	...
Shooterkhana	...	...	Camel yard.
Howdakhana	...	...	Store room for the howdah and gear.
Nuth	...	...	Nose-rope of bullocks or camels.
Palan	...	...	Camel saddle for load.
Suffra	...	...	A square piece of coarse country canvas for feeding cattle.
Pughie	...	...	Head-rope.
Ras	...	...	Rope or leather reins.
<i>Mules.</i>			
Soondkhas	...	...	Pads used for pack-bullocks or mules.
Thurrie	...	...	A woollen pad for ditto.
Paytee	...	...	Girth for camels or bullocks.
Churoah	...	...	A leather cover placed under the water-bags to protect the gear.
Chupkun	...	...	A kind of coat worn by Natives.
Kumurbund	...	...	A waistcloth.
Pyjama	...	...	A pair of loose trousers worn by Natives.
Zrendaz	...	...	A covering of red cloth for the elephant howdah.
Chowri	...	...	A fly brush.
Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.	...	...	Gomashta ... Agent. Chowdry ... Contractor and overseer. Jemadar ... Captain. Mahout ... Elephant driver. Missaldar ... Overseer.

Tokedar	...	...	Camel owner.
Surwan	...	...	Camel driver.
Itlanamah	...	...	Certificate of carriage.
Dustee	...	...	Bill.

The above are some of the names, but I may mention that in office work the English names, as, for instance, bill, certificate, return, &c., are generally made use of.

Captain J. F. Hobday, Executive
Commissariat Officer, Kandahar.

Gomashtas	...	Commissariat victualling or purchasing agent. In Bombay they are called commissariat inspectors.
Purveyors	...	Purveyors.
Sirdar	...	Headman of kahars.
Mate	...	His assistant.
Kabar	...	A doolie-bearer.
Bhistie	...	Waterman.
Pulladar	...	Weighman.
Dhobie	...	Washerman.
Mehter	...	Scavenger or sweeper.
Mistrie	...	Head baker.
Khumirgar	...	A kneader.
Kasaie	...	A butcher.
Baipari	...	A cattle-seller.
Chuprassi	...	An office peon.
Duftri	...	A man who keeps records and looks after stationery, rules forms, &c.
Bildar	...	A digger.
Mochi	...	A cobbler.
Khallasi	...	A tent-pitcher or one who looks after one; also called a lascar.
Jemadar	...	Sub-overseers.
Banghywalla	...	A banghy-bearer.
Napnawalla	...	A measurer.
Lohari	...	A blacksmith.
Barhai	...	A carpenter.
Nalbund	...	A farrier.
Kutchurwalla	...	A muleman or muledriver.
Oontwalla	...	Camelman or camel-driver.
Bhereewalla	...	A shepherd.
Bilewalla	...	Cowherd.
Gwalla	...	Milkman.
Puckali	...	A man who looks after a bullock with water-bag.

14. Can you suggest any method by which the expenditure on stores, whether imported from abroad or purchased in India, can be reduced ?

Colonel R. A. Moore, Acting
Commissary-General, Madras.

The expenditure on stores is limited to the requirements of the service. But it is difficult to estimate accurately and economically a year in advance. Under the present system of home indents, more stores are occasionally got out than are afterwards found to be necessary, and on the other hand supplies frequently run short, and have to be supplemented by local purchases at advanced rates. It would be more economical to order supplies as required on shorter notice, instead of the system of annual indents checked by examiners, controllers, local Governments, and finally by the Supreme Government. If these formalities cannot be dispensed with, it would be better to advertise in India for local delivery of all stores required.

Lieutenant-Colonel M. W. Wil-
loughby, Acting Commissary-Gen-
eral, Bombay.

As regards stores imported from abroad, they are obtained through the Secretary of State for India, presumably in the cheapest market; and, as already stated in reply to question 10 of this paper, action is now being taken to ascertain whether all the supplies imported from England cannot be obtained locally by contract, as cheaply or cheaper than the home supply, in view to making a change in source of supply if it is found to the advantage of the State to do so. As regards supplies obtained in India, the contract system is in force. Due notice is given of the requirements of the department, the public are freely invited to tender; and it may be assumed that the rates secured are the most reasonable at which the supplies could be delivered and the services performed.

No. 5830, dated Umballa, 28th August 1879.

From—COLONEL M. J. BRANDER, Officiating Deputy Commissary-General, Upper Circle,
To—The Secretary, Army Organization Commission.

In accordance with the invitation conveyed in the 4th paragraph of your letter No. 139, dated 9th instant, to my address, I beg to submit the following observations, offering suggestions tending, as I believe, to the greater efficiency of the commissariat department in the Bengal presidency.

1. The Bengal commissariat is officered on a peace footing; and it was only by drawing on the same department in Bombay and Madras that it was able to send enough officers into the field during the late campaign; and officers of both presidencies are now employed in Bengal. Not long ago a Madras officer, not even in the commissariat department, was in charge of the commissary-general's office in Calcutta. Besides this, acting officers are still in charge of some of our executives. During the campaign these officers had to occupy the places *pro tem* of the permanent officers withdrawn—a very undesirable proceeding, as advantage was apt to be taken of their want of experience.

2. Were the commissariat officers of the three presidencies to be embodied into one corps, the department generally in India would be a stronger one, and more capable than at present of meeting sudden demands in any quarter of the empire.

3. This need not necessarily imply interchange of posting, as is the case in the accounts branch, where officers are employed in any part of India without reference to presidency. This I do not think necessary or advisable. Officers moving within the limits of their own presidency have already a very extensive area in which to acquire experience; and it is desirable that all local knowledge as far as possible of their own presidency should be acquired, which by interchanging officers into different presidencies would not be so well attained.

4. But I consider that one and the same system in every particular should be adopted by all three presidencies in the principle of the interchangeable parts of a machine, which need never remain out of gear so long as its defective component part can be quickly replaced. So that when employed on the same service, officers and subordinates would find no difficulty in working together.

5. The great expense to which officers, especially married ones, are put by long moves from one presidency to another, as is, I know, experienced in the accounts branch, is, I consider, a good reason against the adoption of such a system.

6. The warrant officers in the Bengal commissariat should be doubled at once. So great a scarcity was there, that during the campaign in Southern Afghanistan an officer had to accompany the cavalry brigade which marched from Mithankot to Kandahar under General Fane, C.B., absolutely unattended by a single warrant officer, sergeant, or even clerk to assist him in his duties.

7. Throughout the campaign the want of these men and of trained sergeants was so great, that the commissioned officers of the department had to do absolutely menial work; and thus were unable to furnish returns, balances of stores, &c., which were being urgently called for.

8. But I am no advocate for the general employment of warrant officers in independent charges. By a strange want of appreciation of the importance of their position, these men when in charge of an outpost get no more pay than when in charge of a godown under the eye of an officer.

9. *Pay of subordinates.*—A sergeant or private on joining the commissariat gets a staff allowance of Rs. 20 a month; but he has out of it to pay for all his barrack servants, bhistie, sweeper, punkah-oolies; and by living out of barracks he has to pay more for a cook and for his washing. So that, as I have ascertained by frequent enquiry, a commissariat sergeant on Rs. 20 a month is not reimbursed for the extra expense he is put to. This places him in the position of a needy man, which, surrounded as he is by those ready to put bribes into his hand, is most detrimental to his own *morale* and the interests of the service.

10. In the same way our agents are underpaid. A station gomashtha who has the purchase of many thousand rupees worth of grain in a month draws Rs. 50 a month, and no more—a sum which he frequently expends in clerks to keep his accounts. Men will live somehow; and if they can't make gains honestly, they are driven to it in some other way. Godown gomashthas are, by an inextinguishable rule of the commissariat, not allowed a clerk to assist them to keep their books, and consequently have to keep one at their own expense. As these men have seldom any purchases out of which to make a profit, and as their pay does not exceed Rs. 50, except in the case of one or two of our depot godowns, they too are driven to extremities. In my opinion the *morale* of the department requires raising, and that could be done by increasing the pay of the subordinates to such a degree as to place them above the temptation they are peculiarly liable to.

11. As regards the position of the commissioned officers of the department, referred to in question 12, paper E, it may be considered an anomalous one; and I think they have reason to feel dissatisfied and hurt at the way they are generally treated at the end of field operations by general officers, who do not seem, as a rule, to consider it part of their duty to bring to notice their services; and thus they fail to obtain those rewards often liberally bestowed on other members of the staff. The effect of this cannot be otherwise than most discouraging.

12. The commissariat department is one which, from its great responsibilities and importance to the efficiency of an army, whether in quarters or in the field, ought to be kept on a correspondingly high footing; and I consider it would greatly tend to this were the head of the department graded as major-general, as is I believe the case in the British army.

13. *Simplification of accounts in time of peace and war.*—I will offer no remarks on this head, as I believe a commission composed of an officer of experience from each presidency is shortly to investigate the subject, which is a very important one, as simplicity in accounts tends to their being more quickly rendered, and so reduces the evil of arrears.

J.

TRANSPORT.

1. Please state your opinion of the present system of transport or carriage obtaining in India.

Lieutenant-General C. T. Chamberlain, C.S.I., Commanding Oudh Division.

I think the system of seizure in time of peace very barbarous and very objectionable; but so far as the wants of the service are concerned, it is economical and sufficient, for, as a rule, there is no difficulty in collecting any reasonable quantity of carriage of sorts, and the State incurs no risks whatever.

I think that where carts, or camels, or ponies are seized in common movements of troops, some compensation should be given in addition to the ordinary rates of hire which are paid by traders.

Now-a-days if a bullock sickens or dies, or the cart breaks down, they are exchanged, and there the transaction ends, leaving the owner to find his way back to where he was seized, or to go where he likes, but unremunerated for his special loss.

Lieutenant-General W. T. Hughes, C.B., Commanding Sirhind Division.

I understand the present system to be that, whenever transport is required, the commissariat department (aided by the civil authorities) purchases or hires such carts and transport cattle as districts will supply, and hands them over to the head of the commissariat department with the troops to be mobilized, to meet the wants of regiments and departments. The objections to this system are the delay that must ensue in collecting transport, the enormous cost, the oppression to which owners are subjected, and the desertions of both cattle and followers which result.

Ineffective animals kept till too old and unfit for campaigning purposes; and camel-supply very limited.

Lieutenant-General J. Forbes, Commanding Mhow Division.

Major-General A. W. Macintire, C.B., Commanding Hyderabad Subsidiary Force.

That obtainable in the Hyderabad territories is adequate for the requirements of troops in cantonment and for ordinary relief, and susceptible of increase, up to limit of local resources, in the event of extraordinary requirements.

Major-General R. O. Bright, Commanding Meerut Division.

The present system I consider answers very well in operations in the plains.

Major-General H. R. Browne, Commanding Saugor District.

There are two classes, railway and road.

Transport by rail is exceedingly well organized and effective. The lines are single, and the rolling-stock limited; yet they do very good service. I do not see that much could be effected in the way of improvement.

The road transport, which consists of carts, elephants, and camels, and occasionally pack-bullocks, appears as well suited to the country and the nature of the road over which troops move as any other that could be devised.

The system of hiring in time of peace might be modified.

There seems no good reason why corps should not indent upon and settle with the district civil officers *direct*, instead of through the medium of the commissariat department.

Major-General J. W. Schneider, C.B., Commanding Northern Division, Bombay Army.

There are two descriptions of carriage commonly used in this presidency, *viz.*, carts with one or two pairs of bullocks, according to the existence or otherwise of metalled roads and camels. Where field column carriage is maintained, mules and a few elephants will also be found. Carriage is sometimes obtained on the line through the assistance of the local civil authorities; and if notice of a few days be given, the requisite quantity is usually furnished without difficulty. The commissariat officers generally act through their own agents in providing carriage that may be indented for.

Brigadier-General G. Burrows, Quarter-Master-General, Bombay Army.

The present system answers very well. There is abundance of carriage in India, and, when proper arrangements are made in good time, no difficulty is experienced in collecting it.

Brigadier-General F. G. Kempster, Commanding Ceded Districts.

I am not aware that any system exists; certainly not in the Madras presidency. A commanding officer of a regiment must procure it the best way he can; and if he fails, he must apply to the civil authorities. Public carriage is obtained from the commissariat only.

Brigadier-General T. J. Murray, C.B., Mooltan Brigade.

Late experience has proved beyond a doubt that the present system is very defective, and the necessity for its complete reorganization.

Colonel J. A. Tytler, C.B., V.C., Commanding 4th Goorkha.

My opinion of the present system of transport is that it is a very defective one.

Colonel J. Macdonald, Secretary
to the Government of Bombay,
Military Department.

The present system is good as far as it goes. It consists in this presidency of keeping up a small establishment of Government carriage consisting of elephants, camels, mules, bullocks, and carts, and hiring any additional animals or carts that may be required. Its chief recommendation is its cheapness, as the animals and carts are taken charge of by the commissariat, requiring no special transport corps to take charge of the carriage.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

At present there is in reality no system whatever. Such as it is, I think the objections are—
absence of all organization;
that the department which supplies the transport is the greatest consumer itself for carriage of its supplies;
liability of Natives to desert on account of being very often compulsorily engaged.

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-General,
Bombay Army.

The present system of transport, as I understand it, is that in time of peace movements of troops and carriage of stores when not managed by rail and by sea are carried out by utilizing field column carriage and hired transport. For active service in India the same system prevails, with this exception that the proportion of hired carriage is necessarily much increased.

I consider the system good, and that nothing very different could be introduced without incurring great expense.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant
Quarter-Master-General.

I do not consider that any other system than that of hiring carriage can be economically or advantageously instituted in India. But the system as it now exists might be improved upon by encouraging the extensive breeding of mules under Government supervision and aid.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

I consider that India possesses many peculiar advantages in the way of transport, but that many of them are thrown away for want of proper organization.

In time of peace, carriage is cut down to the minimum, and, as far as any attempt to organize it goes, or any experience in the loading and management of animals gained by the troops, it might nearly as well be non-existent.

To begin with the raw material—

The transport animals available in India are as follows:—

Elephants.	Donkeys.
Camels.	Buffaloes.
Horses.	Bullocks.
Mules.	Sheep and goats.

To take them in detail, and specify their several advantages and disadvantages—

Elephants.—Elephants are invaluable for carrying heavy loads, for assisting in extricating carriages from mud or heavy sand, and in some few instances for draught.

They are the only animals that can be used where there are no roads and the ground wet and swampy, or among high grass and jungle.

They require abundance of forage and water, and are not only enormously expensive to feed, but thrive badly in countries where these necessities are not abundant.

Camels.—On level or slightly undulating ground, especially on dry soils, camels are perhaps the most useful animals for transport purposes in India. As is well known, they will thrive on trees and plants which no other animal will eat, and they are very patient of thirst.

They have, moreover, the advantage of requiring very few attendants, one man being sufficient to look after a string of fifteen or more.

On the other hand, camels are very susceptible to cold and exposure to weather, and appear to have very delicate constitutions. They are quite out of place on very rough, hilly, or muddy roads; and when they fail to obtain a proper supply of the trees on which they browse, they become diseased, and die in large numbers.

The enormous mortality among the camels during the late Afghan campaign is well known; and although much of it was doubtless due to neglect, it is certain that the camels from the plains of India were unsuited to the climate, and that it was frequently impossible to obtain proper food for them.

The Kuchi camels, belonging to natives of Afghanistan, were much hardier and more useful animals, and they were accustomed to travel in a more convenient formation for a rough country—*viz.*, in droves, instead of in strings. Camels need only be considered as pack-animals.

Horses.—Horses are but little used for transport except as pack-animals, the undersized animals which alone would be usually available being too light to be profitably employed for draught purposes with the heavy and clumsy vehicles procurable in India.

The only exception to this is in the case of *ekka* ponies; and I think that this style of carriage has not been utilized as much as it might have been. Usually galloways or ponies are used as pack-animals, and when properly cared for and provided with proper pack-saddles, they are most useful.

Mules.—The remarks on horses, so far as they are used for transport purposes only, apply equally to mules; but the latter possess the great advantages of thriving on coarser food and rarely requiring to be shod.

Donkeys.—Donkeys carry such small loads, and move so slowly, that they cannot be considered of very much use; but they assist locally in bringing in firewood, carrying water, &c. They will pick up a living where even mules will starve.

Buffaloes.—Buffaloes are used both as pack-animals and also for draught. For the former purposes they are very valuable, as they carry exceedingly heavy weights; and owing to their compact shape and short legs, it is easier to adjust awkward loads, such as long iron bars, beams, &c., on them than on camels. For draught they are not quite so well suited, as, although strong enough, they are slow.

Bullocks.—Bullocks have, next to camels, always formed the largest portion of Indian transport. They are generally used for draught; but much of their power is wasted by the employment of the cumbersome antiquated Native carts or hackeries, which have remained unimproved for generations.

These vehicles combine almost every defect which a carriage could possess; their sole recommendations being apparently that they are generally to be procured in the country, and that they are sometimes strongly and substantially built.

Sheep and goats.—I am not aware that sheep and goats have ever been used as pack-animals by troops in India; but I mention them here because I have seen them very largely employed for the carriage of grain, salt, borax, &c., in Thibet, and in the hill provinces of Garhwal and Kumaon. There they are most useful, carrying loads of from 20 to 40 pounds over the narrowest and roughest paths and requiring but few men to look after them.

I am convinced that in operations in the hills, where these animals are habitually employed, they might with great advantage be utilized for the transport of flour, &c., while the sheep might also be eaten by the troops.

The greater part of the above transport animals (with the exception of elephants, which are the property of Government) are merely hired as required. There are no regularly-instructed drivers; but the men in charge of the animals are frequently wild and uncouth, with little more intellect than their own beasts. The small proportion of transport kept up is under no regular organization; and is indeed but seldom used for military purposes. When it is, the troops who have to move (having had no practice or instruction) are frequently quite ignorant of even the method of loading animals. Loads are put on anyhow, merely to fall off after going a few paces, and cause endless trouble and delay. The drivers having no more knowledge than the troops, and neither (as regards British soldiers) understanding the other, terrible confusion ensues; and in fact the column gives more the idea of the flight of a disorganized rabble with their goods and chattels than the march of an army with its baggage.

In short, with all the facilities within our reach, I consider that we have no system of transport.

Captain M. J. King-Harman,
Deputy Assistant Quarter-Master-
General.

The present system, if carried out properly, as it is intended that it should be, is well suited for slow movements in peace time in the plains of India; but as it really is carried out, it becomes at all times, and more especially in times of pressure, a means of greatly oppressing the owners of cattle and carts.

Instances occur yearly. A commissariat officer is required to provide, say, 200 carts. He makes over the order to one of the regular contractors that are scattered about all over India, and agrees that the carts are to be in by a certain date. At the same time he writes to the officer in civil charge of the district requesting him to assist the contractor; and this assistance is given at once. The contractor then goes off to certain parts of the district, the resources of which are well known to him, and gives out in the usual way in each place that 200 carts are required immediately by Government; and by the date he fixes he always is certain to have at least 600 carts, out of which he selects 200, letting off as many as he can get bribes for, and so going on until he has got his full complement, and as much money besides in the shape of bribes as he can squeeze out of the people,—the owners of all having to feed their animals at their own cost until the day originally fixed by the commissariat officer.

This is all gross oppression; and the system is well known and condemned by many civil officers who have paid attention to it.

If the commissariat officer requires more carriage than he has at hand, the civil officer alone should be called on to provide the surplus.

Lieutenant-Colonel R. Blundell,
3rd Hussars.

I don't think that at present there is any organized system of carriage. There is a collection of elephants, camels, mules, and bullocks at different stations, but no regular system. I think the transport in India wants thorough reorganization.

If camels were properly fed, they would answer.

Lieutenant-Colonel R. S. Cleland,
8th (Queen's Own) Royal Lancers.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

A large question.

I believe that the transport system is capable of much improvement, in order that the requisite amount of carriage may be at all times available for service at shortest notice. The object aimed at, as I understand it, is how to arrive at a satisfactory method of having at command a sufficiency of transport under trained officers, &c., without the cost of maintaining the same. Others have failed in solving this difficulty; but on this score alone the most lavish expenditure has always been caused by the call for economy.

If the district in which the troops are stationed fail to produce the quantity of carriage required by troops taking the field, the balance necessary to complete their equipment should be kept as public carriage by the commissariat department.

Lieutenant-Colonel J. C. Le
Queene, 12th Lancers.

Regimental transport, with supernumerary men and horses, most advantageous. Used by my regiment at autumn manoeuvres with marked and noticed benefit.

Lieutenant-Colonel G. Luck,
Commanding 15th Hussars.

I consider that a system of carriage should be adopted that would answer for both internal as well as external warfare, the present system of depending mostly on camels being changed, as the late campaign has

Major J. W. Chaplin, 8th Hussars.

I consider the present system of transport or carriage obtaining in India works fairly well in the plains. I have no experience to be able to judge of it on the frontier.

Major E. A. Wood, 10th Hussars.

I am not sufficiently well acquainted with the cost or system to give an opinion; but I fancy that the cost to Government is unnecessarily great for the work that it commands.

Captain J. A. S. Mackenzie, 9th Lancers.

My own experience of transport in India is that, on the whole, it is satisfactory, but would be very much improved by having a fixed mule establishment added to it, and kept at all the important stations in India.

Colonel J. A. Raddell, 1-25th Regiment.

I am of opinion that the transport should be a separate department, under experienced and able officers, who would be entirely responsible for its efficiency.

The present system I consider to be objectionable, and throws work on commissioned officers which they cannot properly supervise and carry out, more especially on service in the field.

Lieutenant-Colonel T. Bowland, Commanding 1-5th Fusiliers.

I think it well suited to the resources and nature of the country.

Lieutenant-Colonel M. MacGregor, 1-18th (The Royal Irish).

As far as I have experience in the ordinary regimental reliefs, the present system is satisfactory.

Lieutenant-Colonel A. Templeman, Commanding 1-21st Fusiliers.

I have made but one march with troops in India: that was a 30-days' march from Secunderabad to Tadputri in 1868. The transport arrangements, including commissariat elephants and camels and hired country carts, answered well. The troops learnt much of what is most useful to soldiers—quickly getting under arms in the dark, marching considerable distances, rapidly pitching and striking camps, &c., &c.

Lieutenant-Colonel G. F. Walker, 1-12th Foot.

I do not think the present system is satisfactory, especially if it should become necessary to move a very large force; but at the same time I am not prepared to offer any opinion or suggestion that would tend to improve it.

Lieutenant-Colonel J. S. Hand, Commanding 44th Regiment.

It is bad, being incapable of ready expansion; and costly, without an equivalent in efficiency.

Lieutenant-Colonel J. W. Hughes, 54th Regiment.

I think that, considering the great variety of circumstances to be met, the system of carriage in India has worked more successfully than in any other country.

Lieutenant-Colonel C. B. Knowles, Commanding 67th Regiment.

Experience confined to the late Afghan campaign. Bullocks and carts, also the camels furnished by contractors, were, as a rule, *bad*. The animals weak, generally the result of insufficient food; but the country frequently furnished very scanty grazing for cattle.

Lieutenant-Colonel G. H. Parker, 92nd Highlanders.

I am not in favor of the present system.

Major F. Stephen, 4th Battalion Rifle Brigade.

It is faulty in the extreme. At present all transport is supplied through the commissariat department. On the outbreak of war, the commissariat department is strained to the utmost to obtain stores, &c., for the troops. In addition to this, they have now the extra strain of obtaining and collecting transport.

Major H. P. Pearson, 12th Foot.

Broadly speaking, the carriage employed in India consists of camels and hackeries; and these are hired by Government as occasion demands. The State possesses no carriage in India, except elephants, and a few mules here and there, and cannot, strictly speaking, be said to have a system of transport.

Nevertheless I am not at all disposed to advocate a change in the method which has been so long followed for supplying the troops in India with carriage, and which, in that country, has always worked well. Carriage for peace requirements has hitherto been forthcoming in any quantity, and good of its kind. I cannot suggest any plan at once so efficient and so economical.

Major J. H. Campbell, 33rd Regiment.

It is of course too cumbersome; but until the country is covered by a network of good roads, I do not see it can be improved on.

Major Dyson-Laurie, 34th Regiment.

Carriage varies very much in the different parts of India. That in use by the Natives usually seems the most suitable to the circumstances of that particular part.

Next to the railway come the elephants, then camels. Cart transport in India is very slow, and occupies great length of road.

Major W. H. J. Clarke, 72nd Highlanders.

I am of opinion that the present system of transport answers perfectly in peace time, but is not suitable for warfare. As has been proved in the present campaign, camels are not fit for work in mountainous countries, if at all hard-worked; and there is always great difficulty in getting food for them.

The only carriage, in my opinion, that should be used in time of war is mule carriage. The baggage, &c., of a force is carried much quicker; it is easier packed, the animals can go longer distances, and stand greater fatigue. The difficulty in feeding them is much less.

Major G. S. White, 92nd Highlanders.

The system of transport appears to have worked fairly well in India.

Colonel C. R. O. Evans, Commanding B. A., Meerut Division.

As good as the transport of the country generally admits of, combined with its economy.

Lieutenant-Colonel H. Strover, Commanding Royal Artillery, Thayetmyo.

I have had little experience of this. The bullock-train on the grand trunk road between Lahore and Peshawar and Lahore and Ferozepore and the dāk gharry system, as far as I saw of it, answered well in ordinary times. The camels that carried the baggage of the battery I marched with being changed several times between Fort Attock and Ferozepore, did all that was required of them.

At Thayetmyo, British Burma, the commissariat department have about twenty-five elephants and one hundred and twenty bullocks, with carts, &c. Occasionally they also hire country carts when there is a great deal to take away from the steamers. When the expedition under Colonel Jebb, Commanding the 67th Regiment, went into Upper Burma in April 1876, their provisions, baggage, &c., were carried on mules hired from the Natives or Shans. The country they passed over being very hilly, they took no transport animals from British Burma.

Lieutenant-Colonel I. Ketchen, Royal Artillery.

I think it good, so far as it goes; but the civil authority ought to have the power to press carriage. It would be very rarely necessary to do so; but the Natives of the country would (or should) then be saved the amount of taxes required to keep up permanent regimental or moveable column transport on a large scale.

Major Bertie Hobart, R.A., Military Secretary to His Grace the Governor of Madras.

I have no opinions worth stating on the subject of army transport, and only the experiences of a regimental officer; but I doubt whether the ordinary transport of the country can be reduced to a European system, though possibly it may be more systematically organized. The hired transport has answered the purposes of the British army in the East so long, that I do not think there is any call to try and improve it, even if the conditions of the country and habits of the people rendered it possible.

Major H. C. Lewes, Commanding 1st Royal Artillery.

As far as I could see in the late Afghan expedition, there had been no system organized to meet an emergency. Until quite the end of the war the transport (Kandahar column) was by camel carriage and small country carts. I have not served in India anywhere where, to my knowledge, there has been a preorganized system. It is most desirable, I think, that a transport system should be set on foot.

Major E. T. Hume, Comdg. C-C Royal Horse Artillery.

I consider the present system well suited to the country.

Major W. W. Murdoch, Commanding E-A Royal Horse Artillery.

The present system of transport or carriage answers well for ordinary marching and movements in peace time.

Major T. M. Hazelrigg, Commanding E-S 1 Royal Artillery.

I should think it is the best in the world and only requires an efficient staff of transport non-commissioned officers under the commissariat.

Major the Hon'ble A. Stewart, Commanding L-C Royal Horse Artillery.

The objections I should offer to it are—

1st.—That the department which supplies the transport is itself the greatest consumer of transport for the carriage of its supplies.

2nd.—That I believe a very large amount of the carriage is obtained under pressure, if not compulsion, and therefore liable to desert.

Major C. E. Nairne, Royal Horse Artillery.

If it be correct to call it a system, it is one utterly unworthy of the fine army of India.

Major F. FitzG. Gallwey, Royal Artillery.

I think the resources of India in country carts, camels, bullocks, mules, ponies, are ample, provided they are properly fostered and the breeding of the animals is looked to in peace time; and that if this were done, we shall never want carriage of the above kinds. I am also of opinion that, with these resources, it would be a waste of money to go in for any system of European wheeled carriage.

Major W. H. Noble, Royal Artillery.

I have not had any experience of Indian transport in the plains, but from observation during the recent campaign, I do not think any system, properly so called, can be said to exist.

Captain G. C. Bayly, 13-5th
Royal Artillery.

The present system appears to answer fairly well in time of peace; and I have no reason to doubt its efficiency for internal war. As regards external warfare, it seems to me to have some defects, which would probably be more or less apparent in internal warfare also.

There being no framework of a transport corps, the collection of any great amount of transport is slower than it need be.

It is probably more expensive than absolutely necessary.

There is a want of efficiency, owing to there being no system laid down ready for immediate use.

And last, but not least, there appears to be a want of proper supervision, leading (until it is remedied) to unnecessary loss of transport animals.

Lieutenant E. C. Wace, R.A.
No. 4 (Hazara) Mountain Battery,
Punjab Frontier Force.

The only real experience that I have had on the subject has been in the late Afghan campaign. In the Jawaki expedition the base of operations was so near as to call for no particular exertions on the part of the transport.

During this late campaign I consider that the present system of transport was not in every way a success, owing chiefly to want of supervision in a department where of all others daily supervision was necessary. The commissariat, already overtaxed with work, had not the time to give this supervision; and the transport officers attached had no staff of non-commissioned officers or men under them to assist them in their numerous duties. Neither was there any establishment of maistris, muchis, farriers, or salutris to effect repairs to the gear, shoe ponies, or treat sick animals. Under these circumstances it is not to be wondered at that the animals which fared best in the campaign were the hired ones, where each animal was the property of the man looking after it, whose interest it therefore became to look after his animal and gear to the best of his ability. Hired mules, as a rule, belong to the trading portion of the bunniah class men, who from long experience know intimately how the mule should be laden, and how it should be fed. The Government mules however—at least those impressed for this campaign—were put into the hands of down-country men, with but little knowledge of a mule, and with absolutely no interest in whether the animals in his charge lived or not.

The camel carriage, as illustrated in this campaign, was invaluable as a transport animal when working on good roads, and properly watered and fed. The enormous difficulty, however, of feeding them nearly paralyzed the whole transport. But I think this might have been obviated to a great extent by Government having procured the necessary food for them, cutting the price of the same out of the men's pay, instead of leaving it to the men to feed their own cattle, so far as they could or would take the trouble to do so. Latterly in the campaign, the transport was divided into regimental, departmental, and general; and gave every promise of improvement under the close supervision to which it now became subjected. It became also the interest of each regiment, battery, and department to insure the efficiency of its own transport, so far as possible.

In the last few weeks of the campaign bullock-carts were used, with great relief to the rest of the transport; but owing to the badness of the roads, the number of bullocks required to each cart were out of all proportion to the load drawn; and hence this became a most expensive form of transport.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

I believe the transport system as hitherto obtained in India would have answered perfectly so long as operations were confined to Hindustan, but not beyond the frontier; as camels cannot stand the climate.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

It has been hitherto considered equal to all demands made upon it.

Captain M. G. Gerard, 2nd Regiment Central India Horse.

The existing plan of a certain amount of commissariat carriage, supplemented by hire of local transport, though good in principle, fails to meet military requirements from the unsuitable nature of carriage in general use, and in a minor degree from inadequate supervision in the field.

Transport should be regulated by the following considerations:—

1st.—That its mobility is to the full as important as its actual carrying power—a fact absolutely ignored by our present system.

2nd.—That, consistently with above, "wheeled" is always preferable to "pack" carriage; one animal doing the work of four.

3rd.—That, as any traveller or shikaree knows, a light equipment always up when wanted is far more conducive to comfort (i.e., health) than a more complete and slower one, we should so modify our camp equipage as to facilitate quick transport.

And lastly, Government should remember that the introduction of compressed provisions is the most important point of all in the question of transport, as it would reduce commissariat carriage by 75 per cent.

With regard to first, the military advantages of a train that can keep up with infantry are too obvious to require further notice; but whilst our commissariat calculate the *weights* the different kinds of carriage can move, they utterly forget to add in the relative *time* to their estimates. For instance, though 100 ponies cost the same, and transport half the weights that 100 camels do, still as they can average 15 or 18 miles to the latter's 10, ten days' rations on ponies are for military purposes equivalent to 15 or 18 on camels. Camels and draught-bullocks should be absolutely condemned, and replaced by mules, ponies, and yabos.

With regard to second rule, as one draught mule does the work of four pack, as he can be rested during short halts, is less liable to soreback, and as time and labor in loading are saved, wherever wheels can go, as they can almost anywhere in India, they should be employed. Wheeled carriage is in disrepute solely because we employ bullock-carts and hackeries so unwieldy; they are useless off good roads, and painfully slow on them. Far better to have smaller and lighter traps. A few break-downs are nothing, but invariable delay fatal.

The patterns of the Government bullock wagons we see seem to have been selected in England, and it ought to have been left to fate to find some animal out here that would fit into them. Carts should be selected not only with regard to the powers of the more suitable draught animals out here, but also, what is invariably overlooked, of a suitable track betwixt wheels, adapted to the ruts of

country roads. Nor should we confine ourselves to one fixed pattern. Whilst mules or yabooos could be most advantageously used with Maltese carts of nine or ten cwt. and five camel-loads of baggage, we could find employment for the thousands of cheap little country tattuos so easily procurable in a modified pattern of ekka that would carry a couple of loads. Even the common bazar ekka contrasts favorably with camel carriage; and if one driver is required to each, this is more than compensated for by the far longer marches that can be made. Besides mules and tattuos, a few elephants for exceptional purposes should only be kept up.

The pony carriage of Native cavalry is most excellent, but the number of syces with them only justified by considerations of forage. As stated elsewhere, an indirect reduction is, however, practicable.

Country-carts, camels, and banjara pack-bullocks should only be used for reserve stores, and worked *by contract*. The last of these, though slow, are very reliable, require no help, and can defend themselves; so should be largely employed for internal warfare.

Brigadier-General C. J. Godby,
Commanding Punjab Frontier
Force.

The system of obtaining carriage in India has hitherto proved efficient and well adapted to the country.

The question is, did the system break down during the late war from any inherent fault or weakness, or from a change in the condition of the country and a diminution in the supply of carriage? Undoubtedly, since the extension of railways, the number of camels, carts, and bullocks must have diminished; and before deciding whether it is possible to continue the present system, it is necessary to ascertain the amount of carriage procurable throughout the country. District officers would supply this information in a very short time, if it has not already been supplied.

Colonel J. Blair, v.c., Command-
ing 1st Bombay Lancers.

Carriage is at all times procurable through the politicals. It depends much upon the country what kind of carriage is obtainable. The system is not a good one; for, if a large force is required to be moved, you are at the mercy of Native authorities.

To keep up carriage is at all times expensive. The contract system was found to answer well in the famine districts, where light carts were used. Mule and camel carriage are by far the best. Light Maltese carts, I think, would be found very useful. One mule takes them along easily, and the harness is simple and strong; no collar is used.

Lieutenant-Colonel C. LaTouche,
Commandant Poona Horse.

The principal objections to the present system of transport are that there is a want of military organization and that on the outbreak of hostilities the camp-followers composing the transport train form a large mass of helpless men, who, from the absence of habits of discipline add considerably to the difficulties and embarrassment of transport officers. Furthermore, large sums of public money are now spent, which go to fill the pockets of rich contractors, which, if applied in a more methodical manner, would in my opinion, at an actual reduction of expenditure, produce far more satisfactory results. Further on, in reply to questions Nos. 7 and 8, I shall explain in detail my proposal for an improvement of the existing state of affairs.

Lieutenant-Colonel J. H. P.
Malcolmson, Commanding 3rd
Sind Horse.

I think the system of transport as now obtaining in this country is very faulty. The animals as well as the men belonging to them are strange to the work; the latter are unknown to the regiments with which they are employed, and utterly devoid of any discipline, and frequently of the language spoken by the men of that regiment. Moreover, the commanding officers of regiments having little or nothing to do with the feeding and care of the animals, they are not so well looked after or cared for as they would be if they were permanently made over to regiments.

Major A. P. Palmer, 9th Bengal
Cavalry.

It is inadequate to meet the contingencies of trans-frontier wars on a large scale. The extent of our resources is imperfectly known; and as railways increase in India, the animal carriage may be expected to proportionably decrease, unless great inducements are held out to breeders of baggage-animals.

There is also a want of military organization in our system.

Colonel J. Doran, Commanding
27th Punjab Native Infantry.

This is a subject I have not given much attention to, and therefore am not prepared to give an opinion, further than that I consider the present system is very defective in many ways, being costly, uncertain, without organization, and inadequate to meet any sudden emergency.

Colonel H. S. Obbard, Command-
ant 41st Bengal Infantry.

I consider the present system of transport as good and economical as could be introduced. The difficulty about hired carriage and the immense and unnecessary increase of rates within the last thirty years are mainly attributable to the erroneous views of well-meaning, but mistaken, civilians. With respect to hired carriage, there are occasions when special precautions with regard to the feeding and clothing of cattle are necessary; and there can be little doubt that it was neglect of these precautions that caused so much loss and inconvenience during the late campaign. Contractors and owners want to make as much as possible. Sometimes the latter would do any thing to get themselves free. Government, on the other hand, tries to pay as little as possible, and to keep men to contracts when, from special and un contemplated circumstances, they entail loss. The consequence is, that between the two the poor animals are starved, either through want of actual food,

or from cold and wet, and so become useless, and die. At all times, and especially during a campaign, officers should be detailed to see that proper food is given, and that baggage-animals are in every respect duly cared for. And if on foreign service clothing of any kind should be a necessity, it should be provided without delay by the Government. The possibility of such need can always be foreseen, and should in all cases be provided for.

Colonel E. Dandridge, Commanding 40th Native Infantry.

As the present system proved to be incomplete in the recent campaign, inasmuch as its working failed to provide suitable carriage for mountain warfare, it must be considered a failure.

Colonel G. W. Fraser, 39th Native Infantry.

I consider that the system of transport or carriage as now obtaining in India very faulty. It is entirely without organization of any kind. An insufficient amount of carriage of good quality is maintained in peace time. On the outbreak of a war a transport department is hastily formed, composed of officers who volunteer from the regiments not actively employed. These officers, though mostly willing and hard-working, having had no previous experience of the system, and being in very few instances acquainted with the language colloquially, numbers of animals perish before the system gets into working order.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

In peace satisfactory enough, as time is no object and transport is always obtainable; but in war results in delay, great confusion, and comparative inefficiency.

Lieutenant-Colonel R. J. Walker, Commanding 17th Native Infantry.

I think it is fairly good. Anything better would cost more money.

Lieutenant-Colonel R. G. Rogers, 20th Punjab Native Infantry.

Faulty to a degree. I reported fully on the subject at Gundamak to the General Officer Commanding 1st Division, Peshawar Valley Field Force, but regret that the copy of my report has been lost. The original is probably in Colonel MacGregor's office.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

I think that it possesses the germ of an efficient system, but it fails in not being capable of sufficiently rapid expansion and from want of proper superintendence; and I confess that I cannot see how these evils are to be remedied, except at great expense.

Lieutenant-Colonel H. G. Tucker, 41st Native Infantry.

Indian transport consists of four different modes of carriage:—
 1st.—Hiring or purchasing pack-animals, such as camels, bullocks, mules, ponies, elephants, &c.
 2ndly.—Bullock carts (wheeled carriage).
 3rdly.—Railway.
 4thly.—Coolies.

With reference to the first of these, *viz.*, pack-animals, it is a difficult and slow process to collect a sufficient number of animals to move a large force. They also carry very light loads, *viz.*—

Camels	...	...	4 maunds.
Bullocks	...	...	2 "
Mules and ponies	...	...	2 "

1st.—Elephants can carry eight to ten maunds; but the expense of feeding them is enormous, and they are liable at all times to a breakdown: for instance, going lame, meeting with accidents on the road, and particularly from want of a proper amount of food and being overworked, so that this carriage should not be entirely depended upon. Of course, when roads cannot be made, or if any carriage is required in a hilly country, pack-animals and coolies will be the only mode of carriage available.

2ndly.—Carts, &c., are much better adapted as transport carriage if there is at all the making of a fair road, as they carry greater loads. A four-bullock cart, for instance, should be able to take from 16 to 20 maunds; and the carts are preferable to the pack-animals, as they need never be unladen, the bullocks merely being taken out of the carts at the end of every march. The benefit of this is almost incalculable, as with pack-animals, which have to be unladen at the end of each day's march, the constant loading and unloading destroys an enormous quantity of the stores. Boxes break after constantly being thrown on to the ground; bags containing flour, &c., become unsewn, and quantities fall on the ground and are wasted; and when on the ground, unless the transport officer has time and light to collect the whole of the stores and pack them together, they are liable to be stolen, or dogs and other animals tear open the bags and destroy the contents. The camelmen do not like packing up the bags, &c., as it adds greatly to the work and time of loading and unloading. This has been proved in the late Afghan war.

3rdly.—The railway transport is, though at the commencement by far the most expensive mode of transport, much the best, and in the long run would most probably be found not so very much more expensive than the other modes of carriage. By this means of transport you are certain of three things. First, your stores arrive in quick time; and you can tell pretty accurately when your supplies will arrive, which you cannot do with any exactness with either of the other modes of transport. Secondly, the stores are well packed in vans and protected from rain, &c.; also they are not so likely to be stolen on the road. Thirdly, there is less danger of a breakdown.

4thly.—Coolie transport is simply adapted for hill warfare when no other carriage is procurable.

Major Sir B. P. Bromhead, Bart., 40th Native Infantry.

It is not good or sound. It answers for carrying out ordinary reliefs, and for supplying carriage for ordinary purposes in time of peace.

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

The only systems I know of are—

1st.—The *moveable column*, which is treated of in question 3.
 2nd.—*Carriage for relief*, which is divided into public and private,—the former being supplied by the commissariat from public carriage when available; the latter generally supplied by the civil authorities. This carriage remains in regimental charge until relieved or discharged. For peace purposes I don't think a simpler or better system could be devised.

Srd.—Carriage for war.—My experience is that a regiment is generally supplied with its quantum of transport, and retains charge of it except during long halts, when it is otherwise utilized. Occasionally special arrangements in the shape of coolie corps are required and are then organized. Provided sufficient time is given to collect carriage, the system answers well enough.

There appears to be no system at all, beyond what is very faulty and expensive, and liable to break down under any severe strain.

Radically bad.

That it is utterly faulty, and requires organization.

The present system of transport, *i.e.*, departmental, under the commissariat, is in my opinion unsatisfactory, and always liable to break down in times of war, for the simple reason that the commissariat is not able to stand the strain of the extra work imposed on it, in having to supply and superintend the transport of an army in addition to the heavy duties of their legitimate department.

I also think that transport, except that attached to regiments or the advanced column, should be worked on the *etapen* system, the advantage of which is obvious, as the animals on return between stages are unladen and so rested, and also as it prevents overcrowding of cattle in camps by the continual arrival of large convoys; and, most important of all, it ensures both man and beast getting their daily food and grain, for at every *étape* stores of grain and fodder should be collected.

I would suggest that transport of all kinds working from the base of operations to the front with supplies and stores should be on this system.

There does not seem to be any military system, save in fragments, like the Peshawar and Rawal Pindi mule trains. Carriage is local and various all over the country, as follows:—

Various kinds of carts.	Mules.
Elephants.	Donkeys.
Camels.	Bullocks.
	Coolies, men and women.

Carts are the best carriage where they can go. They work well drawn by mules. The Indian cart is heavy, slow, and cumbersome. There is a good native cart in Tirhoot, Sarun, Chumparun. It is light, drawn by two bullocks, easily kept in order, and carries from 22 to 26 maunds. It cannot go on rough ground. All Indian carts are improvable, and any cart manufacturer could produce a cart fit to work in any part of the Indian plains. Roads in some other countries where they habitually use carts seem much worse than Indian roads, as far as I can ascertain from what others say, *e.g.*, Australia. *Elephants* are first-rate, save for the food they require. *Camels* work best under their own people. When grazing fails, Government, if using them away from towns, should supply food. The Indian camel is delicate and dies easily. *Mules* in India are capital for hill countries, but in long journeys nearly eat up their loads, if of grain, as they require fair feeding. Indian mules are risky to drive. They are apt to bolt in their country. *Donkeys* and *bullocks* are slow, but can be driven. *Bullocks* are very slow. *Donkeys* for their size are very good. They are hardy, eat little, and carry 1 and 1½ maund loads.

Colonel W. A. Gib, Commandant
25th Madras Native Infantry.

I do not see how the present system could be altered. When carriage is required, that which is procurable must be taken. If it cannot be procured by contract, it must be *requisitioned*. All over India bullock-cart carriage is the best kind; but as they are slow, tents should be carried on elephants and camels, if procurable. Mules and baggage-ponies are hardy and good; but I doubt if they can be got in any large numbers.

Colonel S. Edwardes, Commanding
2nd Bombay Native Infantry.

As far as my experience goes, there is no system of transport in India. A certain amount of carriage is kept up, which is utilized to the best advantage as occasions require. On the outbreak of a war, a transport train is hastily organized, and gets into good working order just about the end of the campaign, when it is broken up. I speak from personal experience in the Abyssinian expedition, and from the reports of the operations in the late war in Afghanistan.

Colonel H. H. James, Commanding
10th Bombay Native Infantry.

The present system is far from good. Every regiment should keep up its own carriage, and so be ready to move whenever called upon. This may be objectionable on the score of economy; but it is the only plan I know of for efficiency.

Col. J. Fairbrother, Commanding
22nd Bombay Native Infantry.

It requires better organization, and to be made a separate department of the public service.

Colonel J. I. Willes, Commissary-General, Bengal.

The carriage is suitable for service in India, but totally unfitted for transport out of it. Camels, which were obtainable in great numbers, and were admirably suited for work in the plains, are fast disappearing; and in a few years, even where tolerably plentiful, as in the Punjab, will soon be very scarce.

The Punjab is pretty nearly played out of camels; those that remain are chiefly females. The males have mostly died during the war. Pack-bullocks are very scarce. Mules and ponies fit for real hard work the same. Transport or carriage for the future for a large

army in India must be, so to speak, manufactured in time of peace. The hitherto happy-go-lucky system of obtainable transport must be given up. The discontent of the camel-owners all over the Punjab I believe to be excessive, owing to their sufferings and losses during the late war. Carts and bullocks are still obtainable in large numbers at stations below Lahore.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

The system which obtains in the Madras presidency is to keep up a certain number of camels and elephants for the carriage of tents, draught bullocks for sick carts, and draught bullocks for artillery wagons. A statement showing the numbers kept up and the cost is subjoined. All other carriage required is hired; and the hired carriage procurable consists of country carts and pack-bullocks. The cart-owners will not take service with troops, unless pressed by a magistrate; and the supply of pack-bullocks is diminishing since good roads and railways were made. The supply of transport for a large force will always in consequence be attended with difficulty.

Statement showing the numbers and annual cost of maintaining elephants, camels, mules, artillery draught bullocks, sick cart bullocks, and hired pack-bullocks for the use of troops in the Madras presidency.

	ELEPHANTS.*		CAMELS.*		MULES.*		ARTILLERY BULLOCKS.*		SICK CART BULLOCKS.*		HIRED PACK-BULLOCKS.		TOTAL COSTS.
	No.	Cost.	No.	Cost.	No.	Cost.	No.	Cost.	No.	Cost.	No.	Cost.	
	Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		
Waltair	...	...	...	...	...	...	...	...	6	...	19	...	
Vizagapatam	...	...	...	...	...	...	...	...	4	...	...	...
Vinayagram	...	...	...	...	...	...	...	...	8	...	10	...	
Berhampore	...	...	...	...	...	...	...	...	5	...	5	...	
Bambalpur	...	...	...	...	...	...	...	...	5	...	5	...	
Cuttack	...	...	...	...	...	...	...	...	8	...	10	...	
Total	...	...	...	...	...	...	...	...	35	5,917 3 0	42	4,410 0 0	10,227 3 0
Madras	4	...	18	...	28	...	...	...	17	...	68	...	
Saint Thomas	...	...	...	...	...	...	...	...	...	...	...	...
Mount Palaveram	...	...	...	...	...	...	132	...	24	...	...	...
Poonamallee	...	...	...	...	...	...	...	...	4	...	10	...	
Velore	...	...	...	...	...	...	...	...	8	...	10	...	
Total	4	3,305 13 0	18	6,216 5 1	100	21,946 7 6	132	20,992 9 0	65	3,042 9 11	78	...	59,873 11 6
Tchinopoly	4	...	81	...	...	...	66	...	10	...	1	...	
Quilora	...	...	...	...	...	...	...	...	2	...	10	...	
Palamotta	...	...	...	...	...	...	...	...	2	...	10	...	
Total	4	3,305 13 0	81	13,916 11 8	...	...	66	10,184 0 8	14	3,043 4 0	21	...	30,429 18 2
Bangalore	8	...	109	...	100	...	191	...	43	...	1	...	
French Bazaar	...	...	...	...	...	...	...	...	2	...	10	1,467 3 10	1,467 11 10
Mercara	...	...	...	...	...	...	...	...	10	...	5	...	
Milgiris	...	...	...	...	...	...	...	...	18	...	10	...	
Total	8	6,824 10 0	109	36,641 13 11	100	20,772 4 8	191	35,898 18 7	65	14,300 9 10	10	...	1,13,924 4 0
Cannanore	524	...	...	...	...	...	...	...	13	...	14	...	
Calicut	7	...	...	...	...	...	...	...	2	...	20	...	
Malapporam	7	...	...	...	...	...	...	...	2	...	20	847 0 0	840 0 0
Bangalore	54	...	...	...	...	...	...	...	2	...	20	1,850 0 0	
Total	528	63,804 15 4	...	...	...	...	...	...	19	2,957 7 0	...	...	67,948 6 4
Bellary	5	...	146	...	100	...	66	...	32	...	...	...
Total	5	3,823 3 6	146	44,228 5 2	100	23,905 9 4	66	10,822 1 6	32	6,143 2 8	...	...	69,086 6 3
Secunderabad	27	...	196	...	100	...	191	...	63	...	897	...	
Total	27	20,874 2 0	196	60,480 1 0	100	24,901 15 0	191	34,502 8 3	63	9,449 16 7	897	14,222 0 0	7,73,390 9 10
Kanph	18	...	185	...	100	...	132	...	38	...	2	...	
Sitalbuldi	...	...	...	...	...	...	...	...	2	...	10	...	
Hohungabad	...	...	...	...	...	...	...	...	2	...	5	...	
Balpur	...	...	...	...	...	...	...	...	2	...	10	...	
Chanda	...	...	...	...	...	...	...	...	...	...	8	...	
Broncha	...	...	...	...	...	...	...	...	...	...	5	...	
Total	18	12,690 0 8	185	44,793 0 3	100	18,061 4 0	132	17,225 11 0	38	4,680 1 10	35	1,200 0 0	68,800 1 10
British Burma:													
Bangoon and Moolmain	38	...	...	...	...	...	...	...	165	...	...	...
Total	38	15,803 7 6	...	...	...	...	...	...	165	22,018 6 10	...	...	40,411 14 4
Tonghoo, including 11 elephants of the second line, mountain battery	46	25,044 10 8	...	...	...	...	...	...	100	10,507 3 4	...	...	35,551 14 0
Thayetyo	26	10,285 13 0	...	...	...	...	66	7,362 9 0	100	11,880 13 4	...	...	38,428 12 4
Total	...	...	...	...	...	...	...	...	...	...	...	...	7,56,618 11 4

* Including cost of feed, mussels, gear, and pay of attendants.

N.B.—The hired pack-bullocks shown in antique figures are not maintained at present. In addition to the above, 9 elephants and 200 bullocks are kept up for the heavy field battery, Secunderabad, and 11 elephants for the mountain battery at Tonghoo.

M A D R A S ;

The 11th September 1879.

R. A. MOORE, Colonel,

Acting Commissary-General, Madras.

Lieutenant-Colonel M. W. Wil-
longhby, Acting Commissary-Gen-
eral, Bombay.

The system which obtains in the Bombay presidency may be stated to consist in keeping up a small establishment of field or moveable column carriage at most of the stations where troops are quartered.

This carriage is in charge of the executive commissariat officer at the station, and is supervised by an establishment of inspectors and mucedadums. It is used for transport duty at the station or in its vicinity, and for the movement of troops on relief under the orders of the officer commanding the district.

A memorandum showing the stations at which field column carriage is maintained, the strength of the moveable columns, and of the establishment of field column carriage, is subjoined. The carriage kept up is only calculated to move a very small proportion of the troops; and in consequence, on occasions of relief of troops, carriage has to be hired to supplement the field column carriage, and at most stations it is not to be had without recourse to the civil authorities, as the owners will not bring their carriage of their own accord. Field column carriage is composed of elephants, camels, mules, and doolie-bearers; and at a few of the larger stations Maltese carts have been provided for some of the mules for station transport duty, and are found very useful. The present system is faulty. The disposition of the field column carriage should be reconsidered in view to concentration, its organization improved; and it should be placed under the charge of a responsible commissioned officer, assisted by one or more regimental subalterns at each large centre.

Statement showing stations at which moveable columns are kept up, strength of troops attached to each column, and the carriage and establishment authorized for the same.

Station.	Corps and strength.	Elephants.	Mules.	Camels, loading, public.	Camels, loading, hired.	DOOLIE-BEARERS.		
						1st mucedadum.	2nd mucedadum.	Bearers.
Poona ...	{ 2 Field-guns ... 2 Companies, European infantry ... 2 " Native " ...	17	196	50	...	1	2	96
Ahmednagar ...	{ 2 " " " " ... 2 " " " " ...							
Malegam ...	{ 2 " " " " ... 1 Company, European " ...	2	51	13	...	...	...	12
Satara ...	{ 2 Companies, Native " ... 2 " " " " ...	2	51	...	13	...	...	12
Sholapur ...	{ 1 Company, European " ... 2 Companies, Native " ...	4	70	9	...	...	...	30
Ahmedabad ...	{ 2 " " " " ... 4 " " " " ...	...	...	48	...	...	...	24
Deesa ...	{ 2 Field-guns ... 1 Company, European " ... 2 Companies, Native " ...	5	111	...	19	...	...	18
Rajkot ...	{ 2 " " " " ... 1 Company, European " ... 2 Companies, Native " ...	11	...	...	111	...	1	60
Belgaum ...	{ 2 " " " " ... 1 Company, European " ... 2 Companies, Native " ...	2	51	13	...	...	...	12
Kolhapur ...	{ 2 " " " " ... 4 Troops, British cavalry ... 4 Field-guns ...	2	51	13	...	...	...	12
Mhow ...	{ 1 Company, European " ... 3 Companies, Native " ... 2 Field-guns ...	6	82	39	...	...	1	54
Neemuch ...	{ 2 Companies, Native " ... 2 Field-guns ... 1 Company, European infantry ... 2 Companies, Native " ...	2	51	13	...	...	...	12
Nusseerabad ...	{ 2 Field-guns ... 1 Company, European infantry ... 2 Companies, Native " ...	19	370	...	178	1	3	144
	{ 2 Field-guns ... 1 Company, European infantry ... 2 Companies, Native " ...	8	63	...	83	1	2	90
	{ 2 Field-guns ... 1 Company, European infantry ... 2 Companies, Native " ...	...	41	...	142	1	2	90
	Total ...	78	1,137	185	546	4	11	654

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

The transport in India (Bengal) at present consists roughly of about—

I.—1,000 elephants.

II.—2,000 ordnance siege train bullocks.

III.—1,000 Government mules at Pindi and Peshawar.

All other carriage is hired, and consists mostly of Rewaree camels, distributed at various stations from Peshawar to Benares, below which station there are a few pack-bullocks.

Elephants are indispensable in all campaigns in Bengal. They are necessary to assist in moving heavy guns, and they are valuable as auxiliary transport with any large force.

The *ordnance bullocks* are for siege train guns, and are absolutely necessary.

For spare wagons I believe artillery officers in this campaign would have preferred horses instead of bullocks.

The *mule trains* at Pindi and Peshawar (500 at each station) are invaluable.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

The present system of transport or carriage obtaining in India should be briefly described. Divide it into wheeled carriage and baggage-animals.

Wheeled carriage.—At most stations there are cart contractors or chowdries, who undertake to furnish carts of 2, 3, and 4 bullocks at fixed rates for use in the place itself, and between certain places in the neighbourhood at so much per maund between places named. On the march of troops to a distant station, these men also undertake to obtain carts in number proportionate to the number of days' notice given; and, as a rule, they do not fail in their engagements. But under exceptional circumstances, as a very large and sudden demand for carts, or in a disturbed state of the country, the civil authorities would have to be applied to.

Baggage-animals.—Elephants, camels, bullocks, mules, ponies, (a) the property of Government, (b) hitherto hired and furnished in ordinary times by camel chowdries, as on relief of troops, camps of exercise, &c. These animals are becoming more scarce since the introduction of railways. During the late campaign the civil authorities had to be applied to in parts for camels, as the preparations were too hurried to admit of the chowdries sending agents into the different districts. Moreover, about Jung and Montgomery and all about there was great reluctance on the part of owners to hire their camels for service in Afghanistan, the experience of the former campaign, forty years ago, being still a fresh tradition.

Bullocks for loads.—These animals are seldom or ever used in the North-Western Provinces of India or the Punjab as baggage-animals; and in the recent campaign they were only to be had in provinces so remote from the scene of action, that Government had to purchase them, as their owners would not take them so far from their homes.

Mules.—Except at Peshawar and Rawal Pindi, where a mule train is kept up, these are ordinarily obtainable as wanted on hire; but, as in the case of bullocks, large numbers had to be bought and for the same reasons.

Ponies.—The same remarks apply.

To give an opinion on the present system of the above transport, I take it, the question means, "does it answer?" The ordinary agency of chowdries or contractors for carts and baggage-animals meets the ordinary requirements for moving troops in peace times; and the system of their being furnished to the troops through the commissariat department and their accounts settled by that department works easily and well.

When the pressure of war comes, and undue strain is made on the resources of the country, the civil authorities are required to assist, on account of the necessity for reaching the remoter parts of the several districts, and to overcome the reluctance of the inhabitants to hire out their animals when the risks and inconveniences of war are to be encountered; and I think the resources of the Punjab were during the late campaign in this way most thoroughly availed of. Whether it is desirable in time of war to adopt a modification of the present system of having all transport under charge of the commissariat is a question subject to diverse opinions. My own is that, officered as the commissariat is at present, it is incapable of controlling, regulating, and paying the transport in the field.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

I would greatly reduce the number of elephants, keeping them only at places where there is jungle fodder, such as Barrackpore, Julpigorie, Jubulpore, and Saugor, and in the Central Circle, Bareilly and other stations near enough to the Terai, and substitute camels in their place.

As camels will not live at Dinapore, elephants must be kept for the camp equipage of the troops there, although there is no jungle near enough for their grazing.

I don't think the present system of hiring camels by contract can be improved upon. Purchasing camels and keeping them would be too expensive. The difficulty is that, when a large demand is made for service in the field, the number of camels has been so much reduced by the extension of railways, that it is difficult to procure a large number within a reasonable time, or even to procure them at all.

Wheeled carriage is slow, and not so convenient as camels; but it now appears necessary to make contracts for the supply of these, if not for the camp equipage, for the carriage at least of the men's kits and bedding, &c., and thus reduce the demand for camels. There should be no difficulty, I think, in getting contracts at a low rate per bullock as long as the cartowners are allowed to use their carts within a certain limit as to distance. The contractor being bound to report daily or weekly where the carts are, each cart could have a number and a mark branded on it.

And the bullocks could be inspected at different times, as the carts returned to their stations. The contractors would be bound to make these carts accompany troops wherever practicable—that is, almost all over India, and even to Cabul.

In like manner, pack-bullocks, ponies, and mules could be engaged wherever these are the chief carriage of the district. This would reduce the present great demand for camels, which appear to be above what the country is able to supply—I mean in case of war.

As long as the owners are allowed to use their animals in times of peace, the rate per head should not be great; but in case of their being wanted for service or to be used in the annual relief, they would of course get full hire. A higher rate should also be fixed for beyond the boundaries of India. This would be attended with expense; but it would give the commissariat a legal right to their use. At present they will scarcely take service in case of an outbreak of war without impressment.

I see no reason why camels should not also be hired on the same plan. Only this system would not do for moveable columns, the carriage of which must ever be within two or three days' reach. It would be necessary to stipulate that the cartmen and others be paid their hire by the executive officer, the contractor receiving a percentage only. If paid to the contractor direct, he would be apt not to pay the cartmen.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

The transport of the Bengal army, as arranged for by the commissariat department prior to the late campaign in Afghanistan, had not ever failed.

It was arranged for by the officers of the department, and managed by them and their subordinates—men who understood their business. The cattle were looked after, and accounts kept up. The cattle-owners had trust in the officers over them, and the system worked well and smoothly. It was the old custom, and that, though now derided, went a long way with the Native. Perhaps it was never tested so severely as the newer system was in the late campaign; but it never broke down.

The system of the late campaign was inaugurated after the campaign had commenced. No one understood it, or what were the duties of any one. Commissariat officers thought it was taken out of their hands.

Transport officers.—Colonels and ensigns who went up with the name of transport officers, but in reality merely on that name to get somehow to the front, disliked the work allotted them, and did not know how to do it.

The cattle-owners were aghast at being managed by transport instead of commissariat officers. Cattle were neglected, starved, worked out, died, deserted; and the system broke down.

If this is the system alluded to as obtaining in India, I beg leave to say it never will work. Nor will any system depending upon the cattle of the country work but under experienced officers (I do not say commissariat officers, though they, undoubtedly, would be the best, if there were enough of them), who will, in the first place, have the entertaining of the cattle, and their sole care and management from beginning to end.

It won't do if one department supplies the carriage and another works it,—works it out, and asks for more—that won't do.

But from subsequent questions to this one, I gather there is yet another system introduced—the regimental, departmental, and general division of the carriage of the army; and I must state my opinion on it in due order of questions.

Colonel R. Q. Mainwaring,
Deputy Assistant Commissary-
General, Kamptee.

In my opinion, the maintenance of elephants as at present obtain is a useless expense, because the only time when they are useful is when they alone can be used, *i.e.*, when troops have to cross over hills without roads, or swampy plains, where camels, mules, or bullocks could not travel; and Government will never go to the expense of maintaining a sufficient number for making an entire supply of them.

An elephant's feed costs as much as that of five camels or eleven mules or seventeen bullocks, and his attendant's pay is nearly equal to that of four camels, ditto, or as it might be six on service, when one man would be enough to three; and an elephant only carries twice as much as a camel or four times as much as a mule or bullock, whilst he costs to purchase ten times as much as the former and about eighteen times as much as the latter, and he requires much more food, unless in large tree-jungles, and is just as liable to die.

The transport establishment as at present maintained has answered its purpose admirably when marching with regiments, the officers invariably expressing approbation. The only complaints are regarding hired cattle, &c. The carts break down or the bullocks are not strong enough for the work.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-
General, Bengal.

I consider the present system to be good and suited to all requirements within the limits of our territory.

Its main principle is the employment of hired carriage as far as possible, instead of maintaining carriage the property of Government, such hired carriage being controlled by chowdries and subordinate officials drawn from the class of carriage owners, and supervised by commissariat officers.

I believe this system to be the most advantageous, and that under it baggage-animals are better cared for, and that more work is obtained from them.

Major M. A. Rowlandson, Ex-
aminer of Commissariat Accounts,
Bombay.

The present system of carriage in India provides for the use of elephants, camels, mules, and bullocks with carts. Of these, the elephants are kept up and fed by Government; camels are partly kept up by Government and partly hired; mules are all kept up by Government; and bullocks are partly Government property and partly hired. Of the above animals, the mules appear the most useful, being fitted for either draught or loading. Elephants are necessary to meet special cases, but camels are least required; and I would with deference suggest that they should not be kept as Government property, but hired if wanted, and their present cost be spent on mules. Wheel-carriage drawn by mules or bullocks may now be used in most parts of India proper; and where wheels could not go, mules and bullocks could be utilized for pack-carriage.

The strength of the field carriage in this presidency is at present as follows:—

Elephants	...	...	...	78
Mules	...	...	...	1,136
Camels	...	...	...	185
Camels, hired	...	...	...	541
Doolie-bearers	...	...	...	669 all ranks.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

The system which prevails at present in the Bombay presidency is that elephants, mules, and artillery bullocks are the property of Government, whilst camels are principally supplied by contract. Any additional carriage for the movement of troops, &c., is hired at the ruling market rates; and I consider that for ordinary requirements this system is the most economical one that can be devised.

Captain J. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

Owing to the extension of railways, cart and camel carriage is year by year becoming scarcer and more difficult to collect, and a considerable time must be given to enable carriage for even a moderate force to be collected in any one place.

To obtain carriage for a large army not only requires time, but is a matter of much difficulty; and since the experience of the campaign just closed, it will probably be more difficult than ever to procure camel carriage.

J. H. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

I believe the transport or carriage is hired, and do not think this system is good in entirety.

2. Does it answer for internal and external warfare?

Lieutenant-General C. T. Cham-
berlain, C.S.I., late Commanding
Oudh Division.

It answers in the plains of India, because forage of sorts is generally plentiful, and Government will not be denied anything required. Camels reared in our own territories are unsuited to the barren mountainous countries of Beluchistan, and carts are as much out of place.

Regimental transport would be preferable, but it would be more expensive.

Lieutenant-General W. T.
Hughes, C.B., Commanding Sirhind
Division.

By means of such a system we have hitherto transported our armies; but it is unsatisfactory in every way. It cannot answer for external warfare if field operations are protracted.

Lieutenant-General J. Forbes,
Commanding Mhow Division.

Suitable for small expeditions in the country; not suitable for external warfare.

Major-General A. W. Macintire,
C.B., Commanding Hyderabad Sub-
sidiary Force.

Suitable to internal warfare, provided the means available bear due proportion to the end in view. Applicability to external warfare must depend on specific conditions of the particular service.

Major-General R. O. Bright,
Commanding Meerut Division.

The recent experience in the Afghan campaign tends to prove that it is not well suited for external warfare, unless supplemented by a regular transport corps.

Major-General H. R. Browne,
Commanding Saugor District.

Yes; I do not think that any other system could be devised that would so well meet both the requirements of the troops and the local means of supply.

Major-General J. W. Schneider,
C.B., Commanding Northern Divi-
sion, Bombay Army.

For internal warfare the existing system has answered all purposes. For external warfare, like the Abyssinian Expeditionary Force, a special transport service requires to be organized.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay
Army.

It answers perfectly for internal warfare; and, unless we were suddenly involved in an unforeseen external war—a contingency which could hardly arise—it should answer equally well for service beyond our frontier.

Brigadier-General T. J. Murray,
C.B., Mooltan Brigade.

Hitherto it has answered for internal warfare; but the recent campaign has shown how unequal it is to meeting the requirements of external warfare on a large scale.

Colonel J. A. Tytler, C.B., V.C.,
Commanding 4th Goorkhas.

No; I certainly do not think that it does for either.

Colonel J. Macdonald, Secretary
to Government of Bombay, Military
Department.

Yes, for internal warfare. But for external operations an organized transport service would be necessary.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

While it may answer for internal, it certainly does not for external warfare. In the latter, in the absence of roads fit for wheeled carriage in mountainous districts, we must utilize the camel, pony, or mule. These have to be bought or hired for the occasion; and I do not consider this system has proved to be satisfactory. Attention should, therefore, be specially directed to multiplying and improving the breeds of mules, on which the organization of a special transport service available for such operations should be based. If, in addition to there being no proper roads in certain parts, there is a dearth of mules, coolie carriage may have to be resorted to.

Lieutenant-Colonel A. G. T.
Hogg, Deputy Quarter-Master-Gen-
eral, Bombay Army.

Yes, fairly well for internal warfare; but the arrangements to be made for external warfare are not much affected, as a completely new organization then takes place.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quar-
ter-Master-General.

I consider it does better than anything which can be substituted for it, and if the details connected with it were fully considered and systematized.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

I have already expressed my opinion in reply to question 1, that there is no system; and it therefore cannot be said to answer for warfare.

Captain M. J. King-Harman,
Deputy Assistant Quarter-Master-
General.

Lieutenant-Colonel R. S. Cle-
land, 9th Queen's Royal Lancers.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

The system is ill adapted for internal warfare, and utterly unsuited for external warfare.

Yes, for internal warfare.

The recent campaign's experience gives a negative to this question as far as external war is concerned. As for internal war as much as for external, the cattle must shortly cease to be effective, unless rationed on a sufficient scale proportioned to the work required of them, under established supervision. Besides the loss of cattle entailed by short-sighted parsimony in this respect, the health and motive-power of a force in the field is impaired, and a gigantic outlay is entailed on the country to obtain inferior cattle to replace those lost, at a cost which would far exceed that required to issue the ration necessary for the maintenance of the cattle.

Lieutenant-Colonel J. C. Le
Quesne, 12th Lancers.

It would.

Lieutenant-Colonel G. Luck,
15th Hussars.

Vide answer 1.

Major E. A. Wood, 10th Hus-
sars.

For internal, I fancy, it answers fairly well; but for external warfare it is not satisfactory.

Captain J. A. S. Mackenzie, 9th
Lancers.

It answers for internal, but not for external warfare. I would suggest mule carriage for the baggage of the regiment, and camels only to carry the tents in the latter case.

Colonel J. A. Ruddell, 1-25th
Regiment.

No, not in a satisfactory manner.

Lieutenant-Colonel T. Rowland,
Commanding 1-5th Fusiliers.

It answers for internal, but not so well for external.

Lieutenant-Colonel A. Temple-
man, Commanding 1-21st Fusiliers.

External warfare would apparently necessitate the substitution of other animals for the camel and elephant—mules, bullocks, ponies—as more convenient for shipment.

Lieutenant-Colonel G. F. Walker,
Commanding 1-12th Foot.

It might answer fairly well in case of internal warfare. As regards external, it would depend so much on the nature of the country in which the operations were to be carried on.

Lieutenant-Colonel J. S. Hand,
Commanding 4th Regiment.

I do not consider its organization suitable for either.

Lieutenant-Colonel J. W. Hughes,
54th Regiment.

My only experience is that of the mutiny. Then, though the troops were supplied on a scale which enabled them either to move with fair celerity or to occupy their positions for long periods with all necessary comforts, the transport appeared always efficient.

Lieutenant-Colonel C. B. Knowles,
Commanding 67th Regiment.

Not when celerity of movement is required. Given good roads and time, the system would answer for internal warfare.

Lieutenant-Colonel G. H. Parker,
82nd Highlanders.

I think internal and not external.

Major F. Stephen, 4th Battalion
Rifle Brigade.

Although it may answer fairly for internal warfare, where cart roads exist; and bullock carts or camels (which, speaking generally, are the transport of the country) can be used, yet on the outbreak of a frontier war the whole system is changed, mule carriage is absolutely necessary, and the commissariat department have neither time nor experience to ensure a sufficient, effective, or economical supply.

Major Hugh P. Pearson, 12th
Foot.

It always has answered for warfare, whether internal or external, so long as operations were confined to the plains. The resources of India in carriage were equal to the great and sudden strain of the campaigns of 1857 to 1859. In the older campaigns of the Punjab and Gwalior the supply appears to have been equal to the demand at all times. So far as

I know, the transport has never broken down, except in the Afghan campaigns; and there only because the camel, to which we mainly trusted, could not find the food he needed, and was overworked and utterly uncared for. Moreover, he is not fitted by nature to stand the severe cold of Afghanistan as is his Bactrian brother.

The mule and the yaboo are the proper beasts of burden for cold and mountainous countries; and on these we must in future rely when operating under such conditions. Large supplies of these animals should be maintained at all stations in the Punjab, where they might take the place of the camel for the service of the moveable columns; and mule-breeding might either be undertaken by, or receive warm encouragement from, the State.

But although for campaigns in cold and mountainous regions our main reliance must be placed on the mule and yaboo, there is no reason why the camel should not be used for transport along the main lines of communication with our base, and with great advantage, provided he is properly looked after. I believe that, had a good thick *jhool* been issued for every camel at the beginning of the last campaign, most of the appalling mortality amongst those useful beasts would have been prevented.

A little rest here, a little food or water there, would have saved the life of many a camel. But no one seemed to care whether they died or not—their owners least of all; for they received compensation, often far in excess of the value of the animal lost.

Major J. H. Campbell, 83rd Regiment.

As well as any other that can be devised: the varieties of soil and country prevent any particular mode being definitely adopted.

Major J. D. Dyson-Laurie, 34th Regiment.

For internal use, where much baggage has to be carried, it answers. For external, where communications are bad, but where baggage is limited, there is nothing like mule-carriage. Encouragement of the breed of mules seems desirable.

Major W. H. J. Clarke, 72nd Highlanders.

It answers fairly for internal warfare, but not at all for external.

Major G. S. White, 92nd Highlanders.

In external war it has broken down.

Colonel C. E. O. Evans, Commanding Royal Artillery, Meerut Division.

It always has answered successfully hitherto for internal warfare. A great drawback to its extension to operations in foreign territory is the system of leaving the proprietors of cattle taken up for transport to provide food for themselves and their cattle instead of this being provided by the commissariat.

Lieutenant-Colonel I. Ketchen, Royal Artillery.

My experience on field service is so very slight, that I think it better not to trouble any one to read crude theoretical opinions of mine when there must be the opinions of many practically experienced men to examine. One point, however, has presented itself strongly to me when reading accounts of the late Afghan operations; and that is the great

number of deaths among the camels from want of food. I understand the present system to be that so much is paid to the owner of a camel for the use of it, the owner himself being responsible for its feeding. A camel cannot carry a regular load and his own food as well, and it often must be carried (grazing not being procurable in many places). Would it not be well for Government to take the responsibility of feeding the animals into its own hands, the commissariat or transport officer on the spot being the proper judge as to whether grazing is feasible or not; and when not possible, a ration should be issued for each camel, and its equivalent value be charged against the owner of the camel, that is deducted from the hire? This extra food for camels having to be carried would necessitate a larger number of camels being used with a force; but if compensation has to be paid to the owner of every camel that dies under the present system, there would be a large saving in the end.

Major Bertie Hobart, B.A., M.Ly. Secy. to the Governor of Madras.

Vide answer 1.

Major H. C. Lewes, Commanding 1-1st Royal Artillery.

I think waiting till the last moment, and then having sudden recourse to the resources of the country, without any registration of beasts or carriages in the several districts to refer to, whereby some estimate of what is procurable can be arrived at, makes the assembling and organization of a large transport a most difficult matter, and prevents commanders making reliable calculations as to their movements.

Major E. T. Hume, Commanding C-C R. H. A.

Yes, for internal warfare.

Major W. W. Murdoch, Commanding E-A Royal Horse Artillery.

For internal warfare, *i.e.*, in the plains of India, the present carriage and transport could be made available; but for external warfare, such as the late campaign in Afghanistan, I should say it did not answer.

I consider that alterations should be made as are suggested in my answer to No. 7 further on.

Major T. M. Hazelrigg, Commanding E-3rd Royal Artillery.

I think it would, with a staff of non-commissioned officers, both externally and internally. The class from which carriage is drawn are not likely to revolt.

Major the Hon'ble A. Stewart, Comdg. 1-C Royal Horse Artillery.

I have no experience of internal warfare. It certainly failed signally for external.

Major C. E. Nairne, Royal Horse Artillery.

No; it does not answer for times of either warfare or peace.

Collected with great delay, the baggage-animals have hitherto answered fairly in the plains, because fortunately for us they require no more supervision nor food than can readily be given by the regiments they are attached to; but directly the animals are placed in any unaccustomed position of food, locality, or climate, they break down.

Major F. FitzG. Gallwey, Royal Artillery.

I think it answers for internal warfare, and that little supervision would be required here beyond regimental. For external warfare, however, where the work thrown on the animals is heavier, and the means of subsistence more precarious, and where much larger numbers would probably be employed, we require organization.

Major W. H. Noble, Royal Artillery.

However the present arrangements may answer for internal warfare, they certainly do not meet the requirements of a campaign across the frontier.

Capt. G. C. Bayly, 13-8th R. A.

Vide answer 1.

Col. O. Wilkinson, 2nd B. C.

Vide answer 1.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

Hitherto equal to internal warfare. The late campaign has proved its inadequacy to meet the contingencies of trans-frontier wars on a large scale.

Captain M. G. Gerard, 2nd
Central India Horse.

No.—With the exception of the small amount of mule or pony carriage available, it is so indifferent, that marches are regulated not by the capabilities of infantry, but by those of their baggage.

The use of compressed provisions would enormously lessen transport difficulties, and allow one mule to carry as many rations as are now a load for two camels. On Cabul scale one camel carried 160 rations; with compressed provisions he would carry 640.

Brigadier-General C. J. Godby,
Comdg. Punjab Frontier Force.

For India no other kind of carriage would answer as well.

Lieutenant-Colonel C. LaTouche,
Commandant Poona Horse.

No doubt it has answered in a sort of way in the past, and may do so in the future, by improvising on the outbreak of hostilities a transport corps to supplement the permanent arrangements; but if a scheme could be introduced which would, without very great cost, provide for a similar expansion of transport without hurry and confusion, and which would at the same time arrange for the requirements of organization and military discipline, I think it would be a great improvement on the existing system.

Lieut.-Col. J. H. P. Malcolmson,
Commanding 3rd Sind Horse.

Under the circumstances noted in answer 1, I do not consider it does.

Major A. P. Palmer, 9th Bengal
Cavalry.

It has heretofore, I believe, answered sufficiently for internal warfare; and if the railways always remain in our hands, there seems nothing to apprehend as to its insufficiency south of the Jhelum.

Colonel J. Doran, Commanding
27th Punjab Native Infantry.

Only indifferently for internal, and certainly not at all for external warfare.

Colonel H. S. Obbard, Com-
mandant 41st Bengal Infantry.

I think it does. India is so large, and the circumstances of campaigning vary so much, that every campaign almost has to be specially provided for. The carriage provided for the commencement of a campaign should always be supplemented largely by hire, on requisition, of carriage suitable for, and obtainable within, the theatre of war. In most cases, such carriage might be obtained previously. Was any endeavour made to purchase Afghan camels before the late campaign commenced; or to hire them through contractors?

Colonel E. Dandridge, Com-
manding 40th Native Infantry.

As the present system does not provide at all for supervision, or for any reserve carriage, or for carriage suitable for warfare elsewhere than in the plains, it does not answer for either internal or external warfare.

Colonel G. W. Fraser, 39th
Native Infantry.

No, for the reasons given in answer 1. There should be a permanent transport department, with an officer of rank and experience at the head of it.

Lieutenant-Colonel H. Worsley,
Commanding 7th Native Infantry.

For neither. Wherever troops are located we require a certain amount of transport instantly available in case of internal disturbances, whereas at present it is only available at certain stations.

For external warfare the transport maintained is so widely dispersed as to be only available at great expense. And from want of systematic organization it is ill-adapted to great operations.

Lieutenant Colonel R. J. Walker,
Commandant 17th Native Infantry.

As far as I know, it does very well; but I have never been on field service.

Lieutenant-Colonel R. G. Rogers,
20th Punjab Native Infantry.

No; it invariably fails.

Lieutenant-Colonel F. B. Nor-
man, Commanding 24th Punjab
Native Infantry.

Since the present system of moveable columns has been established, we have had no internal warfare. All our expeditions have been beyond our frontier, and in hilly countries; and I think I am right in saying that the system failed on all occasions. I however consider that it would answer fairly well in internal warfare. I don't think that the transport arrangements for any of our camps of exercise can be said to have failed.

Lieutenant-Colonel H. St. G.
Tucker, 41st Native Infantry (late
Superintendent, Transport Train,
41st Native Infantry).

Yes; any of the above-mentioned modes of transport can be made to answer, *but proper rules and regulations should be laid down, even to the slightest detail.* When the three modes of transport are united to assist each other, the transport should answer perfectly.

Major Sir B. P. Bromhead, Bart.,
40th Native Infantry.

It does not answer for internal or external warfare. Nor is it so organized as to be readily capable of expansion to meet the sudden and extraordinary requirements of an army about to take the field.

Major A. C. W. Crookshank, Com-
manding 32nd Pioneers.

For *internal war*, if a mere raid is required, sufficient carriage is always available from the public carriage in the station and the private carriage in the bazaars, or can be got in a few hours.

If it is a regular expedition or war, then a few days would be required to collect and requisition the needed carriage, which would be distributed under the arrangements now in force. Considering that the views of all regarding the necessity for heavy equipment have so modified of late, there need be no apprehension of any want of carriage for

internal warfare. In the old days of mess tents and champagne lunches no doubt the carriage question presented more difficulties than now-a-days.

For *external war*, as I have already said, if time enough is given, there will never be any scarcity of carriage; but if the troops are moved to the theatre of war by train, at the rate of 20 miles an *hour*, and the carriage travels at the rate of 20 miles a *day*, there must necessarily be delay. This can only be obviated by the maintenance of a large amount of carriage, ever ready near probable seats of war, involving an expenditure beyond reasonable limits. I think, therefore, all carriage requirements for external warfare can be easily met under existing arrangements, as they already have been under the most difficult circumstances. Regiments should, however, stick to their own carriage, except in standing camps, when it should be lent for departmental or general use.

I might add that, under existing rules, officers are supposed to keep up carriage out of their extra batta.

Major F. F. Rowcroft, 4th Gorkhas.

I do not think it does. Certainly not for external warfare; though it answers well enough for the movements of troops during peace time.

Colonel H. Boisaragen, Commanding 4th Sikhs.

Neither.

Lieutenant-Colonel J. J. Boswall, Commanding 2nd Sikhs.

I do not think it does. Certainly it is a failure in external warfare. In the present Afghan campaign the losses among baggage-animals can only be attributed to the defect of the system, ignorance of transport officers, and refusal of those whose duty it should have been to assist camel-owners with food for their animals to do so. In my experience between Mithankot and Quetta in January and February 1879, no less than 115 camels, the property of private owners, died out of 418; while, out of the regimental establishment of 62 camels, only one died in three months. These latter were duly cared for and fed, while the former were starved.

Lieutenant-Colonel E. T. Bainbridge, 4th Sikhs.

No, for the reason given above; and when war breaks out a transport under the commissariat, officered as it must be from all quarters, is likely to cause a certain amount of friction in the department, which cannot be conducive to the welfare of the army.

Major A. G. Ross, 1st Sikhs.

The carriage of India answers for internal warfare.

For external warfare it requires organization. Even without a transport corps, the carriage of India—mules, camels, bullocks, donkeys, and carts—can be worked through contractors, who should, however, be helped by Government in foreign lands, when enemies, &c., make it difficult for them to work alone. Also in special operations Government should help, and be prepared to pay extra to the contractors.

For camels, whether worked by a transport department or by contract, sets of camels should be kept at all resting-places, who should do nothing but bring in food for the camels working up and down the line of communication. Camels on the march all day cannot graze, and yet *must* be fed. Moreover, all the line should be divided into stages; and animals should work backwards and forwards only on their own section. This applies to all animals.

Colonel W. A. Gib, Commandant 26th Madras Native Infantry.

It answers for internal warfare. For external warfare probably the carriage of the country, whatever it might be, might be procured. If not, the Indian carriage must be taken on *volens volens*.

In a country like Afghanistan, for instance, camels would no doubt be the best, with as many mules, ponies, and donkeys as could be procured. Of all sorts of carriage, ponies and mules are the hardiest. In Burma most moves would probably be made by water, in boats and flats towed by steamers.

Colonel S. Edwards, Commanding 2nd Bombay Native Infantry.

This want of systems answers neither for internal nor external warfare.

Colonel H. E. James, Commanding 10th Bombay Native (Light) Infantry.

Whenever troops move, there is more or less difficulty about carriage; difficulty in getting it; bad when got; discontent among owners, who are generally pressed to supply it; and the price paid usually high. It answers so far, that carriage, with sufficient notice, is generally forthcoming; but there always appears to be a great strain and effort to get it; and much confusion and want of organization.

Colonel J. Fairbrother, Commanding 2nd Bombay Native Infantry.

No, not at first. About the end of the campaign it becomes efficient.

Colonel J. I. Willes, Commissary-General, Bengal.

Internal fairly; external no, as proved in the late war. Camels from the plains succumbed at once in every column from cold, starvation, and want of clothing and incompetent attendants; and they would again if similarly employed. I believe good clothing would have saved many camels, but Government declined to sanction it. The starvation would of course occur again, as there is no food for the enormous number of camels that must accompany an army to Afghanistan. It is only the British Government that relies on camels living in Cabul in mid-winter; the Cabulis send their camels to India for winter months.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

Vide answer 1.

Lieutenant-Colonel M. W. Wil-
loughby, Acting Commissary-Gen-
eral, Bombay.

As shown in reply to question 1, the establishments maintained are so small, that there may be said to be no system fitted either for internal or external warfare; but the field column carriage establishments have a certain amount of organization and discipline, and if placed on a proper footing, should become a valuable nucleus for a field establishment of army carriage for service either in or out of India.

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

The present system answers well for internal warfare; but hired carriage is absolutely useless in war time beyond the frontier. The want of discipline and absence of any interest in the animals (which do not belong to the drivers) render the attendants incapable of being controlled.

Colonel M. J. Brander, Officiat-
ing Deputy Commissary-General,
Calcutta.

By internal warfare, I take it, small campaigns are meant, such as the Umbeyla, Lushai, Black Mountain, Bhootan. If so, I think the present system of having the transport entirely under the commissariat practicable; and it has been found, I believe, to answer well, with the additional aid of a few selected military officers.

If by external warfare is meant such campaigns as that in Abyssinia and the recent one in Afghanistan, both being on a much larger scale, then I consider it desirable that the entire transport should be placed under a separate body of officers, forming a transport department, under the direct orders of the military authorities, and entirely separate from the commissariat.

Colonel J. Keer, Deputy Com-
missary-General, Lower Circle,
Bengal.

Yes; I think it does as well as any system could. I am taking economy into consideration. Of course, with a larger expenditure a more effective system could be devised. For instance, a large number of camels and mules could be bought and maintained; but the great expense of this I look on as an obstacle.

In case of external warfare, some extraordinary expense would be necessary, such as supplying the camels with good jhools, the drivers with a blanket, &c.; otherwise they could not serve in a cold country. The issue of these articles should be made before the troops march.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-Gen-
eral, Bengal.

It answers very well for internal warfare, and for such purpose needs no additional transport establishment. But as regards external warfare, it of course requires modification and enlargement, depending upon the nature of the service and the country in which it is undertaken. For service in a foreign country, baggage-animals may have to be purchased; or even if hired carriage is used, more extensive supervision is necessary, and greater assistance must be afforded to the owners of carriage. This involves the establishment of some description of transport train, whether separate from the commissariat or as an adjunct thereof.

I think that such additional establishment can only be provided for when the nature of the service is known; but the common mistake of delaying such preparation and organization until the troops are actually taking the field should be avoided. In the late campaign in Afghanistan the question of establishment of a transport train was not settled until after movements of troops had commenced. And then, as the call for operations in different directions arose, local organization again only commenced with the march of troops.

Indian transport is cumbersome; and it is an error to suppose that after its collection time need not be allowed for its organization.

It is susceptible of much improvement for the purposes of both internal and external warfare.

Major M. A. Rowlandson, Exam-
iner of Commissariat Accounts,
Bombay.

As pointed out in my reply to question 1, the present system only meets ordinary requirements, and is therefore not adapted for internal or external warfare, when the large transport required for an army in the field has to be dealt with.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

If the present system of hiring carriage for the emergency would suffice for internal warfare, then it may be supposed that it will be well backed up by rail. It certainly cannot be said to answer satisfactorily for war beyond the frontier.

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

Afghanistan, which is likely to become the base ground of future frontier wars, is eminently unsuited to camel carriage, both on account of the long distances that have to be marched and the scarcity of forage all through the country. There would always be an immense loss of camels in such a country, no matter what precautions were taken for the preservation of the animals.

J. H. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

It answers comparatively well for times of peace, but always fails during active service.

8. Do you consider the system of moveable columns to be a good one ?

Lieutenant-General Sir D. M. Stewart, K.C.B., Commanding Southern Afghanistan Field Force.

Having already given my views* generally on the question of transport, I shall confine my remarks on this paper to such points as may not have been embodied in the correspondence referred to in the margin, and now in the Quarter-Master-General's office. The system is sound, and ought to be maintained; but in practice it does not answer all the purposes for which the establishment is kept up. During the five or six years I have been in command of a district and division, I have *not once* been able to get the moveable column cattle for purposes of instruction and training of the troops. In my own case the cattle have always been required to meet the wants of troops moving in relief or the camp of a lieutenant-governor or other exigency of similar character. With this exception, however, the system meets an important want. These remarks answer questions 5 and 6 in the main.

Lieutenant-General C. T. Chamberlain, C.S.I., late Commanding Oudh Division.

Yes, I do, because it is imperative to have the means of moving a body of troops rapidly.

It is economical, as most of the animals used are camels, of which only so many are kept in cantonments on full hire as the commissariat actually require. The remainder are at graze on half-hire, subject to recall within 24 hours.

Lieutenant-General W. T. Hughes, C.A., Commanding Sirhind Division.

The system would be a good one if it were properly worked. The transport cattle and their attendants should be attached to regiments, and commanding officers made responsible for efficiency and for the troops being held in readiness for immediate mobilization. They should be frequently marched out fully equipped for service, and at the discretion of the commanding officer kept in camp for tactical instruction.

Lieutenant-General J. Forbes, Commanding Mhow Division.

Yes; but it might be improved by the modification suggested in answer 16.

Major-General A. W. Macintire, C.B., Commanding Hyderabad Subsidiary Force.

Might, and ought to be a good one, if carried out on a practical and independent footing.

Major-General R. O. Bright, Commanding Meerut Division.

Under present circumstances I think it probably the best. Where there is no question of expense, it would be better to keep up the same amount of carriage as transport corps, which would form a nucleus capable of extension when required, and would afford opportunities for teaching officers, non-commissioned officers, and men transport duties.

Major-General H. B. Brown, Commanding Saugor District.

No; I do not see that there is any advantage to compensate for the expense of maintaining them.

It is a mistake to suppose that they can be ordered out and moved off at a moment's notice.

The bulk of the transport is only maintained at half-rates, and requires time to call in.

Supplies must also be arranged for if the columns are to proceed to any distance.

Major-General J. W. Schneider, C.B., Commanding Northern Division, Bombay Army.

Having regard to the extension of the railway system within the past twenty years, and the general peace and quiet that has prevailed in this presidency during that period, the system of moveable columns would appear to be no longer necessary.

Brigadier-General G. Burrows, Quarter-Master-General, Bombay Army.

I consider that an establishment of elephants and mules should be kept up by Government, these animals not being obtainable when required; but I doubt the advantage of maintaining an establishment consisting of the ordinary carriage of the country, which, as a rule, can readily be collected on occasion.

Brigadier-General F. G. Komster, Commanding Ceded Districts.

Certainly, a very good system. I know of no better.

Brigadier-General T. J. Murray, C.B., Mooltan Brigade.

Certainly not. At most stations where they are kept up the camels graze so far from cantonments as not to be available when suddenly required, thus defeating the very object for which they are maintained at such a heavy expense. In the present state of the country, unless at some frontier stations, sudden movements of troops to repress local disturbances will very seldom, or indeed I may say never, be necessary; but in case of such a contingency, sufficient suitable transport could usually be procured locally as quickly and generally with much less delay than that of the moveable columns. Moreover, it generally happens that many of the camels are too young, and all, from being so seldom used, are not in a condition to stand hard work.

I would therefore entirely abolish the present system; and at frontier stations, where troops must be prepared to move at a moment's notice

* In a correspondence with the Quarter-Master-General.

and suitable transport is not readily procurable, carriage on Punjab Frontier Force system should be maintained.

Colonel J. A. Tytler, C.B., V.C.,
Commanding 4th Goorkhas,

I consider that a certain portion of very large garrison should be told off as a moveable column, to be ready to move at a *moment's notice*, whenever and wherever required. Every regiment in a single corps station should in the same way have its own carriage ready to hand.

Colonel J. Macdonald, Secy. to
Govt. of Bombay, Military Dept.,

Yes,

Colonel A. H. Murray, Deputy
Assistant Adjutant-General, Royal
Artillery in India.

The system of moveable columns is better than no system at all; but, as at present organized, it is not efficient or satisfactory, and it is not to be compared with a proper organized system of transport for regimental, departmental, or general purposes.

Colonel D. Standen, Assistant
Adjutant-General, British Burma
Division.

An admirable system, I think, if carried out in accordance with the letter of instructions as to the organization of moveable columns promulgated in G. G. O. No. 247, dated 19th March 1861, with especial reference to the orders relative to each moveable column being ordered out occasionally for the purpose of exercise in order to enable commanding officers and others to become personally acquainted with the actual requirements of such columns, with the arrangements for their equipments, their carriage and the necessary supplies of all descriptions, and to ensure the active and intelligent co-operation of all the parties concerned, whether belonging to regiments of which the columns are composed or to departments, "employed in their equipment and march; that in times of tranquility they may become so accustomed to move, that when required to turn out, under the sudden call of duty to quell any disturbance, every one may know his place, and clearly comprehend what he has to do, and that confusion and disorder may thereby be avoided." This system would most undoubtedly tend to increase the efficiency of the available force, and to render it perfectly ready at all times for immediate service. At frontier stations, like those of Thayetmyo and Tonghoo, in close proximity to a more or less unfriendly independent State, it would be of great importance to have small compact moveable columns, ready in all respects and at all points to move from their stations at the shortest possible notice.

Lieutenant-Colonel A. G. P. Hogg,
Deputy Quarter-Master-General,
Bombay Army.

Yes; the system is a good one, as it enables a commander to turn out troops at short notice on occasions of emergency, and in ordinary times it is good practice for the troops to be so turned out.

The carriage kept up for moveable columns is available for station work under the commissariat department and for movement of troops in ordinary relief; otherwise I should consider its maintenance for moveable columns alone an unnecessary expense.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quar-
ter-Master-General.

I consider it very fairly met the requirements of the time when they were instituted, but might be advantageously now abolished as belonging to a past condition of things, except at a few stations removed from the line of railway and at the frontier stations.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

Yes; excellent in theory, but not as at present carried out.

Captain M. J. King-Harman,
Deputy Assistant Quarter-Master-
General.

Undoubtedly the system is good; but it is not properly applied, and consequently very little good is derived from it.

Lieutenant-Colonel B. Blundell,
8th Hussars.

If the Government is not prepared to go to the expense of keeping up sufficient carriage to move all the troops in a station, I think the moveable column system is the only other alternative. Given only a limited amount of carriage, I can suggest no better system.

Lieutenant-Colonel E. S. Cleland,
9th (Queen's Royal) Lancers.

As far as my experience goes, it answers well, except the delay in moving, which is caused by the camels being so far away at graze.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

Yes, most decidedly so, as indicating to friend or foe, rulers of States within or without the empire, a constant watchfulness and state of readiness to act promptly on emergency.

Lieutenant-Colonel J. C. LeQueane,
12th Royal Lancers.

There can be no doubt the training in peace time must be of advantage in service.

Lieutenant-Colonel G. Luck,
Commanding 15th Hussars.

During the fourteen years I have served in India, I have never seen a moveable column paraded. Beyond seeing a squadron of the regiment detailed monthly in orders as forming part of the column, the officers and men of the 15th Hussars know nothing of the system, and probably look on it as a myth, or something appertaining to a past generation. For my own part, I happen to be aware that attempts have occasionally been made in Meerut to move the column, but when called for the carriage has not been forthcoming.

Major J. W. Chaplin, 8th Hussars.

I consider the present system of moveable columns to be good, particularly if some trained non-commissioned officers and men were attached to them.

Major E. A. Wood, 10th Hussars.

No; I fancy the same amount of carriage might be kept up regimentally with greater benefit to the service, but the cost would be greater to a certain extent in times of peace; and I am not sure that the moveable column is kept up as efficiently as it might be. The moveable column is mustered once a month by a field officer.

It is quite possible and very probable that the field officer in question might be perfectly unaware as to the efficient state of the animals paraded for his inspection, from having had no experience in the management of transport or baggage animals.

Captain J. A. S. Mackenzie, 9th Lancers.

Yes; as a handy compact force is always ready to turn out.

Colonel J. A. Buddell, 1-25th Foot.

Yes, I think so; but I have had no experience of the working of the system, and regret that I can give no satisfactory replies to questions 3 to 6.

Lieutenant-Colonel T. Rowland, Commanding 1-5th Fusiliers.

Yes; they keep up a supply of carriage for any sudden emergency.

Lieutenant-Colonel M. MacGregor, 1-18th (The Royal Irish.)

Yes, if the orders regarding them are carried out, and if the troops serving near them are practised in assembling at given points within a stated time.

Lieutenant-Colonel G. F. Walker, Commanding 1-12th Foot.

I cannot speak from personal experience of the moveable column system. During the two years the regiment was stationed in Umballa, a small force left the station as a moveable column, and I am informed that on that occasion there was no difficulty in the matter of carriage.

Lieutenant-Colonel D. Warren, Commanding 2-14th (Prince of Wales' Own) Regiment.

Most excellent; as, in addition to giving facility for moving small columns to threatened points, it can without extra expense be made the means of imparting the necessary instructions to all grades, in organizing small expeditions, issuing correct orders, moving in proper formation, in fact working out problems in minor tactics, thereby leaving more important tactical combinations to be dealt with at the large camps of exercise.

Lieutenant-Colonel J. S. Hand, Commanding 44th Regiment.

Yes, if properly organized and conducted.

Lieutenant-Colonel J. W. Hughes, 54th Regiment.

I think it essential that at certain points a force should be held in readiness to move at the shortest notice; and I cannot suggest any improvement on the present moveable column.

Lieutenant-Colonel C. B. Knowles, Commanding 67th Regiment.

Yes, if the system is properly worked. I consider a column should assemble for three days' exercise at least once a quarter.

First day.—March out of station to a distance not less than eight miles, pitch camp. Troops to be practised in outpost duty.

Second day.—Attack of a village or a position. The three arms to be employed.

Third day.—March back to station. Column to halt, cook, and eat one meal half-way.

Officer commanding to send in a report detailing shortcomings in commissariat and transport arrangements, or suggesting improvements.

Lieutenant-Colonel G. H. Parker, 92nd Highlanders.

I think it good; but they might be oftener exercised.

Major F. Stephen, 4th Battalion Rifle Brigade.

Certainly not.

Major Hugh P. Pearson, 12th Foot.

Yes; a most admirable one. But their operations should not be confined, as at present, to the limit of three or four days, nor to ground within ten to fifteen miles of cantonments, which follows on the first condition. I have seen the moveable column at Morar working for three or four years, and am quite certain that both officers and men learnt

much of their duty practically during its operations. The country round Morar being hilly, is peculiarly adapted to the working of troops, and to the illustration of the immense value of army signalling as an aid in warfare.

On every occasion both officers and men took the keenest interest in the operations, and all regretted their close.

I cannot speak too highly of the system when properly carried out, as I have always seen it.

I may here remark that an imaginary or skeleton enemy creates no interest. Troops must have other troops opposed to them.

Where cantonments are within a distance which will admit of it, their moveable columns should manoeuvre against each other, within certain defined lateral limits, for at least three days, exclusive of the time required to bring them in presence of each other.

Advantage might be taken of the march of regiments through cantonments in relief to form small columns for manoeuvring.

The cumbersome E. P. tent should never be taken out on these occasions. All that is needed are small *tentes d'abri* (to hold four to six men each) to keep off rain. By this simple expedient three-fourths of the carriage now employed in transporting the baggage of moveable columns might either be dispensed with altogether, or, better still, utilized to carry what would be really necessary for the wants of a much larger moveable column.

All cooks should be left behind on such occasions, and all other followers as far as possible. Give the soldier cooking utensils, and let him build field ovens and cook for himself.

Cut down baggage to a minimum, both of officers and men. The Cabul scale allows ample.

This is the opportunity for enforcing strict discipline amongst the followers, and of practising kahars, camel-drivers, &c., in the rough drill I have before spoken of. (See answer 6, paper C.)

These are but a few suggestions. Everything that would tend to make these annual exercises more practical, to assimilate their conditions with those of actual warfare, could not fail to be beneficial to all concerned.

Major J. D. Dyson-Laurie, 34th Regiment.

The carriage of moveable columns, camels, with which I have been acquainted, has been kept, at a reduced cost to Government, not in profitable use but out at graze. When required, the animals have been unruly. The officers and men know nothing of the important business of packing baggage and loading the animals.

Major G. K. Shaw, 68th Light Infantry.

I have never been able to see the use of moveable columns. If an outbreak should occur requiring military suppression, troops would be sent out as the occasion required independent of the fact of their belonging to the moveable column or not, and transport would be impressed.

Major W. H. J. Clarke, 72nd Highlanders.

I do consider the system of moveable columns a good one; that is, if they are properly formed, consisting of all three branches of the service when possible, and frequently worked together, by being sent out to camp in the winter months.

I should also send orders to different stations to march their moveable columns on to a certain town or place. All the different columns to arrive by a fixed date and hour at the place fixed upon.

I should say this would be very good practice.

Major G. S. White, 92nd Highlanders.

Good, where the sudden despatch of troops is likely to be requisite. In nine stations out of ten, however, the system appears to have lost its *raison d'être* in the general pacification of the country and the spread of railways.

Capt. H. M'L. Hutchison, 1-14th (Prince of Wales' Own) Regiment.

Certainly, if properly utilized for instruction, &c.

Col. C. R. O. Erans, Comdg. Royal Artillery, Meerut Division.

A tolerably useful one at a minimum of expense.

Lieutenant-Colonel I. Ketchen, Royal Artillery.

Yes, if the system were really carried out.

Major Bertie Hobart, R.A., Military Secretary to the Governor of Madras.

I have no doubt that moveable columns like all reserves are an absolute necessity, and more so now than ever, as the increasing prosperity of the country in agriculture and trade increases the difficulty of taking up transport. I have served at stations where a moveable column was ordered to be kept up; but I do not recollect ever seeing the carriage mustered, and ever taking part in any exercise of it with stores, supplies, &c., packed for exercise.

Major H. C. Lewes, Comdg. 1-1st R. A.

An admirable system, if carried out with *thoroughness*.

Major E. T. Hume, Comdg. C-C R. H. A.

Yes, I do.

Major W. W. Murdoch, Commanding E-A R. H. A.

I do not consider it to be a good one for all contingencies; but I have never seen it tried in practice.

Major T. M. Hazelrigg, Commanding E-3rd Royal Artillery.

Yes, as far as I understand it.

Major the Hon'ble A. Stewart, Commanding I-C R. H. A.

No, because every brigade should be a moveable brigade in India.

Major C. Nairns, Royal Horse Artillery.

No; it does not secure a sufficiency of transport, nor can it be got together quick enough for these rapid times.

Major P. FitzG. Gallwey, Royal Artillery.

I consider the present system requires modification now that communication is so vastly improved; and I would abolish all moveable columns, except at the following stations:—

North-Western Frontier (complete carriage).

Gwalior.

Allahabad (for Bundelkund).

Nasirabad.

Mhow.

Nagpur (Kamptee).

Secunderabad.

Poona.

Assam

Burma

} Such carriage to be kept as is suitable.

Lieutenant E. C. Wace, R.A., No. 4 (Hazara) Mountain Battery, Punjab Frontier Force.

Yes; but I think that there should be some better system of making the troops forming that column realize the fact that, for the time being, they do belong to a moveable column, and, as such, should hold themselves in readiness to move at a moment's notice.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

Brigadier-General G. J. Godby, Comdg. Punjab Frontier Force.

Colonel J. Blair, v.c., Commanding 1st Bombay Lancers.

Lieutenant-Colonel C. LaTouche, Commandant Poona Horse.

Lieut.-Col. J. H. P. Malcolmson, Commanding 3rd Sind Horse.

Major A. P. Palmer, 9th Bengal Cavalry.

Colonel J. Deran, Commanding 27th Punjab Native Infantry.

Colonel H. S. Obbard, Commandant 41st Bengal Native Infantry.

Colonel E. Dandridge, Commanding 40th Native Infantry.

Colonel G. W. Fraser, 89th Native Infantry.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Lieutenant-Colonel R. J. Walker, Commanding 17th Native Infantry.

Lieutenant-Colonel R. G. Rogers, 20th Punjab Native Infantry.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

Major Sir E. P. Bromhead, Bart., 40th Native Infantry.

The moveable column answers in the plains, but for general service I think regimental transport would be more efficient.

In the absence of a regular transport organization, moveable columns are good, inasmuch as they supply a proportion of carriage on emergency at a fairly short notice.

Most certainly a very good system.

Yes, I do, if it were only used a little more frequently.

In so far as that in a country like India a force of a certain fixed strength should always be able to start at a moment's notice in any direction on a sudden emergency, I think the system is a good one, and essential to the military requirements of our position. Whether the details which form the component portions of such a system are capable of improvement is another question. In my opinion, moveable columns should only be quartered in central and important positions, due regard being had to the railway system of the country. Each Native cavalry regiment should have its own baggage arrangements; and there should be an organized transport service to arrange for the infantry and departmental requirements.

Yes; if they were so in organization as well as in name!

Improvements are suggested in answer to question 13.

I have very rarely seen them put to any practical use.

Yes, I do. I think it of vital importance that a certain portion of the troops at every station should be able to turn out any minute, and move rapidly in any direction for several consecutive days.

Yes, if worked as it was intended that it should be.

Until recently, the musketry course took up the greater part of the cold season. This cause, combined with the paucity of troops available for manœuvring, and the small area of uncultivated ground over which troops might pass, has prevented in a great measure the working of the different columns.

Yes, if properly and efficiently kept up, and the orders on the subject laid down in the Bengal Army Regulations be fully carried out. But if a considerable portion of the moveable column carriage, such as Rewaree camels, are at graze in the district, 20, 30, and even more miles away, they would be unable to be recalled in time in a case of sudden emergency; and in such an event the moveable column would be practically "immoveable."

No! It is ill adapted to the necessities of the present day. Improved communications have rendered unnecessary a system devised when every station was as it were the centre of a zone of operations.

Yes.

No; it invariably fails.

Yes; under the system a certain amount of carriage is maintained in a state of efficiency at all strategical points. The amount of carriage kept up is, however, on too small a scale.

It originally answered the purpose for which it was required, but since the introduction of the railway in India the moveable column has been much reduced, and I doubt very much whether at cantonments where the railway is contiguous enough carriage is kept up to move all the regiments at a short notice.

No, I do not. Its cost alone should be sufficient to condemn it. I would substitute for it a system of *regimental transport*, the advantages of which would, I believe, far outweigh those of moveable columns. The chief would be—

1st, *superior economy*; for carriage would only be hired when actually wanted. The cost of keeping up these moveable columns all the year round must be immense.

2ndly, *increased efficiency*, in two ways. (a) It would be working on a small scale in time of peace, exactly as in time of war it would have to be done on a large scale; and thus not only would it accustom civil officers and their subordinates and the people of their districts (the owners of the carriage) to the nature of the demands that may at any time be made upon them, but it also would give regimental officers, in time of peace, valuable experience in the working of transport arrangements, which otherwise they could hardly obtain. And (b) it is a system capable of indefinite

expansion ; for, with timely notice, the civil authorities can collect a large amount of carriage as easily as a small one. The chief objection which opponents of this system could urge against it is, that if all moveable columns be done away with, you might not, on an emergency, be able to lay your hands at once on the carriage required for immediate action. I do not think such a contingency could ever arise. It would be the duty of every commanding officer of a station to be in constant communication with the chief civil officer of the district (see question and answer 15), who would always keep him thoroughly well informed of his resources in the way of carriage; and it would, I believe, be always forthcoming when wanted. However, in some instances, it might be prudent not to interfere with existing arrangements; and in a few cases I would not advocate a change. For example, the Punjab Frontier Force always keeps up its own carriage ready for instant use, and it should continue to do so; and where mules and elephants now form part of the moveable columns, they should be retained, for they are animals sometimes specially necessary, but not always easily obtained.

Major A. C. W. Crookshank, Commanding 82nd Pioneers.

No, I do not. It was suggested by the want of carriage felt during the mutiny. I do not think it fulfils its *raison d'être*, because—

1st.—We have adopted an army organization and other arrangements which should prevent a second army mutiny.

2nd.—Communication by rail is so extended, that troops can be expeditiously moved from one part of the country to another.

3rd.—We have now accepted the fact that troops can be moved on service with a mere tithe of the transport formerly needed.

4th.—Because they are not immediately ready for service.

5th.—Because the system engenders a false security and a false mobility. Given that carriage is forthcoming, a regiment ought to be able to turn out for service in an hour's time, knowing perfectly what to take and how to pack it. The present detail of the troops is a routine station order, which is generally unnoticed. If the general knows what carriage he has in the station, and the men can be referred at once to a printed form hanging in the barrack-room, detailing the various kits for hill, plain, hot and cold weather service, it should simply be necessary for him to detail the number of men he wants, and they should be ready to start as soon as the carriage reaches them.

Major F. F. Bowcroft, 4th Goorkhas.

A very good system indeed, if properly carried out.

Colonel H. Boisragon, Commanding 4th Sikhs.

Yes.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

I have never had any experience of any, where the carriage is dependent on the commissariat. As far as the regiments on the frontier are concerned, where carriage is kept up regimentally, sufficient to move out a regiment in the lightest marching order for an expedition of three or four days, it works well.

Major A. G. Ross, 1st Sikhs.

As far as I know, yes, if really and properly worked.

Colonel W. A. Gib, Commanding 25th Madras Native Infantry.

Undoubtedly they must do good; but they can only be used in a very limited manner as regards the whole army, or the expense would be enormous.

Colonel S. Edwards, Commanding 2nd Bombay Native Infantry.

Yes, if properly organized and maintained, not as it at present exists.

Colonel W. Bannerman, 4th Bombay Rifles.

I consider the system to be a good one.

Colonel H. H. James, Commanding 10th Bombay Native Infantry.

Yes, under the present rules for transport; but I should much prefer to see regiments always ready with their own carriage.

Colonel J. Fairbrother, Commanding 22nd Bombay Native Infantry.

I think not, unless separated from the commissariat and under its own staff.

Colonel J. I. Willes, Commissary-General, Bengal.

No—a simple waste of money.

Colonel R. A. Moore, Acting Commissary-General, Madras.

Moveable columns, so-called, were introduced in 1860; but, as far as I know, they have seldom or never been marched out or exercised. This year for the first time they have been ordered to be paraded monthly. The moveable column appears to me to be more a paper arrangement than anything else. Before the moveable columns were introduced, the cattle were kept up and were available for the use of troops just as much as they are now. And it is doubtful whether, on a real emergency arising, the force sent to quell a disturbance would be the exact strength and composition of the moveable column. And if it were not, no advantage would be derived from the moveable column arrangement. The whole of the camels at a station where there is a moveable column are allotted to it. And as neither camels, elephants, nor mules are procurable in this presidency, the casualties which occur cannot be replaced for a considerable time; and the transport of the moveable column is consequently seldom complete. Moreover, the best time for exercising the moveable column is the cold season. But just then the ordinary reliefs are taking place, and all the camels, &c., are detailed to proceed with the troops marching; and the moveable column is thus broken up.

Lieutenant-Colonel M. W. Wilmoughby, Acting Commissary-General, Bombay.

Moveable columns were established as a political necessity, and carriage has for many years been kept up to enable them to move out at the shortest notice to repress disturbances, &c. Whether the political necessity still exists I cannot say. If it does not, it seems that some portion of the field column carriage is frittered away at stations where there is little or no use for it as transport, and where the strength maintained is too small to serve any useful purpose in moving out the troops into the country for exercise or manœuvres, and that it would be better to concentrate this carriage at the large military stations. The field column carriage has certainly been found very useful in moving troops out into cholera camps; and it might, and probably would, be necessary to leave a small establishment of wheeled carriage at the minor stations to form at least a nucleus to meet such emergencies.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

Moveable columns are doubtless very valuable, but they are very expensive.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

Yes; they answer the required object, which is to be able to move a certain portion of the troops at a station at a very short notice.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

Yes; the carriage maintained is generally speedily available on any sudden emergency. Without a moveable column, the delay in procuring carriage, even for a small body of troops, would probably be very great.

Col. G. S. Macbean, Depy. Comy.-Genl., late in Comt. charge of the Khyber and Kuram Forces.

Moveable columns are kept up at stations for political reasons; and if they are necessary, the carriage to move them must also be kept.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

The system of moveable columns as regards the commissariat is merely the retention of a certain amount of carriage at the disposal of the military authorities. It is of course necessary to keep up a certain amount of carriage; and I consider the plan of familiarizing officers and men with the use of it to be good.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

The field column carriage which is kept up in the Bombay presidency for moveable columns has been gradually so reduced, that it can hardly be said to exist. The great expansion of railway lines in India has modified our position to a considerable extent; and I am of opinion that there is no longer the same necessity as before of keeping up a large transport for the immediate movement of troops.

Captain T. F. Hobday, Deputy Assistant Commissary-General, Kandahar.

The system of moveable columns would be of great value when it is necessary to put a small force into the field on short notice.

J. H. B. Hallen, Esq., General Superintendent Horse-Breeding Operations.

The amount of carriage so kept up is at present too small to be of much value when a large force takes the field; but it is of large value strategically to be able to put a force into the field at once on a frontier where an enemy may be expected to appear at any time.

I think all columns on the frontier, and one column in every division of the army, should be moveable.

4. What is the average time in which the *moveable columns* with which you are acquainted can be got ready to move from their stations?

Lieut.-Genl. C. T. Chamberlain, C.S.I., late Comdg. Oudh Division.

In all stations in Oudh in from 24 to 36 hours; and I believe this is about the average time in all commands.

Lieutenant-General W. T. Hughes, C.B., Commanding Sirdind Division.

The troops composing the moveable columns at Umballa and Jullundur could parade equipped for service in a few hours. The cattle required to move those troops could not be supplied by the commissariat in less than three days.

Lieutenant-General J. Forbes, Commanding Mhow Division.

Twenty-four hours from each station.

Major-General A. W. Macintyre, C.B., Commanding Hyderabad Subsidary Force.

Twenty-four hours, in addition to time required to call in cattle kept in the district. It is necessary to keep elephants and hired cattle at a distance of from 30 to 50 miles from Secunderabad, on account of grazing and forage, which are not procurable in the immediate neighbourhood. They could be recalled in three days. During the time occupied in recalling them, other arrangements would be in course of preparation.

Major-General R. O. Bright, Commanding Meerut Division.

Provided the commissariat officer receives any hint of the carriage being required in 24 hours, or three days after the first intimation.

Major-General H. R. Brown,
Commanding Saugor District.

I am acquainted with the columns at several stations. Much depends on the service for which they are required, and on the character of the district in which they are to act.

The columns cannot proceed to any distance, or on any lengthened duty, without full previous arrangements for their subsistence.

Under ordinary circumstances, I consider that transport should be called in, and the columns provisioned and ready for movement in 48 hours.

Major-General J. W. Schneider,
Commanding Northern Division,
Bombay Army.

Moveable columns, as fixed for this presidency, would be able to march out at a few hours' notice, if the field column carriage sanctioned for such columns were always kept ready and available for the purpose; but it may be employed by the commissariat department and in various other sanctioned ways (section 21, Bombay Army Regulations, paragraph 142), so that all would depend on circumstances chiefly whether it became necessary to provide a great portion of carriage by hire.

Brigadier-General G. Burrows,
Qr. Mr. Genl., Bombay Army.

Moveable columns can be got ready to move in twenty-four hours. On an emergency they might move in even less time.

Brigadier-General F. G. Kemper,
Commanding Ceded Districts.

The moveable column in Bellary, the only one under my command, can be got ready in a few hours, provided the cattle can be brought in quickly from grazing.

Brigadier-General T. J. Murray,
c.B., Mooltan Brigade.

From two to three days, unless the commissariat officers are specially warned to keep the camels at graze as near as possible to cantonments, when twenty-four hours would suffice.

Colonel J. A. Tytler, c.B., v.c.,
Commanding 4th Goorkhas.

Not having been in a large station for many years, I could not say how long it would take to move a column in one of them; but I know that in the stations of Almorah, Dharmasala, and Bukloh it takes from five days to a week to move, under the present system of carriage, a Goorkha battalion.

Colonel J. Macdonald, Secy. to
Govt., Bombay, Military Dept.

From twenty-four hours to two days.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

It depends upon the stations and where the animals (especially elephants) have been sent to feed, and also on the time of year. On this account the columns are not moveable, as it always takes the commissariat from three to ten days' notice to collect the animals.

Lieut.-Col. A. G. T. Hogg, Dy.
Qr. Mr. Genl., Bombay Army.

Twelve hours.

Lieut.-Col. H. A. Little, Offg.
Dy. Asst. Qr. Mr. Genl.

Three days.

Major A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

It has so happened that for several years I have never seen the moveable column carriage of the stations at which I have been quartered utilized for the purpose of moving the column at short notice; so I am unable to give a definite reply to this question.

Capt. M. J. King-Harman, Dy.
Asst. Quarter-Master-General.

Not under three days.

Lieutenant-Colonel R. Blundell,
3rd Hussars.

The moveable column at Mhow, the only one I am acquainted with, consists of—

Royal horse artillery	... 2 guns
Cavalry	... 4 troops
European infantry	... 1 company
Native infantry	... 6 companies

and it can be got ready in 24 hours; so says the commissariat officer.

Lieutenant-Colonel R. S. Cleland,
9th (Queen's Royal) Lancers.

I believe it takes fifty-six hours to gather the carriage in Sialkot, so that the moveable column could not move out of the station under three days.

Lieutenant-Colonel Lord R. D. Kerr,
Commanding 10th Hussars.

My acquaintance with Indian stations is limited; but speaking for the two stations at which I have been placed, I should say about eight hours, provided always that the troops in the station had not been deprived of their camp equipage for use of soldiers or their families in the hills. If thus deprived, it depends on the distance from which the equipage has to be recovered.

Lieutenant-Colonel J. C. Le Queue,
12th Lancers.

If commissariat prepared, a column should move easily at 24 hours' notice.

Lieut.-Col. G. Luck, Commanding
15th Hussars.

Vide answer 3.

Major J. W. Chaplin, 8th
Hussars.

The only moveable column that I am acquainted with would take 12 hours to move from its station.

Captain J. A. S. Mackenzie,
9th Lancers.

From two to three days, as the commissariat require nearly that time to call the camels in to the station. The troops being detailed monthly, are always in readiness to turn out at once.

- Colonel T. Rowland, Commanding 1-5th Fusiliers. I have never to my recollection seen them moved out; but judging by moving out for cholera camp by the moveable column carriage, one day.
- Lieutenant-Colonel M MacGregor, 1-8th (The Royal Irish). The only moveable column with which I am acquainted (*viz.*, at Bareilly) was never called out. When the moveable column cattle were required to convey camp equipment to the musketry camp, a distance of three miles from cantonments, the commissariat usually demanded 48 hours' notice.
- Lieutenant-Colonel G. F. Walker, Commanding 1-12th Foot. With the exception of the instance alluded to in the last reply, the moveable column did not leave the station during the two years the regiment was in Umballa.
- Lieutenant-Colonel D. Warren, Commanding 2-14th (Prince of Wales' Own) Regiment. Speaking from what has come under my immediate notice, from two to four days, according to the distance the animals may be permitted to go for grazing.
- Lieutenant-Colonel G. W. Puget, Commanding 34th Regiment. It would take 16 days to collect carriage to enable the half-battalion of my regiment to move from Chaubattia. The road is closed for traffic during the monsoon.
- Lieutenant-Colonel J. S. Hand, Commanding 44th Regiment. I consider that a moveable column should be ready to move in four hours, if properly organized, with its transport separate and under a transport officer. In the Madras presidency I have had no experience since. As far as I can remember, the composition of moveable columns has been published in orders; but not paraded with their transport; that is in the stations in which I have served, and during the time of my residence therein.
- Lieutenant-Colonel J. W. Hughes, 54th Regiment. Morar is the latest experience I have had. I believe 48 hours' notice would be required there, as some of the grazing grounds were a considerable distance from the station.
- Lieutenant-Colonel C. B. Knowles, Commanding 67th Regiment. I never heard. I should say, if transport animals, camp equipage, and food were ready for immediate issue to the troops, the column should be able to march within two hours of the issue of an order from the general.
- Lieutenant-Colonel G. H. Parker, 92nd Highlanders. The only time I have been out with a moveable column was at the end of a month, when the animals had come in for muster and so were available. I have never been present when they were wanted suddenly.
- Major F. Stephen, 4th Battalion Rifle Brigade. Speaking generally, I should say about four days.
- Major Hugh P. Pearson, 12th Foot. I have never known the time test applied. Everything depends upon the distance from cantonments of the feeding grounds of the moveable column carriage cattle. Let the cattle be in cantonments, and the stand of the column is only a question of two or three hours. This has been to my knowledge so far proved that, at Morar, during an epidemic, the carriage being in cantonments, a force quite equal to the moveable column has marched to different camps simultaneously, or nearly so, and at very short notice.
- Major G. K. Shaw, 68th Light Infantry. I remember the Neemuch column being once ordered by telegram received about 1 p.m. to march out at 4 a.m. next day. The transport happened to be at hand, and the movement was carried out satisfactorily; but the time required to get in motion depends on how far the camels are grazing. As a rule, I should say not.
- Major W. H. J. Clarke, 72nd Highlanders. The average time in which the moveable columns with which I have been acquainted could be got ready to move is forty-eight hours. The moveable columns at the stations I have been at generally consisted of two companies from each regiment of infantry, a squadron of cavalry, and two guns.
- Major G. S. White, 92nd Highlanders. About 24 hours, I think, in the last station I was in; except on muster days, when a shorter time would have sufficed.
- Captain R. H. Fawcett, 33rd Foot. The moveable column at Bellary is at the present moment, in consequence of the public cattle being required elsewhere, insufficiently supplied with carriage to admit of its moving. But if this great difficulty were got over, as it probably might be by the aid of the civil authorities in a few days on emergency, or, as will be the case, when the cattle are replaced, the troops themselves would be ready to march in the course of two or three hours after notice was given.
- Colonel C. R. O. Evans, Commanding Royal Artillery, Meerut Division. Three days; but of course, if there was any foreshadow of disturbances, the transport cattle grazing at a distance could be at once brought in.

Lieutenant-Colonel I. Ketchen,
Royal Artillery.

I have been acquainted with only one moveable column; and when it was ordered out, there was great delay in bringing the camels forward. Indeed the troops paraded, their baggage all ready to be placed on the camels; but as no camels arrived, they had to be sent back to barracks again, and had to parade the following morning. The secrecy of the expedition was thus knocked on the head. All this occurred, although (I believe) intimation had been given that the camels were likely to be called for some 10 days before! (to the commissariat).

From the above it will be seen that I am unable to say anything about the average time in which moveable columns can be got ready to move from their stations.

Major Bertie Hobart, R.A., Mily.
Secy. to the Govr. of Madras.

Vide answer 3.

Major W. W. Murdoch, Com-
manding E-A Royal Horse Arty.

I cannot say in what time they could be got ready. I have never known a moveable column to be got ready.

Major T. M. Hazelrigg, Com-
mandant E-3rd Royal Artillery.

Campbellpore would take from 18 to 24 hours.

Major the Hon'ble A. Stewart,
Commanding I-C Royal Horse
Artillery.

I have no experience in this, and no opportunity of ascertaining but from my answer to No. 5 it will be seen that it is improbable that it could be done with any great rapidity.

Major C. E. Nairne, Royal
Horse Artillery.

My knowledge is limited; but I think from 4 to 6 days.

Major F. FitzG. Gallwey, Royal
Artillery.

I have so seldom seen these columns exercised, that my experience is limited; but it took four to seven days to collect the carriage necessary on the only occasions I can remember.

Colonel O. Wilkinson, 2nd
Bengal Cavalry.

I cannot say for certain, as cattle might be grazing far or near according to the nature of the country.

Colonel Hugh Gough, Com-
mandant 12th Bengal Cavalry.

From three to four days, *i.e.*, for a column of any strength; a shorter period probably for one or two regiments.

Brigadier-General C. J. Godby,
Commanding Punjab Frontier
Force.

There are no moveable columns on the frontier. Every infantry regiment has sufficient carriage permanently kept up to enable a wing at least of a regiment to move in light marching order. Regiments from contiguous stations are occasionally brought into camp together for exercise, and are at all times able to move from their stations within two hours of receipt of orders, unless the camels are out grazing in the district.

In this case they can generally be brought in in about twelve hours.

Colonel J. Blair, V.C., Com-
manding 1st Bombay Lancers.

As far as the carriage and troops are concerned, I am sure it could be ready in a day: the moving of it out of the station would depend on the commissariat supplies.

Lieutenant-Colonel C. La
Touche, Commandant Poona
Horse.

As my regiment does not form a portion of any moveable column, I am unable to reply to this question.

Lieutenant-Colonel J. H. P.
Malcolmson, Commanding 3rd
Sind Horse.

The Sind Frontier Force, which may be looked on as a moveable column, could, as far as the individual regiments are concerned, move in a few hours; but from no Government carriage being kept up, and no arrangements existing for the collection of the same, there would be great delay, I fear, in getting transport for the ammunition, treasure, and stores which must necessarily accompany them. The Peshin moveable column, which I now command, is not complete, and the carriage is weak and deficient.

I have no knowledge of any others.

Major A. P. Palmer, 9th Bengal
Cavalry.

The commissariat, I believe, make an agreement with contractors, whereby the latter can *claim* to have three days' notice before collecting moveable column carriage at stations.

Colonel J. Doran, Commanding
27th Punjab Native Infantry.

Without any previous notice or intimation whatever, I should say from two to three days.

Colonel H. S. Obbard, Com-
mandant 41st Bengal Infantry.

At Morar the great bulk of the camels are about 16 miles from the station. The elephants are kept in the station, except for four months in the year, when they are sent 50 miles off to graze. The camels are on the further side of the Lushkur; and if there were a sudden outbreak, they would all be carried off. You may say that, under favorable circumstances, the column could be got off within twenty-four hours, and that under unfavorable circumstances it would have to do with the small quantity of carriage in the station. Much the same would occur at all stations where the public carriage kept up to meet a sudden emergency is allowed to leave the station.

During the cold season the moveable column carriage is largely used for troops moving in relief.

At Morar the supply of ammunition for the Native troops is so short—20 rounds in pouch and 30 in the magazine of British regiments—that a flight to the fort for additional supply might prove a first necessity.

Colonel E. Dandridge, Commanding 40th Native Infantry.

As the moveable columns at the stations where I have been quartered have not moved out, I cannot say. The length of time would depend entirely upon the distance (which can be ascertained) from cantonments of the grazing grounds.

Colonel G. W. Fraser, 89th Native Infantry.

I believe two days is the average time in which the moveable columns with which I have been acquainted at Peshawar, Ferozepore, and the Gwalior district were supposed to be able to move from their stations.

Lieut.-Col. R. J. Walker, Commandant 17th Native Infantry.

As soon as the carriage can be provided. Should no previous warning have been given to the commissariat, many of the cattle would be grazing in the district, and it would take 24 hours to collect them; otherwise 8 or 10 hours would be sufficient.

Lieut.-Colonel R. G. Rogers, 20th (Punjab) N. I.

Two or three days at least.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

I cannot say. At some stations the camels have to go a very long distance to graze. This is a difficulty which would have to be faced by any description of transport train, and has nothing to do with the moveable column system.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent Transport Train, 41st Native Infantry.

I cannot give a decided answer to this question; but I believe when the moveable column is not likely to be required, all the carriage is sent away to some distance to graze, so that on an emergency it would generally take about a week to collect the carriage together.

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

This depends upon—

(a) The amount of Government cattle present in the station, in which case a few hours would suffice.

(b) How many are with regiments on the march; these, if not temporarily replaced, would not be available at all.

(c) At what distance the camels are out at graze, supposed to be within a day or two's call; but it may be anything, and indeed the camels may only exist on muster days.

On muster days moveable columns could turn out in a few hours, but ordinarily, I should say, if they waited for all the carriage they are supposed to have, then in two or three days' time.

Major F. F. Bowcroft, 4th Goorkha.

The only moveable column with which I have had any experience was the Rohilkund district one at Bareilly, when Brigadier-General Holdich commanded the district in 1863-64. As far as I can recollect twenty-four hours was more than sufficient for the moveable column to get ready and move off.

Colonel H. Boisragon, Commanding 4th Sikhs.

I have never been attached to any. My regiment has frequently and always been able to start from its station for active service, or any other purpose, in a couple of hours after being ordered.

Lieutenant-Colonel J. J. Boswell, Commanding 2nd Sikhs.

In Punjab frontier regiments, where permanent cattle establishments are kept up, a regiment could march in a couple of hours with food for three days. Any delay after this would be caused in bringing camels in from graze, which sometimes is not in the immediate vicinity of the station.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

I have seen the garrison at Kohat (1 cavalry, 3 infantry, 1 field battery, and 1 mountain battery) get ready to start with all ammunition, &c., packed in an hour. This was at night, when all the transport was in the station. During the day time, when the animals are away grazing, it would take some three or four hours more. At Dera Ismail Khan, where the camels are kept out at graze a few miles off, it would take from five to six hours to get ready to march out.

Major A. G. Ross, 1st Sikhs.

During 14 years I have been but twice in stations with moveable columns; and I cannot answer fully. Officers and men would understand constitution and duties and be organized for moveable columns very sharp, once they formed part of one.

Colonel S. Edwardes, Commanding 2nd Bombay Native Infantry.

The small amount of carriage kept up at various stations is always ready to move; but it is not organized as the transport of a moveable column should be, nor exercised sufficiently often to test the average time of moving or its capabilities while out.

Colonel W. Bannerman, 4th Bombay Rifles.

Twenty-four hours.

Colonel H. H. James, Commanding 10th Bombay Native (Light) Infantry.

Colonel J. Fairbrother, Commanding 22nd Bombay N. I.

Colonel J. I. Wiles, Commissary-General, Bengal.

Lieut.-Col. R. A. Moore, Acting Commissary-General, Madras.

Lieutenant-Colonel M. W. Willoughby, Acting Commissary-General, Bombay.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

Colonel G. J. Dalrymple-Hay, Examiner of Commissariat Accounts, Bengal.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

Major M. A. Rowlandson, Examiner Comt. Accts., Bombay.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

Captain T. F. Hobbday, Deputy Assistant Commissary-General, Kandahar.

J. H. B. Hallen, Esq., General Superintendent Horse-Breeding Operations.

About 24 hours for a small force, say 2 guns, 2 companies European infantry, 2 companies Native infantry, and cavalry as required, the latter supplying their own carriage. If the cattle happened to be all present in cantonment, 3 or 4 hours might be saved.

I have never seen it tried.

The columns equipped with such carriage as is kept up in two or three days, according to the distance the animals are at graze: *vide* paragraph 2330, Bengal Army Regulations.

Will answer.

There is no record in the Commissary-General's office of the time in which the carriage allotted to the moveable columns can be got ready to move from their stations; but assuming that the field column carriage animals are on the spot in the station, a few hours should be sufficient, as far as the commissariat department is concerned. The seven days' rations for Europeans and two days for Natives and horses are not kept packed and ready for immediate issue, and it would take a few hours to bag them and get them in order to start.

Moveable columns could generally move within 48 hours, except in the rains, when camels are sent out to greater distances to graze.

In 48 hours; this generally being the extreme limit of distance to which camels are allowed to go to graze. As camels form for the most part the transport of all moveable columns, this is ordinarily the only cause of delay in the column being ready for a start at an hour's notice.

In from two to four days. I should mention that in the cold season a large portion of the moveable column carriage and establishments are employed with troops marching on relief; and this is a saving to the State.

I should think three hours sufficient from the issue of the order to the march of the troops, if the cattle were in the station. But for economy the camels are allowed to go to graze, the elephants to bring in their fodder; the bearers may be on several duties and want collecting. Practically; from what I have seen, the commissariat officer is warned to have the carriage in the lines; and then, on the order to move following, I have known a moveable column start under six hours.

This office is unable to state the average time in which moveable columns can be got ready to move from their stations. Under paragraph 2327 of the Bengal Army Regulations, moveable columns are required to be kept "in readiness for immediate movements," and paragraph 2330 and G. O. No. 315 of 1874 require that moveable column cattle, when sent out of station to graze, "must be within two or three days' call."

From two to three days, according to distance of camel and elephant grazing grounds from cantonments.

I believe under a week. The cattle are not allowed to be more than three days' distance from their stations.

The moveable column for which carriage is kept up is so small, that I am of opinion that the necessary time to bring in the camels from grazing—say twenty hours—is all that is required to get it ready.

The cattle kept up for moveable columns are allowed to go short distances from their stations for grazing purposes; and calling them in from this grazing ground sometimes occasions a delay of some 24 to 36 hours. If, however, a movement is expected, the general officer would have the cattle brought into the station and fed there, ready for immediate action. No delay would then occur in the starting of the column.

This depends upon the time occupied by civil officers in collecting carriage. Again, this will depend upon the amount of carriage available.

5. Do officers and men know the constitution and possible duties of the moveable column, and are they so organized as to be ready to take their places in it?

Lieutenant-General C. T. Chamberlain, C.S.I., late Commanding Oudh Division.

There is no complication of any kind. Certain troops of all arms are detailed in brigade or station orders to be in readiness to move at a moment's notice. If the carriage is called in and allotted, the troops rendezvous as ordered, and move in the direction indicated without delay or confusion.

The officer placed in command exercises his judgment about arrangements.

Lieutenant-General W. T. Hughes, c.B., Commanding Sirhind Division.

The constitution of these moveable columns is notified monthly in station orders. The officers are well drilled, and are certainly ready for field service, and to take their places in the column. Frequent exercises, as recommended by answer 3, would be of benefit to both officers and men.

Lieutenant-General J. Forbes, Commanding Mhow Division.

All commissariat commissioned officers, warrant officers, and subordinates do.

Major-General A. W. Macintyre, c.B., Commanding Hyderabad Subsidiary Force.

Composition and details of moveable columns are published periodically in division orders for guidance of all concerned; and officers and men have done their duty satisfactorily.

Major-General R. O. Bright, c.B., Commanding Meerut Division.

Every officer and man detailed for moveable column is duly warned for the duty, and is always ready at any moment to turn out for any service it may be required.

Major-General H. R. Browne, Commanding Sangur District.

The usual system is, at stations where moveable columns are maintained, to detail the several detachments composing the column in station orders, and to name the officer who is to command.

Fresh details are issued periodically, generally I think about every three months.

I have endeavoured in this district to give the column a more permanent organization; but the changes of regimental officers are so frequent, from various causes, and so few are ordinarily available, that they do not acquire much knowledge of this service.

Major-General J. W. Schneider, c.B., Commanding Northern Division, Bombay Army.

The moveable columns fixed for this division are of insignificant strength; and no special orders have been issued by the general officer commanding regarding them.

Commanding officers of brigades and stations know their constitution, and could act on the moment.

Brigadier-General G. Burrows, Quarter-Master-General, Bombay.

On a recent occasion the whole of the field columns in this presidency were ordered by telegraph to march out the following morning; and, with the exception of one or two mistakes, the order was satisfactorily carried out.

Brigadier-General F. G. Kemper, Commanding Ceded Districts.

The various arms are told off once a quarter under the command of one of the senior officers, and are quite ready to take their places at a moment's notice.

Brigadier-General T. J. Murray, c.B., Mooltan Brigade.

Such has not been my experience, but the reverse.

Colonel J. A. Tytler, c.B., v.C., Commanding 4th Goorkhas.

No; I am afraid that they do not. Nor do I think that they are so organized.

Colonel J. Macdonald, Secretary to Government, Bombay, Military Department.

This question has, I assume, reference to officers and men of a regularly organized transport service. As such does not exist, the *personnel* when formed would have to acquire a knowledge of their duties.

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India.

Officers do not know the composition of the moveable column, except from the brigade orders notifying that such and such troops composed it. They have no places in it, except their ordinary regimental positions.

I do not think they are sufficiently practised. To send out the troops forming the moveable column occasionally for a few days into the country, to exercise them when out, and to take the opportunity of their return for exercising the troops left behind in opposing them, and other manœuvres, would in my opinion add much to their efficiency, and also tend to the improvement and instruction in their duties of all concerned.

Lieutenant-Colonel A. G. T. Hogg, Deputy Quarter-Master-General, Bombay.

Yes, as a rule, officers and men understand the object of the moveable columns, and are ready to move with it at short notice.

Lieutenant-Colonel H. A. Little, Officiating Deputy Assistant Quarter-Master-General.

Fairly well, considering how little practical experience they have of moveable columns.

Major A. A. A. Kinloch, Deputy Assistant Quarter-Master-General.

As a rule, I think only in a very general way. As far as I know, there is little or no organization as regards most moveable columns.

Captain M. J. King-Harman, Deputy Assistant Quarter-Master-General.

This entirely depends upon the general commanding and his staff. In very few stations do either officers or men know or care anything about the moveable column.

Lieutenant-Colonel R. Blundell, 3rd Hussars.

I don't think they know anything about the moveable columns, and they are not so organized as to be ready to take their places in it. The commissariat officer here tells me that his subordinates and permanent followers do know their duties with it. The last time the moveable column was out here was in December last; and the officers who had duties with the carriage were assigned them in the previous night's orders.

Lieutenant-Colonel R. S. Cleland, 9th Lancers.

Yes; they do. Two squadrons of the regiment are detailed monthly for that duty, and are always ready to turn out.

Lieutenant-Colonel Lord R. W. Kerr, Commanding 10th Hussars.

The constituent parts of a moveable column are published in brigade orders; its possible duties are assumed to be the suppression of disturbances in the neighbourhood of the military district from which the column is detailed.

The places of officers and men would be determined by the circumstances of the case and the decision of the officer in command.

Lieutenant-Colonel J. C. Le Queene, 12th Royal Lancers.

One squadron, made up at the cost of the other two, is ready and experienced.

Lieutenant-Colonel G. Luck, Commanding 15th Hussars.

Vide answer 3.

Major J. W. Chaplin, 8th Hussars.

As the officers and men in my regiment have only recently arrived in India, I cannot say that they know the constitution and possible duties of a moveable column.

Major E. A. Wood, 10th Hussars.

No; how can they? Unless they *all*, both officers and men, have an individual *interest* in the same during the times they are not actually using them for their own benefit.

Captain J. A. S. Mackenzie, 9th Lancers.

Yes; they (9th Lancers) are aware of the constitution and duties of the moveable column, and are instructed so as to take their places in it when called upon.

Lieutenant-Colonel T. Rowland, Commanding 1-5th Fusiliers.

In some stations I have seen the troops that are to form the moveable column told off in orders. I never saw anything as to duties, though it is generally understood that they are required to be ready to move at a moment's notice. Beyond this there is not any organization.

Lieutenant-Colonel M. MacGregor, 1-18th (The Royal Irish).

No. There is no moveable column at the station where my battalion is quartered.

Lieutenant-Colonel G. F. Walker, Commanding 1-12th Foot.

As far as my experience goes in this matter, I am not aware that any steps have as yet been taken to render officers and men acquainted with the possible duties of a moveable column.

Lieut.-Col. D. Warren, Comdg. 2-14th (Prince of Wales' Own) Regiment.

No, not sufficiently.

Lieutenant-Colonel J. S. Hand, Commanding 44th Regiment.

There are no moveable columns in Thayetmyo. If there were, I should hold myself responsible that the officers of my regiment (if forming a part) knew the constitution, &c., of the column, and were ready to take their places in it at a moment's notice.

Lieutenant-Colonel J. W. Hughes, 54th Regiment.

I think so, and never saw any confusion when the column was moved out.

Lieutenant-Colonel C. B. Knowles, Commanding 67th Regiment.

I have never been detailed for duty with a station flying column in India. An officer who was attached to one at Bangalore writes: "I am aware that the Bangalore column consisted of cavalry, artillery, and infantry (British and Native); but as for the *possible duties* of such column, I never saw or heard of an order on the subject, and I know nothing whatever about them."

Lieutenant-Colonel G. H. Parker, 92nd Highlanders.

I imagine so.
Yes.

Major F. Stephen, 4th Battalion Rifle Brigade.

I think not. Beyond being notified in district or station orders that it exists, no steps appear to be taken to ensure any preparation being made for a move if required.

Major F. S. Terry, 1-25th King's Own Borderers.

I do not think either officers or men are usually taught their duties in the moveable column.

A monthly detail of the troops detailed for the column is usually given out in garrison orders, and there the matter usually ends, so far as my experience goes.

Major Hugh P. Pearson, 12th Foot.

The constitution of the moveable column appears monthly in orders (station), and the portions of corps to form part of it are detailed in regimental orders. Both officers and men must therefore be well informed on the point raised by the first portion of the question.

Major J. H. Campbell, 33rd Regiment.

Major G. K. Shaw, 68th Light Infantry.

Major W. H. J. Clarke, 72nd Highlanders.

Major G. S. White, 92nd Highlanders.

Captain H. M. L. Hutchison, 1-14th (Prince of Wales' Own) Regiment.

Captain R. H. Fawcett, 33rd Foot.

Col. C. R. O. Evans, Commanding Royal Artillery, Meerut Divn.

Lieutenant-Colonel I. Ketchen, Royal Artillery.

Major Bertie Hobart, B.A., Military Secretary to His Grace the Governor of Madras.

Major E. T. Hume, Commanding C-C Royal Horse Artillery.

Major W. H. Murdoch, Commanding E-A Royal Horse Artillery.

Major T. M. Hazelrigg, Commanding E-3rd Royal Artillery.

Major the Hon'ble A. Stewart, Commanding I-C Royal Horse Artillery.

Major C. E. Nairne, Royal Horse Artillery.

Major F. Fitz G. Gallwey, Royal Artillery.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

Colonel Hugh Gough, 12th Bengal Cavalry.

Colonel J. Blair, v.c., Commanding 1st Bombay Lancers.

Lieutenant-Colonel C. La Touche, Commandant Poona Horse.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

Major A. P. Palmer, 9th Bengal Cavalry.

Colonel J. Doran, Commanding 27th Punjab Native Infantry.

Colonel H. S. Obbard, Commanding 41st Native Infantry.

Where such columns are worked as they were at Morar, their possible duties must of necessity be known to all.

They have been organized.

The troops composing the column are named in orders once a month, and no more is thought about it.

In my opinion officers and men do not know the constitution and possible duties of the moveable column, and they are not organized as to be ready to take their places in it. This is caused by their never having chance of learning.

The detail of the moveable column is generally given from month to month in the order book, and officers and men ought to be ready to play their respective parts.

Officers, as a rule, do not know much about the constitution of, neither are they ready to take their places in, a moveable column.

I think so, as a general rule.

They ought to be.

I think so; certainly.

Vide answer 3.

Yes; they are always published in orders.

They know the constitution of the moveable column, but I should say are imperfectly acquainted with the duties or their places in it.

There is only one battery in Campbellpore. A portion is told off as moveable column, and could move as soon as carriage (camels) come in from grazing.

Certainly not in the moveable column to which my battery belongs. There are no orders that I know of, or can ascertain; and if carriage is available, I suppose it is in charge of commissariat. But as an officer commanding a battery of a moveable column, I do not consider myself responsible, under existing regulations, for its carriage, which is of course a vital defect in the efficiency of my battery, which itself is fit to move at a moment's notice, but without carriage for tents or baggage, and without supplies as far as I know.

As a rule, no instruction on these matters is imparted, and very little is known about them.

But as a certain portion of each garrison is told off to the moveable column monthly, that portion is ready to take its place at once.

From my experience they do not. Little is known in garrisons about these columns, except to the staff (perhaps), and there is no organization as far as I am aware.

In my experience officers were very rarely practised with moveable columns.

There is no regular organization whatever that I am aware of.

I am quite sure they do not; for the transport is generally employed on other duties, so officers and men get no opportunity.

As regards my own regiment, officers and men are always ready to start at a moment's notice. The men, with baggage complete, could start within an hour of the party being told off.

I think not; and moreover, as I said before, the column is not thoroughly organized, and so cannot be trained or exercised, which, I consider, is essentially necessary.

There is no military organization whatever that I am aware of. All ranks are ignorant of their duties.

Very imperfectly, I should say.

The constitution is generally published in station orders every month, and, were it ordered out, the troops detailed would take their places in it readily and in perfect order. No possible duties are made known by

Colonel E. Dandridge, Commanding 40th Native Infantry.

Colonel G. W. Fraser, 39th Native Infantry.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Lieutenant-Colonel R. J. Walker, Commandant 17th Native Infantry.

Lieutenant-Colonel R. G. Rogers, 20th Punjab Native Infantry.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st N. I.

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

Colonel H. Boisragon, Commanding 4th Sikhs.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

Major A. G. Ross, 1st Sikhs.

Colonel S. Edwardes, Commanding 2nd Bombay Native Infantry.

Colonel W. Bannerman, 4th Bombay Rifles.

Colonel H. H. James, Commanding 10th Bombay Native Infantry.

Colonel J. L. Willes, Commissary-General, Bengal.

Colonel R. A. Moore, Acting Commissary-General, Madras.

the station authorities. The column is supposed to be prepared for service of any kind.

Officers would of course know; but I doubt very much if the men generally know of the existence of such columns.

The constitution is published in division, district, or station orders. There is no further organization. Their places would depend on the nature of the emergency; and the orders issued by the officer commanding would depend upon this.

No.—There are but few stations and few regiments in which the arrangements are such as to derive full benefit from the possession of a moveable column. Delay and confusion would arise in almost every case where due notice was not given.

It is notified in orders when the regiment forms part of the moveable column, and the possible duties are presumably known by all; but there is no attempt at organization.

No.

As a rule, the detail of troops to form the moveable column is published periodically in station orders. It ought to be published monthly. The rules on the subject are contained in paragraph 2330 of the Bengal Army Regulations. I am of opinion that the officers of the Native army have a practical acquaintance with the constitution and possible duties of a moveable column, and are so organized as to be ready to take their places in it.

The moveable column in a cantonment is under the charge of the commissariat; and as the carriage has, I believe, to be paid for if brought into use by regiments, I do not think that regiments ever use this carriage simply to teach their officers and men; consequently they have no practice.

Generally the officers see the detail in station orders; but I have never known the men warned, nor have I ever heard of any organization caused by it. Beyond the fact of the station order being formally repeated in the regimental order book, I have never known any other notice taken of it.

I do not see how any knowledge can be acquired of the possible duties of a moveable column. These, I should say, are confined to obeying orders.

None in the corps has been attached to any moveable column, nor has the battalion. This system does not obtain in this force, as under the orders of His Excellency the Commander-in-Chief. Nor is it necessary. Regiments on this frontier are always prepared to move at the shortest possible notice about its district, or wherever it may be required, simply because it has its own *regimental carriage* (camels and mules) with their establishments; also that of the hospital, *i.e.*, self-supporting, an admirable plan, and the best and only one on every account; and the officers and men know their duties and places.

As far as it obtains regimentally in the Punjab Frontier Force, yes; and each regiment and its transport knows its own place.

Vide answer 4.

There being no organized transport train, it is impossible for the officers and men to know their duties or their places. There is a great lack of knowledge both in the commissariat department and in regiments of even what may be called the rudiments of transport work; as, for instance, the most suitable loads for the various descriptions of carriage, not only as to weights and mode of loading up, but as regards their proper places in the column. I have known camels, who are slow movers, used for the first reserve ammunition, while the baggage of the men was loaded on mules.

Yes.

The orders are published and generally known. They are ready to take their places, if required.

The commissariat officers and subordinates do. Probably there is only one officer and one or two British subordinates in a station. They must be everywhere, and attend to everything. There are no places for them in the column. Regimental officers naturally know nothing.

Vide answer 3.

Lieutenant-Colonel M. W. Wilmoughby, Acting Commissary-General, Bombay.

I can only answer this so far as the establishment of field column carriage in charge of the commissariat is concerned, the men of which understand their duties, and can at once be told off with their animals to accompany the several detachments of which the columns are composed.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

I do not think, as a rule, that officers had sufficient opportunities of learning their duties with moveable columns.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

Yes. The troops composing the moveable column are generally detailed in garrison orders monthly; and all they have to do is to move to the appointed place of assembly in getting their transport from the commissariat.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

At a station there is generally only a warrant officer or two, and two or three sergeants under the executive officer, or sufficient to carry on the different duties, such as the godown, cattle, victualling. One or more of these, and an agent or two, would be ordered to go out with the troops. They know perfectly well what they have to do. The camel chowdry sees to the distribution of the camels; the sirdars of bearers and his mates to that of the bearers, and so on. All have written distribution statements given them through the warrant or non-commissioned officer and Native agent, who supervise all arrangements.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

* The commissariat and men know their duty with moveable columns. It was my custom, as an assistant commissary-general, on parades of my own, to ask a man who he was; and he would answer "tents of regiment," or "cooking-ports of artillery," as the case might be.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

Presuming this to refer to commissariat officials, all are acquainted with their duties in the moveable column; but, under existing rules and custom, animals are not set apart for the respective sections of work, i.e., carriage of ammunition, baggage, supplies, and moveable column carriage ordinarily consists of elephants and camels only, and the distribution of it rests with the regimental authorities.

Major W. Luckhardt, Dy. Asst. Commissary-General, Umballa.

No difficulty obtains under the circumstances explained in answer 4.

Captain T. F. Hobday, Dy. Asst. Commissary-General, Kandahar.

The column is told off in orders; and men and officers would, I should say, be always ready to take the field, and act on such orders as they received.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

As I believe a column cannot be really moveable unless it has its transport and carriage at hand ready, so I imagine only certain troops on the frontier possessing ready transport and carriage can be considered in the light of moveable. It is therefore a question whether the officers and men know the constitution and possible duties of the moveable column.

6. How many times annually are the moveable columns with which you are acquainted exercised?

Lieutenant-General C. T. Chamberlain, C.S.I., late Commanding Oudh Division.

The order is that they be exercised once annually.

A short march out and a return march next day, with picquet duty and a field day one or both ways, is the general thing.

Moveable column carriage is generally utilized in moving regiments in relief, or moving invalids, or fresh drafts from England, so as to save Government the cost of extra carriage.

In 1875-76 most of that for Lucknow was used with the 13th Hussars which went to the camp of exercise. Elephants were sent there for the Imperial Assemblage in 1876-77; and every year it is more or less used for purposes other than that for which entertained.

Sometimes aid has been given to adjoining commands to move troops.

Lieutenant-General W. T. Hughes, C.B., Commanding Sirhind Division.

The moveable columns alluded to in answer 4 were not exercised last cold season, the transport cattle attached to them having been required for troops and camp equipage on the move in consequence of the field operations in Afghanistan.

Lieutenant-General J. Forbes, Commanding Mhow Division.

At present seldom, owing to extension of railways.

Major-General A. W. Macintyre, C.B., Commanding Hyderabad Subsidiary Force.

Twice a year for regular musters, exercised according to circumstances. Exercising the moveable column detailed from the Hyderabad Subsidiary Force at any distance from cantonment necessarily involves great inconvenience and considerable expense to Government, as nearly all the transport of the force is required for the column. The current carriage duties of the station have to be suspended, or local carriage hired to meet the necessary requirements of the force remaining in cantonments.

Major-General R. O. Bright,
C.B., Commanding Meerut Division.

Major-General H. R. Browne,
Commanding Saugor District.

Major-General J. W. Schneider,
C.B., Commanding Northern Division,
Bombay Army.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

Brigadier-General F. G. Kempster,
Commanding Ceded Districts.

Brigadier-General T. J. Murray,
C.B., Mooltan Brigade.

Colonel J. Macdonald, Secretary
to Government of Bombay, Military
Department.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

Colonel D. Standen, Assistant
Adjutant-General, British Burma
Division.

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-
General, Bombay.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quar-
ter-Master-General.

Major A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

Captain M. J. King-Harman,
Dy. Asst. Quarter-Master-General.

Lieutenant-Colonel R. Blundell,
8th Hussars.

Lieutenant-Colonel R. S. Cleland,
9th Lancers.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

Lieutenant-Colonel J. C. Le
Queux, 12th Royal Lancers.

Lieutenant-Colonel G. Luck,
Commanding 15th Hussars.

Major J. W. Chaplin, 8th
Hussars.

Captain J. A. S. Mackenzie, 9th
Lancers.

Lieutenant-Colonel T. Rowland,
Commanding 15th Fusiliers.

Lieutenant-Colonel M. MacGregor,
1-18th (The Royal Irish).

For various reasons the moveable column at Meerut does not appear to have been exercised for many years. The troops from that station have generally taken part in camps of exercise.

In this district advantage is taken (during the cold season) of the monthly muster of transport cattle to assemble the columns under arms, with baggage and ammunition loaded up.

And there is also an annual exercise of three to four days, if circumstances permit of its being carried out.

The moveable columns in this division have only been exercised once since the present general officer assumed command in May 1877. In the absence of a considerable portion of the fixed field column carriage, camels and carts were hired on the occasion.

It is left to the discretion of commanding officers.

The moveable column parades every quarter, and is mustered by the officer in command. Exercise in the cold season.

Only once, and usually for not longer than two days; and when the carriage is used for the relief of regiments, not at all.

But seldom, as far as I am aware. I am informed that during the last five years moveable columns have been ordered to move for exercise but once, and on that occasion they marched out complete.

Never, as the moveable columns in that special capacity, but only with the other troops of the garrison on ordinary brigade field-days.

At no station in the Madras presidency of which I have knowledge have moveable columns ever been moved out for the purpose of being exercised.

With a few exceptions, they are seldom exercised; but last year all the columns were ordered out simultaneously by telegram, and all turned out under twelve hours.

Once annually, when the column moved into the district for two or three days and manœuvred as if in the presence of the enemy. Besides this, the general officer at his annual inspection ordered the column to parade to move out complete in every respect with rations for the troops, &c., never informing even the staff whether the column would actually leave the station or not, although it never did within my experience; but I believe it always was expected by all concerned that it would do so.

I have seen very little of any regular exercise of a moveable column. Of late years I have either been at camps of exercise during the cold weather or at stations where no use was made of a moveable column.

At Calcutta there is none.

Nominally once a year, really never, because the carriage is always occupied in carrying out the reliefs during the cold weather.

It has paraded twice since October last. Before that it had not been turned out for two or three years, or longer.

Only once to my knowledge since the regiment has been at Sialkot; and that was in March 1878.

I have no experience of large stations; but I believe the practice to be an annual mustering of the moveable column, when other movements of immediate importance do not interfere.

I do not think, owing to weather, that any have been yet mobilized this year; but they were sundry times last.

vide answer 3.

Twice annually, according to regulation.

The 9th Lancers have only once been called on since their arrival at Sialkot in March 1875 to take part in a moveable column. This was in March 1878.

I have no recollection of ever having seen them exercised.

Never.

Lieutenant-Colonel G. F. Walker,
Commanding 1-12th Foot.

With one exception (alluded to in my reply to question 8), the moveable column at Umballa was not exercised during the space of two years.

Lieutenant-Colonel D. Warren,
Commanding 2-14th (Prince of
Wales' Own) Regiment.

Once, when the moveable column of this station marched to a certain place under definite orders, and then in continuation of those orders retired upon cantonments,—a general idea governing the whole movement.

Lieutenant-Colonel G. W. Puget,
Commanding 34th Regiment.

I have never known of a moveable column being exercised.

Lieutenant-Colonel J. S. Hand,
Commanding 44th Regiment.

This is replied to in answer to question 4.

Lieutenant-Colonel J. W.
Hughes, 54th Regiment.

Once a year for three days. I refer to Morar three years ago.

Lieutenant-Colonel C. B.
Knowles, Commanding 67th Regi-
ment.

Paraded once a quarter. I never heard of the column being exercised.

Lieutenant-Colonel G. H. Parker,
92nd Highlanders.

Once.

Major F. Stephen, 4th Battalion
Rifle Brigade.

In an experience of nearly twenty-two years in India, I have never seen them exercised practically.

Major F. S. Terry, 1-25th King's
Own Borderers.

I have served in Bareilly and Fyzabad for some years, and never knew the moveable columns called out, except on one occasion in the latter place, when special permission to do so partially was granted in order to carry out the annual field-firing on a service footing.

Major Hugh P. Pearson, 12th
Foot.

The Morar moveable column is the only one I have seen since the order for annual exercise was issued. It manoeuvred for three days once a year; and, as I have said, this was all too little. The most was, however, made of the time. Usually the programme was as follows.

The first day the moveable column, divided into two equal portions, marched to camps eight to ten miles distant from each other, threw out picquets, and made reconnaissances; road surveys, &c. The second day the two forces manoeuvred against each other, concentrating afterwards in the camps nearer cantonments, whence reconnaissances were pushed forward, &c. The third day the moveable column attacked a position taken up by the whole of the rest of the Morar garrison covering cantonments. These exercises were very instructive and highly enjoyed by all. If my suggestions contained in this paper as to tents and baggage were adopted, moveable columns of the present constitution might be exercised thrice as long at the same cost, or a very much larger body of troops might annually take part in these useful manoeuvres for a longer time than is now allowed, and at no greater expense.

Major J. H. Campbell, 33rd
Regiment.

The column here has not been exercised since I have been in the country (15 months), as during the season in which a column would be exercised most of the troops were changing stations.

Major J. D. Dyson-Laurie, 34th
Regiment.

In ten years of Indian service, I do not recollect seeing a moveable column out for exercise.

Major G. K. Shaw, 68th Foot.

I have been quartered in two stations where moveable columns are kept; and in three years saw one of them exercised once.

Major W. H. J. Clarke, 72nd
Highlanders.

In some stations I have seen them sent out once in the year; but never more.

Major G. S. White, 92nd High-
landers.

To the best of my memory, I have but once seen a moveable column exercised.

Captain B. H. Fawcett, 33rd
Foot.

The moveable column at Bellary is paraded quarterly. It has not been exercised hitherto, having only been lately formed, and the troops having been on the move last cold season.

Colonel C. R. O. Evans, Com-
manding B. A., Meerut Division.

Exercised seldom or never. Paraded generally once a quarter.

Lieutenant-Colonel I. Ketchum,
Royal Artillery.

I will not say for certain; but referring to the moveable column to which I have already referred, as far as I can recollect, never (from 1875 to 1877, end of both years).

Major Bertie Hobart, B.A., Milly
Soc'y. to the Govr. of Madras.

Vide answer 3.

Major E. T. Hume, Command-
ing C-C Royal Horse Artillery.

Generally once a month; or twelve times annually.

Major W. W. Murdoch, Command-
ing E-A Royal Horse Artillery.

I have never known a moveable column ordered to march out of cantonments or to parade.

Major T. M. Hazelrigg, Com-
manding E-3rd Royal Artillery.

During the nine or ten years I have been in India, I have never seen or heard of a moveable column being exercised.

Major C. E. Nairne, Royal Horse Artillery.

During three-and-a-half years I have been at Sialkot, the moveable column has been once exercised. One other year it was ordered out, but was prevented by rain.

During the rest of my service in India, I have never known a moveable column sent out.

Major P. FitzG. Gallwey, Royal Artillery.

I have been years at stations, and never saw them exercised once; nor were they. The only times I have ever seen them turned out were at Lucknow during the command of the late General Sir H. Tombs, C.B., V.C., B.A.; and on these occasions they showed the necessity there was for more practice.

Lieutenant-Colonel E. C. Wace, B.A., No. 4 Hazara Mountain Battery, Punjab Frontier Force.

I was stationed at Rawal Pindi from November 1873 to August 1875 with a field battery, but never once, so far as I can remember, saw the moveable column exercised.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

I do not remember. Many years have elapsed since I saw a moveable column exercised.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

From my experience, I have found that moveable columns, as a rule, are exercised at the discretion of officers commanding brigades or stations, at some places once a month, at others at irregular periods.

Colonel J. Blair, V.C., Commanding 1st Bombay Lancers.

I have never seen this carried out annually.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 8rd Sind Horse.

The Sind Frontier Force, the only force with which I am acquainted, has not been so exercised for upwards of seven years; but then it may be argued that it is not actually designated a moveable column.

Major A. P. Palmer, 9th Bengal Cavalry.

The provisions of Bengal Army Regulations, paragraph 2323, are, as far as my experience (22 years) goes, persistently evaded by officers commanding stations, with very few exceptions.

Colonel J. Doran, Commanding 27th Punjab Native Infantry.

I cannot recall any occasion within the last twelve years on which a moveable column has been actually exercised, though the cattle may have been called in and collected for the purpose.

Colonel H. S. Obbard, Commandant 41st Native Infantry.

At Morar the moveable column is never moved out as such. In lieu, once in the year at muster time in February or March, when the public carriage is brought in for inspection (camels are brought in for muster every month), the troops are sent out in parties for field manœuvres, over which the brigadier-general commanding presides. The manœuvres occupy two days; and that is all the practical out-station work of the year.

Colonel E. Dandridge, Commanding 40th Native Infantry.

Not at all.

Colonel G. W. Fraser, 39th Native Infantry.

During the whole period of my service of upwards of 36 years, I have never been called out with a moveable column for exercise.

The only occasion I can call to mind where such column was moved out was, as far as I can now remember, in the Gwalior district, then commanded by Major-General Vaughan, C.B., who moved out his column or a portion of it from Morar. But I believe he was informed that if he did so again, without previous sanction from head-quarters, he would be held personally responsible for the difference of hire of transport employed between cantonment and field rates. After this, the moveable column never went out again that I can remember.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Once at most.

Lieutenant-Colonel R. J. Walker, Commandant 17th Native Infantry.

Once a year.

Lieutenant-Colonel R. G. Rogers, 20th Punjab Native Infantry.

In many places never; in others once or twice imperfectly and without supervision.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

Once a year the column went out for three days; but I have been at stations where advantage was taken of the cattle coming in to be mustered to parade the troops composing the column with the carriage laden according to regulation.

Lieut.-Col. H. St. G. Tucker, 41st N. I., late Supdt. Transport Train 41st N. I.

To the best of my recollection, not once within the last 10 or 12 years.

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

Though detailed for many moveable columns, I have never once been called out; nor have I ever seen one called out.

Major F. F. Rowcroft, 4th Gorkhas.

The Rohilcund moveable column was in 1863-64, as far as I recollect, exercised twelve times annually, *i.e.*, once a month.

Colonel H. Boisragon, Commanding 4th Sikhs.

Vide my replies to questions 3, 4, and 5 as regards moveable columns. All corps in this force, when possible, go out annually into their districts for at least a fortnight's practice—a very good training for men and animals, and costing the State nothing.

Lieutenant-Colonel J. J. Boswell,
Commanding 2nd Sikhs.

Punjab frontier regiments usually move out once a year.

Colonel S. Edwardes, Commanding
2nd Bombay Native Infantry.

During my service I remember only one occasion on which the moveable column of the station was exercised; and that was last year at Belgaum. The column, which was supposed to be complete in tents, ammunition, and baggage, was marched 5 miles out of cantonment and back again. No attempt was made to ascertain whether the force was really capable of taking the field, which could be tested only by sending the column out three or four marches.

Colonel W. Bannerman, 4th
Bombay Rifles.

They are not regularly exercised. On a recent occasion all field columns in this presidency were ordered out by telegraph, and moved the following morning.

Colonel H. H. James, Commanding
10th Bombay Native Infantry.

Once or twice a year.

Colonel J. Fairbrother, Commanding
22nd Bombay N. I.

I have never seen them exercised.

Colonel J. I. Willes, Commissary
General, Bengal.

Never more than once a year, with reference to the orders of Government in Military Department No. 619, dated 14th November 1874, which I have not at hand to refer to, but believe modified the orders of paragraph 2328, Bengal Army Regulations.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

Vide answer 3.

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

I believe the moveable column seldom went out oftener than once a year.

Colonel M. J. Brander, Officiating
Deputy Commissary General,
Calcutta.

I have only actually seen the moveable columns exercised at two places, *viz.*, at Peshawar under the late Major-General O'Grady Haly, C.B., in 1864, and at Rawal Pindi under Major-General Sir P. Lumsden, K.C.B., &c., in 1873 or 1874.

Colonel J. Keer, Deputy Commissary-General,
Lower Circle, Bengal.

I am acquainted with the moveable columns at Saugor, Peshawar, and Bareilly. At the two former stations, they, or part of them, were employed occasionally in the cold weather for one day or part of a day, but never taken out to any distance in the district.

Colonel G. S. Macbean, Deputy
Commissary-General, late in
Commissariat charge of the Khyber
and Kuram Forces.

I was Assistant Commissary-General at Saugor for four years, and the moveable column marched out three or four times a year. At Lucknow it has been seldom. These are the only stations I have served in with moveable columns attached.

Colonel G. J. Dalrymple-Hay,
Examiner of Commissariat Accounts,
Bengal.

In paragraph 2328 of the Bengal Army Regulations "each moveable column is to be occasionally ordered out for the purposes of exercise"; but in Military Department letter No. 617, dated 14th November 1874, addressed to the Quarter-Master-General, the movement into the neighbouring district of the troops composing moveable columns for three or four days in each year, for purposes of exercise, in the manner suggested by His Excellency the Commander-in-Chief, was sanctioned.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-
General, Bengal.

About once a quarter, and during the marching season only.

Major W. Luckhardt, Deputy
Asst. Comy.-Genl., Umballa.

I have never seen it exercised; but the animals are worked during the relief season, and employed on station duties.

Captain T. F. Hobday, Deputy
Asst. Comy.-Genl., Kandahar.

Generally not oftener than once a year, partly for the reason that there is some extra expense connected with bringing the animals away from their grazing ground and giving them rations, and with having to pay cultivators compensation for destruction of crops.

7. As it is manifestly impossible to keep up an enormous transport establishment in time of peace for the whole army, can you suggest in detail what the framework should be both in *personnel* and *matériel* for the various parts of India—

- (a) officers?
- (b) nature and position of subordinates?
- (c) men (European and Native)?
- (d) pay and pension?
- (e) clothing?
- (f) equipment and arms?
- (g) description of transport suitable, wheeled, pack, coolie, &c.?
- (h) animals to be employed?
- (i) nature of carts and harness?
- (j) nature of pack-saddles?

Lieut.-Genl. C. T. Chamberlain,
C.B., late Comdg. Oudh Division.

It is impossible to give details without carefully considering the subject in all its bearings; but I should draft officers and men (a & c).

from regiments as supervisors, because discipline and intelligence being absolute essentials for success, careful selection would be necessary.

(b) Subordinates should be of three kinds—

- (1) Officers to have charge of lengths of line of communication which they would be responsible for.
- (2) Non-commissioned officers to have sections of these lengths of line of communication which they would be responsible for to their officer.
- (3) Men to have charge of stations where the transport cattle are kept and furnish escorts for the stages.
- (c) Other Europeans I would not use. I should sooner have Native overseers than European warrant officers, as the English officer would continually be up and down the length of his beat.
- (d) Much as in the army *in war time*.
- (e) Ditto but the drivers to be specially clothed.
- (f) According to localities, but all should have Native swords.
- (g) According to the locality.
- (h) All available.
- (i) Of the simplest kind, easily repairable and interchangeable.
- (j) Such as used in the Punjab Frontier Force regiments.

Considerable relief to the State might be secured by requiring officers to keep up mule or pony carriage and small tents, so as to be able to move suddenly without indenting upon the moveable column carriage, as they at present have to do.

To secure such supply they should be required to show up at muster in the manner that chargers are.

There may be some grumbling, but the receipt of tentage makes the plan feasible and fair, and polo ponies would be the representatives in 99 cases out of 100.

Lieutenant-Genl. W. T. Hughes,
C.B., Commanding Sirhind Division.

In those parts of India in which it is considered necessary that troops should be so organized as to be capable of rapid mobilization for war, I would keep certain divisions or brigades fully equipped for field service: camp equipage of the lightest description and marching establishments of the smallest consistent with efficiency. I would attach to each regiment and battery the carts and transport cattle required to move a wing or a half-battery with its commissariat supplies. The transport should be placed in charge of a selected officer of the regiment or battery, with a non-commissioned officer's party under him; and commanding officers should be held responsible for efficiency in every respect. The wings and half-batteries named should be in a condition to take the field at the shortest notice; and on their doing so, commanding officers should indent on the reserve at brigade head-quarters for the transport cattle required to mobilize the other wing and half-battery.

These brigade reserves should contain a sufficient number of purchased animals to replace casualties in the regimental and battery transport, and should be so organized that the executive officer in charge should be able to collect quickly from the district, with the help of the civil authorities, the transport cattle previously selected and marked, sufficient for the wants of all regiments and departments attached to the brigade. Commanding officers and heads of departments should countersign all vouchers, bills, and indents. All should be under the direct orders of the officer commanding the division.

(a) At divisional head-quarters the heads of the commissariat and transport departments and their assistants at brigade head-quarters. The executive officers of brigades, of each department, each with a staff of British non-commissioned officers and Native subordinates.

(b) At regimental and battery head-quarters a Native subordinate, to be under the orders of the officer in charge of the transport: heads of departments and their assistants and executive officers to be of the commissioned grades: subordinates to be taken from the non-commissioned ranks of the British army and Natives.

(c) See answer above.

(d) As at present.

(e) Staff and plain departmental uniform.

(f) British officers and non-commissioned officers as at present; Native subordinates and followers to be armed with swords (*tulwars*).

(g) That in general use in the country in which operations are carried on.

Where field artillery wagons can be taken, light and strong baggage carts not overloaded can follow.

In mountainous countries these carts should be drawn by mules or yabooos, and in the plains oxen would serve for draught.

No camels of the plains should be taken within the Afghan passes.

(h) Those generally used for transport in the country in which operations are carried on.

(i) Baggage carts and harness of the American pattern, or any improvement thereon.

(j) Those in use with Punjab mountain batteries.

Lieut.-Genl. J. Forbes, Comdg.
Mhow Division.

I cannot answer this in detail; but the existing field column carriage would form a good framework on which to work out the necessary transport for war.

Major-Genl. A. W. Macintyre,
C.B., Comdg. Hyderabad Subsidiary Force.

Given the strength of the force and the proportion that should be held in readiness for immediate movement, also the description of transport to be employed, then the framework might be drawn up. The framework could only have reference to this part of India. The various parts of India embrace so wide a diversity of climate and circumstances, that a scheme of universal applicability throughout the country would be unadvisable, not to say impracticable. As far as the Madras presidency is concerned, the nucleus of the transport must consist of those descriptions of cattle which are indispensable for the troops and have to be drawn from long distances, such as elephants, camels, and mules. The number of those determined to be essential must

always be kept up to the full strength, being supplemented, as occasion requires, by the descriptions that can be collected in the neighbourhood where local resources are sufficiently elastic to meet probable requirements in the natural course of supply and demand. A scientific organization appears uncalled for, there being no adequate field for its operation, and consequently no return to the State for the expenses to be incurred in its maintenance. Contracts for hired transport during time of peace might stipulate for increased supply up to a given maximum, subject to reasonable notice, such as the existing contract for pack-bullocks as under. The present pack-bullock contractor stipulates for a maximum establishment of 1,046 bullocks and a minimum of 397; that is, the contractor cannot be called upon to supply more than the former or less than the latter number, except under the following special conditions, *viz.*: 100 additional to the above on ten days' notice, 500 further additional on a second ten days' notice. Additional bullocks subject to six months' notice of discharge. Maximum of the whole 2,246 bullocks; charge per bullock Rs. 3-8.

Major-General R. O. Bright,
C.M., Commanding Meerut Division.

I think the most practical information on this head would be obtained from the composition and organization of the army service corps in England. It was formed by most competent officers in England after a careful study of the different systems prevailing in the Continental armies and after the requisite modifications were adopted. It would doubtless require modification to suit the requirements of this country; but, from the experience gained in the Abyssinian and late Afghan campaigns, this should not be a work of difficulty. It would give a framework for the composition of a corps as regards officers, subordinates, pay, pension, clothing, equipment, and arms. The corps should be composed of both Europeans and Natives; the former and such of the latter as are taken from the army employed as non-commissioned officers.

(g) This must clearly and entirely depend on the country in which the operations are being carried on. In the plains of India camels and carts would naturally be used; in mountainous countries pack-animals would be best.

(A) For mountainous countries the transport should be composed as much as possible of mules and ponies for the first line. As the lines of communication in rear become improved, camels, and even wheeled carriage, might be used.

(i) In the plains the country hackery answers its purpose. In the hills, where wheeled traffic could be used at all, light two-wheeled carts; strong, country-made harness for mules, rope traces.

(j) There is an excellent pattern in use in the Rawal Pindi division, where a considerable mule train is kept up. It was fixed upon eleven years ago, and has been in use ever since.

Major-General H. R. Browne,
Commanding Saugor District.

I do not advocate the formation of a transport establishment. Unless the transport is actually maintained and in constant use, neither the officers nor men of such a department could gain any useful experience.

Indian transport in all parts consists of country carts, elephants, camels, bullocks, and doolies with bearers for hospital purposes. No training could be given to equal that of the Native mahouts, drivers, and kahars under the direction of their accustomed chowdries, jemadars, and mates.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

I consider that the circumstances of India do not require the maintenance of any transport establishment in time of peace. As stated in reply to question No. 3, I am of opinion that a certain number of elephants and mules should be kept, because there might be occasions when the services of the former animals would be indispensably necessary, and on all services mules are extremely valuable, and neither elephants nor mules are obtainable locally. Beyond this, the resources of the country will always prove sufficient, provided prompt measures are taken to organize and get into working order the carriage as it is collected at the base of operations.

Brigadier-General F. G. Kempster,
Commanding Ceded Districts.

Would suggest that skeleton depôts of transport be adopted. Head-quarters of each depôt to be stationed at large military centres, having detachments at smaller stations. Each depôt to consist of military train wagons (horse and bullock), camels, pack-mules, bullocks.

(a) The peace establishment to consist of wagons and harness.

Camels as now maintained for moveable columns.

Mules 25 per cent. of war establishment and full pack equipment.

Bullocks.—A retaining fee to be paid to headman of banjaries for 25 per cent. of bullocks required for war establishment to be paraded quarterly at transport centre.

(b) Officers.—One field officer and two subaltern officers.

(c) Subordinates.—Native non-commissioned as now, with Native cavalry, *viz.* one havildar, one naik, one farrier to each 100 animals.

(d) Pay and pension as now drawn by Native cavalry.

(e) Clothing as now in use with Native cavalry.

(f) Arms.—Snider carbine, short sword.

(g) Carts, four-wheeled, not English war pattern; it is said the American military wagon is light, carries great load, and is suitable to rough country.

(h) Horses and mules.

(i) See (g) above.

(j) Pack-saddles for mules same as in use with Peshawar mule train.

Colonel J. A. Tytler, C.B., V.C.,
Commanding 4th Gorkhas.

The framework for peace should be as follows:—

(a) I would suggest that at the head-quarters of each division or district there should be an officer of the rank of field officer, whose duty it would be to look after the whole of the transport of that division or district, and be in every way responsible for it. He should visit at uncertain times the different out-stations for the purpose of inspecting all carriage, reporting to the officer commanding the division or district and bringing to his notice anything that he may consider requiring his orders.

(b) In each station there should be a really steady, well-behaved non-commissioned officer (European), either a horse artillery man or a dragoon, one who rides well and is well acquainted with the vernacular, who should be responsible for the carriage in that station. There might be two such assistants at the head-quarters.

(c) The men should be Natives, smart and trustworthy men selected from the Native cavalry regiments: a certain number in each station to act as assistants to the above: each man to have a certain number of transport animals and drivers under his charge.

(d) Their pay to be a little higher than they would receive with their regiments. Their pension to be the same as their regimental comrades.

(e) I would have all the men of the transport corps, both Europeans and Natives, dressed in good loose serviceable khaki uniform. The officers and non-commissioned officers (British) to wear canvas gaiters, like those worn by the officers and men of the mountain batteries. The Natives to wear puttees, with ammunition boots and spurs. They should also wear some distinguishing badge to show that they belong to the transport.

(f) Each European non-commissioned officer should have a good sword and revolver pistol and a pair of binoculars; and each Native a sword and breech-loading carbine.

They should be all well mounted on good ponies, with Government saddles, &c.

(g) This would of course depend on the nature of the country. Pack transport would in most cases be the most useful.

(h) As a general rule, mules are the best carriage, especially in hilly or stony countries. Camel require more food and more care; but when they can procure plenty of the former, they are no doubt very serviceable as carrying individually much more than mules or ponies. These latter are good; but unless gelt, they are apt to be troublesome, and are not so hardy as mules.

(i) This is a matter in which I have had very little experience, and therefore do not like to give an opinion.

(j) The best pack-saddles are, as far as I remember, those used by the mountain batteries. Nothing certainly could be better for carrying ammunition than theirs.

Colonel J. Macdonald, Secretary to Government, Bombay, Military Department.

As above stated (2 A), the existing establishment of field column carriage, supplemented by hired carriage, would be sufficient for the need of the troops in India. Certain portions of this carriage would be placed in regimental charge. For these the quartermaster of the regiment with the men in charge of the animals would be a sufficient establishment. But if Government are prepared to meet the expense of a transport train establishment, officers should be trained for the duty. During peace the commissariat officers of divisions would look after the animals and the followers in charge of them. On an army-corps taking the field, a staff of the following strength would probably be found requisite; and to ensure their being thoroughly efficient, they should go through a course of training during peace.

(a) For an army-corps of 3 to 5 divisions—

1 director-in-chief with 9 assistant directors and an office establishment.

For a division of 2 to 4 brigades—

-1 director.

1 assistant ditto.

Office establishment for a brigade of 2 to 4 regiments—

1 assistant director.

1 warrant officer.

For large convoys conveying provisions, ordnance or medical stores, a director should be placed in charge, with a certain number of assistant directors and warrant officers according to the number of animals and carts employed; 1,500 animals might be considered as a sufficient charge for an assistant director. He would be responsible for the feeding and general care of animals, for the conduct and pay of the followers, and would keep up the accounts of his division.

(b) and (c) The subordinates should consist of—

warrant officers, sergeants, or
havildars,
muccadums,
drivers,

farriers,
bhisties,
nabunds,
mochies.

(d) The men should be paid and pensioned at the same rate given to enlisted lascars.

(e) The clothing to be similar to that issued to tent lascars, but of a different color (red). The men should receive the same amount of warm clothing as may be issued to the troops.

(f) A sword and pistol, with a havresack for carrying food, would be sufficient.

(g) and (h) The features of the country to be traversed would decide this point. If roads fair, good are available, carts should be largely used; but under any circumstances, elephants, camels, mules and ponies (more particularly the two latter) would be the most convenient.

(i) If carts are used, the ordinary country carts used in Bombay would be found very useful. Some Maltese pattern carts drawn by mules with the ordinary harness now generally in use are recommended.

(j) The Bengal pattern pack-saddle is, I believe, considered the best.

Colonel A. H. Murray, Deputy Adjutant General, Royal Artillery in India.

I would recommend, in the event of army-corps being established in certain proportion of brigades being kept up to full strength in transport.

I would propose distinct kinds of transport—

I.—Permanent or Government transport attached in full strength to certain brigades.

II.—As above, but of less strength, attached to brigades, and to form a nucleus for expansion when required.

III.—Contract transport available locally, subject to service when required; to be retained, if found necessary, by a small fee.

IV.—Transport obtained by hire, impressment or compulsory, if found necessary.

(a) Officers in sufficient numbers should be placed in charge of the permanent transport establishments, to be composed of a commanding officer and assistant for each district. A selected commanding officer for brigades where their transport is kept up to full strength. A regimental officer for regiments. A non-commissioned officer for batteries.

These should be changed, so as to ensure to all ranks a knowledge of their duties as transport officers. On the march officers should be told off specially under regimental arrangements; and they should be practised under the several commanding officers in charge as with a force in the field.

(b) A certain number of non-commissioned officers should be employed under the officers commanding the transport of the district or corps, and, in case of regiments or batteries, be placed in charge of divisions, either by troops, companies, wings, or batteries, under regimental officers in charge; being changed periodically to ensure a sufficient number of all ranks being acquainted with transport duties.

(c) A certain number of steady men should likewise be selected and instructed under the non-commissioned officers. Natives should be permanent, and be selected for special knowledge, &c.

(d) I would give working pay while employed to all. No pension, except to Natives, is required, unless a permanent transport corps is established, and which perhaps is not suited to India. Ordinary pensions to Natives will suffice.

(e) Regimental, with a badge (T) round arm; usual badges of rank for the non-commissioned officers.

Transport other than regimental to have one uniform dress; khaki serge, with distinguishing badges, such as O. T. (Ordnance Transport), H. T. (Hospital Transport), &c.

(f) Side-arms (swords) and revolvers.

(g) Depends entirely on the country, internal or external warfare.

For internal—

Wheeled, with mule and bullock draught, elephants and camels.

For the frontier stations in view to be available for external warfare beyond the frontier, as in foregoing, but with a far larger proportion of mules:

(h) As above.

(i) Carts should be two-wheeled, as used in Abyssinia, with ordinary single harness.

(j) I am in favor of Otogo pattern for baggage; ordinary mule Native pads for ordinary stores and ammunition. A committee (held at Simla last year) I believe determined upon a good Native pad with slings; but I am given to understand the object was defeated with some portion of the Kandahar force, owing to the contractors in some cases omitting to supply the principal part of the pad, which all Natives use, and which prevents the back from being injured.

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-General,
Bombay.

It would of course greatly facilitate the organization of transport in time of war if such framework was maintained in time of peace; but the cost of this framework, efficiently provided, would be considerable; and unless well put together, and kept in a high state of efficiency, it would be of little use as a nucleus for transport organization in time of war.

To report in detail on this matter would take much time and consideration. However, I submit a rough outline scheme. A transport dépôt to be formed at the head-quarters of each division, to be directly under the general officer commanding, who would issue orders through the quarter-master-general's department.

These dépôts would ensure there being at hand in the outset of a campaign a few officers and a number of men trained and familiar with the various descriptions of animals and requirements of transport.

The organization of the dépôts to be strictly military.

(a) For each dépôt one officer, captain or subaltern.

(b) Non-commissioned officers or privates from Native regiments in the proportion of one to every fifty drivers.

(c) Native drivers, one to each elephant; one to every 4 camels; one to every 2 mules; one to every 2 bullocks.

(d) As Government may determine.

(e) Each driver should have a suit of uniform loosely made, so that under-clothing might be worn when required.

(f) Short sword, havresack, and water-bottle.

(g) A small supply of Maltese carts might be kept up at each dépôt.

(h) At each dépôt—
15 elephants,
200 mules,

also a few camels to afford instruction in loading.

(i) Maltese carts and harness sufficient to carry on station work.

(j) Otogo pattern, or Lahore pattern, one to each mule; a few palans or camel baggage saddles sufficient for purposes of instruction in loading.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

(a) I have already given my views in some detail in my replies to question 3 of A, pages 7 to 9; but to recapitulate, and to enter more into detail, I would form a separate transport department, having at its head an active and experienced officer, who might be called the inspector-general of transport.

He should have a staff officer to assist him, and also a skilful and experienced veterinary surgeon, who would accompany him on his tours, which should be extended throughout the year.

Should the armies of the three presidencies be amalgamated, and several army-corps formed, a deputy inspector-general would be required for each army-corps. Even under present arrangements it might be well to have two for the Bengal presidency.

Leaving the staff officers of divisions and brigades to be selected by general officers in time of war, or of peace manoeuvres, from the most experienced regimental transport officers, I would have no other officers on the establishment except those with regiments. These should be appointed for a limited period, say for one year, and would have the general management of the transport attached to their regiments; although all company officers would gain a certain amount of experience during the time that the regimental transport was attached to their companies.

I have hitherto been considering regimental transport only. I have not sufficient knowledge of the details of different departments to know the exact proportion that it would be advisable to retain in time of peace. Upon the proportion fixed, the number of officers and the sources from whence they are to be obtained would greatly depend.

It is obvious that for departmental work it would be impossible to withdraw many regimental officers, and it would therefore be well to have a number of special officers for this service.

In order to be efficient, all transport officers should be remounted; and, as it is proposed to limit the tenure of office of regimental officers, they should be supplied with horses by Government. Very expensive animals would not be required: active, hardy galloways would be best suited for the work.

(b) A sergeant, corporal, and sixteen men should be detailed to look after the carriage attached to each regiment in time of peace; and would, under the orders of the regimental transport officer, see to the grooming, feeding, and exercising of the baggage-animals.

In addition to these, a certain number of men of the company to which the baggage-animals were attached would always be in training; so that when the whole regiment was mobilized there would always be enough men to maintain the necessary order and discipline.

The non-commissioned officers should be mounted on hardy ponies.

As in the case of officers, a certain number of subordinates should be maintained for the departmental transport service. They might be obtained from volunteers from different regiments.

(c) I have considered all soldiers, both European and Native, under the head of subordinates. Under the head of men I propose to consider only drivers.

These should be in the proportion of one man for each string of ten camels, of three mules or ponies, ten buffaloes or bullocks, or for each cart.

In addition to these, jemadars might be appointed in suitable proportions to look after each description of carriage. These men would be selected from the drivers for intelligence, activity, and attention to their work.

All drivers would be drilled to a certain extent; and baggage-animals would move in regular formations, such as file, double files, threes or fours. In the case of animals that move in strings, such as camels and mules, each *string* would be the unit when adopting various formations.

(d) These would depend upon so many different circumstances, that I am unable to give a more accurate estimate than to suggest that the pay of officers and soldiers employed on transport duties should be slightly increased, and that drivers should (as more would be expected of them) receive somewhat higher pay than they now do in each branch of transport.

(e) All ranks should be dressed in khaki; the Norfolk jacket and loose trousers, with puttees, being equally suitable for soldiers or drivers, British or Native.

(f) Non-commissioned officers should carry swords and revolvers; other soldiers should carry their own arms.

I do not consider it necessary to arm drivers, except jemadars, who might carry swords. Each driver should have a belt, a water-bottle, and a good thick stick.

(g) The description of transport suitable would, of course, depend entirely upon the locality, and to some extent on the season of the year.

Wheeled transport should be employed as far as possible for many reasons. Among others, on account of—

- (1) Capacity and economy of animals.
- (2) Facility in loading and obviation of necessity of loading and unloading, which takes so much time with pack-animals.
- (3) Safety to baggage carried, as it is much less knocked about in carriage than on pack-animals.
- (4) Greater control over animals, there being a driver to each train.
- (5) Advantages in case of attack on a convoy, when carriages can be parked or "laagered" and employed as a fortification.

The disadvantages are that it cannot be used in a marshy, very sandy, or very hilly country, or in fact anywhere where there are not at least tolerable roads.

Pack transport elephants carry great weights, can travel long distances, and can be used in almost any country; while in forest or long grass, especially where many streams have to be forded, they are sometimes the only form of transport suitable.

Their disadvantages are that they cannot get on without a large supply of fresh fodder and an abundance of water.

Camels have always been the great standby for transport purposes in the plains of India; and as long as they are properly fed and cared for, and not exposed to wet and cold, no form of carriage is more convenient.

They carry great weights, travel long distances at a slow but steady pace, and require but few attendants.

It is, however, a great mistake to employ them in countries to which they are unsuited, or to leave them without proper supervision. The enormous mortality among camels during the late war, caused as it was partly by the exposure of the animals to a severe climate to which they were unaccustomed, and partly by sheer neglect, has doubtless greatly crippled the resources of the country in the very important matter of transport; and it would appear absolutely necessary that Government should pay serious attention to the question of the encouragement of camel-breeding—a subject which the growing extension of railways has caused to be lost sight of.

Horses and mules may be classed together as pack-animals, both being similarly equipped, fed, and managed, and carrying about equal loads.

As I will presently point out, however, they have been much neglected in India for draught purposes, owing doubtless to the want of proper vehicles.

In like manner, buffaloes and bullocks may be classed together, both being very suitable both for pack and draught purposes. They thrive on coarse and easily procurable food, such as grass, leaves, and bhooosa, and will eat grain of all sorts.

They have the disadvantage of being very slow; but they are procurable nearly everywhere, can travel over the roughest country and in almost any climate, and, if not overworked, are not, as a rule, subject to much mortality on service.

Other animals, such as donkeys, sheep and goats, may be looked upon merely as auxiliaries; to be used as pack-animals under very exceptional circumstances.

Under the head of coolie transport may be comprised—

1st.—The ordinary transport required for the conveyance of the sick in the form of doolie-bearers or kahars.

2nd.—Coolies required for the conveyance of all baggage stores and munitions of war, which would only be required under exceptional circumstances, when no other form of transport could be used.

The trade of professional doolie or palkie bearer has fallen much into disuse, since the construction of metalled roads and railways, and the consequent almost universal introduction of wheeled carriages as the means of locomotion. There is the widest difference between the motion and speed of a doolie carried by a regular trained kahar and one carried by a common coolie. The men employed as hospital doolie-bearers are, however, of all sorts; and not only have many of them probably hardly ever seen a doolie before they are engaged, but there appears to be an utter want of care in their selection. Old infirm men, half-grown boys, men wasting away from consumption and other diseases, are allowed to go on service under circumstances which tax the strength of the strongest and healthiest soldier.

No attempt is ever made to place these men under any sort of discipline; and the result is that they are an encumbrance to an army.

In my opinion every effort should be made to reduce this form of transport to the minimum, by the substitution of pack-animals and wheeled ambulances as far as possible; while those men whose services are absolutely required should be most carefully selected.

In the few instances where no transport animals can conveniently go—as, for example, in Bhootan and Sikkim—it may be necessary to employ coolies. In such cases, when single loads are carried, it is best to allow the Natives to carry them in the manner in vogue in their own country, which varies considerably. Loads that require two or more men to lift them must, of course, be carried on poles.

(h) These have been already mentioned in the replies to question 7 (g).

To recapitulate them—

Elephants, coolies, and occasionally bullocks, would be the best means of transport for Lower Bengal, Burma, and the South-Eastern and Eastern Frontiers.

Buffaloes, bullocks, and horses, with camels in the cold season, in Upper Bengal.

Camels, bullocks, horses, and mules in the North-Western Provinces and Punjab and also in Afghanistan; but in the latter country horses and mules should form by far the largest proportion, at any rate with the troops.

Other animals might be used for bringing up supplies.

(i) I have always been of opinion that immense waste of power was caused by the employment of the clumsy and heavy bullock hackery, with polygonal instead of circular wheels, crazy framework, and creaking axles; but I have always been told, on making enquiries, that it was best adapted to the country, being strong, cheap, and easily repaired.

I have only lately learned that there is an admirable transport wagon in general use in the United States of America.

My informant is Lieutenant Gaisford, 5th Regiment Punjab Infantry, lately appointed Commandant of the Jezailchi Corps in the Khyber, and who has given me permission to make use of the information. That officer, if applied to, can give full details; but the advantages of the wagon, as far as I know, are as follows:—

1st.—It is light, very strong, and of remarkably easy draught.

2nd.—All wagons are made by machinery, and the pieces are interchangeable; so that if a wheel-spoke, a shaft, or any part of the wagon is injured, its counterpart may be at once obtained from the nearest store.

3rd.—Being constructed as above described, the wagon may be built up as required for various purposes.

The mere perch, with axletrees and wheels, forms a timber carriage.

On this a light platform may be placed, for the conveyance of such articles as may be conveniently packed on such a carriage.

If it is necessary to keep a load compact, and to prevent articles that easily shift from falling over, sides may be added to the platform; and these sides may be heightened to any height that can ever be required.

4th.—The axles are constructed of hickory, which gives a wonderful elasticity to the carriage, and enables it to traverse the roughest road without injury.

The boxes are on what is termed the "thimble" principle; and the result of the whole construction is that the wagons are not only strong, but remarkably light of draught; a pair of medium-sized mules trotting away with a load which they could hardly be expected to move. I understand that the Americans have also a very simple but serviceable method of harnessing, by which they entirely dispense with breaching.

In short, from all I have heard, the American system would be well worth a trial; enabling us, as it would, to make use of our mules and horses for draught work, and thereby much economize labor.

(j) For elephants the ordinary pad, properly fitted, appears to answer all purposes. For camels the ordinary saddle appears to meet all requirements; but for loads which are made up of a number of small articles, and which therefore require a great deal of tying on, I should recommend the adoption of strong net bags, slung across the saddle. These would do away with the necessity for the elaborate

system of ropes required to keep an awkward load in its place, and would save an infinity of time and trouble.

For mules and horses I prefer the saddle used by Sir Douglas Forsyth's expedition to Yarkand, which is, I believe, called the Otago saddle. I have used them constantly on my own horses, and have never found them cause a soreback.

I very much dislike the common Native palani, which is constantly getting out of shape and galling the animal.

The Native arrangement of jhools and palan seems to answer well enough for bullocks at their slow work. They are, and would be, more used for bringing up supplies from the base than in transporting the baggage of troops.

Bullocks would, of course, also benefit greatly by the introduction of the light American wagon.

In short, the framework of the transport system would be as follows:—

- (1) Inspector-general of transport.
- (2) Deputy inspectors-general for each army-corps.
- (3) Division and brigade transport staff officers, to be selected from regiments when required either for war or for peace manoeuvres.

(4) A certain proportion of regimental transport to be kept up by each corps under the superintendence of a regimental transport officer, who would only be appointed for a limited period.

By the transport being transferable from one company to another, all ranks in a regiment would become familiar with the work.

(5) A staff of officers would be required to be kept up for departmental work, and would be permanently on the establishment.

(6) Subordinates would be appointed in a similar manner.

(7) Drivers of all classes would be regularly enlisted, and would receive special training.

(8) The animals would be the property of Government, and would be of the kind most suited to the locality.

(9) The best saddles, wagons, &c., that could be procured would be used, and all hands frequently practised in loading and marching.

Lieutenant-Colonel Lord R. D. Kerr, Commanding 10th Hussars.

An immense question, requiring months to work out, and not to be solved with only a cursory reply, especially in the case of this vast empire, where local conditions vary so greatly. It is evident that without considerable knowledge of the country this question cannot be entered upon. A section of the department should be kept for working the railway traffic throughout the country.

As for the animals and carriage to be used, so much depends on local resources, that no general rule can be laid down; but for internal war the camel, for external the mule and pack-saddle, appear to be most suitable.

Lieutenant-Colonel J. C. Le Queue, 12th Royal Lancers.

What I have before said—regimental transport and squadron or troop carts.

- (b) Enlisted dragoons as their peers, but in excess of establishment.
- (d) A slight addition for working pay.
- (e) Alike.
- (f) Short sword and revolver.
- (g) Same as England—four-wheeled carts.
- (h) Supernumerary troopers.

Major J. W. Chaplin, 8th Hussars.

I have had so little experience of what is required for Indian transport service, that it would be useless for me to enter fully into the details of this question; but I would suggest that large depôts should be formed at well-selected places, where wheeled transport, &c., could be stored, suitable for the surrounding country.

Major E. A. Wood, 10th Hussars.

I would suggest a basis of regimental transport, supplemented by the transport resources of the district, *i.e.*—

(1) Sufficient regimental transport to move the regiment in a few hours without allowing for hospital and rations for man and horse.

This transport to be always in possession of regiments, and could be detailed for duties in cantonment when not absolutely required for regimental purposes.

(2) The ordinary *bullock train of the district*.

I mean by this a certain number of wagons and bullocks, camels, or mules (according to localities) belonging to private individuals, who would have the first call of employ by Government at fixed rates, and who would receive a sort of monthly retaining-fee, and who would receive the same on being mustered monthly by the officer commanding the station and on being pronounced fit for service.

These should be sufficiently numerous for the carriage of ten days' provisions and hospital establishment of the force of the military station of the district to which they belonged.

(3) *Reserve transport train, i.e., the ordinary Government bullock train.*

This might be placed on a different footing and so organized that the drivers, &c., were under a proper military surveillance and organization.

These men, with their cattle, from which they should never be separated, would form the chief transport train for conveyance of ammunition, stores, &c.

At all events, these might form the framework of a corps which could be largely augmented if required, provided that there was a sufficient quantity of transport kept up in each district for which the civil authorities should be held responsible.

This might be effected by a general registration of all animals and vehicles available for transport; but I do not know enough of the transport resources of India to go into this question.

Colonel J. A. Ruddell, 1-25th Regiment.

- (a) One director-general at army head-quarters.
A superior officer, with a junior officer as assistant, at all large stations.
One office at all other stations, except at small stations.
- (b) One warrant officer and two sergeants at all large stations, a warrant officer and sergeant at smaller stations, and a warrant officer (in charge) at very small stations.
- (c) One European and two or more Natives according to size of station.
- (d) I am not aware of the pension rules among Natives, and I therefore cannot say.
- (e) Two suits of some strong, durable material per annum.
- (f) Europeans: infantry swords and revolvers. Natives: swords, Native cavalry pattern.
- (g) Pack and coolie in the hills; wheeled, pack, and coolie in the plains.
- (h) Mules in the hills.
- (i) Should be constructed of the best material and capable of standing very rough work.
- (j) As at present used.

Lieutenant-Colonel T. Rowland, Commanding 1-5th Fusiliers.

I can only answer this question very generally and with diffidence, as I know little about it. The framework might consist of a divisional staff of 1 captain, 1 subaltern, and 4 or more subordinates (sergeants), who should have charge of all animals for baggage purposes in the division. These officers and non-commissioned officers to thoroughly understand the language; otherwise they are useless.

Lieutenant-Colonel A. Templeman, Commanding 1-21st Fusiliers.

- (A) I believe mules to be the most enduring, and therefore useful, animals.
- (i) As far as possible wagons with four wheels and tolerably high wheels.
Harness with collars, not breast-straps.
- (j) Two strong panels or flat pieces of wood connected by flat iron rods or arches rising high over the backbones, each panel resting on a thick cushion, which should be large enough to cover the sides of the animal where the load is likely to touch the skin. Hooks on the iron arches are at times useful for suspending the load from; but the best method I know of placing a load on a pack-saddle is that in vogue with the muleteers of Andalusia. One long rope only is used, and every man ties on his mules load in precisely the same way. The burden is carried high upon the back, thus getting rid of inward pressure, and the rope, crossing from top of one bale (or barrel or whatnot) to bottom of the other, never should touch the animals. The tying is difficult to describe on paper, but is easily learnt.

The best method of loading bullocks I have seen is that practised by the Shan tribes. They bring their goods down to lower Burma on bullocks in upright cylindrical baskets, one on each side, and suspended from a thick hollow bamboo crossing the animal's back, which is protected by two pillows and two small pieces of board.

They are loaded and unloaded with great rapidity. Two men, one on each side of the bullock, lift up the burden; the bullock moves on, the baskets are placed, and stand evenly on the ground, and the men are ready for the next.

Lieutenant-Colonel J. S. Hand, Commanding 44th Regiment.

I cannot undertake to answer this query in detail, since sufficient time for preparation has not been afforded me. Roughly, I would suggest a centre dépôt in each division or district where transport animals, officers, overseers, drivers, and others could be trained.

The centre dépôt should comprise of at least one complete division of transport, the strength and organization of which must depend upon the class of transport carriages, animals, men, &c., composing the division, as well as the resources of the country upon which the transport of the division would be dependent for feeding it in case of expansion. The transport of the out-stations should be conducted by regimental transport, fed according to local requirements from the centre dépôt.

Coolie-bearer corps should be organized at each centre dépôt, to be utilized in connection with the transport divisions as loaders, packers, carriers, to assist also in breakdowns, &c., on the line of march, as well as to meet hospital requirements, for transport of sick, &c. In peace these corps might be of almost nominal strength; for there would be no difficulty in any district in India in obtaining any amount of such recruits at a short notice. The bearers should be superficially drilled and armed, the drivers having nothing to do but look after their transport equipment and animals. I make no mention of wheelers, farriers, smiths, mechanics, &c., as of course the strength of these would depend upon the nature of the service upon which employed, and the class of transport to which attached; but as they should all be trained and armed men, they should be a source of strength to the division upon the line of march as well as assisting the overseers, &c. They should be all Natives, with the exception of perhaps the farrier-major, who might have superintendence over the whole. I might add that my experience of transport consists principally in mule trains in Abyssinia, of which I had four under my command, consisting of 2,000 animals each, with nearly as many drivers; and I experienced with that organization a considerable waste of labor and money. One driver can take charge of three mules, both in the lines and on the line of march; but he must be supplemented by portions of the bearer corps attached to each division; two bearers to every three mules to assist in loading the mules as well as to carry loads, and on the march to walk in rear of the three mules thus loaded to keep them up to their driver, and assist in all casualties on the march. A driver will not carry a load; therefore in Abyssinia I lost the pay and carrying power of two men to every three mules.

(a) Director at army head-quarters during peace, a sub-director at centre dépôts and stations; others regimental or according to requirements. All officers, when being trained, to go through a short course of veterinary instruction.

(b) Superintendents, overseers, &c., armed men drawn from the ranks of the army, and holding the positions of non-commissioned officers.

(c) Ten per cent. Europeans to act only as overseers or superintendents; drivers Natives enlisted from classes, according to cattle employed; loaders, greasers, line cleaners, &c., from the coolie-bearer corps, according to requirements.

(d) Similar to corresponding ranks in, or attached to, the army.

(e) Cheap, suitable durable material made loose with gaiters for all mounted men.

(f) Brown leather sling carbines, pistols, and swords for mounted Europeans; Native overseers, &c., pistols, and a useful weapon that could be used for cutting wood, such as a kukrie (as worn by Goorkhas) or pioneer swords.

(g) According to cattle available.

(h) This must depend upon the capabilities of the country in which located, unless Government mule and bullock farms are established.

(i) The cart and harness of the country in which located and where bullocks are used.

(j) I prefer the Otago saddle to any other. When bullocks are used as pack-animals, of course the ordinary pad.

Lieutenant-Colonel G. H. Parker, 92nd Highlanders.

I regret that I am not sufficiently acquainted with the subject to answer in detail.

(g) Wheeled for the plains; pack and coolie for the hills.

(h) Camels and mules.

(i) Country carts.

(j) Country-made saddles.

Major F. Stephen, 4th Battalion Rifle Brigade.

A transport department to be formed entirely separate from the commissariat department.

(a) Chief transport officer for India.

(b) One for each division and brigade, and one European and one Native clerk.

(c) One officer and ten men per battalion.

(d) I am unable to make any suggestions under this head.

(e) Same as for rest of the army in war time, with a distinctive badge.

(f) Carbines, brown leather appointments.

(g) Mules, supplemented by the larger mules drawing light carts.

(h) Mules.

(i) Harness of English manufacture and made to be rivetted where practicable (not sewn).

(j) The ordinary ammunition saddle with straps.

Major Hugh P. Pearson, 12th Foot.

I have already said that I do not advocate any change in the existing method of procuring carriage for the use of the troops in India; but I think that there is room for much improvement in the application of the carriage when procured. I would take the moveable columns of

India as the framework of a system of carriage capable of extension when required, and would improve them by placing them under regimental supervision primarily, as also under that of a superintendent of transport and his assistants. I presume it will be sufficient if I give a rough sketch of a framework suited to the requirements of troops serving in the plains stations above Allahabad. First, then, as regards—

(a) *Officers.*

There should be a superintendent of transport with two assistants whose duties should be to visit all stations where moveable columns are maintained, and to satisfy themselves that the carriage was in good working condition, and that the subordinate officers and men employed in the transport department were acquainted with their duties. Advantage should be taken of the annual manoeuvres of columns to see the men and cattle of the department at work. The superintendent should have in his office complete information regarding the amount and description of transport available for hire or impressment if necessity arose in every district in the presidency, so that expansion of the transport establishment might take place rapidly and with certainty.

The superintendent should command the services of one or two veterinary surgeons, and these again should have salutaris under their orders.

Each battery, regiment, and detachment should have its quota of the moveable column carriage of the station, and should be responsible for its care at all times. An officer would be detailed in each corps and battery to supervise, and he would be assisted by selected non-commissioned officers and men. Pensioners of good character, if fit for work, might here find employment. The regimental officers and men should be periodically changed that many of each rank might acquire experience.

(b) *Nature and position of subordinates.*

This is partially answered above. Amongst the Native followers would be found some less obtuse and dense than others; a proportion of these would be selected as mates, sirdars, &c.

(c) *Men (European and Native).*

European: these would supervise. One non-commissioned officer for each regiment, and one private for each company would suffice. For a battery and for Native corps in proportion.

Native: these would be in much the same proportion as at present, but of course the numbers should be fixed. One man would be required for 10 camels, or 3 mules or ponies, or 1 cart, &c. These men might be hired with the carriage, but paid by the State, the contractor, as now, being bound to exchange men or animals unserviceable.

(d) *Pay and pensions.*

Pay: the ordinary rates of their class for Natives. For officers other than regimental such scale as Government might see fit to grant. For regimental officers and men no additional pay. Pensions would not be required under this system.

(e) *Clothing.*

This need not be considered, except with regard to followers. All such should receive a warm suit and a cool one, both of khaki. For colder climates they should be supplied with blankets and extra clothing.

(f) *Equipments and arms.*

For officers and soldiers those authorized. For followers none.

(g) *Description of transport suitable—wheeled, pack, coolie, &c.*

This would depend entirely upon the locality. Ordinarily in the plains of India, wheeled transport and camels would form the principal carriage; though in Central India, where roads are few, wheels could not be taken, and elephants would be better suited to the jungle and broken ground than camels.

In Afghanistan and similar cold and mountainous countries mules and yabooos have proved themselves the best baggage-animals; and in hilly countries covered with very heavy jungle coolies would be the only carriage that could be used.

Any scheme of army transport would of course be worked out in its details to suit the localities that would have to be considered.

(h) *Animals to be employed.*

This has been already answered under sub-head.

(i) *Nature of carts and harness.*

Unless the State was prepared to be the owner of its transport, which I do not contemplate, the hackery of the country would have to be made the best of for general purposes. But I see no reason why Government should not own a certain number of carts which could be kept for special expeditions where speed might be an object and good roads were available. These carts might be horsed by "casters" (now so often sold for a song whilst they have yet several years' light work in them) and used for station and regimental work, carrying building material for public works department, road-metal, &c. The harness would be Cawnpore-made and on the English pattern.

(j) *Nature of pack-saddles.*

I cannot suggest any in lieu of those now in use, which seem to answer the purpose. Under regimental supervision the fitting of pack-saddles would receive attention, and there would be few or no sorebacks.

Captain H. M. L. Hutchison,
1-14th (Prince of Wales' Own)
Regiment.

I would be inclined to try the experiment of handing over to a regiment a sufficient number of single bullock or pony carts (specially built to carry about 5 cwt. each) to carry everything allowed by regulation, and have the men taught to drive and look after the train in the field. Followers would thus be abolished, and escorts would be unnecessary.

Captain R. H. Fawcett, 33rd
Foot.

(b) In the ceded districts, where the 'regar' or black cotton soil is especially thick, adhesive after rain, and treacherous for any movements across the country or off the metalled roads, pack-bullocks as used in the Mahratta and Mysore wars, or coolies, would form the only transport that could be employed, except for a very short time. Horses and mules sink deep into the soil, which one shower of rain makes deeper going than any ploughed field in England; and wheeled traffic is out of the question then. As the ground after rain, besides being deep, is slippery, camels could not work on it. Although in the hot and cold seasons ponies or mules, and even wheels, might be employed, yet it would be obviously dangerous to enter on a campaign in this part of the country with transport that might be brought to a standstill by a heavy shower of rain. This does not of course apply to metalled roads; but these are few, and the lines of operation might not happen to coincide with them. The fact is only brought forward as an instance of the necessity of variation of transport in different parts of the country. I understand that, except in some remote parts of the interior, the banjaris who kept up transport for us in former wars are almost extinct as a class, having been beaten out of the field of commercial enterprise by the metalled roads and the railway.

Colonel C. R. O. Evans, Com-
manding Royal Artillery, Meerut
Division.

I cannot suggest anything of the kind which would not be another heavy item of expenditure added to the military budget without corresponding advantages.

Lieutenant-Colonel H. Stover,
Commanding Royal Artillery,
Thayetnyo.

I can only mention what I believe all are aware of, that the Germans register the horses, carts, &c., that could be made available for transport in war in every town, village, or farm. That in Sir Garnet Wolseley's *Soldiers' Pocket-book* a description is given of companies, of army service corps under commissaries, and of the description of carriage suitable for horse draught. He states that towards the close of the American war nearly all their transport was performed by long wagons drawn by six horses or mules, driven by one man, who rode the near wheeler. This would only apply to flat countries. In hilly countries he states light wagons with poles drawn by two horses each are best. In New Zealand the carts used in 1863 and 1864 were one pair of wheel ones, with two horses, one being in front of the shaft horse as leader. In India the transport appears to be performed by bullocks; but army service corps companies can have charge of bullock-carts, at all events the Native portions of them can.

In Lieutenant-Colonel N. Fryevsky's *Mongolia*, published in 1876, vol. I, pp. 116 and 117, this is stated: "Let us now say a few words about the Mongol horses. They are rather under the average height; their legs and neck thick; their head large; their coat long and shaggy. They possess wonderful powers of endurance, remaining out in the open in extreme cold, and contenting themselves with scanty herbage, or, if none, with budar-hana (*Kakidium gracile*) and bushes, the food of camels. In winter the snow serves them for water. In fact, they will live where other horses would

perish in a month's time. They roam almost at liberty over the pasture-lands of Northern Khalka and the country of the Chakhars.

* * * * *

The great race meeting is held at Urga, attracting competitors from many hundreds of miles.

For transport in Afghanistan these horses should be most useful, could they be obtained."

From pages 120 to 131 of the same volume an account is given of the two-humped or Bactrian camel. At page 122 it is stated: "It cannot thrive without salt, and eats with avidity the white saline efflorescence called gudjir, which covers all the marshes and often exudes from the soil on the grass steppes of Mongolia.

* * * * *

The absence of gudjir and saline plants probably explains the reason why they cannot live in good pasture-lands in a hilly country, to say nothing of the want of a desert to roam over in summer."

Instruction might be given at the garrison course to all officers in anything specially belonging to transport necessary to be learnt; and those who apply and are recommended could be attached to the commissariat department at stations that are distant from any of those where large transport establishments might be maintained; and at the large stations they could be attached for two or three months to the transport or army service corps or commissariat, whichever form of transport may be established, with the view of qualifying for employment in case the establishments should be increased, and also for employment as deputy assistant commissaries-general. It would appear to be best in India to have non-commissioned officers and men of cavalry and infantry of the Europeans (some from each regiment) instructed in transport work. The Native portion could probably be recruited for the work; but havildars and naiks and non-commissioned officers from Native cavalry regiments might be attached for short periods to transport establishments. Sir Garnet Wolsley recommends central-fire revolvers as the only weapons to be carried by transport corps.

Major H. C. Lewes, Commanding 1-st Royal Artillery.

I do not feel competent on such short notice to draw up a scheme for the organization of such an important department.

(a) The officers should be good linguists, and selected specially for different qualities, such as known energy, patience, knowledge of animals, their capabilities, ailments, &c., capacity for organization. Those who are good sportsmen would be useful men generally. Captains should be employed for large charges, having subalterns under them in charge of small depôts and stations. One officer not lower in rank than lieutenant-colonel as superintendent of transport for each column, with an assistant (of any rank) to take special charge of the office work.

(b) Subordinates for localities might be European non-commissioned officers; but only those most specially recommended for sobriety and intelligence should be taken. They must have a colloquial knowledge (good) of Hindustani. They would rank as warrant officers and act under the subaltern officers; but would only be required to take the road on emergencies arising.

Under these would be tindals (mounted men) having charge of a certain number of beasts, carts, &c., on the road.

(c) The drivers would be ordinary Native followers, but enlisted men.

(d) The pay and pension I would regulate by comparison with other branches already existing.

(e) Clothing, khaki Norfolk jacket, knickerbockers, shooting boots, gaiters and turban, for all ranks; officers having distinctive marks—gold shoulder cords.

(f) Equipment and arms, Sam Browne belt, light cavalry sword, and large-bore breech-loading pistol, double-barrel, or revolver, leather havresack, and sodawater bottle.

(g) Pack-horses, ponies, mules, bullocks, camels.

(h) Pack-animals might also be used for draught in light carts. Maltese pattern, capable of being taken to pieces and packed on the animals in case of emergency, would be useful.

I would suggest too that all commanding officers casting horses should be called upon to state whether any horses they cast would, in their opinion, be worth keeping for transport uses at depôts or at bases of operations.

Although no longer fit for artillery or cavalry purposes, many such horses might be capable of performing good work in such a way. They should not, however, be sent on the march.

I think breast harness and raw hide traces, such as are used in South Africa, best.

Major J. Haughton, 1-8th Royal Artillery.

(j) No better pack-saddles can be found than the old Bengal pattern for baggage-animals with mountain batteries. There is an opening outside each pad through which the stuffing is easily removable.

Major W. W. Murdoch, Commanding E-A Royal Horse Artillery.

I must premise my answer to this question by stating that I have never had any experience with an army in the field, and therefore my remarks and suggestions on this subject cannot be of much value.

Transport, I should say, must be divided into four parts. I would divide it thus:—

(a) Regimental.

(b) Commissariat supplies.

(c) Ammunition columns.

(d) Reserve supply or general transport.

(a) In regimental is included that which must always accompany a regiment in the field day by day, and would include carriage for tents, cooking utensils, and personal baggage of officers and men, and also pack-mules to carry 60 rounds of ammunition per man.

The transport for this baggage, &c., on a war scale should be kept up in peace time, and at all times be in charge of the regiment; and thus it would be to the interest of every regiment to keep their transport in as efficient a state as possible.

This carriage with all the animals should be placed under the charge of a regimental officer (a subaltern).

I would recommend that he should receive some staff pay, and he might perform all his regular regimental duties. There is scarcely a position in which an officer both willing and capable of performing these duties might not be found; and in a very few years there would be a number of officers

in the service who would have a good practical knowledge of the animals used for transport purposes and capable of treating all minor ailments, especially galls.

When a regiment was in the field, the only transport that would accompany it actually on the line of march would be the ammunition mules and a mule to carry such things as are required by the medical officer who accompanies the regiment. These mules should be under the charge of the regimental transport officer, who could keep them in any convenient place for supplying ammunition when necessary.

The rest of the baggage could be left to follow under the charge of the quarter-master of the regiment, according to the orders that would be issued by the officer commanding the brigade or division.

I see no reason why in peace time the regimental transport should not be available for all the duties now performed by the moveable column.

With the officer in charge of the regimental transport there should be a young officer associated, who aspires to fill the appointment should it become vacant.

A sergeant would be required to act under the regimental transport officer, and a junior non-commissioned officer, who would be learning the work and gaining experience.

In the event of a war, all the regimental transport officers of those regiments that are least likely to take the field could be ordered up for employment in the general transport service; and thus a great number of officers with a certain amount of knowledge would be available, the only extra expense to Government being their travelling expenses to the seat of war.

It might be made as a condition of accepting the position of a regimental transport officer that this officer should always be required to do duty with the general transport if his services were required.

(b) Commissariat supplies.—This would include the whole of the necessary supplies for the army, both for man and beast, and should be entirely under the control of the commissariat department.

It would be scarcely necessary for all the animals and carriage to be kept up in peace time; but a nucleus would most certainly have to be kept up, to be increased by purchase or hire in time of war.

(c) Ammunition columns.—These should be entirely separate, and should be under transport officers, assisted by others drawn from the regimental transport service.

Of the constitution of these ammunition columns I have treated in an answer to a previous question, so it is unnecessary to repeat what I have said there.

(d) Reserve supply or general transport.—I feel sure that on a campaign where the line of communication is a long one the only system that has a chance of success is that of portioning the road into stages or marches, with officers stationed at points on the line to superintend a certain number of stages or marches.

Four stages would probably be sufficient for one subordinate officer to look after.

Each station where there is an officer should be a small depôt with a few spare camels, and there should be some means of treating sick animals.

A superior officer should be appointed to superintend the working of a certain number of stages—about 12.

He should have a larger depôt under his immediate charge, and he could visit all the stages under him once a month.

The animals employed on this general service should remain always on the same stage, travelling backwards and forwards. The attendants would then be able to hut themselves, and very possibly make a shelter for the animals.

Should it be possible to obtain carriage along the route, the owners would probably be glad to ply for hire on a stage near their own homes, whereas they might be very unwilling to send them to a distance; besides, according to this system, contractors bringing a large number of camels would be enabled to look after them to a great extent themselves.

I have answered this question generally, as I feel I am not prepared to go into details. Should a system something like what I recommend be thought of, I should say the details would not be very difficult to fill up, and they would have to be modified according to after-experience.

Major T. M. Hazelrigg, Commanding E-3rd Royal Artillery.

Assuming that in a country like India a moveable column is a necessary expense, I would suggest forming all parts of it into squads of from 25 to 50 animals, and filling each squad up to 100 to 200 from carriage in district, a most careful register of which should be kept. Each owner might be given a metal label, also a small retaining-fee (though I should think the latter would be hardly necessary).

a.—Nil.

b.—A sergeant for every 3 or 4 squads.

A jemadar for every squad.

c.—Nil.

d.—Relative ranks in army.

e.—Distinctive uniform, plain serge.

f.—Sword and revolver; brown leather belts.

g.—According to nature of country; coolies only when no other available.

h.—Whatever district can provide.

i.—Light 2-wheel carts; if possible service wheels.

j.—Those in use with engineer train.

Major the Hon'ble A. Stewart, Commanding I-C Royal Horse Artillery.

I must state that the following suggestions are based upon a preconceived idea, never thought out in detail, that the whole army of India should be divided into complete brigades (three brigades to a division):—

(1) Each brigade having a complete staff, brigade-major, deputy assistant quarter-master-general, and heads of departments.

(2) Brigades to move in relief of brigades instead of regiments and batteries independently.

(3) Transport to belong to, and remain in, the district.

(4) Native followers also to belong to, and remain in, the district, accompanying regiments of brigades to new station, and either be exchanged with those of relieving brigade when met upon the march, or to be returned from new station. Grass-cutters to belong to and live in the various villages of the district. I think each brigade would thus be efficient. Officers and regiments of both British and Indian services would be thoroughly intimate, and fraternize more to their mutual advantage and that of the service.

My experience in the two short campaigns in China and Afghanistan has convinced me that the more thoroughly European and Indian regiments are thrown together the better. At present I fear there is jealousy instead of friendly rivalry.

Premising, therefore, that a complete brigade is stationed in a district, and has to be provided with transport to render it efficient—

Transport will probably be of four kinds—

(1) *Permanent*, the property of Government, to form the nucleus of district transport when mobilized.

(2) *Retained*, the property of the inhabitants of the district, retained by fee for mobilization when required.

(3) *Contractors* (transport), the property of Government contractors, regularly employed on district works, to be used when necessary, the contractor being bound to replace it by other transport upon emergency.

(4) *Compulsory*, the property of the district, to be supplied by those villages who do not furnish their full quota of retained transport.

I regret I am not acquainted with the laws and customs of civil administration, upon which the feasibility of my plan must much depend. Still as the Punjab is, I believe, divided into—

(1) divisions, | (2) districts,
(3) tehsils.

and each tehsil has groups of villages under zaildars and lambarbars, it could not be difficult to organize some method of obtaining transport in each district of a division. The quarter-master-general's department would know the requirements; the commissioner of the district would probably know the powers of supply.

First, select young officers, who being of active habits are deemed suitable, as district transport officers. Probably two would be sufficient. Let the senior, if possible, obtain the services of some English-speaking Native, who has either himself been a large contractor, or been employed by a large contractor; and let the civil authorities also furnish an officer to assist. Let these officers visit each district carefully, and ascertain the number of—

elephants,	|	ponies,
camels,	|	mules,
horses,	|	donkeys,
	|	bullocks,

carts, and vehicles available in each village; and, after due consultation with the Natives of the district they could arrange the retaining-fee to be paid. Animals and carts retained to be numbered and detailed, a Native in each village being responsible for those of the village. In many villages no doubt pensioners of the Government would be found for these posts. Indeed, it might form part of the stipulation for their receiving pension.

Having ascertained the amount of transport in the district, private property of villagers, &c., and of contractors, see what would be offered to be "retained" under certain conditions, such as these—

(1) To be mustered in their villages quarterly by transport officers; rolls and descriptive rolls to be compared, and notes made as to efficiency; animals temporarily inefficient, if alive, to be considered efficient if the same owner can produce another.

(2) To be mustered at head-quarters of brigade or wherever the general may determine annually, and mobilized for a few days if necessary, when they would be paid their retaining-fee for past year and the hire for the days of mobilization.

These sums should be liberal. It would be economy in the end, and make the transport service popular. I do not know if there is any tax in any district upon animals. If so, a revision of this tax, or part of it, could form the retaining-fee.

When permanently employed for active service, the animals should be bought outright at a pre-determined valuation, the owner finding drivers, who would come back with the animals to their village at the end of the campaign, it being then optional to the owner to repurchase his animals (at a much reduced price) or not.

The question of the *permanent* transport is a matter of money and experiment.

Money, because the cost will depend principally upon the amount of permanent transport to be kept up.

Experiment, because it will depend upon the amount of use which can be made of the permanent transport in time of peace, how much of the cost will be recouped.

It will be for the clever district officer to keep his transport effective at the lowest possible cost; and his promotion, and therefore remuneration, should depend upon this.

Having ascertained what transport of the four kinds are available in his district, he must tell off a portion of each kind to the various departments; and regiments of the brigade, making use of the regimental and departmental transport officers and their subordinates to assist him in carrying out details.

As long as the transport is not mobilized, all his department should be under his orders. When once mobilized, the departmental and regimental transport must be under the orders of commanding officers and heads of departments; and the district transport officer becomes only an inspector, the assistant district officer remaining in the district collecting and arranging for reserves to supply casualties, &c. It would be premature to propose a plan for permanent transport. The selected

transport officers with the assistance of some of the largest and best Native contractors should do this. The great principle would appear to be—

Always adopt local means and adapt to Government use.

Local means are generally best, e.g., the variety of wagons and carts employed in the different parts of Great Britain and Ireland and all the four quarters of the globe, which are always found most suitable for the particular district in which they are used and for the animals that draw them.

- (a) Commissioned (district) (regimental).
 (b) Non-commissioned, European and Native.
 (c) Selected soldiers.

(d) } To be determined by transport officers, but to allow no Native to be armed who had not
 (e) } previously served as a soldier.

(g) According to district. The means available in the district to be adapted for Government military purposes.

- (h) Ditto ditto.
 (i) Ditto ditto.

(j) This is a very important and difficult matter, about which I only know sufficient to know that I am not competent to offer an opinion as to a pack-saddle for general and permanent use; but again I say adopt and adapt local pack-saddles.

Let me here give the weights of the saddle and equipment of ponies attached to me at Gandamak, and utterly unfitted for anything but a very light load—

				lbs.	oz.
Pad	6 8
Saddle	10 8
Jowl and roller	9 0
Bridle and headstall	2 2
Packing bag	9 8
Feeding cloth	4 4
Head chain and peg	7 12
Heel chain and peg	8 0
Total				...	57 10

Add to this weight a little food for themselves and driver, and the amount of the latter's own kit, which he would be sure to make one of them carry, and it will leave very small allowance of weight for the load.

In conclusion, I must add that I think commissariat transport should be quite separate from other transport on all occasions. It will be for the general in each district to determine, in conjunction with his district transport officer and assistant commissary-general, from which part of the district the commissariat transport is to be retained.

Of course the commissariat will also be able to indent upon the transport department for some of the permanent carriage from time to time, the same as any other department.

Major C. E. Nairn, Royal Horse Artillery.

A modified transport department or corps in time of peace, capable of extension when required for service. Part of this establishment to be kept up permanently in each station, and attached to regiments.

(a) One director for each army-corps, with assistants (permanent) for divisions and brigades. Each regiment to have one officer; each battery one non-commissioned officer.

(b) And each regiment selected non-commissioned officers. These regimental officers and non-commissioned officers while employed with the transport corps to be struck off their regimental duty, and to be changed periodically, so that a general knowledge of transport duty, management of the animals, &c., should be diffused throughout the army.

(c) Native drivers, muleteers, &c., only, as mixed European and Native do not answer.

(d) Special staff pay for director and assistants.

Regimental pay and pensions for the rest as at present, with working pay from four annas to eight annas a day while employed, according to rank or position.

(e) Regimental for English officers and non-commissioned officers. Natives, as for drivers in Native batteries of artillery, on the whole might have a uniform based on that of the army service corps in England.

(f) As for drivers with Native batteries (mountain).

(g) & (h) For all work not actually in the mountains, two-wheeled carts drawn by horses or bullocks; for mountains, pack carriage or mules.

(i) Two-wheeled carts not heavier than 7 or lighter than 5 cwts. If for bullocks, the ordinary yoke.

(j) If mules, the usual pack-saddle of most recent pattern.

Major P. FitzG. Gallwey, Royal Artillery.

This is a large question; and I really do not feel competent to answer it without more information than I can obtain at present and without some data to go upon. As regards the organization of the army for war—I mean a definite organization—I will endeavour to offer a few general remarks.

I would only organize a partial system for one army-corps of 20,000 men in the Punjab and for one division in Madras and Bombay. I cannot see how the whole of the personnel and matériel even for these can be kept up in peace time without enormous expense. I think it must suffice for us to have some such system as the following.

In the Punjab, for example, lay down what an army-corps of 20,000 men is to consist of; calculate exactly (having regard to a campaign anywhere west of the province) what number of ammunition

wagons, country carts, camels, mules, and ponies it would require to move this; lay down the rendezvous for each division or brigade, and hence the centres where the carriage must be collected. Let the arsenals have the proper number and amount of ammunition wagons, ammunition boxes, ammunition camp equipments, tools, and pack-saddles in store for the corps; let each military district have a superintendent of transport or commissariat officer specially detailed for finding out the amount of carriage available in each district, and in connection with the civil authorities endeavour to have the number of carts and animals get-at-able; also let Government encourage the keeping up of the breed and stock. Railways are much against this; and hence I would have no *branch* lines in the Punjab, only trunk lines. An extension to Kushalgarh or Attock and one from Ludhiana to Ferozepur are all now required for military purposes this side of the Indus. I would propose that certain large proprietors, Native noblemen, gentlemen, or zemindars, receive a small sum annually to encourage them to keep up a supply of carriage in their own districts.

(a) & (b) Now as to organization. In peace time have a transport officer in each military district with above duties, also with a complete knowledge of the whole machinery in case of a mobilization. Number of animals and carts required from him; where to concentrate; how pack-saddles to be obtained, &c. Let him have under him one Native officer and one European warrant officer, to be thoroughly conversant with the details of mobilization. The former could assist him in the district work; the latter do all writing, &c. According to my system, of having six districts in each army-corps, this would give an officer and two assistants per brigade on mobilization, which would be enough, I think, supplemented by a few European warrant and Native non-commissioned officers. I am of opinion that a superfluity of officers for the transport is a mistake: they are above the work required of them. Further, that all officers employed on this service should belong to the Native army and have passed the higher standard examination. It is worse than a farce employing young officers of British regiments for transport duties. Much hardship and inefficiency are the results. Officers and non-commissioned officers employed should be included in the commissariat department and under the superior officers of the same, but termed "transport branch."

(c) I would have no Europeans employed on the transport except officers and warrant officers. The men should be the cartmen, camel-drivers, or muleteers who own the carriage, which should be purchased from them on mobilization (money sent to their districts if they desire it), and they should receive regular pay like any other followers. After that, at the conclusion of the war, they can take back their carts or animals on repayment of the price paid, and return to civil life, allowance for wear and tear being made.

(d) The commissariat rates of pay to regulate that of officers, warrant and non-commissioned officers. Same as regards pensions. No pensions to be given to drivers except for wounds, or to relations if they are killed.

(e) When the number of carts and animals is settled, every large commissariat station in the army-corps command (or the arsenals) should keep in store a small supply of warm clothing for these men—a kind of uniform.

(f) No equipment or arms necessary for the drivers. They are, or should be always, protected.

(g) The transport of the country must be made use of. The only wheeled carriage allowable would be for ammunition columns, royal artillery wagons (partially only), and for general transport partly country carts.

(h), (i) & (j) are all replied to in a general way above.

Major W. H. Noble, Royal
Artillery.

Transport in India will always consist, as at present, of—

- (1) Rail.
- (2) Wheeled carriage, Government property.
- (3) Wheeled carriage, hired.
- (4) Pack-animals, Government property, such as elephants, camels, bullocks, mules, ponies, and donkeys.
- (5) Hired pack-animals.
- (6) Coolies.

To suggest in detail the framework of a transport system suitable for the various parts of India would require a much fuller treatment of the subject than can be given in a brief paper of this kind. It is a question which should be worked out by officers specially appointed for the purpose.

Briefly, however, I would suggest as follows:—

(a) The officers in time of peace should comprise a director of transport for India, assisted by a small staff, and by a suitable number of district superintendents, with probationers attached.

In time of war it would be necessary to draw officers from the army generally; but considerable discretion should be exercised in doing so. To take a young subaltern from a British regiment, knowing nothing of the language, with no experience, and no qualification except a desire to get to the front, and to put this officer in a responsible position, where forethought and self-reliance are specially requisite, is "not the way to do it."

A transport officer has particularly onerous and responsible duties to perform in time of war, and to enable him to carry out these duties efficiently, it is exceedingly desirable that he should have had some experience with respect to them in time of peace.

(b) Subordinates should be European non-commissioned officers and Native overseers.

(c) No European men should be employed; all drivers, &c., should be Natives.

(d) Pay and pension might be settled on the same scale as now allowed to commissariat department.

(e) The nature of clothing might be based on that of the army service corps at home.

(f) Brown leather accoutrements, swords, and revolvers for officers and non-commissioned officers; tulwars for Native subordinates; no arms for others.

(g) The description of transport suitable will depend upon the nature of the country.

Rail will be used wherever practicable.

Next to rail, wheeled carriage is best; but its use depends upon local conditions.

The main advantages of wheeled carriage are—

- (1) A comparatively greater load can be transported in this manner by the power applied.
- (2) At the end of a march the load need not be taken out of the cart.

The latter is an immense advantage on service.

The employment of pack-animals or coolies must depend upon local considerations.

(4) Bullocks for carts; Government animals for regimental transport; Government, hired, and contract animals for supplies.

In many cases it will be found economical to contract with substantial Native merchants for carriage of supplies; payment to be made on delivery. The Native mule or camel owner will work well for the Native merchant, although he may be averse to working on hire under Government officers. The reason is obvious. In the one case he deals with people who understand his language and wants, and he is permitted to make his own arrangements on the march; in the other case he is liable to be misunderstood, abused, and hustled.

(5) Transport carts should combine lightness with strength; but it is a fatal mistake, and one often fallen into, to sacrifice strength to lightness. Wheels, axletrees, and axletree-beds require to be strong and well constructed to stand the incessant jolting over bad roads. It must be borne in mind that ease of draught, which is the main feature in a wheeled vehicle, depends upon stability even more than on lightness. A strong, although comparatively heavy, cart can be drawn with greater ease than one in which, through inherent weakness, the wheels wobble about, and are out of shape. A cheap cart, knocked up for the occasion, is an untrustworthy and ultimately expensive article.

Across the frontier all wheeled carriage should, if possible, be Government property. Bullocks should always be employed when practicable, as the ordinary simple yoke can then be used. The employment of ponies or mules for draught necessitates harness; and the provision of this, the fitting of it, the keeping it in order, and the repairs it requires on the march, entail much labour and expense.

(6) The Punjab gear, as modified by the Simla Committee of October 1879 and Quetta Committee of August 1879.

Captain G. C. Bayly, 13-8th
Royal Artillery.

I can answer questions 7, 8, 9 and 10 (as regards general principles only) most conveniently together.

In the time of peace I would have the whole transport under the commissariat. In the time of war the transport of an army in the field (the arrangements for troops not in the field to remain unaltered) should in the first instance be raised by the commissariat; but as soon as the troops were in motion, the transport (all of it) should become a separate department, with its own director (or other chief) at its head, its own officers, &c., independent of everybody else, and taking orders from the commander-in-chief (of the troops in the field). This commander-in-chief (or other general commanding) should have two staff officers, to be styled "directors of supplies." The directors of supplies would be officers specially appointed to the post, which would only exist during operations in the field. Each general who had a distinct command would have two directors of supplies—one with him, one at the base of operations.

Thus in the late Afghan war there would have been six directors of supplies—two for each of the three columns. A director of supplies should be most carefully selected. He might belong to any corps or branch of the service, and be of any rank, not below that of captain. It might be convenient for him to be of the same rank as the senior staff officer serving in the same column or a grade lower. The whole direction (not the administration nor the discipline) of the transport should be under him. He would receive orders from the general (I am here speaking of the director with the general) himself or from the senior staff officer as to the existing distribution and probable movements of the troops, and should be furnished by the heads of the various departments, whether staff, commissariat, ordnance, medical, or financial, with all the information he may require as to the number and distribution of the troops, their probable movements and consequent requirements, and the means available and likely to be available for meeting those requirements. Thus informed, and thoroughly in his general's confidence, the director of supplies, if fit for his post, would so distribute the transport as to obtain the best results, *on the whole*, from the means available. His real duty would be to regulate the distribution of the transport; and hence in time of peace, when the amount of transport available may be considered equal to all demands, this office is unnecessary, useless in fact. But in time of war, when the supply of transport is not equal to the demand, who is to decide on the rival claims of the various departments, each laudably anxious for its own success, and naturally indifferent to the success of other departments; who shall decide whether 1,000 camel-loads of grain or 1,000 camel-loads of ammunition are most wanted (I am presuming that there is not enough carriage for both)? Obviously some one who knows the wants, actual and probable, of the army as regards both food and ammunition, and the means, existing or probable, of meeting those wants. The decision should not be left to any officer, however able, who is personally interested in the success of one department more than another; and consequently it should be left to a third party, of whose knowledge, ability, and impartiality there can be no doubt. The director of supplies is the officer who would allot the transport for all services, merely telling the director of transport (or his representative) to allot so many carts, camels, mules, coolies, &c., to such a department for such a duty, on the completion of which the transport would become available for any purpose. For instance, a director of supplies at Kandahar might order a director of transport at Dadur as follows: "No transport to be allotted to ordnance till further orders; supply commissariat demands in full"; or "Medical comforts urgently required, then warm clothing; give precedence to all demands for carriage for these." Or he might say, "Allot first 200 camels available to ordnance, rest to commissariat," leaving it to the departments concerned to load those camels as they thought fit. Of course, he would inform the departments concerned of the orders he had issued or was about to issue for the allotment of transport. I do not think that transport should be allotted to any department for any great length of time, as the requirements of the service may vary rapidly. The distribution of transport will, of course, be affected by any extensive movements of troops, accidental losses of stores by fire or by the enemy, unexpected abundance or failure of local supplies, &c.

As regards regimental transport, I think that if a corps remains on the same ground for more than, say, 48 hours, the whole of its transport should be at the disposal of the local transport officer for any public purpose. Of course, if it were known that a corps would certainly resume its march after a halt of not more than three or four days, its transport should not be interfered with; but when further movements were distant or doubtful, it should not retain its transport in idleness, while the transport department in general might perhaps be greatly overworked.

I also think that, at all events on service, Government should provide all carriage required, whether for individual officers or not, at its own expense. It could then allot carriage exactly as it thought proper, and the animals would always be available for any public purpose. I have read in a blue-book that during the winter of 1854-55 in the Crimean war, while carriage was so scarce, there were literally hundreds of baggage-animals belonging to officers doing nothing, because they were private property. This should never be.

Before quitting the subject, I should add that if the system I advocate (of having directors of supplies) were adopted, all indents whatever for transport would go direct to the transport department, which would comply with them wholly, partially, or not at all, in conformity with the means at their disposal and the instructions received from the director of supplies. A director of supplies at the base might or might not be absolutely necessary; but I think it better to have one.

Of course, the functions indicated for a proposed director of supplies might be executed by an officer bearing another title. A commissariat officer might do the work, or an officer of the quarter-master-general's department. Whoever he might be, it would be necessary—

that he be responsible for the efficiency of every part of the service, of every department (so far as it depended on the supply of transport) alike, and not of one more than another;

that he should not interfere with the working of either the transport or any other department, except as regards the allotment of the transport.

In short, the director of supplies is a traffic manager only—neither more nor less, not a commanding officer nor head of a department. He is only wanted when the demand for transport outstrips the supply.

Lieutenant E. C. Wace, R.A.,
No. 4 Hazara Mountain Battery,
Punjab Frontier Force.

(a) *Officers.*—In time of peace, I think the only officers necessary to be kept up on the transport establishment would be one per division in sole charge of the *general* transport; regimental and departmental carriage kept up on a reduced scale, say half the requirements of the regiment when on service, being superintended by regimental officers under the supervision and orders of divisional transport officer.

This officer should also exercise supervision over the several regimental and departmental transports in the division; the interior economy and pay of all such being in his charge, monthly bills being submitted to his office through the different regimental and departmental officers of their respective transports. This officer should be considered a member of the divisional staff.

(b) To assist this officer there should be a proportionate staff of non-commissioned officers selected from the mounted branches of the service, and a complete establishment of mistries, muchis, farriers, and salutris.

(c) In my opinion, no further Europeans would be necessary; one Native to every three mules should be allowed, *to be increased to one every two mules on service.*

(f) A pistol need be the only additional arm of equipment for the Europeans.

For the Natives, each man should be supplied with a shoulder belt, waist, and sword. The pattern issued to mountain batteries is one well adapted to Natives. The Natives should also be provided with a canteen and haversack.

(g) & (h) In Upper India the principal transport should be *mule* transport, and camels for the *general transport* only. In Lower India wheel transport might be more suitable, the country being more open.

The Government pattern mule saddle should be universally adopted with gear for loading complete, *viz.*, salcetahs, *trangas*, ropes and straps, packing G. S. A proportion of each of the above would be necessary to allow for the different descriptions of loads to be carried.

(j) The present pack-saddle as used by Government mules in the commissariat is well adapted to the various loads that have to be carried; but it requires great care in being kept properly cleaned and the padding soft. Improvements might be made at a small cost, whereby the saddle could be taken to pieces with greater care, and be therefore better able to be kept clean. The pattern of baggage saddle used in some of the mountain batteries, and known as Colonel Hughes' R. A. pattern, is more simple in its construction and better suited to pack-animals. The camel *pitan* is the saddle invariably in use, and answers its purpose very well; but the stuffing requires care and constant renewing.

Colonel H. Gough, Commandant
12th Bengal Cavalry.

I have not entered sufficiently into the subject to be able to suggest in detail such a framework of transport establishment as proposed in the question; but doubtless some arrangement should be made by which an army transport should be rendered efficient in time of war, with the least possible expense in time of peace. I would, however, suggest that the transport service throughout the three presidencies be under one system and administration, divided into four circles or transport corps, *viz.*—

2 for Bengal.
1 for Madras.
1 for Bombay.

(a) One director of transport attached to the quarter-master-general's department to supervise the whole four circle superintendents, and a subordinate officer under each, with a personal assistant to the director.

(b) & (c) At the disposal of circle superintendents, each regiment should detail two non-commissioned officers and two men for service with the transport. Under these men would be the usual detail of chowdries, jemadars, drivers, &c., as now detailed with moveable columns.

(d) Director and superintendents, such staff pay as may be hereafter stated. Subordinates, European and Native, should also receive certain staff allowances.

These men would not be entitled to other pensions than what they receive from their own regiments.

(e) The Native establishment to receive a regular suit of clothing of a uniform pattern, &c.

(f) Armed with a *tulwar*, as ordinary camp-followers.

(g) On the frontier entirely mules as far as practicable, supplemented by camels. Lower down, where the roads are good, bullock carriage (wheeled) for supplies,

(h) As above.

(i) Country carts.

(j) The *chai* on pad, as used in Native cavalry regiments, is best for all practical purposes.

Captain M. G. Gerard, 2nd
Central India Horse,

In peace, instead of commissariat department keeping up carriage, this to be done by transport train; skeleton divisions of about 25 per cent. of war footing being maintained. Wheeled carriage only to be employed, as a rule, but animals to be trained and equipped for pack also.

(a) 1 (captain or field officer per division).

(b) 1 1st class warrant officer—	} per division. relieved annually.	| 250 syces or drivers. 5 mabunds, 1 carpenter, 1 muchi. 1 salutri, 1 smith. (250 carts—500 animals.)
1 2nd „ „		
2 3rd class warrant officers		
5 4th „ „		

(c) 1st and 2nd class, European soldiers, Native officers, or time-expired men. Eurasians eligible for 2nd or 3rd class. 3rd and 4th class, Native soldiers of 15 years' service. 5th, syces, temporary.

	Rs.	
(d) 1st class	50	
2nd „	40	
3rd „	30	} military pension already earned. (war footing only).
4th „	20	
5th „	10	
		Syces, Rs. 5 and Rs. 6 and clothing. Artificers, local rates.

(e) Loose khaki drill, Hungarian jacket, plenty pockets, for all ranks.

Europeans: khaki helmet, brown cords and boots.

Natives: blue or khaki puggri and kummurbund, pyjamas, Native shoes, and puttees.

(f) Brown leather belts, brass buckles. Revolvers for first four classes.

For syces, light bill-hook carried on waist-belt for defensive and foraging purposes.

(g) 500 mules or ponies, 250 carts; nothing but wheeled carriage in peace, as the most economical. Three or four different patterns and sizes, adapted to various sized animals to be kept up. All animals to be trained and equipped to carry packs also, if need be.

(h) Mules and tattoos of every size and description.

The weediest-looking 30-rupee bazar tattoo, with one seer of grain a day, will carry two maunds 20 miles, or draw an *ekka* load of six; so we should not confine ourselves merely to an ideal stamp of pack-animal, but make the most of the cheap, serviceable material at hand.

At outset of a campaign across the frontier, all would probably have to be employed as pack-animals; but as the road was improved, carts could be brought on.

(i) It is far preferable to have more small light carts, that can be easily helped over obstacles, than a smaller number of heavy, expensively-horsed ones.

For mules and larger tattoos, very light Maltese or store carts, of at most 1,000 lbs., modified to fit the ordinary country ruts. These, with a pair of mules, would convey 1,200 to 1,400 lbs. = 4 camel-loads. Over almost any ground a camel can traverse, and on the most ordinary country roads could average 3½ miles per hour = double the pace of camels. When proceeding with troops in ordinary relief, they would easily carry the latter weight.

Whether shaft or pole draught is preferable seems open to discussion. Personally, I prefer the latter.

For the smaller tattoos we should try some modifications of country *ekkas* and *tongas*. At a pinch they can even now with one or two tattoos convey 400 to 600 lbs. baggage across country roads at double the pace of bullock-carts; and both are capable of great improvements, being ill adapted for baggage. Whether single or double harness is preferable for smaller size should be found by experiment.

(j) The *Otago*, cut down from 27 to 20 lbs. for larger animals, and the common Native *chai* for tattoos. If the *sundka*, or pad of latter instead of being one piece and resting on the withers, is made in separate pieces, and connected there by an arched tree (*garúch*), it answers admirably, and can be made for Rs. 4 in any bazar.

It greatly quickens and simplifies loading, to have light, open panniers for store. These are loaded beforehand, and, being strapped together, are simply lifted bodily into their place on saddle, and require no further roping, &c., to secure them.

Brigadier-General C. J. Godby,
Commanding Punjab Frontier
Force.

I do not think it necessary to have our general transport establishment for the whole of India, should it be decided to have a transport system separate from the commissariat.

(a) I would have an officer of the quarter-master-general's department at the head-quarters of each presidency in charge of the transport system, with a subordinate attached to each division of the army.

(b), (c) & (d) The nature and position of subordinates, their number and requirements, must depend on the establishment it is found necessary to keep up in time of peace.

(e) Uniform suitable to quarter-master-general's department.

(f) British warrant and non-commissioned officers should be mounted, and armed with sword and revolver.

(g) & (h) The description of transport suitable for the Punjab consists of camels, mules, bullocks, and carts only while in the plains.

(i) As any wheeled carriage would have to move on cross-country roads, ordinary two-wheeled carts, such as those in use with field batteries, would be suitable; but the Native cart would have also to be employed.

(j) Pack-saddles such as are used in the Punjab Frontier-Force for ammunition are the best I have seen.

Lieutenant-Colonel C. LaTouche,
Commandant Poona Horse.

The framework should be sufficient to provide for the requirements of the Native infantry; and all British troops composing a corps of such strength as Government might consider it advisable to keep ready to march at a moment's notice for moveable columns or other purposes; and the whole of the arrangements should be removed from the charge of the commissariat, and form a separate establishment with a military organization. The scheme I am about to propose may be somewhat incomplete in details, from the shortness of the time I have had to prepare it; but the general principles are as follows.

Supposing, as an experiment,—say for the Bombay army—it was considered desirable to arrange for a force of say ten thousand men, of all arms. Raise a regiment for transport work. Place it under the command of a cavalry officer interested in the work, and who would be determined to make it succeed. Have it organized on the principles of silledar cavalry. Form the nucleus from volunteers from the Native army, getting as many men as possible from the mounted branch. To save the cost of too many European officers, try the effect of utilizing largely the Native element. To induce Native officers and non-commissioned officers of the right stamp, who would be the backbone of the system, to volunteer, hold out inducements of promotion to men transferred; thus good non-commissioned officers should be promised a commission in the new corps; good old soldiers, who could read and write, the position of non-commissioned officers. Limit the European combatant officers to the commandant, 2nd-in-command, who should perform the staff duties, and two subalterns. Government to provide dead-stock, such as carts, harness, &c. All the animals to be purchased, and kept up by silledars out of their pay, with the one exception of elephants, which, being very expensive, it would be necessary for Government to own, as at present, though they would be attached to the transport to be looked after, and the mahouts subject to military discipline.

In the case of drivers for wagons, each man would be a two-horse silledar, and with his syce, who he would have to pay himself, look after his two horses. In a similar way a man would be made a silledar of so many mules, so many ponies, so many camels or carts, as the case might be. The corps would be divided into six troops, as in the case of a cavalry regiment; each troop under the command of a Native officer, European subalterns supervising each wing. The advantage of such a system would be, first of all, that Government would get rid of all the bother and enormous expense of the establishments necessary for the purchase and feeding of the numerous animals kept, and also would have nothing whatever to do with the enlistment and payment of the many camp-followers looking after them. Furthermore, all the baggage-animals, instead of being Government property, and looked after by paid syces, camelmen, &c., would be the property of men in the corps; and thus not only would they be looked after by their attendants as heretofore, but the silledars themselves, as the owners, being specially interested in them, would exercise special supervision, and see that the animals were well cared for, inasmuch as they themselves would have to replace them in case of casualties. Once the corps was formed, regimental funds for camels, horses, ponies, &c., would be established, as is now the case with the horse fund in cavalry regiments; and animals as they require being replaced would be purchased by the various funds under the immediate control of the commanding officers. Furthermore, by inviting men of capital into the corps, Government would be saved the expense of the outlay in purchase of animals, which they would have to incur if the corps was organized on the regular system. The capital thus invested and locked up in the corps would be an excellent security for the good behaviour of the men. It is estimated that from the volunteers from cavalry regiments alone a large amount of capital would be at once forthcoming. For instance, supposing one hundred silledars from the existing seven cavalry regiments were allowed to volunteer, and that each silledar owned only one assamee, the value of their assamee, which they would sell on leaving their old regiments, and reinvest in the new corps, would be, at five hundred rupees each, the present value of assamees in my regiment, Rs. 100 × 500 = Rs. 50,000. It might confidently be anticipated, however, that some of the volunteers would be owners of two or three assamees. In such a case, the capital immediately available would be greater than the sum named. If the capital forthcoming was not sufficient from the cavalry volunteers, such men would be invited to bring recruits from their villages to fill the vacant positions of silledars in the new corps; and any man in the infantry regiments who might have money of their own might be asked if they were willing to become silledars of camels, tattoos, &c., in the transport service.

It is probable, moreover, that some men of capital now employed in the commissariat would accept Government service under the new condition.

It would be as well if it could be arranged for silledars to understand as much as possible about the animals in which they had a direct interest.

Thus cavalry soldiers would very properly be told off to the horses. Any men in infantry regiments coming from countries where camels abounded might be told off to the camels, and so forth. All the men in the transport corps to be subject, as in the case of existing military corps, to the articles of war; but it would be as well at first, as in the days of the old irregular cavalry, to invest the commanding officer with extra powers as regards discharge, enlistment, punishment, and so forth, until the new system got into good working order, after which such powers could, if necessary, be withdrawn. As regards the general transport, the above remarks applying solely to regimental and

departmental transport, it would at first be necessary to trust to the resources of the country until the new system got into thorough working order, and all its good and bad points were recognized and provided for. Once it was fairly started, then the details of a reserve might be worked out, and arrangements similar to those recommended for the line might be considered; but it would of course be necessary for Government to satisfy itself that the arrangements for departmental and regimental transport, which might be considered as the basis for any scheme for reform, was sound, before any plan for reserves, which would be the superstructure, as it were, was built on the top of it. The following estimate will give a rough idea of the cost of providing regimental and divisional transport for a corps of ten thousand men. The weights calculated for are for the regimental transport at the rate of 30 lbs. per man, and for the divisional transport, including commissariat stores, engineer park, hospital division, and three days' supplies, at the rate of 40 lbs. per man, making a total of lbs. $10,000 \times 30 + 10,000 \times 40$ lbs. = 700,000 lbs.

The details of the establishment will be found in appendix A* attached, the total monthly cost being Rs. 34,686.

It will be observed that the establishment as regards officers, men, and animals will be as follows:—

	<i>Officers and men.</i>	
4 European officers.	12 Farriers.	
1 Medical officer.	6 Trumpeters.	
14 Native officers.	125 Fighting men (silledars of camels), dismounted.	
46 Non-commissioned officers.	125 camelmen.	
270 Drivers.	428 Syces.	
	<i>Animals.</i>	
11 European officers' chargers.	540 Draught horses.	
77 Riding horses.	200 Baggage ponies.	
	500 Camels.	

Or a total of 537 officers and enlisted men, 568 camp-followers, including bazar and hospital establishment, and 1,328 animals, including officers' chargers.

The 125 camel silledars would be trained fighting soldiers, and would, with one camelman, look after 4 camels. They would, if necessary, ride on the line of march on one of their camels. They would with the mounted non-commissioned officers act as an escort to the corps when on service, and would be available for guard and other duties in garrison. The weights allotted to the camels and horses are 12 per cent. below what they are easily capable of carrying if properly fed and cared for, as they would be in a military corps—a margin which would allow for the sick list. In the case of the wheeled carriage, 16 spare horses are allowed for the 4-horse wagons, and 24 for the 2-horse carts, to provide for a similar contingency.

If Government disapproved of the large amount of camels suggested, light carts with two ponies to draw them could be instituted for a certain portion of them, without in any way affecting the estimate beyond the cost of the carts, as a pair of strong ponies, such as should be kept up on the allowance suggested, would with ease draw 900 lbs. if the carts were of a light pattern. The allowance for two ponies is exactly the same as for two camels. The extra weight drawn by the ponies would pay for the harness. The estimate drawn out is to include all pay and compensation for dearness of provisions to men and forage to horses to be absolutely abolished. The silledar system herein advocated is in reality a form of the much-praised contract system. The only difference between it and the contracts made by the commissariat being that in a silledar corps the contractor is an enlisted and disciplined man, contented with small profits; whereas in the latter case he is more or less independent, and is only satisfied with large profits. Moreover, while it is to the interest of the silledar to take the best possible care of his own animals, contractors too often think of little but how much they can make out of their contracts. The system recommended has been for many years tried in the Native cavalry; and if it has in that branch of the service stood the test of experience, there appears to be no reason why it should not succeed equally well when applied to a transport corps. Ponies have been recommended instead of mules, because they are just as good transport animals, and in my opinion better than mules, and, moreover, they can be obtained in abundance all over the country; whereas mules have to be collected from far distant lands at an enormous expense. Both mules and ponies are very expensive to keep up, as they carry so little. If it could be arranged that camels should do the work now done by mules, a saving of Rs. 3,000 a month could be effected. Against the cost of the scheme must be set all the existing expenses in connection with the transport department of the commissariat, which could at once be reduced, if a transport system was established; also other items in connection with the grass supply noticed further on in reply to number 11.

Officers.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

(a) I think there should be an officer (who might be the quartermaster of the regiment) who should have the entire control of the transport required for the regiment. He should be required to know the capabilities (as to furnishing the kind of carriage required) of every village within a radius of 80 miles, and, with the assistance of the commanding officers and the civil authorities, should have a list of the men of the villages and the number of animals they could supply at a short notice; and through the commanding officer of his regiment should, at a moment's notice, be able to get authority for collecting them, which, having done, he should be able to once allot the number required for the different portions of his regiment to the men under him who are told off for those various duties. He should also retain a certain percentage above the actual requirements under his personal charge to replace casualties.

Nature and position of subordinates.

(b) Under the regiment transport officer there should be an intelligent Native, able to speak and keep accounts in English, and thoroughly acquainted with the languages of the country where the regiment may be quartered, and of the men with whom he would have to deal. His duties would be to

register the names of the owners of the transport animals and the number supplied by each. He should in the first instance furnish each owner with a receipt for the number of animals supplied, the names of the men attending them, and the rates agreed to be paid for the hire of both. He should keep a similar list as a record in his office. He should also see to the feeding of the animals, and in fact exercise a general supervision under the European officer.

Under this Native subordinate should be one mucedadum for each department, *i.e.*—

- 1 for rations, &c.
- 1 „ ammunition and stores.
- 1 „ regimental stores, men and officers' baggage.
- 1 „ hospital.

To these should be made over the number of camels required for their several charges. They should be held responsible for the feeding of the animals and welfare of the attendants, the serviceable state of the equipments, their preservation in working order, their discipline, regularity on the march, and timeliness of conformation to orders of march.

These mucedadums should again have some three men each who, being constantly with the regiment, would be acquainted with the customs in it, when they would find their different loads, and where they would have to go and unload on arrival at the new camp. They should assist the mucedadums in this general supervision in camp, and in maintaining order on the line of march, and instructing the attendants of the animals in their duties. With a staff of this kind, I think the whole establishment of transport for a regiment would very soon be reduced to order, and a certain amount of discipline, both of which are now conspicuous by their absence in the present system of transport.

Men, European and Native.

(c) I would have no European subordinates with a Native regiment; but in a European regiment I think steady non-commissioned officers, with a small addition as staff pay, might with advantage be used.

Pay and pension.

(d) I think the head Native assistant might receive Rs. 30 a month, with a pension of Rs. 10 after 25 years' service.

The mucedadums Rs. 15 per month, with a pension of Rs. 4 after 25 years. The others Rs. 7 per mensem, with a pension of Rs. 3 after 25 years' service.

Clothing.

(e) Good thick linen, woollen blouse, with blue kummerbund and puggree, and a pair of warm knickerbockers, puttees, and Native shoes.

Equipment and arms.

(f) A good Native tulwar.

Description of transport suitable.

(g) Camels.

Animals.

(h) Camels.

Nature of carts and harness.

(i) Not suitable.

Nature of pack-saddles.

(j) The camel pakka.

Major A. P. Palmer, 9th Bengal Cavalry.

I would suggest four circles of transport, or four transport corps, for India—

- No. I.—The Punjab circle down to Delhi.
- No. II.—The remainder of the Bengal presidency.
- No. III.—Madras.
- No. IV.—Bombay.

(a) Officers—

One director, who might be styled deputy quartermaster for transport.

Four circle superintendents (assistant quarter-masters-general for transport).

One personal assistant to the director and to each circle superintendent.

One officer to be detailed from each corps, British and Native, in India to be available when required for transport duties.

(b) & (c) Two non-commissioned officers and two men to be detailed from each corps, and one non-commissioned officer and one man from each battery, for transport duties. Officers and men to be relieved annually if possible.

All chowdries, naib-chowdries, jemadars, munshis, and salutries available for service with transport corps in India to be registered by circle superintendents of transport.

(d) The director (or deputy quarter-master-general for transport), Rs. 1,000 staff salary, besides pay of rank.

Circle superintendents (assistant quarter-masters-general for transport), Rs. 500 staff.

Personal assistants to director, Rs. 500 staff.

Personal assistants to circle superintendents, Rs. 250 staff.

Regimental transport officers at Rs. 30 per mensem while employed on actual transport duties.

Non-commissioned officers at Rs. 8 per mensem and men at Rs. 5 per mensem while employed on transport duties; and their heirs to receive the next higher grade of family pension, should the men die or be killed on service.

(e) Transport non-commissioned officers and men to wear a badge on the arm marked "Transport." Enrolled attendants to receive one blanket coat and trousers, puttees, Native shoes, and yellow turban, and a blanket or waterproof sheet.

(f) A tulwar to each enrolled attendant.

(g) & (h) For the Punjab circle, mules, Kuchi and Pahwindah camels, and camels bred north of the Jhelum, and pack-bullocks.

For the Lower circle, camels and pack-bullocks (banjaries); and in Assam, coolies. Where stores have to be carried long distances, coolie-carriage is obviously useless, as the men eat their loads in a fortnight's march.

I have no experience of the carriage suitable for Madras and Bombay.

Only Pahwinda, Kuchi, and north-country camels should be employed on hill roads or beyond our old frontier, the down-country camels being utilized in pushing supplies up to the bases of operations; otherwise the enormous casualties of the late Afghan war will be repeated.

(i) It is advisable to retain the Indian hackery for many reasons; but carts should be under commissariat control, only pack-animals being under the transport department, and the commissariat required, as at present, to deliver the supplies by rail and cart at the farthest point that can be reached by wheeled carriage.

(j) Baggage pack-saddles should have no trees. The Indian pad has always been found the best for service, wherever it has been tried. The Otago and other pack-saddles made with trees meet all requirements when fitted to animals in good condition; but create galls when the mules get thin and spare, as they must always be expected to become on service.

The Indian pad might be improved on; but its principle should be adhered to, as it fits to the baggage-animal's shape, be he fat or lean.

Colonel H. S. Obbard, Commandant 41st Bengal Infantry.

I should say the best framework possible was the commissariat department as it now stands, supplemented by regimental quartermasters, one non-commissioned officer per regiment, and one man per company (those suggested by me in answer 36, Native Army, for employ instead of tindal and lascars); a certain quantity of carriage being at all times kept up as part of the regimental equipment for conveyance of ammunition, cooking-vessels, &c. This would be maintained as part of the moveable column under the commissariat, but superintended and exercised regimentally. This carriage should always be pack, and suited to the country in which it is to be used. First and second reserve ammunition for cavalry and infantry should always be carried on mules, ponies, or bullocks. It is so much more easily got at, and the animals are not so conspicuous as elephants or camels.

In the hills, coolies would of course be employed. A certain number should be regularly maintained and trained.

(a) Commissariat department, supplemented by quartermasters; but as commissariat officers are apt to degenerate into mere purveyors, I think combatant superintendents should be appointed, as officers are appointed to other departments of the staff.

(b) As at present.

(c) As at present, supplemented by men of each regiment, as mentioned in first portion of reply.

(d) As at present; but care to be taken that men who become entitled to pension should be young and thoroughly able-bodied when enlisted, and that the ranks are weeded periodically, in view to the discharge of all who become physically unfit for work. This would be an important duty of superintendents.

(e) Officers and soldiers as at present.

With respect to non-combatants who have hitherto not been supplied with clothing, it would be a decided advantage to put them into uniform; but the expense would be very considerable. The blue grey loose coat worn by lascars, with a badge worked on the arm, would be the best clothing for them.

While on the subject of clothing, I would mention that it is much required for Native doctors. Medical pupils are provided with it; and why medical subordinates of the higher grades who serve with the army are not allowed any is difficult to be understood. Their pay is yet very small for their learning and position.

(f) As at present. But all soldiers employed on transport to have short rifles.

Under this head I may mention the utter unsuitability of the arms of drummers and musicians, who, in action, might have to be employed in carrying reserve ammunition. They are armed with swords of two descriptions—one very old fashioned, about a foot long, and neither useful nor ornamental; the other of new invention, and ordinarily less useful and ornamental than the other. When moving, a man's energies have to be greatly directed to the restraint of this weapon. The hilt destroys his instrument, and the blade gets between his legs and trips him up. The proper weapon for drummers and musicians is a carbine, or short rifle, ordinarily slung on the back.

(g) In a campaign, carriage of every description is required—rail, bullock-train, country cart, elephants, camels, mules, &c., bearers, and coolies.

(h) Every kind ordinarily employed for draught and pack carriage.

(i) Carts drawn by bullocks, for which harness is unnecessary, except on metalled roads. The ordinary country cart is the most useful and least expensive. Very light bamboo frames on wheels, drawn by a mule or pony, would be very useful for conveyance of wounded men.

(j) Those in ordinary use, which can at all times be procured.

I have lately received from the ordnance department several iron kajawabs for the carriage of entrenching tools; but they are unaccompanied by pack-saddles, and the issue of saddles has not been authorized. They do not appear intended for ordinary saddles, and for the time they are consequently useless.

Colonel E. Dandridge, Commanding 40th Native Infantry.

I am not prepared with a detailed plan, but give my opinion generally, that a transport department entirely independent of the commissariat should be organized; that it should be fully officered, and supplemented by a coolie corps, the men of which should be properly clothed and equipped; that a sufficient number of transport animals (mules, pack-bullocks, and ponies) for the moving at short notice of at least 20,000 men should be kept up in the vicinity of the frontier station. A percentage of such animals to be used, in peace time, by the

commissariat and the Government departments, and also be let out, under proper supervision, to private individuals and companies; also a reserve for above number should be arranged for.

Lieutenant-Colonel H. Worsley,
Commanding 7th Native Infantry.

The purport of my previous answer is that the system of moveable column requires reorganization, and that a certain amount of regimental transport should be maintained by all corps. To effect these measures without any great increase of cost, I propose—

I.—That moveable columns be in most stations abolished, in others reduced; and that the *personnel*, &c., now maintained be concentrated at a few great strategical points, such as Quetta, Kohat, Pindi or Peshawar, Mooltan, Lucknow, Assam, Poona and Secunderabad; the transport at such stations being organized so as to admit of great expansion in case of large operations.

II.—The cost of regimental transport to be met as suggested in answers 11 and 16.

(a) For each transport depôt at the great strategical points.

One or more commissariat officers, independent of all local commissariat duties.

(b) In peace departmental warrant officers, supplemented in war by non-commissioned officers from the cavalry and artillery.

(c) Low-caste Natives in full proportion to the number of animals maintained.

(d) Rather less than that of sepoy.

(e) Semi-military to secure uniformity.

(f) Europeans, swords and revolvers; Natives, tulwars.

(g) Wheeled carriage only to meet the exigencies of the ordnance and medical departments.

Remainder of permanent establishment to consist of pack-animals: except in Assam, where perhaps a small drilled coolie corps armed with carbines might be maintained.

(h) At each depôt, those most suitable to the country, and the nature of the operations in which they might be called on to take a share.

(i) Ambulance and ammunition carts only to be maintained, except of course where a Government bullock train organization already exists, which is no burden to the country.

(j) Have no technical knowledge.

Pack harness for a considerably greater number of animals than that permanently maintained should always be kept in store; as, though animals could always be impressed, time would be required to obtain suitable equipment for them.

Lieutenant-Colonel F. B. Norman,
Commanding 24th Punjab Native
Infantry.

I am of opinion that no scheme of the kind indicated could be carried out, except at a large annual cost. I consider that all that is required—but this too would involve expense—is to increase the moveable column establishments at the principal military stations. I consider that a very slight addition would meet all probable demands for

internal warfare. Increased railway communication and an increase of general prosperity will increase the wheeled carriage of the country: as witness the increase of wheeled carriage in the Punjab since it came under British rule. If I am right, it only remains to devise a scheme for external warfare; and I think that if a liberal payment is made, camels and mules will always be forthcoming in sufficient numbers. The great want is proper supervision over the transport animals; and for this purpose I do not consider it necessary to maintain a large European and Native establishment during times of peace. The animals in peace can be looked after by the commissariat department. In time of war, I would appoint an officer of the commissariat department to each division of the army. His *sole duty* should be to supervise the transport of the division. He should have under him an active subaltern for his personal assistant, and a subaltern for each brigade. A European non-commissioned officer should be appointed to each division of 100 animals, having under him two Native non-commissioned officers and four sepoy. The division to be divided into sub-divisions and sections: every animal to be branded with a number, and the non-commissioned officers and sepoy to always accompany the cattle of their sections when sent on convoy duty. The subaltern officers, the European and Native non-commissioned officers and sepoy, to be withdrawn from regiments not employed on the particular service. When transport cattle are made over entirely to regiments, the above supervision would not be required; they should be looked after regimentally.

The Native non-commissioned officers and sepoy whilst employed in the transport department to be armed with a carbine and to carry 20 rounds of ammunition. The camel and mule men to be armed with a short sword, *not* the old pattern light cavalry swords with steel scabbards that were served out to the camp-followers of the Khyber force.

All camel and mule men to be clad at Government expense in clothing suited to the climate.

Lieutenant-Colonel H. St. G.
Tucker, 41st Native Infantry, late
Superintendent, Transport Train,
41st Native Infantry.

I would suggest that a transport department be kept up. It should be a quite distinct and separate department from the commissariat, and be under the immediate orders of the quarter-master-general of the army. In the time of peace, it would only be necessary to keep up a small permanent establishment, which could be easily increased in time of war by volunteers from the army. In the late campaign the transport department was at first under the commissariat. Great friction ensued, and the system had to be abandoned.

In time of peace the transport department should consist of—

(a) *Officers*.—A director, who would rank as a deputy quarter-master-general; a personal assistant to the director, ranking as an assistant quarter-master-general; and four superintendents, ranking as deputy assistant quarter-master-general. These four superintendents to have charge of the four provinces, *viz.*, Punjab, North-West, Bengal, and Assam.

The duties of these officers would be as follows:—

1st.—The director would have the entire control of the transport department. His duties would be to find out all the resources of India (Bengal presidency) for transport, receiving reports from the different superintendents of the different provinces. He should draw up a set of rules for the

transport department, entering into the minutest detail of everything regarding the working of the train, the pay of the subordinates, the care and foraging of the animals. He should be able to give every information to the quarter-master-general regarding transport, carriage, the number available at each station, and where the best carriage is procurable. In time of war he should be kept informed of the intentions of Government, so that he might have ample time to collect all the necessary carriage, to provide officers understanding their work, and furnished with copies of all the necessary returns and forms for payment of all men and animals employed, so that there may be one form of pay accounts and no delay or loss sustained in settling the accounts after the war is over. In time of war the whole of the transport, *viz.*, regimental, departmental, and general, should be under his orders. The commissariat should keep him informed what amount of supplies they want carried and where to, and he should arrange to give them the requisite amount of carriage. He should be allowed (if required) to make any contracts for carrying supplies, and he should be answerable that the contract is properly carried out, or that Government should be protected in the contract from any loss caused by negligence. He should (or, if he is not required, the senior superintendent) be with the general commanding the forces, who should give him every assistance in his power, *viz.*, proper escorts for his convoys, and, if necessary, working parties to improve or make roads. The director should make himself perfectly acquainted with all the different roads, about the resources of the different villages for feeding his transport and men; and, if necessary, he should be allowed to indent upon the commissariat for the amount of grain he deems requisite for the feeding of his animals. The sole responsibility of the transport being upon him, he should receive every possible assistance from all departments, and he should have full sanction given him for all necessary expenses, such as buying forage for his cattle, building sheds, repairing roads, bridges, &c., &c.

In time of peace his office would either be at Calcutta or with army head-quarters.

2nd.—The personal assistant to the director should be a man that the director knows well, and has perfect confidence in, as there would be so much work organizing the train, making out rules and regulations, that they would have always to be together. It is therefore a matter of great importance that the director (certainly at first) should be allowed to choose his own personal assistant. The personal assistant's duties would be to have charge of the whole of the office establishments belonging to the director and be always with him; he would receive all the reports from the superintendents and others belonging to the transport, and make out from them a report for Government of the resources of the country; he should check all weekly returns of the transport kept up at all the different stations. In time of war, all the returns of the different officers in the transport department should be sent to him and checked; and he should make out full returns of the whole of the transport every month for the information of the Government and quarter-master-general's department. He should receive all cash statements from the different transport officers not later than the 10th of every month, check them, and send them with all their receipts, vouchers and copies of sanction, to whoever is appointed pay examiner for audit; and on return from the pay examiner's office, as duly passed, keep them for reference in his office. He should therefore be allowed at least Rs. 150 a month for office allowance.

3rd.—The superintendents would have the charge of the whole of the carriage in the province to which they belonged, and be responsible to the director for the management of every thing connected with the transport department in their province. They should be in communication with all the district officers in their province, and ascertain from them the amount of carriage for hire or for purchase procurable in their districts, also full information regarding the time it would take to collect carriage; and they should keep the director informed of every particular, and send him a return showing the description and amount of carriage procurable. They would have charge of all the moveable column carriage at every station in their province where carriage is kept up, and they will be responsible as to its efficiency. They will report to the director the strength and condition of the moveable column at each station, and state whether they think it should be under the immediate supervision of an assistant superintendent or of a conductor or non-commissioned officer. Very little carriage would be required to be kept up—only enough to carry on the duties necessary in a station. The director on receiving these reports from the superintendents would forward them on with any remarks or suggestions to the quarter-master-general for the orders of His Excellency the Commander-in-Chief. The superintendents in the cold weather should make inspections of all the carriage at the different stations, and satisfy themselves that they are kept in good condition, and that their orders are thoroughly carried out. No carriage should be taken for Government, whether hired or purchased, without being first inspected and passed either by the superintendent, transport train, or one of his assistants, so that only animals good and fit for use may be chosen. In the late Afghan campaign numbers of mules and ponies were hired by the civil officers from the different districts in the Punjab and sent to Mooltan, and on arrival were so entirely unfit for any use, that committees had to be held, and a very large number were rejected as utterly useless and had to be discharged, thereby putting Government to a very great and useless expense. By a superintendent of the transport department examining all the animals and marking those chosen, this extra expense would be obviated, proper animals would be at once sent up, and there would be no delay in having to return bad animals and wait for new. The civil officers would of course give the transport officer every assistance and collect the animals for him to inspect.

4th.—Assistant superintendents.—If it could be managed, it would be very desirable in time of peace to have one assistant superintendent to assist every superintendent, so that when the superintendent went on leave or was sent on other duties, the assistant could act for him. In time of war there would be assistant superintendents with every division of the force who would be under the orders of the superintendent. They would be furnished with all the rules and regulations, forms of cash statements and returns, so that there should be no delay in keeping Government informed of the efficient working of the same; and the cash statements being all of one form, there should be no difficulty in settling the accounts. Trustworthy conductors or non-commissioned officers might be placed in charge of the moveable column carriage at the different stations. They would be under the orders of their superintendent, and should report everything to him regarding the carriage under their charge, and send him weekly returns. They should also furnish any carriage necessary required in

the station on a station order from either the assistant quarter-master-general or assistant adjutant-general, and see that the carriage is properly returned, and that the animals have not been overlaid or been in any way injured.

(b) *Nature and position of subordinates.*—It is difficult to make any remarks about this, as in time of peace only very few would be required for work with the moveable column. In time of war, with pack-animals, bullock carts and coolies, Native subordinates would have to be entertained as chowdries, naib-chowdries, jemadars, &c.; and it would be a very good thing if some good steady European non-commissioned officers were allowed to join so as to supervise the actual working.

(c) *Men (European and Native).*—Both. European non-commissioned officers would be most useful to supervise everything; the Native subordinates would be held responsible that the orders were carried out.

(d) *Pay and pension.*—European non-commissioned officers to get from Rs. 20 to 40 a month extra to their pay and free rations, and would get their pensions as belonging to the army. Very few would be required to be kept on the permanent establishment. Those that had been kept on might, when retiring from the service on the pension they were entitled to, if they had done particularly good and long service, receive from Government as gratuity one or two years' pay. Regarding Native subordinates, they would receive such good pay that they would not require pensions. They would be paid according to their positions. For instance, chowdries would draw Rs. 100 a month; but out of this they should be made to keep all the gear in working order, and keep a munshi or Native writer to keep all the accounts, &c. Naib chowdries should receive Rs. 50 a month, and be answerable for the good condition of the carriage under his charge, paying for all medicines for sorebacks, &c. Jemadars Rs. 20 a month. Surwans, muleteers, &c., Rs. 8 a month.

(e) *Clothing.*—In time of peace the European subordinates would receive their uniform, free rations and quarters, or compensation in lieu thereof from Government; but in time of war they should be furnished with a small tent and a waterproof sheet.

Native subordinates in time of peace do not require anything to be given them, except in stations where carriage is kept up, and their lines might be built for them near their animals. In time of war they should be supplied with a waterproof sheet, a coat, a pair of pyjamas, a pair of boots, and a blanket.

(f) *Equipments and arms.*—These are not required for Native subordinates, as in the late Afghan war it was found that they were utterly useless to the men.

(g) *Description of transport suitable, wheeled, pack, coolie, &c.*—This greatly depends upon the country to be travelled. If possible, wheel carriage is the best, then pack-animals, and lastly coolies.

(h) *Animals to be employed.*—The best animals no doubt for transport are mules, but they only carry two maunds; second, ponies, also two maunds; third, camels, carrying four maunds; fourth, pack-bullocks, carrying two maunds (bullocks, however, over stony ground require to be shod); fifth, elephants, carrying ten maunds, but these are very delicate animals, requiring the greatest care, and it is very expensive feeding them.

(i) *Nature of carts and harness.*—Carts should be made of the very lightest and yet strongest pattern. The Maltese carts used by General Phayre in the late Afghan war were of a capital pattern, and did excellent service; but what would be of still more use, would be light carts, made with covers to them, which would be locked up, thereby saving the stores from being spoilt by rain or lost by theft. The harness should be the best Cawnpore harness and made to fit the animals.

(j) *Nature of pack-saddles.*—Pack-saddles should be very carefully made. They should be very light, still well-padded, and must fit the animals; otherwise they will get sorebacks and become useless.

Major Sir B. P. Bromhead, 40th
Native Infantry.

I am of opinion that in time of peace it would not be necessary or advisable to maintain even the framework of a transport establishment as regards *personnel*. The regimental transport system, the introduction of which I recommend, requires no special establishment to work it in peace time. Any regiment, department, or individual requiring carriage for any purpose would obtain it direct through the civil authorities. But in time of war a special establishment would of course be necessary. Therefore, what is really required is that there should be published such a simple and complete code of rules and regulations for the organization, equipment, and constitution of a transport service in time of war, that any officer suddenly appointed to it could learn at once what he had got to do; how to set about it; whence to obtain his carriage and supplies; what subordinates to entertain; what orders to give them; what pay to give them; what books and accounts to keep, and so on. This is all that is necessary. There would never be any difficulty in obtaining carriage. Recent experience has sufficiently demonstrated that there would never be delay or inconvenience on that score. Where delay and confusion arise (and did arise in this Afghan war) is where officers and men employed in the transport have not, each, defined duties and responsibilities. I enclose a separate memorandum setting forth in some detail what I consider to be the proper duties of each transport officer and subordinate, and rules for their guidance under all circumstances. They are of course open to modification on many points; but I submit them as the results of my own experience gained in this last campaign. They are enlarged from my own notes made on the spot.

Major A. C. W. Crookshank,
Commanding 32nd Pioneers.

In the replies to other questions I give my ideas on this subject. Generally I consider that local carriage should be maintained to the extent advocated in answer 12; and this carriage should be apportioned to the various stations according to their power of utilizing it, and in some stations according to the chances of war. This carriage should be under an officer, warrant officer, or non-commissioned officer of the commissariat department, whose particular business would be the charge of the local transport. Commissariat knowledge is more wanted than transport knowledge, and that department mostly uses the carriage. Regiments should know to a fraction of a camel what they need; and the local commanding officer should know where all his local transport is, and when he can lay hands on it.

The carriage should be freely used in peace, and, on war breaking out, made over to regiments or drafted off to the base of operations.

Replying to queries—

- (a) The officers would be the officers of the commissariat department.
- (b) The Native subordinates would be entertained by the commissariat department and be enlisted under the Native Articles of War. European subordinates as at present. Assistance in the subordinate class to be obtained from British and Native regiments.
- (c) The men, *i.e.*, drivers and attendants, should be enlisted for all Government carriage and all be placed under mates, muddadums, jemadars, &c., and be regularly trained to their duties, European assistance being given from British regiments.
- (d) The pay and pension to be under commissariat rules (Civil Pension Code); that of cattle attendants being regulated according to whether the carriage is purchased or hired.
- (e) The clothing would be the commissariat uniform. All Native establishments to be dressed as the followers of a regiment in lungi, khaki blouse, khaki pants, puttees, Native shoes, and a distinguishing badge.
- (f) For equipment and arms, that of the Europeans would remain as at present, with the addition of a revolver. Natives only require a brown belt and a country tulwar.
- (g) The description of transport must vary according to the locality and the transport available. The breeding of camels should be encouraged, and as many employed as possible. A proportion of elephants should also be maintained for peace transport; but, above all, a very large proportion of mules, which should be divided among the various hill stations, and there employed in water and other transport. Kahars should be enlisted for general service, be attached to hospitals for peace duties, and drafted when war breaks out to regiments proceeding on service, substitutes being locally entertained.
- (h) The animals are mentioned in reply to (g).
- (i) As regards carts, a light cart should be constructed and generally used instead of the ordinary country cart, which in some places are of a bad pattern. Component parts should be kept in stock and moved by train to the basis of operation, cattle for them being locally entertained or transported thence in trucks. The country *ekka* should be largely used with pony transport.
- (j) The present pack-saddle is as good as one can want.

Lieutenant-Colonel J. J. Boswell,
Commanding 2nd Sikhs.

My experience does not take me beyond the Punjab. For this part of India I would suggest a cattle establishment of camels and mules be attached to every Native infantry regiment, the same as obtains on the frontier, the commanding officer being held responsible for the animals being properly fed and cared for. This would accustom officers and men to the care of baggage-animals; the establishment to be available for Government and private purposes (the latter on payment), but to be equipped and fed under orders of the commanding officer.

The number of animals attached to each regiment would vary in number according to the duties required at the station where the regiment is located. Thus at Peshawar and Ferozepur, where there are arsenals, a larger number would be required than at stations where there are none.

Commanding officers should work through their transport officers, each of whom would virtually be the superintendent of the transport for the station. Where two or several Native regiments are located, orders for supply of transport for convoys to be issued by the senior superintendent of transport. For the whole province there should be one superintendent of transport, whose duty it would be to inspect the transport of the whole province at least once a quarter, and to bring any defect he might notice to the notice of the commanding officer under whose charge the animals were.

A list of private baggage-animals should be kept up in every district office, compiled from lists supplied by tehsils (sub-collectorates); and in the event of it being necessary to augment the Government transport, the number of animals required should be requisitioned and bought by Government through the general superintendent of transport.

Transport officers of regiments not proceeding on service might be summoned with parties of soldiers to act as inspectors, receiving a staff salary of Rs. 5 per month while so employed.

In the absence of a transport officer from his regiment, his duties would be performed by a wing officer. In a few years Government would possess a valuable staff of officers accustomed to look after and manage baggage-animals. I believe in Abyssinia two of the best officers of the transport train belonged to the Punjab Frontier Force.

(a) *Officers.*—One superintendent of transport for each province. One transport officer to each Native infantry regiment.

(b) *Nature and position of subordinates.*—One inspector (Native soldier) to 100 animals.

(c) *Native drivers.*—1 to 3 mules, 1 to 4 camels.

(d) *Pay of mule and camel drivers.*—Rs. 8 per month. You cannot get good men on less pay. No pension on discharge. After ten years' service gratuity of three months' pay; after fifteen years, gratuity of six months' pay. Same rules for family and wound pension, if killed or disabled in action, as obtains for Native soldiers.

(e) *Clothing.*—Drab (khaki) blouse and knickerbocker trousers; drab turban, blue fringe; puttees and Native shoes.

(f) *Equipment and arms.*—Native tulwar with shoulder belt and waist-belt, brown leather.

(g) *Description of transport suitable, wheeled, pack, coolie, &c.*—On the Punjab frontier pack only.

(h) *Animals to be employed.*—Camels and mules.

(i) *Nature of carts and harness.*—Carts could only be used on good roads, which do not exist in the hills.

(j) *Nature of pack-saddles.*—Ordinary Punjabi *palan* for camels and Native pack-saddle for mules.

Lieutenant-Colonel F. T. Bain-bridge, 4th Sikhs.

I would suggest that instead of keeping up the supply of transport as at present under the commissariat, that carriage should be given each regiment of the army of the Bengal presidency to be looked after by the quartermaster in times of peace, as follows :—

		Camels.	Mules or ponies.
British	{ Cavalry ...	60	50
	{ Infantry ...	120	80
Batteries	{ Artillery ...	30	25
	{ Cavalry ...	20	20
Native	{ Infantry ...	55	40

This carriage would be available for work in cantonments, commands, detachments moving, bringing in supplies from districts. It also could be used by the department public works, &c., and when not otherwise wanted let out on hire within prescribed limits.

It would also be liable to be drawn in times of relief, one regiment supplying another to make up full complement for a march, and would be sufficient to move a regiment in fighting order for a 2 or 3 days' expedition.

I would also suggest that a large reserve of animals purchased be kept up in districts made over to the civil officers to be hired out for trade, &c.

Bullocks and carts to be used as bullock-trains on any road where there would be sufficient traffic to pay would also be a good reserve. Where camels could not be used, as in Bengal, carts or wagons would be given to the regiments. I think cart and wagon carriage should be used whenever roads can be made in preference to all other. It carries most, and forms its own defence against attack, by being enlarged.

(a) The whole to be under 1 director-general, 8 directors of circles or districts (each circle the same as musketry circles), with an assistant officer. Besides this, officers from regiments qualifying for the transport would be attached to districts.

(b) Native inspectors to be taken from the non-commissioned ranks of the Native army; also the Native army would supply sepoy to act as duffadars in the proportion of 1 to every 20 drivers in time of war, 1 to 25 in time of peace.

(c) I am of opinion that Natives only should be employed as transport drivers, to be composed chiefly of Punjabis (Kuthris, Sikhs, Punjabi Mussulmans, and Hindus) in following scale :—

Peace footing—

1 man to 3	...	...	Mules
1 " to 5	...	...	Ponies*
1 " to 1	...	...	Camels.
1 " to 12	...	...	Wagon
War footing give a man 2	...	...	Cart
1 " 4	...	...	Bullocks.
	...	...	Mules
	...	...	Ponies*
	...	...	Camels.

The men to be of good physique. Transport duty in time of war is very arduous and fatiguing, and any man will not do; it requires strong men and of a certain height to load and unload camels, mules, &c.

In order to have a reserve of trained men (and untrained men for transport are a grand mistake), they might be enlisted for three years; but any man after one year (giving a substitute) might leave on a retaining-fee and go into the reserve. All these reserve men to understand that all or any are liable to be called on for service at any time.

All might assemble once a year for a short period on full pay to practise and keep themselves up to their work.

(d) Pay and pension of rank in army for inspectors and subordinates, with an appropriate staff. Drivers' pay the same as in the cattle establishments of the Punjab Frontier Force; and pensions for wounds or to family the same.

(e) Khaki drill jumpers or blouse jumpers; trousers loose and to ankle only, where they should be tightened in; pugrees of some distinguishing color to mark "Transport"; a good blanket and strong Native shoes with nails.

In a cold climate, add poshteen, puttees, another blanket, and small tarpaulin.

(f) Leather waist-belt with bag and frog, havresack, water-tin, chargal (small mussuck) to be carried under belly of pack-animal, and three yards of good stout cord.

Inspectors, a tulwar and pistol (the inspectors might ride a spare pack-pony); subordinates, short snider carbine and sword bayonet (artillery) as issued to the transport in Abyssinia. The drivers to have a kukri or Afghan knife (kukri for choice), and in war time each to have a pistol, and be taught the use of them as a weapon of defence.

(g) and (h) Carts and wagons, camels, mules, ponies, and bullocks in the plains (also elephants, but they might remain under the commissariat); in the hills mules, ponies, bullocks, and sometimes camels. Bullocks in the hills are very good to carry grain and fodder, and can be driven in herds of 10 and 12 by one man; they do not carry other loads well.

Coolies can also be employed in the hills, but, unless hillmen, are not much good.

(i) I have had no experience of wagon transport, and cannot suggest anything. Harness should be as simple and strong as possible, and have breast-bands in lieu of collars.

Bullocks would be yoked.

(j) Camels.—The common *palan* generally used.

Mules and ponies.—The best saddle I have seen, and had practical experience of, is the Otago; but it should be smaller than was generally used in Abyssinia, to suit the animals of this country. I have thoroughly tried saddles of all sorts, and have come to the conclusion that the Otago is the best. It is easily adjusted, easily and securely laden, and kindest to the animals; it also has the advantage of being a good riding saddle for sick or wounded men.

The saddle with the iron cradle now chiefly in use is also a good saddle, but is very apt to be shaky and rickety on the back; and also to pinch when the animal is laden for a long stretch.

Major A. G. Ross, 1st Sikhs.

I cannot answer this in detail.

It is impossible to keep up a complete transport establishment fit for war in peace; but Government could settle how many transport centres they want. At these I should keep up troops of mules—the only animals I would work in this way. I would have many troops of 25 or 30 animals each forming skeleton troops, to be filled up with animals to 100 per troop in war. I would keep the jemadars complete and duffadars half complete, at one jemadar and two duffadars to a troop. These men would always have training; and on war breaking out, I would complete the duffadars to four per troop by promoting two constantly employed muleteers. In peace I would have muleteer to three mules, *i.e.*, eight or ten men; and in war I would increase these by men of suitable class accustomed to mules, *viz.*, Kumiards, Banjaries, Loteanas, Khatties, &c. The new men would soon learn under the skilled jemadar and duffadars.

Officers.—In peace two officers at each centre dépôt, two non-commissioned officers:

In war one officer to 1,000 mules.

One non-commissioned officer to 500 mules.

Ten troops at 100 each under each officer.

Ten jemadars (all ready).

Forty duffadars (20 ready and 20 promoted from skilled muleteers).

Muleteers 10 ready; fill up to 3½ at 1 to 3 mules; to 50 at 1 to 2 mules, which is far better.

The above touches on (a), (b), (c).

	Per manseft.		Per manseft.
(d) <i>Pay</i> —		Duffadar	... 10
In peace jemadar	... 15	Muleteer	... 6
In war to be raised as necessary according to the service required.			
<i>Pension</i> —		Duffadar	... 6
Jemadar	... 10	Muleteer	... 3

(e) *Clothing.*—Stout blouse and knicker-bockers, khaki, good shoes.

(f) *Equipment and arms* {swords
drivers} for all.

Jemadars, duffadars, *revolvers* also.

(h) & (g) My remarks apply only to mules. I would not keep up any camels, carts, donkeys, or bullocks. I would contract for these as wanted, using country gear and packs.

(i) I am not up in carts.

(j) *Pack-saddles, mules.*—I beg to append a report by me, No. 42 Q.M., dated 17th March 1879, to Assistant Adjutant-General, Punjab Frontier Force, which shows my views on mule pack-saddles both for purely military and for commissariat work. (See subsidiary note at end of answer.)

No. 42 Q.M., dated Jellalabad, 17th March 1879.

From—MAJOR A. G. ROSS, Commanding 1st Sikhs,

To—The Assistant Adjutant-General, Punjab Frontier Force.

With reference to No. 368K.,* dated 23rd November 1878, which forwarded copy of *letter*, dated 17th October 1878, from Special Committee on Artillery Equipment to Adjutant-General in India, and in

* From Military Secretary, Punjab Government. reply to your No. 519C., dated 11th current, circulating copy of Colonel Black's No. 480, dated 28th February 1879, with copy of my demi-official letter, dated 2nd January 1879, to that officer's address, I beg to state as follows.

I. The subject of pack-saddles is a vexed question. Some prefer a cheap, light, simple saddle, like the Punjab pad or one of its modifications, *i.e.*, saddles always used with saletahs and ropes or with *chuffs* and other contrivances of the "double-bag" order. Others prefer a stronger, dearer, and more lasting saddle of the patterns used with hooks and loading straps.

II. I have not enough experience to treat of each known pattern of saddle separately, nor does space and time admit of this; but I will make some remarks on the two types of pack-saddle referred to in my previous paragraph. In my remarks on Punjab pads and their modifications, I do not refer to Cabuli palans, which are saddles without trees or frameworks it is true, but which seem to me to be of a special type, possessing many advantages, and perhaps only the two disadvantages of weight and of a decided tendency of their loads to slip and slide on ascents and descents.

Cabuli palans put on one side, as being of a special type.

only the two disadvantages of weight and of a decided tendency of their loads to slip and slide on ascents and descents.

Different points from which packs are viewed.

III. People writing on pack-saddles view them from the standpoints of—

- (a) private use by travellers, &c.;
- (b) use in the field by regiments and batteries;
- (c) use by traders in hilly countries;
- (d) use by the commissariat and transport departments of an army in the field for stores and provisions.

In this letter viewed from point of view of Government service. Two main kinds.

My remarks refer merely to the service of Government with an army in the field; and I would point out that this Government service is of two main kinds—

- (a) carriage of ammunition, military stores, regimental baggage *with the troops*; and again
 - (b) carriage of stores and provisions by the departments of supply.
- I allow that it is probably a very good plan to have two kinds of saddles in use—one for permanent use with troops for the many purposes and varying kinds of loads required by troops; and one for

use by the supply departments for the carriage of provisions and fodder and such like stores. I think the latter kind of pack may be of a cheaper, slighter kind; but for the permanent use of troops and for such purposes as the carriage of ammunition, men's bedding, tools, tents, battery stores, engineer park stores, &c., &c., I think a Government constantly having to carry on wars in hilly countries should possess a thoroughly strong, durable, lasting saddle on to which loads can be so fastened that they cannot slip or slide and shift on any ground on which the mules can travel.

Hills full of steep ascents and descents are the places according to which pack-saddles must be judged. In plain countries camels are preferable to mules; and if only the roads be good enough, cart carriage is preferable to all kinds of pack-animals.

Punjab pads and modifications. Their advantages, six.

- (a) Cheapness in manufacture.
- (b) Lightness.
- (c) Facility of repair in most Asiatic countries.
- (d) Capability of being understood by rough and untrained drivers.
- (e) Facility of carrying spare packs required to replace losses.
- (f) Facility afforded by it to muleteers riding the mules to water or for forage.

IV. The advantages of packs of the type of the Punjab pads and its modifications are—

Punjab pads and modifications. Their disadvantages, five.

- (a) Want of strength to resist rough usage and ill-treatment.
- (b) Want of durability under exposure.
- (c) Difficulty of securing loads on it in ordinary rough ground.
- (d) Impossibility of doing so on really bad ground.
- (e) Want of some stiffening material or of some framework or tree to resist the pressure on the rollers, of the salectah knot, or of the weight of a muleteer riding on his pack to fetch forage, &c.

The disadvantages are—

The advantages enumerated from (a) to (f) are great, and are a temptation to the adoption of a good pattern of some one of the country saddles possessing these advantages, and of which doubtless the saddle No. 2 of the Simla Committee of 17th October 1878, described as a modification of the Punjab pad, is a good specimen. I have not seen this saddle; but I understand that its general principle is that of the Punjab pad. I see no objection to the use of such a saddle for the carriage of stores and provisions from post to post on a line of communications, or in convoys working in the rear of an army. But I would urge that for purely military purposes Government should possess a better sort of saddle. A saddle capable of resisting for some time *without repairs* the wear and tear of hard service. A

Saddle recommended for purely military operations.

Pack-saddles.

saddle to which loads can be fastened so securely that they cannot slip or shift unless the saddle-girth loosen or give way; and I maintain that for these ends some pattern of saddle is required which is used with hooks and loading straps and which is made of strong durable materials. Money spent on the manufacture of such is well laid out, and it is worth while for Government to maintain small establishments for the repair of such better and superior saddles. The exact pattern would have to be selected by men accustomed to make pack-saddles, and in their manufacture arrangements could be made to render them suitable for riding purposes at a walk. When required, salectahs can always be used with such packs.

V. In military operations over difficult ground it is of primary importance that the loads of ammunition, food, great-coats, &c., which are carried after the troops should not shift. As it is, everything is against the animals and their attendants and escort, and the extra delay caused by readjusting loads is intolerable. Nothing ensures steadiness of the load save hooks and loading straps.

The two rings proposed by the Simla Committee on the leather pad are, I fear, not sufficient. They will save the load from falling off; but it will shift on ascents and descents, and have to be readjusted. Salectahs, however well packed and tied, however well slung, are most aggravating on steep ascents and descents, or even on cut-up ground, where the animals have to jump. They, moreover, require much art in tying and in loading in the dark. Careless men cause great mischief by tying them badly, and great delay in forcing the escort to stop and re-tie and trim the bad loads. In pad saddles, unless there is some kind of framework, or unless there is some stiffening for the saddle rollers, or unless there is great thickness of cloth or blanketing above the rollers, the knot of the salectah crossing the animal's back presses on and flattens the rollers injuriously, and in time (and a very short time too) bruises the animal's back. Baniahs and traders marching at their ease, and on their own terms, and at their own will, constantly remedy this mischief. But in military operations the needs of the saddle and the care of the animals are not the leading idea. The army marches with energy to attain a certain object and the baggage follows as it best can. I do not allude to the heavy baggage but to the necessary baggage, ammunition, great-coats, hospital boxes, cooking-pots, food, &c., which must follow the troops wherever they go. Often the baggage is laden in the dark, and stands with the animals laden for several hours before it can move off. Checks occur the whole march through, and camp is reached at or after dark. The baggage of a large division sometimes takes all day (say eight or nine hours) to do ten or twelve miles. On arrival in camp, animals have to be watered and fed, and men have to be (often) rationed, and have to cook and feed. One muleteer is allowed to three mules; and he has not, under any of these circumstances, the chance of looking at his packs. Next day, and perhaps for several days, this goes on; and few, if any, occasions offer for examining and cleaning and stuffing and resettling the rollers of packs, as a baniah does perhaps daily, or at least whenever such is required. This work, not uncommon in military operations, is bad for all saddles, but very much worse for pads with which salectahs are used, as the knot of the salectah presses on the centre of the rollers, flattens them rapidly, and then bruises and galls the animal's back.

Sometimes the light baggage even falls behind the army, and is left in difficult country, not coming up for two or three days. On such occasions superintendence is had, and careless drivers are much left to themselves.

The men, too, are often tired and hungry, and their energies in the care of packs flag. Under these circumstances pads, across whose roller salectahs lie, are certain to get out of order, and many animals are injured.

VI. In conclusion, therefore, I would urgently represent, that the military service of Government (save for purely commissariat purposes) requires a

Conclusion and recommendation.

stronger, more durable, and better-made saddle than the Punjab pad, or any saddle of a similar nature, and that as many military loads as can be carried should be carried slung on well-placed hooks as in the mountain batteries, which mode ensures the loads being firm and steady under all circumstances.

For foraging purposes, salectahs or quingurs can be used with any saddles, as also for any of the few military loads which cannot be packed in loading straps.

At all central depôts Government should keep up a supply of pack-saddles and gear for mules. It is ruinous both as regards cost and efficiency making up gear and packs at the hands of contractors when emergency arises. Government cannot maintain the men and animals of a large transport corps in time of peace. But it should maintain all over the country at central depôts large stores of good strong gear and proper pack-saddles both of the durable, expensive kind required for pure military work, and of the slighter pad sort, which will do well enough for pure commissariat work along the lines of communications: *vide* my letter No. 42Q.M., dated 17th March 1879, preceding. The early demand for saddles and gear would thus be properly met. I should keep 12,000 sets ready, just as ammunition, &c., is kept. Everything should be well made—saddles, chains, pegs, blankets, headstalls, bridles, &c. It is cruel waste letting contractors at high prices, in times of need, make up shoddy gear, saddles with bad cheap leather, rotten thread and earthy iron. With good gear, ready and skeleton troops, with properly trained supervisors, Government would at the sound of war have only to buy mules and enlist men. The mules generally come ready trained to loads; and if the men are muleteers, they are already half-trained, and quickly learn discipline when incorporated into a system.

N.B.—Mules should be fed and watered by bugle call. It trains the men. Roll-calls should be daily held as in regiments. Government should also keep up good bullock pads to a certain extent, say 2,000.

Good pads can be seen among the Afridis and Khattaks, and in the Punjab generally. Seemingly in war Government fails to hire or buy proper gear with bullocks; and hence I would have a supply of pads ready, as pack-bullocks work well in rear of an army. The packs used at Jellalabad, on the Khyber line, and now in Kohat for Government bullocks are useless and are disgracefully made. It is shameful to see the packs of the Government bullocks shapeless, slight, and badly made alongside those of the Khattak and Afridi traders.

Camels and donkeys.—I do not think Government need keep up any gear or pack supplies for these animals. The country system works well, and Government has only to foster it, and in war direct the labors of contractors, and, throwing aside officialdom, help them in the numerous pinches which come on in war time.

Colonel W. A. Gib, Commandant
25th Madras Native Infantry.

I am not sufficiently acquainted with any transport scheme to venture to give one. To be of any use in war, it would require to be of considerable strength in peace; and that would be very expensive. The kind of carriage required would be that best adapted for the country in which the war was to be carried out. The same may be said of the animals; and it would be no use having carts and harness, even of an improved sort, that the animals were not accustomed to.

Colonel S. Edwards, Commandant
2nd Bombay Native Infantry.

Although it would be impossible to keep up a large transport establishment during peace time, still it must be borne in mind that the soldier, though highly trained, is not a perfect fighting machine, unless he can be moved rapidly and at a moment's notice into the position where his services are most required. Want of mobility is a loss of power. I am of opinion, therefore, that it is necessary to maintain a considerable amount of transport ready for immediate use and capable of expansion to meet the requirements of a war.

With this view sufficient transport train should be kept up along the frontier, so as to move three divisions of 5,000 men each cross the border.

At certain stations further south, the train should be maintained at such a strength as to be able to move a brigade out of each division, complete in every respect, into the field.

(a) A field officer, with a staff officer or assistant, to be in charge of the commissariat and transport duties of the division.

A field officer or a captain in charge of the commissariat and transport of a brigade. A captain in command and subaltern to assist in each troop of the train.

The working unit to be the troop, divided into four or more sections; each section under a Native officer, with a proper proportion of non-commissioned officers.

The troop might consist of one or more sections of mules, or of camels, carts, or coolies, or all the sections might be of one description of carriage. It would be preferable to have them mixed, so that the officers might become acquainted with the capabilities and working of each.

(b) The subordinates should be chiefly Native officers and non-commissioned officers who have served in the cavalry of the regular army and have passed on to the reserve.

(c) The men should all be Natives, and mostly those who have served some time in the cavalry and infantry of the regular army.

(d) The pay to be slightly on a lower scale to that of the regular army in time of peace, with certain field allowances on the outbreak of war.

Pensions to be similar to those of the regular army for those men who have served in the cavalry or infantry, but on a lower scale for others.

(e) Clothing to be of a serviceable color and material, warm and light—the former consisting of tunic, breeches, leggings, and shoes supplied by the State every third year and the great-coat every six years; all the light and under clothing to be kept up by the men, all the details of which would be settled in a better manner by the officers of the corps.

(f) The men to be armed with the Native pattern sword, and the Native officers and non-commissioned officers with swords and revolvers. Each man should carry either a hatchet for chopping wood or a sickle for cutting grass.

(g) Mules or camels for the fighting line.

Camels, carts, or coolies for the line of supply.

Elephants for heavy ordnance and siege train.

(h) The mule is the best description of transport, and should, if possible, be exclusively employed in the fighting line. He is a quiet mover, can traverse hilly and difficult country, and pass along narrow traces on hillsides.

The pack-bullock is also a good description of carriage. He is not, however, so easily controlled, as he has to be driven instead of being led.

The camel is an excellent means of transport for supply purposes along plains or sandy tracks. He is not good across hilly country, and suffers too much from variations of temperature to be employed over great heights.

The elephant is the most suitable for the carriage of heavy ordnance and siege trains. He is not so strong in constitution as he looks, and requires to be well protected from the cold and wet.

The coolie or porter of the country is most useful as a means of transporting light weights over hilly country. It would be most hazardous, however, to employ him with the fighting line, as he might bolt or desert at the most critical periods.

Along lines of supply he would be not only most useful, but it would be politic to employ as many as can be obtained locally.

(i) The Maltese pattern cart for mules and along fairly good roads, and the Bombay hackery pattern for bullocks and along bad roads. Leather breastband with rope traces for mule harness.

(j) The Otago saddle is the best for large mules; but the common pad with sulehtahs, if properly made and carefully adjusted, is good both for large and small mules. A large stock of carts, saddles, and packs should always be kept up at the head-quarters of each division of the transport train.

Colonel J. I. Willes, Commissary-General, Bengal.

Abolish at once every so-called moveable column in the country, and concentrate whatever carriage is kept up on the frontier beyond the line of rail, so that it may be ready on emergency to meet troops sent up by rail and take them to required bases. Nothing caused so much embarrassment in the late war as sending on troops by rail to Jhelum or

Mooltan or Sunkkur, the first especially, without any carriage ready to take troops on. As a matter of fact, it did not happen that any troops were detained, as anticipated by military authorities, who ordered a standing camp for troops arriving by rail. Owing to the good management of the commissariat officer at Jhelum, every man as he arrived was fed, and every regiment moved on without delay; but Jhelum was the centre of the best camel districts. As the rail advances, the supply of camels there will decrease, as they have everywhere in India. With the extension of railroads, very soon the camel will be as scarce in India as the kahars have become; and in another 10 or 15 years hardly any will remain. Where there is no demand, they will not be bred.

I am not prepared to propose any scheme for a transport service beyond this, that, let whatever is kept up, be suited for packing on railways. I would not attempt any transport service simultaneously over India; and, with all deference, I submit the subject should be considered by a separate committee, composed of thoroughly practical men, with a knowledge of India generally,—its cattle in various districts. To attempt anything on the European model can never answer. There is no patriotism among the agricultural classes of India, who are the owners of carriage. There is no real sympathy for the British Government. Natives would in time of peace make fair promises, but would avoid carrying them out by every sort of trickery and deceit; and I would urge that no reliance or faith be placed on them as far as regards obtaining carriage for work out of India.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The Madras bullock establishment consists of one driver to every two draught bullocks; and one darogah, two chowdries, and four duffadars to every one hundred bullocks. Their pay is—

	Rs.	A.	P.		Rs.	A.	P.
Driver	5	12	0	Chowdry ...	...	12 0 0
Duffadar	7	0	0	Darogah ...	...	17 0 0

The drivers are on a permanent establishment, and are not discharged when their bullocks die, but are retained until other bullocks are procured. They are entitled to a pension of Rs. 2-14 after thirty years' service. They receive no clothing; and a distinctive dress to distinguish them from other camp-followers is much required. It might consist merely of a turban of a particular color and shape and a lascar's jacket. They are too poor to provide themselves with proper clothing.

The camel establishment consists of one surwan to every two camels, and one dubash to every twenty-five camels. Their pay is—

	Rs.	A.	P.		Rs.	A.	P.
Surwan	8	0	0	Dubash ...	...	14 2 5

The surwans are not on a permanent establishment. They are discharged the moment their camels die; and if one camel dies, their pay is reduced one-half. This makes their livelihood so precarious, that there is not much hold over them. They should be placed on the same footing as bullock-

drivers, and be retained when their camels die until fresh camels are purchased. They should also receive some clothing, as recommended for bullock-drivers.

The elephant establishment consists of one mahout and one cawady coolie to each elephant, and a fouzdar to ten or twelve elephants. Their pay is—

Cawady	Rs. 6	Mahout	Rs. 9
Fouzdar	Rs. 18		

A fouzdar in charge of fifteen elephants receives Rs. 20. These attendants, like the camelmen, are discharged whenever the elephant they are in charge of dies.

Mules have only lately been introduced into this presidency. One muleteer is allowed to two mules, and a muccadam to twenty-five mules. Their pay is—

Muleteer	Rs. 7	Second muccadam	Rs. 8
Head muccadam	Rs. 4		

The muleteers are discharged when their mules die. They should be retained until other mules are procured; and they should wear a distinctive dress, as recommended for bullock-drivers.

An elephant in carrying power is equal to two camels or four mules, or a cart drawn by two draught bullocks. The comparative cost, including attendants' pay, gear, and incidental expenses, is as follows:—

1 elephant	Rs. A. P. 3 0 8 per day.	4 mules	Rs. A. P. 2 5 8 per day.
2 camels	1 9 2	2 draught bullocks	0 15 0

It will be seen that the elephant is the most expensive to keep, and it is also the least useful in cantonment. The last elephants purchased in Burma cost Rs. 1,135 each, not including Rs. 23,600 for freight. It appears unnecessary to keep up these expensive animals, except in Burma and Carnarone. At all other stations they might with advantage be replaced by other carriage.

Lieutenant Colonel M. W. Wigham, Acting Commissary-General, Bombay.

The recent campaign in Afghanistan, in which over 40,000 men with 8,000 horses (not including the Native contingents) were engaged, proves that India may be at any time called upon to place an army of 50,000 men in the field with material and supplies sufficient for the movements of such an army acting on a very extended line of operations, and much of the difficulty experienced in the way of transport during recent operations and great part of the losses may, I think, be set down to the unpreparedness of the army in regard to a regular transport system. I will assume, then, that it is necessary that there should be a framework of a transport system for the whole of India, sufficient to meet the requirements of an army of 50,000 men.

Keeping the above figures in view, I turn to the establishments already kept up, or authorized to be kept up, in Bengal; and I find that for moveable columns at certain stations from Darjeeling and Julpigorie in the south-east to Rawal Pindi, Peshawar, and Mooltan in the north there are—

Elephants	572	Pack-bullocks	953
Camels	4,732		

assumed to be equal to the transport of the following number of troops equipped on the moveable column scale, with seven days' rations for British soldiers, and two days' for Native soldiers and horses, with a small quantity of ammunition:—

Regiments, British cavalry	2	(No carriage for baggage or for grain for horses allowed, as regiments should provide themselves).	
Batteries, royal artillery	9½	Regiments, Native infantry	14
Regiments, British infantry	9		
Regiments, Native cavalry	9		

But besides the moveable column carriage there is also kept up, or authorized to be kept up, in the Bengal presidency, at stations where moveable columns are not told off, the following carriage for army transport:—

Elephants	184	Camels	2,621
Mules	856		

equal to the transport at the moveable column scale of camp equipage, baggage, and ammunition for—

British cavalry squadrons	5	British infantry regiments	4
Batteries of royal artillery	4	Native cavalry regiments	4
Native infantry regiments	6		

or a total for Bengal presidency of—

British cavalry	2½	British infantry	13
Batteries of royal artillery	13½	Native cavalry	13
Native infantry	20		

In the Bombay presidency the moveable column carriage distributed over twelve stations is equal to the transport of—

British cavalry squadrons	2	British infantry	1
Batteries of royal artillery	2	Native cavalry	0
Native infantry	3½		

and in Madras I learn that—

Elephants	112	Mules	500
Camels	715	Pack-bullocks	673

are kept up for army transport, equal at the moveable column scale for the transport of—

British cavalry squadrons	... 2	British infantry	... .. 2
Batteries of royal artillery	... 2	Native cavalry	... .. 3
		Native infantry	... 2

besides a considerable number of bullocks for draught of artillery and ambulance carts. So that in the aggregate the carriage maintained in the three presidencies is equal to the requirements at moveable column scale of a force, say—

British cavalry regiments	... 8½	British infantry regiments	... 16
Batteries of royal artillery	... 17	Native cavalry regiments	... 15
		Native infantry regiments	... 26

showing that the Government of India should have at its command at present time transport sufficient for the camp equipage and baggage of an army nearly approaching in strength that recently operating in Afghanistan; but the transport is widely scattered all over the three presidencies, and is useless, or nearly so, for want of cohesion and organization. If, therefore, political considerations will allow (see reply to question No. 2 of this paper) of this mass of transport being concentrated at commanding or strategical positions on the lines of rail, and the Government will go to the expense of a proper staff of officers and subordinates for its supervision, it is obvious that at a comparatively small additional outlay the army of India would be in possession of a transport train which might be moved by rail in any given direction to repress local disturbances, and in the event of field operations on an extended scale could be expanded to meet the large requirements for carriage for ordnance, commissariat, medical, and engineer stores that must accompany an army of 50,000 men in the field.

In recasting the system of army transport, it should be viewed as a whole. The establishments of elephants, camels, mules, bullocks, though distributed at different stations, should be considered as belonging to certain divisions, which should be detailed on paper, and a general scheme for mobilization should be considered and worked out.

(a) *Officers.*

The establishment of carriage and followers at the larger stations where the field column carriage is concentrated should be placed under an officer (see reply to questions 1, 10, 13, 16) of rank not lower than captain (to be attached to the commissariat department), who should be assisted by one or two subalterns, detached in turn from the regiments serving at the station, who would thus learn something of transport duty. Should it be determined to retain any moveable column carriage at minor stations, it should be placed in regimental charge, under an officer to be specially detailed to supervise it.

The officer in charge of the transport should, as far as possible, make himself acquainted with the resources of the surrounding districts in respect to the carriage to be obtained from them in event of field operations.

(b) *Nature and position of subordinates.*

The subordinates should be Natives only, and should be divided into four grades, viz.—

- | | |
|--|--|
| 1. Inspectors or jemadars. | 3. Second mucedams, or naiks of drivers. |
| 2. Head mucedams, or havildars of drivers. | 4. Drivers. |

One inspector or jemadar to be allowed to 100 animals.

One head mucedam, or havildar, to 100 animals.

Four second mucedams, or naiks, to 100 animals.

One driver to two animals, or one driver to each single mule in draught.

Two attendants to each elephant; and all should be attested on engagement, as is done in the corps of store lascars.

One clerk should also be allowed at each large station where the transport is concentrated.

(c) *Men (European and Native).*

The men, drivers, should be Natives only as above (b).

(d) *Pay and pension.*

For the inspectors, pay a fixed rate of Rs. 50 per mensem when in cantonments, and Rs. 75 when on command or field service.

Pension.—Service less than 15 years, gratuity of one month's pay for each year's completed service.

Fifteen years and under 25 years' service, pension equal to one-third pay; over 25 years, pension equal to half-pay.

For the mucedams and drivers, pay and pension should be fixed after comparison of the average rates of pay, including grain compensation, drawn by Native soldiers. Pay to be inclusive of batta and grain compensation. Free rations to be allowed on active service (fighting men scale) when drawn by Native soldiers, also an outfit of warm clothing.

(e) *Clothing.*

The whole establishment should wear a simple uniform suitable for hard work.

It should consist of a puggree, to be worn like Native troops, jacket, trousers, and own foot gear. The jacket to be supplied free by Government biennially, other articles by the men. The inspectors to provide their own uniforms.

(f) *Equipment and arms.*

The inspectors, otherwise jemadars, might be armed with revolvers. The 1st and 2nd mucedams, otherwise havildars and naiks of drivers, with short carbines and bayonets. It is very doubtful whether it would be advisable to arm the drivers at all; but they might wear a strong kukri, or a knife and saw combined, which could be used for other purposes besides defence.

(g) *Description of transport suitable, wheeled, pack, coolie, &c.*

Wheeled transport can be used almost everywhere that any army can go in India during the dry season, and would besides be useful for station transport duties; and therefore the army transport to

be kept up should consist of wheeled and pack carriage in proportion, to be determined when the question of the disposition of the present moveable column carriage is settled.

(A) *Animals to be employed.*

Elephants, mules, and bullocks to be Government property; camels to be hired. The introduction of a much larger proportion of mules than now used is strongly recommended. It is thought that in draught (4 to a wagon), they might take the place of elephants,* of which a large number are maintained in the Bengal presidency.

Four mules in a wagon would draught nearly as much weight as two elephants can carry, only require two instead of four attendants, and would consume much less grain or forage.

It would seem advisable to keep up some draft bullocks. At present in the Bombay presidency there are no bullocks at hand for draught of second line of wagons and ambulance carts; nor are they readily to be had on an emergency arising. The bullocks ordinarily obtainable are unequal to artillery draught, and not suited for ambulances. When the division, lower Indus, was formed, bullocks from the heavy battery at Mhow had to be taken for the ambulance carts, as none were to be had on the instant.

(i) *Nature of carts and harness.*

In this presidency the Maltese cart is used for draft by one mule, and is found very useful for station transport duties. Wagons for draft by four mules are also used; but they are rather clumsy of construction, and might be improved upon. The harness used is mostly condemned artillery harness. Patterns of light wagons for draught by two mules and of large wagons for draught by four mules should be designed and made up for approval; also harness for single cart and pair and four mule wagons. For bullock draught the Maltese cart fitted with yoke and pole would answer very well; but the ordinary hackery or country cart as used in Bombay, made with metal naves, as lately sent for transport train, Beluchistan, is perhaps the best.

(j) *Nature of pack-saddles.*

The Bombay pad is cheap, serviceable, and perhaps the best that could be used.

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

I would propose that no transport whatever should be kept up, except *Government transport*, for work at or beyond the frontier.

The Government elephants and bullocks might, as at present, be kept at several stations for ordinary work; but whenever it might be necessary to move troops by marching (instead of by rail), either for sanitary considerations or to put down any local disturbance, *hired carriage (by contract)* or *pressed carriage* should be provided.

The Government transport would be kept in Peshawar Valley or Pindi on the one side, and in Peshin Valley or suitable grazing locality on the other. On emergency a portion of transport might be moved lower down to important military positions, Lahore or Umballa, and be used in making the relief of regiments on the frontier.

The transport should be framed on the plan of the Pindi mule train with an *improved military organization* and with more complete supervision.

Hired carriage carts, &c., would be used only in carrying up stores from the rear to the advanced depôts of commissariat or ordnance stores.

The establishment I would propose would be carriage equivalent to 10,000 camels (exclusive of the Punjab Frontier Force carriage). Of this, half should be kept on Peshawar side, and the other half near Beluchistan.

The organization should be as follows:—

(a) Two commissioned officers for every 1,000 camels or animals.

(b) One cattle sergeant for every 1,000 camels or animals.

For camels.

1 head jemadar for 1,000 camels on Rs. 50 per mensem.

1 missildar on Rs. 20 for every 330 camels.

1 jemadar on Rs. 12 for every 160 camels.

1 duffadar on Rs. 11 for every 80 camels.

1 surwan on Rs. 8 for every 3 camels.

For mules.

1 head jemadar for 1,000 mules on Rs. 50 per mensem.

1 jemadar on Rs. 14 to every 100.

1 duffadar on Rs. 11 to every 50.

1 syce on Rs. 8 to every 3.

1 salutrie on Rs. 12

2 blacksmiths „ 12 each

2 mochie „ 8 „

2 nalbunds „ 20 „

} for every 500 mules.

All men to be regularly *enlisted, drilled, and trained* as soldiers, to use arms in self-defence.

(c) All to be Natives, except cattle sergeants for every 1,000 animals.

(d) Pay as above, and pension in same proportion and on same terms as granted to gun lascars and men of that class.

(e) Uniform and clothing to be provided by Government; useful loose clothing.

(f) Short carbines, with sword bayonet, with strap to sling over shoulder, so as to leave arms and hands free.

(g) Service beyond frontier, camels and mules only (with elephants and T. T. bullocks); pack-bullocks and donkeys where procurable. Wheeled carriage has broken down on the road from *Sukkur* to *Quetta*, and on the march to the Peshin valley. The carts might have been better made, but still in countries where there are *no roads wheeled carriage soon becomes useless.*

(h) Answered in above.

* Except in districts without made roads in the rainy season.

(i) If lighter and stronger carts can be made they might answer; but I have seen no cart that has stood the wear and tear well in this campaign.

(f) The following remarks on pack saddles were made by a committee at Quetta, of which Major Noble was president.

2nd.—“The Committee are of opinion that the pack-saddle has, on the whole, been a success; but they think the following points should be considered before adopting a pattern for future use:—

(a) “The leather saddle or pad is not quite long enough or deep enough. It is suggested that it be made about four inches longer and two inches deeper in the flap, somewhat like the pattern forwarded with these proceedings, and be always fitted to each mule.

(b) “The breeching and breastpiece appear to be made of too heavy stuff. They should also be fitted to each mule.

(c) “The under-padding or ‘mulli,’ which forms an important portion of the Punjab gear, appears to have been omitted altogether from the gear supplied for transport purposes with the Kandahar Field Force. The Committee consider that the galling of the mules’ withers by the ‘roller’ or ‘soonda’ was mainly due to this omission.

(d) “The ‘roller’ or ‘soonda’ supplied with the gear was not stiff enough, and was not fitted with ‘keepers.’ Thus the ends of the ‘soonda’ could open out and gall the hips of the animals.

(e) “The ‘roller’ or ‘soonda’ in its present shape is not so suitable to the pony as to the mule, in consequence of the comparatively higher withers of the former animal, and is therefore more liable to cause wither galls with ponies.

(f) “The Committee think it would be an improvement to attach the roller to the leather saddle: each animal should be separately fitted. This would ensure the roller being always put on in the same position, would prevent its shifting, and would probably alleviate hip galls.

(g) “If the roller is not thus attached to the leather saddle, it should never be tied together with string, but should be fitted with proper ‘keepers’ of blanketing or tape sewed on the upper surface.

(h) “It appears that the pattern of ‘double sling bag,’ which was designed by the Simla Committee for the carriage of small-arm ammunition boxes, has been followed in supplying bags for carrying commissariat stores. This bag is not large enough for the purpose. The Committee are of opinion that commissariat stores should be either carried in the ordinary chest, or special double-bag, forwarded with these proceedings. Or in the case of boxes, in canvas ‘mule or bullock sling.’

3rd.—“If a Committee were appointed to sit in the Punjab this cold weather, they would soon correct anything that was wrong with present patterns. They should be furnished with some sets of gear which had been steadily used on this column, and with copies of all reports on the subject. They should prepare duplicate sets of patterns of each portion of the gear. One of these sets should be forwarded to the Ordnance Department, and the other to the Commissariat Department.”

Colonel M. J. Brander, Officiating Deputy Commissary General, Calcutta.

This is no easy question to answer; the less so as the question, so far as I know, has never before been propounded, and there are absolutely no previous experience or data of any kind to go upon, so that any estimate of the *personnel* and *matériel* required to form a framework of a transport establishment to enable an army to take the field in time of war must be crude and theoretical. The idea implied, I take it, is a skeleton establishment to be maintained in peace, which, when war threatens, can be quickly completed by its other and minor component parts. The first essential to having a body of officers competent to regulate and manage a transport department in time of war is to train them to their duties beforehand in time of peace. To this end I would propose the compilation of a carefully-considered set of rules containing detailed instructions calculated to meet every conceivable contingency and circumstance that may arise on field service.

The officers of the army should be invited to qualify themselves to undergo an examination in these rules (a thorough colloquial knowledge of the Hindustani being a *sine qua non*); also to undergo a subsequent practical training, such as can be obtained at camps of exercise, &c. There should be a separate examination for those who wish to qualify in the accounts branch, as there should be a class of officers in the department competent not only to act as paymasters of transport in the field, but also to take up the adjustment of the accounts at the end of the campaign.

This last is a very important consideration; for, though many officers will be found ready to perform the out-door duties of managing the transport, comparatively few will be willing or competent to undertake the more responsible one of making such clear, regular, and methodical payments in such a manner as shall admit of a ready audit afterwards.

(a) To commence with the officers. The chief or head of the department should have the rank of “major-general,” and be at army head-quarters. There should be an officer of the rank of “field officer” at each divisional head-quarters, with a selected officer from every British and Native regiment under him, but not to interfere with their regimental duties.

(b) Selected non-commissioned officers from British and Native regiments.

(c) Steady privates from each regiment, British and Native.

(d) According to the rules of their branch of the service.

(e) Of their rank, with some distinguishing helmet and cap ornaments to show they belonged to the transport department, with two pairs strong boots, with gaiters, and stout dark-brown riding breeches, two pairs.

(f) The non-commissioned officers and men should be mounted on good ponies, provided with cavalry swords, with wooden scabbards, covered with brown leather and tipped with steel, and revolvers.

(g) It is implied, I presume, that no transport is to be kept up in time of peace, except the ordinary moveable column carriage, and that in the preparation for war every present and available agency, such as camel and cart chowdries and the civil arm of the administration, will be made use of, as at present, to develop the resources of each district. The description of carriage to be employed will of course depend on the nature of the country forming the scene of operations.

(A) As a rule, *camels* will go almost everywhere; but recent experience has shown that they are liable to great mortality when employed in climates colder or warmer than their own, and that if a protracted campaign is undertaken, great care should be taken of these animals. *Elephants* are much more hardy, and stand vicissitudes of climate fairly well, if enough fodder is procurable, and they are well covered with thick numdahs at night in cold weather. *Mules* are probably the most hardy and useful of all baggage-animals. *Ponies* in India are generally too slender and weak to be much employed, and have not the strength, toughness, or hardihood of the mule. *Pack-bullocks* are good, if thoroughly well-trained to carry loads beforehand.

(i) Nothing can be better than the carts of the country, which are generally found adapted to the roads to be traversed. They all go over ground which would knock to pieces well-built carts. At the same time a reserve of Maltese carts, the component parts of which are interchangeable, should be kept up. *Harness*.—Good Cawnpore-made harness is very serviceable, and lasts, if well cared for, a long time.

(j) The saddle or pad in use by the traders of the Punjab, and which no doubt they have found from the experience of generations to be well suited to the purpose, is, I believe, the best saddle. It consists simply of a long stuffed flap laying on each side of the spine, with stuffed flap to lie on the flanks. The former protects the ridge of the back; the latter the ribs of the animal. More elaborate saddles, such as the Otago, with iron and wooden frames, have been tried and discarded.

Colonel J. Keer, Deputy Commissary General, Lower Circle, Bengal.

As at present, I would have none but trained commissariat officers, commissioned, warrant, and non-commissioned, who would be well able to do the work. The present fault is that there are not enough to meet the wants of a campaign.

All should be under the principal commissariat officer of the division.

To a division on service, I would have one commissariat officer, a warrant officer, and a non-commissioned officer, and a Native agent to supervise the transport generally. Every regiment of European infantry and cavalry and battery has its own non-commissioned officer and Native agent, and they have charge of the transport with their respective batteries or regiments; and I would also have a Native agent to every Native regiment. Pay and pension, clothing, equipment, and arms, as at present; (g) as at present; (h) animals, elephants, or camels for camp equipage, and camels; carts, mules or ponies or pack-bullocks for men's kits, &c.; (i) the country hackery, except for hospital ambulances, which should be spring carts; harness ordinary yoke, &c.; (j) common taut (hemp sacking) well stuffed with straw.

Colonel G. S. Macbean, Deputy Commissary General, late in Commissariat charge of the Khyber and Kuram Forces.

I am not prepared to answer this question in full. It means an entirely new organization of a new department, and a very large one. With reference to (g), I may say that seventeen years ago I submitted to the Commission, then sitting on the Commissariat Department, a proposal for the introduction of pony wagons for the main carriage of

the army, and I have subsequently some few years ago urged the proposal on the Commissary-General. I regret I have no copy of what I proposed, and cannot give dates more closely. But I am still of opinion that a light American wagon, drawn by two 14-hand ponies (Cabul yaboo), would be the best and cheapest carriage for the army. It could be transported by rail (elephant and camel cart). It could travel where guns could; would cost half what an elephant does to keep, and one-third to buy; would carry the same load; would do all the work in a station; and would carry infantry if necessary.

(k) *Pack-cattle*.—Mules best, ponies second, bullocks third, coolies fourth, are the only carriage which should go into hills.

(l) *The nature of cart*.—The American or Canadian farmer's wagon. There is little more of it than a pole, a fore-axle, and good turning-gear; two upright posts, wheels about 3 feet. Again, a triple-pole fastened to the four-wagon by an iron pin, 4 feet wheels, axle, and two upright posts,—a skeleton, but with a pair or two of bars and rope, capable of carrying anything; made mostly of hickory. They should be got from Canada.

(m) The best pack-saddle for ordinary loads is the Native one of two pads, as was made for the Cabul campaign.

Colonel B. Q. Mainwaring, Deputy Assistant Commissary-General, Kamptee.

It appears to me that if the present transport establishment be maintained, it can be expanded to any extent from the resources of the country, because each man who has been used to act with Europeans will, if the permanent establishment is distributed as far as may be required among the hired attendants, act as a guide to those who have been brought in from the country and prevent confusion and desertion from alarm.

(n) A European subaltern, used to Natives, to every three hundred animals, and a superior officer to every ten subalterns.

(o) Good intelligent Natives of the ranks, as at present.

(p) Natives, as the cattle of the country of any kind get wild at the sight of Europeans.

(q) and (r) As at present, with warm clothing on service, according to climate.

(s) A Native tulwar.

(t) Depends on the country to be crossed. If wheeled, only two wheels, the Maltese carts being the best; if pack, the mule. But these might be largely supplemented by bullocks carrying grain, as was done by the banjaris in the Duke of Wellington's wars, and is still done on the Western Ghâts, and in Southern and Central India. Slaughter-bullocks may in a fortnight be taught to carry, and they and their loads can be eaten as required.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

I cannot suggest details of transport framework without knowing whether the transport is to be under the commissariat or to be a separate and distinct service, and also whether the transport is to be calculated for internal warfare only, or whether it is to be the nucleus of a transport train for service out of India as well as for internal warfare.

In the first instance little is required, but in the last extensive arrangements seem necessary.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

(a) It appears to me very desirable that a nucleus of permanently appointed transport officers should be kept up, say four, namely, two for Bengal, one for Bombay, and one for Madras. To these officers should be entrusted the task of training officers and men of our European and Native army. In this manner a reserve of officers and subordinates would be formed, from which a qualified establishment for transport service in time of war could be drafted.

(b) See my reply to item (a).

(c) I would suggest the Europeans to be chiefly employed as clerks to assist transport officers in the matter of payments and the keeping of correct accounts and returns. The Natives should qualify themselves for the appointments which are filled by Native subordinates, such as chowdry, &c.

(d) Since these men would only be temporarily employed, an allowance fixed for their services when required appears to me to be all that is required.

(e) I think regimental clothing would answer all purposes, with some mark by which they could be distinguished.

(f) As the rifle would prove very often an impediment in the performance of their duties, I would recommend that all subordinates should be armed with swords and revolvers.

(g) The description of transport must depend upon many considerations, such as, for instance, the nature of the country, and its resources, the strength of the force, &c.

(h) See reply to question (g).

(i) The common bullock gharry of the country answers in my opinion all purposes. I would recommend Maltese carts in addition, but the mule bred at present in this country is not large enough for draught purposes.

(j) In pack-saddles I consider leather work should be avoided on account of the difficulty of repairing it and the greater liability of breakage. A saddle should be made to fit the animal it is intended for, and should have no stuffing in the part covering the animal's back. Sides should be well padded, and the part along the back consist of only a strip of gunny lined with thick numdah, so that the pad of the sides will press against the animal, leaving the back untouched.

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

To keep up a separate transport department would entail a very large annual expenditure, and it would be much more economical to extend the present system of moveable column carriage. The cost of maintenance of the present moveable column carriage with the number of animals could be ascertained from the commissary-general's office; and if it were determined to keep up twice or three times as much, the extra expense could in that way be pretty nearly ascertained. There is no doubt that pony carts and pack-horses might be made of great use as carriage for a column in almost any country; but the cost of keeping up such carriage, when casualties and diseases are taken into consideration, would be enormous.

The most economical would be an expansion of the present system; and this could easily be effected without a very great extra outlay in *personnel*. The carriage would be under the commissariat, and extra expenditure on account of a new department avoided.

If a new department is to be formed, it should be distinct from and not under the commissariat, since orders coming from the quarter-master-general direct would clash with those from commissary-general; and this not being advisable, the whole management would be better removed from the commissariat department. If, however, the present system is maintained, and a sufficient number of warrant and non-commissioned officers placed at the disposal of the commissariat department in time of war, transport would in all probability be much more economically worked under that department.

Here in the field, with troops moving daily and my hands full of work, it is impossible for me to draw up a new scheme. Even supposing I could do so if less hampered with work, any scheme would be much open to objection; and I do not think the Government will gain by altering the present system, which is capable of expansion to an enormous extent. If expense is not set in the scale against it, it would be quite possible to double or treble the amount of moveable column carriage now kept up. The formation of a new department would, I think, be a mistake. It would have nothing to do in time of peace; and it would have such a small number of permanent men in it, that to expand it sufficiently in time of war would be virtually building up a new department for the occasion.

G. H. B. Hallen, Esq., General
Superintendent of Horse-Breeding
Operations.

A transport establishment on a limited scale should be always kept up in the very best order in all parts of India, so as to form a nucleus for development on the required scale when found necessary; also to allow the troops of all branches to become thoroughly conversant with the details of transport and carriage duties. Each division of the Indian armies should have a complement of transport and carriage in proportion to the number of troops belonging to the division.

It will be sufficient that the amount of transport should be equal to the transporting of the troops in course of ordinary reliefs, and this amount would not be so much as, at first thought, might be considered, as every corps or battery does not move every year, and as the moving of troops may go on through 7 or 8 months of the year; so by judicious arrangements regarding reliefs a limited amount of transport and carriage would suffice.

By troops moving with the transport and carriage which they would be entitled to on field service, and it being strictly ordered that on no account more should be allowed to accompany the regiment, officers and men would become accustomed to carrying only field service weight, and would appreciate by experience the advantages of not being encumbered with unnecessary tentage and baggage. Extra baggage should not accompany the regiment or column on the march. Private arrangements should be made for the transport of such extra baggage, which should never be permitted within touch of the column. The comfort of having but little baggage on field service

irrespective of the expediency of only a bare sufficiency for every officer and man being allowed) will be fully appreciated. One-eighth of the weight of baggage now allowed would be found sufficient. Again, it may be hoped that the tents on the scale now sanctioned will be at once abolished, and double-fly pails, eight feet square, will be the acknowledged tent for all officers. A pail of the above dimensions would be ample for two officers, captain and lieutenant; and one will be quite enough for a field officer. The weight of such a tent, including pegs, should not exceed 80 lbs.

As (will be below recommended) the transport should be of the class or classes which will be utilized during war time, so would every officer and man become accustomed, on every move from station to station, to the management of the transport animals, fitting and loading of pack-saddles, &c. At present hardly an officer or private knows anything regarding the care, management, pack-saddling, and the loading and unloading of transport animals. Under a system below advocated, every officer and man would, as a part of military education, become practically acquainted with these most important matters.

An army transport corps on the scale above indicated should be established and kept up so as to form the nucleus for development whenever required—

- (a) One director at army head-quarters.
 One assistant director with each divisional head-quarters.
 One sub-assistant director at every station where more than two regiments are quartered.
 One warrant officer or a Native officer at every station where less than two regiments are quartered.

One veterinary surgeon in charge of transport animals of each division of the army.

- (b) The director to be under the orders of His Excellency the Commander-in-Chief in India and to have control over the department.

The assistant directors to be attached to several army divisional head-quarters, to be under the orders of the general commanding the division, but departmentally under the director, with whom they should correspond direct, submitting copies of correspondence whenever necessary for the information of the general commanding the division.

The sub-assistant directors should be under the orders of the assistant directors, through whom they should submit all departmental returns, &c., for the information of the director.

Warrant or Native officers to act in a similar manner.

The veterinary surgeons should periodically inspect the several lots of transport animals within the division to which they are attached, duly advise as to the management, care, feeding of the animals, with reference to sanitary measures, and exercise veterinary care over the sick and lame animals; Veterinary returns should be submitted by them to the inspecting veterinary surgeon of the circle in which they may be doing duty:

- (c) In addition to the officers above noted, the following establishment should be kept up, and it may be here noted that the remarks are applicable chiefly to mule transport and carriage:—

1 jemadar syce } to every 100
 25 syces } mules.

- (g) Pack-saddles and some carts on the Maltese principle, but modified to suit local circumstances.

(h) Mules, by far the best of all transport animals, being the most hardy and enduring under continued privations.

(i) Maltese carts. Plain, stout brown harness, with strong buckles and trace chains, &c.

- (j) The Otago is the best, but the ironwork is liable to be broken. The ordinary Punjab pack-saddles without iron and with as little woodwork as possible.

8. How would this framework be filled in time of war; and in what manner would the transport for troops moving to repress local disturbance be provided for?

Lieutenant-General C. T. Chamberlain, C.I., late Commanding Oudh Division.

Officers and men might, and should be, instructed in the duties of a transport corps in peace time, so as to be able to employ them whenever required.

In fact there should be so many men per battalion, and certain officers, regularly put through this duty like gun drill, or signalling, and then a reserve would be ready for war time.

It might be feasible to have men extra to the reserves for the colors registered and under engagement to serve in war time.

In time of local disturbance carriage would be pressed, as in all countries. There would be no time to spare for sending for it elsewhere.

Lieutenant-General W. T. Hughes, C.B., Commanding Sirhind Division.

See my answer to question No. 7.

To move troops to which no transport is attached, it would be necessary to make requisitions on the districts.

Lieutenant-General J. Forbes, Commanding Mhow Division.

It would be filled in according to the number and description of troops despatched from any particular station. In the event of local disturbance, transport would be provided for by hired carriage in the district.

Major-General A. W. Macintyre, C.B., Comdg. Hyderabad Suby. Force.

vide answer 7.

Major-General R. O. Wright, C.B., Commanding Meerut Division.

See answer to question 7. If it were decided to keep up a nucleus of transport at all stations, it would be available for any sudden emergency.

Major-General J. W. Schneider, C.B., Comdg. N. Divn., Bombay Army.

Reply No. 7 meets this question.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

Transport, if required in excess of the present field column establishments, would be obtained locally through the civil department.

At stations within foreign territory, such as Deesa, the durbar would assist in collecting carriage.

Brigadier-General F. G. Kempster,
Commanding Ceded Districts.

A certain proportion of all cavalry horses to be trained for draught and men to ride and drive, which would form a nucleus for a military train. Such men and horses to be drafted from regiments not named for service; each regiment sending a subaltern and due proportion of non-commissioned officers to the train on its coming on a war footing.

Camel carriage as now kept up for moveable columns to be augmented by hired animals, and to be fed by Government.

Mules and ponies to be augmented by purchase.

Bullocks.—The headman of banjarie bullocks to be paid full hire for the animals he has contracted to supply, less cost of food supplied by Government.

To repress local disturbances present moveable column carriage sufficient, to be augmented by subalterns of regiments to which cattle of moveable column is attached; to be subordinate to permanent transport officers. Subordinate establishment to be augmented from Native regiments, but to be subordinate to permanent establishment. Veterinary establishment to be augmented by one veterinary surgeon.

A war establishment would be—

camels	...	...	1,000	subalterns	...	...	12
mules	...	...	4,000	men	...	...	120
bullocks	...	...	1,000	farriers	...	...	15
field officer	...	...	1	veterinary surgeon	...	...	1

which would be represented by a peace establishment of—

camels	...	...	250	field officer	...	...	1
mules	...	...	1,000	subalterns	...	...	2
bullocks	...	...	250	men	...	...	30
		farriers	...	...	...	4	

Brigadier-General T. J. Murray,
C.S., Mooltan Brigade.

By purchase or hire. Transport to repress disturbance would be readily procurable locally. See reply to question 3.

Colonel J. A. Tytler, C.S., V.C.,
Commanding 4th Goorkhas.

The only way that I see of filling up this framework would be by at once appointing a certain number of previously qualified young officers from British and Native regiments, and men from British and Native cavalry regiments, to any army-corps or division proceeding on service, and by the Government buying up the requisite number of camels and mules and ponies that might be required. To enable them to do this, the Natives should be encouraged to breed as much as possible, both camels and mules, in peace time, on the understanding that, if found strong and serviceable, they would be purchased from them in case of war. A certain number of carts of the best pattern should always be kept on hand. They cost nothing keeping.

I should say that, were moveable column transport always ready, it would be quite sufficient for the troops moving to repress any local disturbance.

Colonel J. Macdonald, Secretary
to Government, Bombay, Military
Department.

By drafting a few men for regiments, and enlisting the followers received with camels, mules, ponies, &c.

For the troops employed in quelling local disturbances, the existing field column, with a certain amount of hired carriage, would be sufficient.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery in
India.

The *personnel* would be completed from the ranks of those who had learnt their duties, and a list of which should be kept, with qualifications of all.

The *matériel* by purchase or by transfer from the permanent transport elsewhere which may be available: this again being made up by purchase on the spot or where best obtainable.

On the emergency of troops being required suddenly to repress local disturbances, I would requisition on local resources, if not in a station where permanent transport was kept up.

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-General,
Bombay.

In time of war, under present arrangements, transport has to be organized *de novo*, and there is very little to guide the officers entrusted with this most important work: they have to learn before they can instruct.

The framework suggested would render matters comparatively easy. At the base of operations, where all the material for transport would be collected, you would then have some officers and men familiar with the more important details of transport; and with the aid of a hand-book for transport, which might be published under authority, transport could be organized on any scale required. The only difficulty would be to get sufficient officers. In the event of a campaign of any size, few regimental officers would be available.

Transport for troops moving to repress local disturbance could be provided for by hired carriage.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

In case of small expeditions the carriage might be withdrawn from a number of regiments, and handed over to the force to be employed; the regiments from whom it was withdrawn being at once furnished with new carriage.

In case of a regular war, each regiment would retain its own transport as a nucleus, to be made up to the full complement from the reserves retained in districts, as proposed by me in replies to questions 15 and 19.

Officers would be drawn from regiments, as in the case of other staff officers. By the system I propose all officers would have some knowledge of transport duties, and the most active and intelligent should be selected for staff employment when required.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

With respect to the latter query, the moveable column is always available for a portion of the troops when required.

Should the civil authorities fail to procure carriage on payment from local owners in case of disturbances, there seems one course only, *viz.*, to impress the whole of the transport suited for the service in the town and district adjacent to cantonments, paying a fair rate of compensation for animals and vehicles. This would be carried out by military raids and only in times of disturbance.

Lieutenant-Colonel J. C. Le
Quesne, 12th Royal Lancers.

Their own squadron and troop carts.

Major J. W. Chaplin, 8th Hus-
sars.

I should say that moveable columns and regimental transport would meet the requirements of the latter part of this question.

Colonel J. A. Ruddell, 1-25th
Regiment.

Equipment not required for immediate or ordinary use to be kept in store by the transport department. In war time, the Europeans and Natives might be temporarily increased by volunteers from the army. In case of any sudden emergency during peace time, extra carriage required might be supplied under the order of the civil authorities.

Lieutenant-Colonel T. Rowland,
Commanding 1-5th Fusiliers.

The *personnel* might be filled up in a great measure from regiments. One officer per regiment as transport officer would look after all regimental transport; and there are always old soldiers, who speak the language and know the ways of Natives, who would be glad of the berth. The extra material required would, as far as animals are concerned, have to be got by hire, as at present.

Lieutenant-Colonel D. Warren,
Commanding 2-14th (Prince of
Wales' Own) Regiment.

In reply, I would record that whatever framework may be decided upon, its completeness for war should not depend upon obtaining regimental officers, who can only possess imperfect knowledge of the class of Natives and animals who may fall under their charge, and who can be ill spared from their regimental work, with which they are acquainted.

The transport necessary for troops moving to repress minor local disturbances would be provided for by the moveable column transport or by the local authorities.

Lieutenant-Colonel J. S. Hand,
Commanding 46th Regiment.

From the district; a registry of all cattle, carriages, and animals being kept by the sub-director of the district or station. Of course rules as to periodical inspection, training, &c., as well as compensation or rate of hire to owners, when called up, would have to be framed. But better still from Government cattle or mule farms established in each district. I have made no mention of elephants and camels, of which the transport would in many places largely consist; and to supplement these I presume that, in some localities, rules and arrangements could be made with Native noblemen and gentlemen owning petty states.

Lieutenant-Colonel G. H. Parker,
2nd Highlanders.

Moveable columns, commissariat, or through the civil authorities.

Major F. Stephen, 4th Battalion
Rifle Brigade.

By keeping always a certain amount of transport in each station.

Major Hugh P. Pearson, 12th
Foot.

Since, under the scheme I propose, the superintendent of transport would have at his hand full information of the amount and description of carriage available throughout the country, and where it was to be found, the expansion of the framework to the requirements of war would be a simple matter of routine. Even without such tabulated

knowledge it has always been possible, so far as I am aware, to meet any demand for carriage for service in India. Statistics of this kind could be compiled only with the aid of the civil authorities, who would naturally keep a copy in their offices.

These would be accessible to the military authorities on the spot. The extent to which expansion would have to be carried would necessarily depend upon the exigencies of the case. The additional transport so required for each battery and regiment as apart from departmental needs would be made over to the unit requiring it, and would be clothed, disciplined, and administered on the system already in vogue with the portion of the moveable column attached to the regiment or battery. The system of expansion would be equally applicable to external war or internal disturbance.

Major J. D. Dyson-Laurie, 34th
Regiment.

In some parts—for instance I think in Sind—the camels kept by the inhabitants are registered.

Captain H. M'L. Hutchison,
1-14th (Prince of Wales' Own)
Regiment.

Colonel C. R. O. Evans, Com-
manding Royal Artillery, Meerut
Division.

Major H. C. Lewes, Commanding
1-1st Royal Artillery.

Major W. W. Murdoch, Com-
manding E-A Royal Horse
Artillery.

Major T. M. Hazelrigg, Com-
manding E-3rd Royal Artillery.

Major the Hon'ble A. Stewart,
Commanding I-C R. H. A.

Major C. E. Nairne, Royal Horse
Artillery.

Major P. FitzG. Gallwey, Royal
Artillery.

Major W. H. Noble, Royal Artil-
lery.

Captain G. C. Bayly, 13-6th
Royal Artillery.

Lieutenant E. C. Wace, R.A.,
No. 4 Hazara Mountain Battery,
Punjab Frontier Force.

If this rule were applied generally in India, the Government would know the resources of each particular part and where to obtain carriage in time of need.

The carts being in store, the beasts, in addition to those already entertained, could be supplied locally.

Having no framework, it is needless to say I have no scheme for filling one in.

The moveable column system should be able to provide transport for a small body of troops moving to repress local disturbances.

1st.—I would force all owners of suitable carts and animals to register themselves as the possessors of such in the offices of the collectors of the respective districts. They would all have a register number. Government should pay them a trifling fee for registering their carts, and they would understand that on emergency Government would requisition them for their beasts or carts, or both, at a fixed *nerrick* rate.

2nd.—Transport service depôts should be established, where a certain number of carts and animals should always be kept in time of peace. They could be utilized for work in cantonments, commissariat, ordnance, and other, and could be made available for hire to people requiring them, at a certain rate.

In both the above cases, a certain amount of transport would always be ready. Animals and carts should be registered throughout the country, and collectors and their subordinates made responsible for them.

The regimental baggage would be complete.

The ammunition columns should be nearly complete, and the commissariat should be filled up by purchase; and the general transport should be formed by a system of contracts. Troops moving to repress a local disturbance would have their own baggage ready, and the transport and commissariat should have sufficient carriage for this service always ready.

By keeping up a careful register of all available carriage in the district, calling it in, and attaching it to squads already formed out of moveable column.

For local disturbance by seizing carriage.

As described in No. 7.

The director and assistants, and perhaps warrant officers, would be permanent. Non-commissioned officers would be selected from those trained. The extra transport carriage would have to be hired or pressed.

The permanent transport kept up at each station should be sufficient for local disturbance.

Everything being arranged beforehand as above indicated, the transport branch of the commissariat department would collect the carriage by brigades at points previously agreed on. Nearly all the troops (except those on the frontier, for which carriage must be kept up) are on or near the railways, and could move without help from the transport to their places of mobilization. As to the officers, warrant and non-commissioned officers, who would be required in addition to those permanently employed, I think if proper transport regulations were compiled, and the duties of the department made a subject of study in garrison schools, a sufficient number of extra officers of the Native army would be found fit for those duties when required. For internal disturbances, I think the present system of pressing carriage by the civil authorities is sufficiently good.

I think the means of transport of a few brigades should always be kept up complete. In time of war the *personnel* in officers should, as far as possible, be completed from the ranks of those who had been probationers. *Matériel* should be provided, either by purchase or hire, by local district superintendents, in communication with the civil authorities and under instructions from the director.

Vide answer 7.

The capabilities of each district with reference to the supply of mules and camels should be duly registered in the civil offices; and thus in time of war the requisite number to complete the regimental, &c., transport could be called in with but little delay; and occasion should be taken during the yearly cold-weather manœuvres to call these men and animals out for a month or so, similar to the way in which I have proposed camp-followers should be yearly called out. During

the month they are called out they should receive pay, and the opportunity should be taken of seeing that their gear is in working order; for Government should only be called upon to supply gear for its permanent establishment.

Col. Hugh Gough, Commandant,
12th Bengal Cavalry.

Circle superintendents would at once organize the transport for their respective army-corps. The framework of the department could be at once supplemented by men detailed from regiments (not in the field) in addition to those permanently attached, these men receiving the same staff pay. The carriage as registered would be at once called in, and the system should then work with dispatch and regularity. The above, however, is only a rough idea, and would have to be thoroughly organized.

Captain M. G. Gerard, 2nd Central India Horse.

The remaining officers and warrant officers by volunteers from regiments. The Native soldiers might be men of 15 years' service, permitted to take their pensions then—as a small percentage might like to—with liability to serve in the transport train, one-fourth only being required on peace establishment. They might relieve each other annually on duty on full pay.

Syces and artificers must be hired as required.

No fixed rule can be applied for reserve animals to raise a division from peace to war footing, as it should depend on local conditions as to how they can be most advantageously employed in peace.

In some districts a system of bounties—so much per mensem as retaining-fees, animals to be available for purchase or hire by Government—would work well.

In others Government animals might be hired out or employed for public carrying purposes.

In others again purchase in the open market might be most advisable.

The strength of a division on war footing would be—

1 commandant.	4 subalterns.
4 1st class warrant officers	} To be mounted on divisional mules or ponies.
4 2nd " "	
8 3rd " "	
20 4th " "	
50 5th class (syces, temporarily promoted).	

500 to 1,000 syces, according to the proportion of pack and draught mules for that particular campaign.

4 salutries.	4 muchies.
4 carpenters.	4 smiths.
20 nalbunds.	

Carts, &c., would be issued from stores to the divisions brought on to war footing.

Transport for troops called out for local disturbances would be supplied from nearest transport train division, if regimental carriage is not kept up.

Supposing the above division to have 700 mules, 1,300 tattoos (the former 6 lbs and latter 2 lbs grain per diem)—

850 Maltese carts.	400 light country carts.
500 pack tattoos.	

The strength of men would be 1,000 in round numbers, and the daily rations of division 8,800 lbs. They could carry supplies as follows:—

					lbs.
850 x 1,200 lbs.	...	...	...	...	420,000
400 x 600 "	...	...	...	...	240,000
500 x 160 "	...	...	...	...	80,000
				Total	740,000

Assuming regiments to have carriage for light equipment, and kahars reduced by substitution of cacolets, 10 days' rations would roundly be—

gunners ... 600	} 8 field batteries } without 2nd } line.	} 120,000	Native infantry ... 12,000	240,000
horses ... 600			followers ... 6,000	120,000
ponies, &c. ... 600			regimental baggage, mules,	
followers ... 900			carts, &c. ... 4,000	72,000
British infantry ... 4,000	100,000	transport train (as above) ...	88,000	
		Total	740,000	

If one-half compressed provisions were used, there would be 25 days' rations.

Brigadier-General C. J. Godby,
Commanding, Punjab Frontier
Force.

In time of war I would have the establishment and system recommended by the late Colonel Nicholetts, copy of whose memorandum* I enclose.

The present moveable column establishment would be sufficient for troops moving to repress local disturbances.

Lieutenant-Colonel C. LaTouche,
Commandant Poona Horse.

Fide answer 7.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

The officer in charge of the transport would at once proceed to the men of the different villages whose names he has registered, and require of them the number of animals they are bound to supply. These would be handed over to his establishment, and, with the aid of a few men from the regiment, I feel assured they could be clothed and drilled in a few days. Of course, the clothing and arms for the camelman would always be in regimental charge. Transport in suppression of local disturbances would be provided in the same way.

Major A. P. Palmer, 9th Bengal Cavalry.

On war breaking out, the circle superintendents would assume charge of the transport with each field force, their personal assistants taking over the local duties, and all acting under the instructions of the direct- or regarding organization and filling up casualties from the registered carriage (*vide* answer 19).

Officers from the rolls of regimental transport officers would be selected as assistant superintendents of transport; and non-commissioned officers and men (if possible from corps not detailed for service in the field) would be attached for duty with the departmental transport, at the rate of one Native soldier per 100 animals, and one British non-commissioned officer or man per 1,000.

The registered chowdries, naib-chowdries, &c., would be called up and distributed.

The pay of assistant superintendents of transport and of British and Native soldiers would be the same as in the late Afghan war.

For Government purchased camels the Native establishment would be—

1 naib chowdry	...	...	...	...	at 25 per 400 camels.
1 munshi	...	...	...	...	" 20 " 400 "
1 jemadar	...	...	...	...	" 12 " 100 "

No missaldars, as at present.

In local disturbances a considerable amount of the transport would be done by rail; and circle superintendents should be able to see from their registers what arrangements would be necessary for collecting animal carriage at the points of debarkation.

Colonel H. S. Obbard, Commandant 41st Bengal Infantry.

In time of war this framework would be filled in by carriage of the description required being hired or requisitioned. Officers of Native regiments should be able, under the system I advocate, to put their hands on it immediately. Under the ordinary civil procedure it will never be produced satisfactorily. The ways and means of court officials

and police are really wonderful; and the faith of civil officers in them is almost incredible. I speak from personal experience, extending over a very long period, during which I have seen much on both sides.

The framework of superintendence would be filled in by drawing on regiments for officers and men to such extent as might be necessary.

For the repression of local disturbances, the carriage kept up for moveable columns should suffice. It should always be pack or coolie: see answer 7.

Colonel E. Dandridge, Commanding 40th Native Infantry.

Vide answer 7.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

(a) *Personnel* of officers from regiments not employed on service, of non-commissioned officers from cavalry and artillery, of men from the civil population. Clothing and equipment in sufficient quantities for increased establishments should always be kept in store.

Matériel in carts and animals from the civil population.

A register to be kept in every district of all suitable carriage, such carriage to be subject to hire at fixed rates whenever required. Exemption from such liability to be obtained by means of a tax on carts and animals.

(b) Regimental transport, supplemented by local aid from the civil.

Lieutenant-Colonel B. G. Rogers, 20th Punjab Native Infantry.

By civil contractors and chuprassis, who would seize the cattle and carts of every villager unable or unwilling to bribe highly enough for their exemption.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

As regards transport for troops moving to repress local disturbances, moveable columns are kept up for this purpose; and these can always be largely and rapidly augmented by carriage obtained through the civil authorities or commissariat agents.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

In the manner described in the previous answer, *viz.*, in whatever province the disturbance took place, the director of transport would know what would be the nearest and best quarter from which he could collect transport. He would also understand what sort of country the troops would have to travel through, and he would at once send superintendents with assistants to collect the necessary carriage, and he could also utilize the moveable column carriage at the nearest stations. The framework of the entire transport could then be filled in, the carriage divided into regimental, departmental, and general, and assistant superintendents, and European and Native subordinates appointed, who would take all their orders from the director or the superintendent in charge of the transport.

Major A. C. W. Crookshank,
Commanding 32nd Pioneers.

Beginning with the latter part of the question, in case of a disturbance the local transport officer would at once tell the commanding officer what carriage was available, and in what time more could be got by requisition, or by calls on other stations.

The officer commanding would then wait, or detail as many troops as he could move, according as he thought best.

Even if there is no carriage available, troops can generally go out for a week or so without it, carrying two or three days' rations; meat following on its own legs, and flour being generally procurable in Indian villages; also wood to cook both with.

In times of war, regiments marching from their stations would receive their carriage complete, and stick to it. All other carriage under the orders of the commissary-general would be at once drafted off either to complete regiments near at hand for their march, or to the bases of operations for general purposes.

As the carriage arrived at the bases of operations, it would be taken over by the transport sub-department. (I have given in reply 13 my views regarding the training of transport officers.) This would be organized from the officers who have been trained in peace, and consist of field officers as superintendents with *ex-officio* rank of assistant commissary-general, captains as assistant superintendents as deputy assistant commissaries-general, and subalterns as transport officers as sub-assistant commissaries-general. Officers of the commissariat department with special transport aptitude might also be selected to a small extent.

The commissary-general of the force would be *ex-officio* the head of the transport, and have a transport assistant. The commissary-general should thus be assisted in peace time.

The two departments could thus work together without friction and jealous interference.

I prefer the transport as a sub-department to making it altogether independent—

(a) because it is very undesirable to multiply departments; ;
(b) because in peace time the commissariat department must utilize and have charge of the carriage;

(c) because as a sub-department it would partake of all the prestige and advantages of the mother department, and utilize the same disbursing, account, and audit machinery;

(d) because it would have the entire department in India to draw on for subordinates of experience, both Europeans and Natives.

Carriage would not thus change hands, and the *personnel* would not, at the end of a campaign, when all the transport officers have gone, find themselves nobody's children, as happened after this campaign.

Transport officers should not be considered non-combatant. They should command their charges, except when a senior officer is present with the escort; and they would then form part of his staff.

As the carriage collected and despatched by local transport officers arrived at the bases of operations, it would be taken over by the transport sub-department, clothing, &c., supplied where necessary, papers, &c., put *en règle*, and then be distributed to regiments and departments, or organized into convoys as required.

Major Sir B. P. Bromhead, 40th
Native Infantry.

I have already said I do not recommend any framework in time of peace. The regimental transport system would easily supply all the carriage required for troops moving to repress local disturbances. If, owing to the disturbance being local, the usual local carriage was not forthcoming, an adjacent district could certainly make good any deficiency on short notice. Besides, local disturbances do not occur without some premonitory symptoms, and arrangements could, and should, always be made in time to secure the carriage.

Lieutenant-Colonel J. J. Boswell,
Commanding 2nd Sikhs.

As stated in answer No. 7, by district officers being requisitioned for the number of animals required, and by summoning transport officers of regiments not proceeding on service with a staff of inspectors (soldiers). Transport required for troops proceeding to repress local disturbances should be summoned from neighbouring stations.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

Regiments not going to the scene of action could send their transport getting fresh from the reserves of their district. Officers who have had experience in transport, and with a knowledge of the vernacular, should be placed in charge of the transport of each regiment and department, calling in all the reserves of men, and entertaining fresh, bringing in all reserve transport from district, and buying more as a fresh reserve.

Carts, wagons, gear, saddles, clothing, equipments, and arms should be always in store ready for any emergency.

When the war was over, the surplus animals could be sold, gear, &c., returned to store, extra men discharged, with the option of going to the reserve (up to a certain number).

I think it would be cheaper than hiring carriage, and work better, as all the men would be under control, and not independent like the men (owners, &c.) of hired animals.

Major A. G. Ross, 1st Sikhs.

Fill in by purchase of animals, *beginning in time*, and not minding extra expense, and by enlisting muleteers of proper classes. Jemadars and duffadars are ready.

In local disturbance use the skeleton troops of each central dépôt, and for balance required press carriage as now.

Colonel W. A. Gib, Commandant
85th Madras Native Infantry.

I do not know how the framework would be filled in in time of war, but I suppose from the ranks of the army, who would be quite ignorant of their duties. To repress a local disturbance the carriage would, I presume, be *requisitioned*, as it always has been if the commissariat could not supply it.

Colonel S. Edwards, Commanding 2nd Bombay Native Infantry.

If a framework of officers, non-commissioned officers, and men were maintained during peace time as suggested in the previous answer, the strength of the train could be augmented in time of war by increasing the number of men in each troop. This could be more easily effected if inducements were held out to men of the regular army, the cavalry in particular, to serve three or four years in the transport train as a 1st reserve and before passing into the 2nd reserve. In this manner, on the outbreak of a war, men would be forthcoming, acquainted with discipline and possessing a knowledge of the duties required.

With regard to the transport for troops moving to repress local disturbances, if on the frontier, the train which I advocate, being kept up in strength in that part of India would be utilized: if in the interior, then the railways and a small amount of the train, supplemented by local means of transport, such as coolies, country carts, &c., would suffice.

Colonel W. Bannerman, 4th Bombay Rifles.

Either by moveable column carriage or carriage hired locally.

Colonel J. I. Willes, Commissary-General, Bengal.

For repressing local disturbances trust to local transport or carriage, whatever it may be. It could always be moved up by rail on great emergencies, as has been done for famines, which may be said to be almost chronic now, and each one has given some fresh wrinkles. For war demands out of India or for beyond the frontier Government must never rely again on hired carriage. If the notice for collecting carriage is so limited as to forbid any kind of organization, as in the late war, then whatever suitable animals can be bought must go with their original equipment. To fit new gear takes much time. The same remarks apply to attendants. Every class was found equally inexperienced in the late war. Camelmen, syces, kahars—all were utterly untrained, and were complained of as being next to useless. High wages tempted the pauper population to accept service, and the result was great dissatisfaction. The unfortunate men who were first sent to the front were the chief sufferers, because they were not properly clothed. Clothing was made up and sent forward as fast as made; but the Kandahar force never had a chance of getting the clothing, because the force hurried on before the clothing reached Sukkur; and after that of course stores could only follow the troops, which were ever advancing. Until the force halted, the clothing could not overtake it; hence the intense sufferings of the camp-followers.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The permanent establishment of elephants, camels, and mules could not be added to in time of war. For the repression of local disturbances, in addition to the establishment kept up recourse must be had to country hired carts and pack-bullocks, the latter being used for grain and small arm ammunition. In time of war the best plan would be, in addition to the above, immediately to purchase and fit up commissariat trains of 100 carts each with bullocks at several stations. Smart drivers of the public cattle establishment could be promoted to petty officers and placed in charge, and ordinary drivers hired. It would also be necessary to hire pack-bullocks in large numbers. Formerly a herd of 481 pack-bullocks was kept up at Kampti, which proved very useful in equipping General Whitlock's column. The contractor was a man of wealth and influence, and was able to meet the demands made on him. This herd has been broken up on economical grounds. A similar herd of 597 pack-bullocks was kept up at Secunderabad, which has been reduced to 397. Recently five or six pack-bullocks have been ordered to be kept up at some small stations as Waltair, Vizianagram, Berhampore, and Calicut, to be ready, it is presumed, in case of an emergent call for troops.

Lieutenant-Colonel M. W. Wiloughby, Acting Commissary-General, Bombay.

In time of war the fixed establishments of carriage and followers must be augmented by the temporary entertaining of pack-animals and carts, which should be modelled on the plan (troops and divisions) of the permanent establishments, and if possible combined with those divisions and worked with them. Additional officers and men must be drawn from regiments for temporary services. Transport for troops moving to repress local disturbances would be detached from transport centres; see reply to question 7, this paper.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

Fresh animals and men would be entertained and drafted into the train, and this might be done to the extent of 25 per cent. without much detriment to the discipline or organization. To repress local disturbances a few Government elephants at stations would be used, supplemented by pressed or carriage supplied under contract. In more serious disturbances, and where time admitted, the transport train from the frontier stations would be moved downwards.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

The qualified officers and their subordinates who have elected for service in the transport department, as described in paragraph 7, would, on the first sound of preparation for war, be summoned to meet at those points where transport had to be collected, in order to take charge of and organize all baggage-animals, also of the kahars or bearers for the regimental and field hospitals received from the districts, the officers in charge of which should receive through their Governments the earliest intimation possible from the director-general of transport of the kind and extent of transport required, as would be provided for under the rules which I have suggested should be previously prepared. Transport required for troops moving to suppress local disturbances to be provided as at present; that is, by utilizing the moveable column transport and obtaining any more required through local chowdries and civil officers.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

If the department is sufficiently increased in officers of all grades as recommended, there will be no difficulty in appointing officers to supervise and subordinates both in the case of war or a local disturbance: for the latter the moveable column would be available.

Col. G. S. Macbean, Dy. Comy.-Genl., late in Commt. charge Khyber and Kuram Forces.

Is part with No. 7.

Colonel E. Q. Mainwaring, Deputy Assistant Commissary-General, Kamptee.

The transport might be expanded as shown, when cattle can be collected from over a large tract of country in time of war; but to repress local disturbances, unless Government maintains the transport from this down south, the provision will simply be ruinous to trade and agriculture, unless a large number of carts are thrown out of employ when the rail begins to work. In the towns there are few carts or cattle beyond those required for local traffic, and the ryot only maintains sufficient to plough, &c., and bring in his crops to the nearest town, and he will not hire them at any price. Seizing carriage, stops local traffic and agriculture, *i.e.*, revenue.

Lieut.-Col. J. V. Hunt, Dy. Asst. Commissary-General, Bengal.

See reply to question 7.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

The officers, non-commissioned officers, and privates who have undergone a course of training, and been found qualified for employment in the transport department, would be available, and could be drafted from those regiments which are not required to proceed on service, to form the required establishment.

The necessary transport required for troops moving to repress local disturbances can, in my opinion, with the assistance of the civil authorities, always be obtained by hire.

Captain T. F. Hobday, Deputy Asst. Comy.-Genl., Kandahar.

Vide answer 7.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

To premise, as some transport animals, under the system here suggested, would be present at nearly all stations, so the troops should be regularly drilled with regard to the saddling, loading, and unloading of the mules; also be taught how to remove the stuffing from the pack-saddles and evenly replace it, &c., so as to prevent the chance of galls, &c.

Having a transport train in sufficient amount to move troops on ordinary relief during times of peace, and thereby giving means for teaching every officer and man how to load, unload, and thus care for mule, so would it be a very easy matter to officer and man the transport train to any amount required for an army in the field, and the *personnel* of such a train would, on occasions of local disturbance, or at the onset of a campaign, be able and fit for their work.

9. The transport of an army is now usually divided into—

- (a) Regimental,
 (b) Departmental ... { Commissariat and supply, ordnance and artillery, medical and hospital, engineers,
 (c) General ... Auxiliary transport, chiefly hired for general supply purposes,
 (a) and (b) being under regiments and departments and regulated by the staff, and (c) under commissariat. What is your opinion on this division of transport?

Lieutenant-General C. T. Chamberlain, C.B., late Commanding Oudh Division.

So far as my experience in the field and in peace has taught me, I only know of one system of transport which has been general and entirely under the commissariat.

I do not consider the allotment of so much carriage to regiments and departments as giving them any control over them. No responsibility of any kind has been involved, except that of meeting the commissariat bills, and doing the best to prevent the maltreatment of animals and men.

I do not see any object to be gained beyond two divisions, *viz.*, (a) general for departments, and (b) regimental.

The latter certainly should be quite distinct, so that when sudden movements are ordered, or divided columns become necessary, there shall be neither delay nor confusion, and all details shall be subject to regimental control only.

Lieutenant-General W. T. Hughes, C.B., Commanding Sirhind Division.

I would put all under the direct orders of the officer commanding the division, with the heads of both commissariat and transport departments at division head-quarters and executive officers at brigade head-quarters. The brigade reserves of transport cattle should supply the wants of departments, regiments, and batteries.

Lieutenant-General J. Forbes, Commanding Mhow Division.

The division appears good.

Major-General A. W. Macintire,
c.B., Commanding Hyderabad Sub-
sidiary Force.

(a) and (b) must be so divided during actual movement, but at other times the cattle should be under the immediate charge of those with whom the general responsibility for their efficiency rests. It must be so divided: (c) would necessarily be under the management of the department responsible for the auxiliary service required. This arrangement appears to be the best.

Major-General R. O. Bright, c.B.,
Commanding Meerut Division.

Regimental transport should, I think, consist of sufficient to carry camp equipage, bedding, ammunition—in fact, everything belonging to the regiment and a certain number of days' provisions.

The transport corps should have the conveying of everything to the regiments and to keep them supplied, and also all ammunition and stores of every description.

The commissariat should have the providing of all food and the carrying of all supplies of every description to magazines formed as near as possible to the army and moved forward as the army advances.

The division of transport, as above enumerated, is calculated to meet the requirements of the service. Corps and departments should be responsible for the carriage or transport supplied to them.

I believe it is the best.

Major-General J. W. Schneider,
c.B., Commanding Northern Divi-
sion, Bombay Army.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

Brigadier-General F. G. Kempster,
Commanding Ceded Districts.

(a) and (b) to be regimental and departmental. Mules and camels to be kept solely for these under transport officer.

(c) Also under transport officer.

Brigadier-General T. J. Murray,
c.B., Mooltan Brigade.

I consider the division a good one.

Colonel J. A. Tytler, c.B., V.C.,
Commanding 4th Goorkhas.

(a) and (b) My opinion is that all transport, regimental and departmental, should be entirely under the regiments and the departments to which it should be made over at the commencement of the campaign. The general (c) should be under the commissariat.

Colonel H. K. Burne, c.B., Secre-
tary to Government of India,
Military Department.

A proper division, and one already maintained in India in time of war; though the commissariat department provides all the transport in the first instance, and before that for regiments and departments.

Colonel J. Macdonald, Secretary
to the Government of Bombay,
Military Department.

I think that during peace any such division of the existing transport will cause needless expense. At present the commissariat hold charge of, and utilize the small amount of Government carriage that is kept up—an arrangement which works economically.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

(a) and (b) being under regimental or departmental transport officers, I would not place (c) under commissariat, but under a distinct and separate branch, with its own commanding officers specially selected, to be officered and manned from those who, under my proposition in reply to clauses (a), (b) and (c) of question 7, have acquired some knowledge of the system.

Lieut.-Col. A. G. T. Hogg, Depy.
Quarter-Master-General, Bombay.

The division of transport abovementioned is, I consider, judicious.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quar-
ter-Master-General.

Theoretically, I think, this division of transport an excellent one; but there would be many difficulties in carrying it into practice. Thus regimental carriage is supposed to be utilized by the commissariat when required and with the permission of the general. It then virtually ceases to be regimental, and at the very time it was detached might be required for regimental purposes. All the carriage should be under a superintendent of transport, who, as the head of the transport department, would be the general officer's staff officer for transport, and communicate direct with him as the assistant adjutant-general or assistant quarter-master-general. The officer best fitted for this appointment would be a commissariat officer of recognized energy, practical experience, and administrative ability. All the carriage would be distributed by him when required and according to the requirements of the occasion. For the accounts of this department he should have a separate establishment with a responsible head. The carriage should be from the first told off to corps and departments according to their average probable requirements, and as far as practicable the same carriage and drivers always furnished to the same corps and the same departments. This would present no great difficulty if each corps and each department supplied for their carriage labels to be fastened on the animals showing the number of the regiment, &c., &c., and a badge for the drivers the names of whom at the commencement of the operations could be easily registered accordingly. The subordinate officers, non-commissioned officers and men making up the department should be supplied from every corps and department in proportion to the carriage required on an average for that corps or department. They should have special charge in the cattle lines of the carriage of their corps or department, and so in the interest of their own corps or department would see them under all circumstances well fed and cared for. Thus the advantages of the above division would be attained, but with the still greater advantage of one head to the whole transport department. Many difficulties would be avoided by a large reserve of transport, so that when animals were ailing there might be no necessity to go on working them till they are unable to work any longer.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

I consider the division a good one; but I think that (c), though controlled by the commissariat, should be under the supervision of

regular transport officers, and should be confined to bringing up supplies to a point to be fixed by the general commanding.

Hired and undisciplined transport should not, if it can be avoided, be brought within reach of an enemy; nor be allowed to hamper the movements of troops.

It answers well if properly carried out, I should say.

Lieutenant-Colonel R. S. Cleland,
9th Lancers.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

(a) The working of regimental transport is not so satisfactory as it would be, were competent Natives, wearing a badge or dress as mark of authority, selected to fill the position of superintendents or chowdries. These men should be responsible for the presence at all times of the regulated number of men with the camels, that they remain with their respective animals on the line of march (the greatest delay and blocks on the road being always attributable to the drivers tying all the camels in a string or falling out to smoke), and at the close of each day's march to see that the camels are duly fed. This want of common precaution cost us thousands of camels in Afghanistan.

Lieutenant-Colonel J. G. Le
Queane, 12th Royal Lancers.

The fighting men should not be compelled to look after their commissariat.

They are solely wanted for work. Yet, if requisitions be permitted, they could forage and feed themselves.

Major J. W. Chaplin, 8th Hus-
sars.

I can express no opinion that is really founded on experience; but, looking at the "division of transport" as quoted in this question, I think that it is good.

Colonel J. A. Ruddell, 1-25th
Regiment.

I am of opinion there should be one transport department, which should take charge of, supervise, and supply all the transport of the army.

Lieutenant-Colonel T. Rowland,
Commanding 1-5th Fusiliers.

I would only have the one source of supply, the transport corps. Regiments and departments should indent on this for their requirements: to be returned as soon as the service they were asked for is over. In the last war we were supposed to have our own regimental carriage; but it was taken away piecemeal, and returned in the same way, until I had no notion where it was. It would have been much better had it all been taken away and given back intact. I would exempt the ammunition mules. They require special training, and should be left with regiments.

Lieutenant-Colonel A. Temple-
man, Commanding 1-21st Fusiliers.

As far as my experience goes, it seems a good division.

Lieutenant-Colonel G. F. Walker,
Commanding 1-12th Foot.

I do not think the division of transport could be improved, except that I consider it would work better if the general or auxiliary transport was no longer to be under the commissariat.

Lieutenant-Colonel J. S. Hand,
Commanding 44th Regiment.

When on a war footing, I think the division good; but the whole should be regulated by transport officers under the director of transport, who should be an officer of the Commander-in-Chief's staff, working with the quarter-master-general.

Lieutenant-Colonel G. H. Parker,
92nd Highlanders.

I think it is good.

Major F. Stephen, 4th Battalion
Rifle Brigade.

The division seems good, supposing that (a) and (b) are really handed over to the departments named under those heads.

Major F. S. Terry, 1-25th King's
Own Borderers.

I do not think the arrangement sufficiently guarantees the economical use of the transport of an army. I think it would be better to make the transport (a) and (b) a separate department in war, leaving (c) still under the commissariat.

Major Hugh P. Pearson, 12th
Foot.

I have hitherto been considering transport only under the first of these headings, (a) Regimental. Under it I would include so much of the sub-heading Medical and Hospital as would provide for the wants of a hospital under the regimental system.

For the rest the division appears to be good.

For departmental and general transport, a working staff of officers and men would be required. The calls upon regiments are so great, that I am averse to add to them for the benefit of the transport department; nor is there, in my opinion, any necessity so to do.

Here is a field for the abilities of the general doing-duty officer, who could be thus utilized without extra expense to the State. Here could be found employment for selected warrant and non-commissioned officers and pensioners of the British service, who might wish to retire from more active duties, and yet be equal to many years' transport work; and for Native officers and soldiers who may have left the service.

These might be distributed according to their degree amongst the several commands of the army. It would be their duty to supply regiments and batteries with carriage, to settle with contractors, to pay establishments, to provide food for transport animals, to make themselves acquainted with the means in their district available for the expansion of the system for war or other purposes, and to act in all matters as the local agent, and under the orders of the superintendent.

Such would be their duties in times of peace.

In war, they would form the working and trained staff for the transport required under headings (b) and (c), in addition to the minor duties in connection with regimental transport (a), which would devolve upon them whether in quarters or in the field.

Major J. D. Dyson-Laurie, 34th Regiment.

I should be inclined to put commissariat and supply now in (b), and regulated by the staff (I presume the quarter-master-general's department) into (c), or the general division of transport under the commissariat department.

Major W. H. J. Clarke, 72nd Highlanders.

I consider the first two, *viz.*, (a) and (b), very good; but the latter, general transport, (c), should not be under the commissariat, but in charge of a regularly formed transport department.

Major G. S. White, 92nd Highlanders.

The regimental transport system, if more than a mere skeleton framework, would, if kept regimental, be very expensive. If used non-regimentally, there would be constant recrimination, dissatisfaction, and great friction in the working, resulting in want of interest and loss.

Col. C. R. O. Evans, Commanding Royal Artillery, Meerut Division.

I think this division of transport commendable.

Lieutenant-Colonel I. Ketchen, Royal Artillery.

(a) Regimental and (b) departmental.—No change appears desirable. (c) General should, I think, be under a distinct transport service, but the executive officers and establishment of this service, although quite distinct from the commissariat, should be under the same chief administrative officer as the commissariat.

That is, there should be one head to two departments of an army service corps.

Major H. C. Lewes, Commanding 1-st Royal Artillery.

When moving with troops as a division, each its own transport as above. But otherwise, *i.e.*, when transport is required for certain material, let the stores be given over to the transport department (receipts being passed), and let that department be solely responsible for the transit from place to place as required.

Major T. M. Hazelrigg, Commanding E-3rd Royal Artillery.

I would put all transport under the commissariat.

Major the Hon'ble A. Stewart, Commanding I-C Royal Horse Artillery.

It seems to me that it would be better to make the commissariat quite independent of the transport of the army, and thus avoid the risk of impeding the movements of the latter in any way. The army might occasionally be called upon to move rapidly and to be dependent for its supplies solely upon the country in which it was serving,

and not upon its own commissariat. Such arrangements would not interfere with the transport being occasionally lent to the commissariat department when not otherwise required. This would therefore necessitate a somewhat different division of transport, as under—

- | | |
|----------------------|--|
| (a) Regimental ... | } Including regimental hospital, independent of principal medical officer. Ordnance and ammunition under commandant, royal artillery; engineer park under commandant, royal engineers; medical, under principal medical officer; clothing, under quarter-master-general. |
| (b) Departmental ... | |
| (c) Commissariat ... | |
- supply daily.
supply general.

(a) and (b) being under regimental and departmental transport officers;

(c) under commissariat, with its own transport officers; all of course being under the orders of the staff.

Major C. E. Nairne, Royal Horse Artillery.

It appears to me, as I read it, to be answered in Nos. 1 and 7.

Major P. FitzG. Gallwey, Royal Artillery.

Taking it on the whole, I think it preferable to the general system, although it applies more to the transport of European armies, which is all wheeled carriage and less bulky than our trains.

Major W. H. Noble, Royal Artillery.

I think all transport should be under one head; but on field service, or for that portion of the army which should always be kept on an immediate war footing, the transport might be divided into regimental, departmental, and general.

For general supply of an army in the field the stage system should be adopted, aided by the contract system.

Captain G. C. Bayly, 13-8th Royal Artillery.

Vide answer 7.

Lieutenant E. C. Wace, R.A., No. 4 Hazara Mountain Battery, Punjab Frontier Force.

I consider this a good distribution of labor, but each section should be complete in its establishment. By thus giving each regiment and department the duty of supervising its own transport, it will be to the interest of each to make his own transport as effective as possible.

Great experience also will be gained by regimental officers in loading and the general care of pack-animals, their gear, &c. The mule and camel drivers will also be better cared for, and will have greater confidence when they begin to learn who are their real masters, the work they have to do,

and to whom they have to look to for their pay, clothing, &c. The regimental and departmental transport should, however, be under officers of the corps to which they belong, the whole interior economy of each transport passing through this officer's hands to the chief transport officer, similarly as it would do in cantonments, where only half the transport is kept up.

The commissariat would require a special officer to superintend their transport, their own work being too heavy to allow of any additional charge. In regiments one of the officers might be appointed to look after its transport, this officer being of course, so far as possible, the officer who has had charge of the regimental transport in time of peace. The officers so employed should, however, receive a staff allowance for these *additional* duties.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

I think that the administration of transport should be entrusted to a single department. But I think expenses might be greatly avoided by employing non-commissioned officers and Natives rather than commissioned officers, as was the case in late campaign.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

The division of the transport, detailed as *per contra*, is without doubt the best hitherto tried.

Brigadier-General C. J. Godby, Commanding Punjab Frontier Force.

I must refer the Commission to Colonel Nicholett's excellent memorandum for the reply to this question, subjoined:—

Memorandum by LIEUTENANT-COLONEL G. NICHOLETT, Commandant 29th (or 2nd Beluch) Regiment Bombay Native Infantry, on the formation of a transport train, called for by the Quarter-Master-General of the Army in letter No. 990 F.C. of the 26th March 1879.

No Government could afford in time of peace to keep up an amount of carriage sufficient for such a force as is now operating in Afghanistan; but the difficulties attending the collection and management of carriage would be much reduced if the resources of the country in that respect were more accurately known.

Collection of carriage.

It would not be difficult to register the names of all owners of camels, carts, and mules in a district, and the number of each which the owners might be expected to furnish if called upon. These registers might be periodically revised by the civil officers; and after each revision, returns might be made to general officers commanding districts of the amount of carriage available within their commands, and a general compilation of these separate returns might be made in the quarter-master-general or commissary-general's office. A skeleton map of the country, with each civil district marked on it, and the available carriage of each district entered, would then show at a glance whence carriage could be most conveniently drawn, and to what extent; and the civil officers, when applied to, would at once know from this register what individuals to call upon.

The owners would gain by this, as the pressure might be more equally distributed than it is now; and as all their names and possessions would be registered, they would find it very little use trying to evade any call made on them by running away and taking their animals with them, as they often do at present.

It would, I believe, be very beneficial to Government, and cause much less hardship to individuals if the system of contract was had recourse to more generally than it is now, more particularly with regard to convoys.

To mention one advantage only. When carriage is got by requisition from civil authorities, a great deal of it belongs to men owning perhaps two or three animals only. When any, or perhaps all, of these die early in a campaign, the loss to the owner is great, and the pay that he has received does not nearly cover it. This has been the case in many instances to my knowledge in the present campaign; and it is difficult to see how in such instances compensation can be refused.

On the other hand, if the contract system is adopted, the pay given at present rates to the contractor for large numbers of animals would enable him to take this risk upon himself; and it would be his interest to see that every possible care was taken to reduce mortality.

Organization of carriage.

As soon as carriage is collected, the question of organization arises; and for this purpose it may be

divided into three heads—

- (1) Regimental carriage;
- (2) Departmental;
- (3) Supply convoys, &c.;

and the principles to be kept in view in organizing a transport corps would appear to be that it should be such as would ensure the carriage being—

- (1) always adequate to the wants of the force;
- (2) always ready for movement;
- (3) always in the best possible condition.

The first requisite in an organization would seem to be a director of transport, whose duty it would be to supervise all the transport officers under him, to keep the component parts of the force adequately

supplied with carriage, to have a sufficient reserve in hand for the supply of deficiencies, to purchase animals on account of Government if necessary, and to arrange for reinforcements from the rear. In short, to keep himself at all times perfectly acquainted with the actual and probable requirements of the force, and to give his earnest attention to the production of the means by which those requirements may be met as soon as they arise.

The real requisite would appear to be transport officers for brigades, assisted by Native non-commissioned officers and soldiers drawn from regiments not on field service, and selected for their ability to

Transport officers of brigade.

keep accounts and, if possible, for some acquaintance with the nature of the animals they would have to deal with.

The brigade transport officer would have charge of the departmental carriage of his brigade, and would have in his hands the payment of all carriage, departmental and regimental.

The non-commissioned officers and soldiers would be told off to all departmental carriage, and if necessary to that of European corps and batteries, in a proportion of about one non-commissioned officer and one soldier to 100 camels, or more if requisite.

These men would assist in keeping the camel accounts, and would see that the animals under their charge were properly fed and looked after by the camelmen—points on which the men themselves cannot always be trusted, as many are too stingy to buy food when necessary; others are servants and not owners, and are careless about other people's property; and others are only too glad to get rid of their camels in order to be discharged from a disagreeable service.

These officers would be on the lines of communication, each in charge of certain stations; and the carriage under their control would be organized in the same way, under non-commissioned officers and soldiers.

In case of convoys, these latter would always, as far as possible, accompany the divisions of carriage to which they were attached.

As a large number of European soldiers now pass in the Native languages, it might be possible for European regiments and artillery to look after their own carriage. But as this would involve a good deal of exposure, and a knowledge of language does not necessarily suppose a knowledge of Natives, it would probably be better to organize it in the same way as departmental carriage, but to give it over to regimental charge in every respect except as to payment.

The carriage of Native regiments should be entirely handed over to them, except as to payment, which should be in the hands of the transport officer. This carriage requires no assistance from non-commissioned officers and men of the transport corps.

The payment of carriage should be entirely in the hands of the transport officers for several reasons. The camels of a brigade are a pretty constant quantity, but the number with regiments is always

varying. Transfers from one regiment to another, and from regiments to departments and back again, are continually happening. For instance, a force is ordered to move with 15 days' provisions per regiment. This at once necessitates the transfer of a number of camels which have hitherto been in some other charge. To take over regimentally all the accounts connected with these fresh camels would involve much work, and to transfer them all back again when the camels are given up would involve more; whereas when the owners of all carriage are in the transport officer's books, and he pays them all, temporary transfers produce no confusion, and cause no increase of paper work.

Again, camelmen are sometimes very troublesome people to deal with. They are always changing their *iltanamas* with one another, and making mistakes about them. Now, when all payments are in the transport officer's hands, he knows the men and the state of their accounts; and mistakes are not likely to happen.

Before the transport was organized by the appointment of transport officers to brigades, as it is now, regiments had great trouble about the payment of camelmen. Camels were taken away from them and others sent in their places. Some of their owners had *iltanamas*, some not; some acknowledged to having received pay, some denied it. Consequently it was very difficult, and in some instances impossible, to settle the accounts.

Since the transport officers were appointed, and have taken this into their own hands, everything has gone smoothly; and it does not matter whether a certain number of camels are with one regiment or another, or with commissariat or ordnance. If the camels permanently leave the brigade, the transport officer enters the last payment in the *iltanamas*, and strikes them off his books; and if any question arises about them afterwards, it is known where they came from, and the transport officer has their accounts; whereas at first, before the introduction of transport officers, it might be necessary to write to half a dozen regiments before the necessary information could be got.

Summary.

To summarize the above, it is proposed—

1st, that the available carriage in every collectorate in India should be registered, and periodical returns made of it;

2nd, that on the breaking out of war, a transport corps should be formed of director of transport Of transport officer, of brigade and of communications, and of Native non-commissioned officers and soldiers;

3rd, that the director of transport should give his time and attention chiefly to the keeping up the supply of carriage for the force;

4th, that a transport officer should be appointed to each brigade to take charge of the departmental carriage and to keep the accounts of the whole carriage of the brigade, regimental as well as departmental;

5th, that the carriage of European troops should be handed over to charge of regiments and batteries, but should be furnished with non-commissioned officers and men from the transport corps, and paid by the transport officer;

6th, that the carriage of Native troops should be in regimental charge in all respects except as to payment;

7th, that departmental carriage should be entirely under charge of the transport officer, and supervised by non-commissioned officers and men of the transport corps;

8th, that the carriage of supply should be organized in the same way and be under the control of transport officers appointed to the different stations on line of communication.

In such a country as Afghanistan, where the carriage of an army must necessarily consist for the most part of camels, and where extreme cold is at times endured, where the grazing is scanty and for the most part unsuitable for the animals brought from India, it is indispensable that the utmost attention should be paid to their clothing and food.

No camel should be allowed to come above the passes in cold weather without ample warm clothing, which should be made up and served out by Government; and there should be no cut-and-dried rules about food.

I believe there is a rule in the transport regulations that if camels get less than a certain number of hours' grazing per day, they are to have food given them, but not otherwise.

This test is a most fallacious one; for in one case camels may get on their ground at once, and find food plentiful enough for a good meal, whereas in another case they may be wandering about for the same number of hours and only picking up a little at long intervals. In these two cases the quantity of supplementary food required is evidently not the same; and as the necessary amount can only be determined on the spot, it should be left to be regulated by the local authority. But it should be always a liberal allowance; for the camel is a delicate animal, and soon dies if subjected to much fluctuation in the quantity of its food when kept in hard work.

The allowance of food to camels in the Crimea was 9lbs. of barley meal and 12lbs. of chopped straw, and, failing the latter, 18 lbs. of the first. There probably was little, if any, grazing in the Crimea; but the same may be said of most parts of Afghanistan that we have marched through.

CAMP KOKERAN; }
The 27th May 1879. }

G. NICHOLETTS, *Lieut.-Col.*,

Comdt., 29th (or 2nd Biluch) Regt., B. N. I.

Lieutenant-Colonel C. LeTouche,
Commandant Poona Horse.

I think the whole of the transport arrangements should be under one director, taking his orders from the quarter-master-general; any division of authority would in my opinion be a mistake. Commissariat officers have an abundance of work to do on the outbreak of hostilities, and the head of the department would have ample occupation in looking after the administration of the supply department, without having to arrange for the multiform details of a transport corps.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

Each regiment should have transport for its medical requirements and seven days' rations entirely under regimental organization and control. The same for departments. The general transport should be a kind of reserve for all requirements, and under the ordnance and engineer departments in (b), and under the commissariat in supplies of rations and forage only.

Major A. P. Palmer, 9th Bengal Cavalry.

The division is the best possible for a force in the field. Transport officers when in charge of carriage temporarily allotted to a department should, while complying as far as possible with all requisitions of the head of the department or his representative, receive all his orders through the superintendent of transport. No transport officers need be employed with (c) general transport, which should be managed and entirely controlled by the commissariat.

Colonel H. S. Obbard, Commandant 41st Bengal Infantry.

Although transport is made over to regiments and departments, and they should be held responsible for it under certain general directions, it still forms a portion of the transport train of the army; and I would have it all governed by one head.

Colonel E. Dandridge, Commanding 40th Native Infantry.

Vide answer 7.

Colonel G. W. Fraser, 39th Native Infantry.

(a) Regimental transport should, as now, be under regiments.
(b) Commissariat and supply should be under a special transport department; ordnance and artillery should be under regiments; medical, hospital, and engineers also regimental.
(c) Under special transport department.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Good, if the organization exists to a certain extent in peace, so that there may be no hitch in the transition from a peace to a war footing.

For example, it is useless having an elaborate paper organization for regimental transport if the latter does not exist, at all events in a skeleton form, in time of peace.

Lieutenant-Colonel R. J. Walker, Commandant 17th Native Infantry.

I think it a good division.

Lieutenant-Colonel R. G. Rogers, 20th Punjab Native Infantry.

Good; but the staff should in no way interfere with the control and management any more than with any other regimental or departmental matter.

The medical and hospital transport for regiments should be regimental (head a).

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

I consider this division of transport the best that could be devised under the system of supervision as proposed by me in answer 7—

(a) would be under regiments, the head transport officer of the division inspecting the cattle periodically;

(b) would be under the supervision of the head transport officer, assisted by the subordinates I have detailed;

(c) but European and Native non-commissioned officers and sepoy should supervise as in (b).

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

Not good. In my opinion all the transport should belong to one department, and be under one head. I quite agree in the advisability of dividing the carriage into three parts, keeping each part quite distinct. Still they ought to be all under one director. For instance, if by any accident any regiment should require extra carriage to make up for any loss caused by desertion or death, it would most likely have to be furnished from the general transport, as no other carriage could be so quickly procured, and the carriage might be required urgently; and if the general transport carriage belonged to another department, with other sets of rules and regulations, it would lead to great complication, and great delay and confusion in settling the accounts.

Major Sir B. P. Bromhead, 40th Native Infantry.

It is a bad arrangement. All three, (a), (b), and (c), should be under one management. (See next question and answer No. 10.)

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

So far as I can ascertain, this division generally maintains in India; and I believe the so-called regimental system to have been suggested by the experience of Indian campaigns and marches. In the Jowaki and Afghan campaigns there was great confusion owing to the troops reaching the bases before a sufficiency of carriage could be collected and being pushed on to the front. Under such devil-take-the-hindmost arrangements every makeshift had to be adopted to alternately push on food and men.

The 32nd received its carriage at Quetta, and retained it throughout, and so did every unit on our side; and we had no trouble, except when in the Thull-Chotiali country the regimental responsibility was interfered with.

I do not think the artillery and engineers should be departmental, as it is just as important for a battery or company of sappers and miners to have its carriage as any other unit.

The arrangement should therefore be—

(a) Regimental, including regimental medical.

(b) Departmental ...

- ... commissariat,
- ... ordnance.
- ... field park.
- ... medical (brigade, &c.)
- ... postal.
- ... telegraph.
- ... survey.

(c) General ...

... auxiliary general transport for convoys and to replace casualties.

(a) should be under regimental charge; every owner or attendant should be registered, have a number on a label, and provided with a certificate showing his employment up to date of his being made over to regiment. At standing camps the carriage to be lent or given up, as may be judged expedient. All carriage would be paid by regiments, who would render accounts to the commissariat department.

(b) should, in exactly the same way, be under the departments concerned; it should also be available for local purposes, under the orders of the officer commanding.

(c) should be under the orders of the officer commanding through the chief commissariat officer and his transport assistant.

Colonel H. Boiaragon, Commanding 4th Sikhs.

I prefer (a) regimental as far as is practicable; (a and b) regimental entirely.

Lieutenant-Colonel J. J. Boswell, Commanding 2nd Sikhs.

I would advocate there being only two sub-divisions, regimental and general, both under transport officers.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

That it should be all put under one head, viz., transport.

Major A. G. Ross, 1st Sikhs.

I approve of a *regimental* being under regiments. Also ordnance and artillery and engineers being under those corps. *Medical and hospital* I cannot speak to.

Commissariat and supply and general staff and odds and ends should be under the direct management of the transport corps.

(c) General (auxiliary transport) might be worked by commissariat of its own battalion.

N.B.—Transport

- ... regimental,
- ... ordnance and artillery,
- ... engineers,
- ... medical and hospital,

would be under these departments merely for feeding, grooming, and general care, discipline, and perhaps (as a matter of distribution) pay; but all matters of clothing, correspondence with home, remittances, pensions, &c., &c., should be worked through the officers of the transport corps, to whom the men revert the moment the regimental and departmental work is over. Regiments and departments should be only working agents over those portions of the transport corps temporarily entrusted to them.

Colonel W. A. Gib, Commandant 25th Madras Native Infantry.

I think this division of transport is good. I think as far as possible every department should look after its own transport. It is more likely to be taken care of.

Colonel S. Edwardes, Commanding 2nd Bombay Native Infantry.

The transport of regiments and batteries should be in regimental charge; the remainder regulated by the officer of the transport train.

Colonel H. H. James, Commanding 10th Bombay Native Infantry.

I can only give an opinion as to regimental transport, which, as stated before, I consider should be wholly under regimental control. I speak as to *efficiency*, but I am afraid there may be economical reasons which would militate against the plan. I believe the system exists in some frontier regiments, and is found to answer.

Colonel J. Fairbrother, Commanding 22nd Bombay Native Infantry.

I consider it a good division; but I am of opinion that it would be better to place it all under its own officers and staff, and let them distribute it as required.

Lieutenant-Colonel O. V. Tanner, Commanding 29th Bombay Native Infantry.

I think this division good; and the regimental transport should never be interfered with, or taken away for other purposes, as it was in the Kandahar column in Afghanistan.

Colonel J. I. Willes, Commissary-General, Bengal.

It cannot be said that the transport has yet been divided as detailed; it is simply being tried in a very crude way. To judge from the hopeless state of confusion in which the 1st Division Khyber Force carriage was given up to the commissariat after the war, I should say, if I was not sanguine that in other divisions there was more system, that it was a most utter failure. The first point to be considered, and the first necessity for transport for an army, is to *have it*; then to have officers who take an interest in the duties, understand the language of the attendants, their wants,—patience to listen to their wants and grievances. A more inefficient body of officers, with few exceptions, than were made available for transport duty on the late war it is impossible to imagine; and yet to get these there was the greatest difficulty, as I was often assured by the adjutant-general. The carriage, with one-fourth number of selected officers placed at my disposal, with Native subordinates, would have been far more efficient, and the accounts would have been more easily settled. There never was a greater mistake than attempting to have a separate transport without a day to organize it. It was simply catching camels, mules, ponies, anywhere and everywhere. All were pressed, and ready to desert at the first opportunity; which was most effectively done with the Kandahar Force, the history of which, if ever written, would tend more than anything else to convince any one that transport in India cannot be arranged for in a day, as had to be attempted in the late war.

Colonel R. A. Moore, Acting Commissary-General, Madras.

This division of the transport does not seem suited to meet the wants of an army in India. A regimental system of transport is well adapted for local regiments of Native irregular cavalry, whose wants are few. But for British infantry and cavalry, which after a few years' service in one presidency may be removed to another or sent home, a regimental system of transport would not apparently answer; and it would be better in time of war to attach a commissariat officer to each regiment, to provide for all its wants.

Lieutenant-Colonel M. W. Wilmoughly, Acting Commissary-General, Bombay.

I am of opinion that the regimental transport (a) should be in regimental charge: see reply to questions 14, 16, this paper. The carriage for the departments (b) would be supplied from the transport train or transport corps, and would remain at the service of each department, working under its own officers and subordinates. The auxiliary transport should, I think, be organized by, and in connection with, the transport train.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

The division of the transport is, in my opinion; good, but the responsibility of commanding and departmental officers must be more clearly impressed on them, and more distinctly enforced than in this campaign. *The whole of the general and commissariat departmental transport was absorbed to replace desertions, casualties, and inefficient cattle among the regimental transport animals.*

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

The transport under the heads (a) and (b) has not been, I consider, regulated by the staff, but has been only for the time being at the disposal of or attached to regiments and departments; the entire management of everything connected with their returns is in the hands of the general accounting for them, resting with the commissariat department. I quite approve of transport under heads (a) and (b) being superintended by the staff, and that under (c) by commissariat; but my opinion is that the commissariat department is too under-officered to be capable of managing the transport of a large force in the field, and the method adopted in the recent campaign, of attaching at the last moment a number of inexperienced officers as an auxiliary branch to the commissariat, has been found a complete failure.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

All should be under the commissariat. Regimental commissariat, supply, medical, and hospital are; but at present there are not sufficient officers of all grades in the department. Hence practically they may fall under the staff and commanding officers.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

This allotment of the transport of the army is the old system, which was worked by the commissariat department only previous to the Cabul campaign. The carriage was made over to regiments and other departments, but it was commissariat, and was looked after by

the department. If that is now to be done by a new transport department, well and good. But if the carriage is to be under regimental or departmental officers, who are to work the cattle, and, when they are expended, to ask the transport officer for more, no amount of reserve obtainable will stand the drain. What will the engineer, the ordnance, the medical officer, care for the cattle? Work them out and get more, complain they are not good enough, and get others, will be their cry.

The transport of the army must be under the department that entertains it, and is responsible for it.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-
General, Bengal.

I think the division of transport good. It refers of course to field service. The drawback to it is that much organization is required before troops can take the field with the transport in an efficient state of discipline.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

In the late Southern Afghanistan Field Force the whole of the transport, as classified in the above question, was under the control of the commissariat, as will be seen from the following transport rules:—

The formation of a transport train having been ordered by Government for service with the troops ordered on service, the following rules are laid down for guidance of all officers concerned:—

At present 3 assistants are required—	
For Kohat	1
„ Quetta	1
„ Dera Ghazi Khan	1
At present assistant superintendents are required—	
For Kohat	6
„ Quetta	6
„ Dera Ghazi Khan	17
At present there will be required Native officers or men of cavalry regiments—	
For Kohat	30
„ Quetta	30
„ Dera Ghazi Khan	85

1 Assistant superintendent for every 1,000 camels, 500 carts, or 1,000 mules	Staff salary.
4 superintendents of transport, field officers or captains	Rs. 300
5 Native officers, jemadars, duffadars, troopers of cavalry regiments, for every assistant superintendent, mounted	„ 150
	„ 20 for jemadar.
	„ 15 „ duffadar.
	„ 8 „ sowar.

The attendants for camels and mules will be provided by contractors—one Camelman to three camels, one muleteer to three mules, one cartman to each cart.

A naib-chowdry on Rs. 50 to every 1,000 camels; a mule chowdry on Rs. 50 to every 1,000 mules; a hackery chowdry on Rs. 50 to every 1,000 carts; those attendants will be under the orders of the assistant superintendents of transport.

Duties of transport officers.

1. A superintendent of transport will be attached to each division of the army; an assistant superintendent to each brigade, to assist the military officers in looking after the transport with each regiment.

2. Commanding officers will retain with their regiments all the transport required for the military equipment of their corps and all private carriage, and they will sign monthly returns of the carriage so placed under their orders.

3. Commanding officers will return to the commissariat through their transport officer all private carriage which may become surplus, and which will not be required again (nor can it be replaced), and the transport officer will arrange with commissariat for the monthly payment of all carriage, public and private; department for the total private hire, as per the monthly returns which they will sign; audit department officers will, therefore, see that all private carriage hire is recovered and credited in public accounts to Government month by month.

4. It will be the special duty of commanding officers to see that carriage made over to their charge is kept in an efficient state, and no carriage will be changed by transport officers, unless satisfactory reasons are given for the cause of the cattle having become inefficient.

5. Transport officers will direct their special attention to the following points:—
The transport officers will carefully see to the condition of the gear of all the animals.
The naib-chowdries to be forced to repair or renew all unserviceable gear.

6. They will select under orders of officer commanding safe and good grazing grounds, and send a Native assistant out with cattle while grazing.

7. They will see that all the cattle and stores are picketed in regular order, and in spots approved of by commanding officers.

8. A hospital for sick or diseased animals to be formed at some distance from healthy animals, and assistance of veterinary surgeon called for.

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9. One line of march all the transport officers and their assistants to move with their respective transport, and to wear some mark whereby they can be distinguished as officers of their transport train.

10. They will keep order on the line of march, and with spare attendants, 10 men taken from each batch of 1,000 camels, assist in reloading animals who have thrown or dropped their loads, and in removing obstacles such as broken carts, &c.

To place transport in a place of safety when column is attacked and to clear road for troops. 11. They will on occasions of the enemy attacking a convoy place all the animals in a sheltered spot until attack is repelled.

12. They will warn the naib-chowdries to purchase food where grazing is scarce, and it will be their duty to ensure the animals being well fed and cared for, reporting all neglect on the part of the naib-chowdries to the superintendent of transport, who will recommend fines to be inflicted on the chowdry in all cases of neglect.

13. They will endeavour to enforce punctuality and regularity on the part of the attendants, and they will see that animals are not kept laden longer than is necessary, by not loading before they are required to move, and by unloading them as soon after arrival at camp as possible. The transport officers will be in constant communication with the staff officers on this particular point, so as to ensure this being carried out carefully.

14. They will only comply with requisitions for carriage on indents after they have been signed by the commissariat officer of the division or brigade, without whose sanction no alteration in the distribution of carriage should be made.

To consult commissariat officer in matters of difficulty. 15. In all matters of doubt or difficulty they will consult the commissariat officer of the brigade or division.

16. As transport with stores becomes available, it will be sent back under orders of commissariat officers to the depôts in rear, with or without convoy, as the state of the country through which it will pass requires, and as the general commanding may decide.

17. The transport officers will always return with the same batch of animals as they take down to the depôt, and will bring up with them a duplicate of the invoice: the owners of the carriage are responsible for the stores laden on their animals or carts.

18. Transport for the ordnance and engineer departments will be made over to officers of those departments, and an assistant superintendent of transport will be detailed for duty with each of these departments. Carriage that becomes surplus after expenditure of stores will be made over to the superintendent of the division.

19. The superintendent of divisions will keep rolls of all transport, and arrange in communication with the commissariat officer for the payment of the owners through the chowdries.

Superintendent of transport of division to keep roll of all transport. 20. The superintendent of transport of each division will countersign every roll of carriage before sending it to the commissariat officer for check and payment.

To countersign all rolls of commanding officers and others. 21. All Government carriage, elephants, mules, bullocks, will be fed by a cattle agent with each brigade or division. These will generally be attached to regiments or departments, and will be supervised by the assistant superintendent of transport of each brigade.

Government cattle fed by agents to be supervised by transport officers. 22. The hired mules to be trained and organized on the same system as that of the Rawal Pindi and Peshawar mule trains.

Mule train of hired mules to be organized on Government system at Rawal Pindi and Peshawar. 23. They are formed in divisions of 100 mules under a jemadar on Rs. 15 per mensem, with two duffadars on Rs. 12 per mensem, to enforce orders and maintain discipline.

24. The loads fixed for the different animals are as follows:—

- elephants 16 to 20 maunds, according to size of animal.
- camels, 4 maunds.
- mules, 2 „
- carts, 4 „ per bullock.

It is the special duty of transport officers to see that these loads are not exceeded, as animals will break down after a long march.

Care of elephants.

Medicine for sick cattle.

25. Printed instructions regarding care, &c., of elephants are sent to each transport officer.

26. Transport officers will carry a supply of ordinary medicines, and will apply for services of a veterinary surgeon in extraordinary cases of disease.

27. The general officer will direct in what position on the column of march each class of transport is to be; and transport officers will enforce strict attention to this rule, and arrange that the different batches of transport are ready to take up their position at the proper time: loading animals before they are required will thus be avoided.

Position in column of each class for transport.

Camp equipage	...	...	...	1
„ baggage	...	...	...	2
Ammunition	...	...	...	3
Regimental stores and provisions	...	...	...	4
General stores	...	...	...	5

28. Stores should generally be placed within a circle and the cattle placed outside all round. This formation is a protection against thieves, and is the best for resisting a sudden attack of the enemy on any convoy.

Stores to be placed inside a circle, and cattle round outside.

Strictest silence enforced after dark.

29. To ensure rest for men and animals, the strictest silence should be enforced, and flying sentries placed round all cattle encamping-grounds.

30. In conclusion the transport officers must use great tact and discretion in dealing with the transport attendants, who are nearly all hired men, speaking various dialects. They will find Native soldiers and others of much assistance in conveying their orders to the chowdries and attendants. They should therefore use these men freely in communicating with the Native attendants: they will find it much easier to enforce discipline by so doing.

T. H. SIBLEY, Colonel,
Deputy Commissary-General and
Chief Commissariat Officer in the Field.

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

The division is satisfactory enough if officers commanding regiments and departments or in charge of convoys recognized their responsibility and kept up regular rolls, showing deaths, receipts, transfers, food supplied, &c., day by day, and were so enabled to give all and every information regarding the transport, making it over afterwards with documents complete.

J. H. B. Hallen, Esq., General
Superintendent of Horse-Breeding
Operations.

All transport should be furnished and allotted by the director and his assistants. Only one rate—field service rate—of tentage and baggage should be allowed for every officer and man, and should under no circumstances be exceeded. Likewise, transport would be obtained by the commissariat and other departments in time of war by indent on the director.

10. Should the transport be a separate department, or should it be under the commissariat, in peace and war?

Lieutenant-General C. T. Chamberlain, C.S.I., late Commanding
Oudh Division.

The *general* transport should in my opinion be under the commissariat in peace and in war. The work it would have to do will always appertain to that department, and there would be more unity of purpose if so organized, than if there were a *separate* transport department upon which the commissariat department *would be dependent*.

All the departments included under clause (b), question 9, now look to the commissariat for transport; and if the new system be incorporated in the commissariat, the head of the latter would be the head of both, and districts would be under the district or circle deputies commissary-general, who have all subsidiary arrangements to make when troops take the field. There has already been some experience in the Khyber of the want of unity between the commissariat department and the transport officers, from the latter being independent; and it appears to me that separating the two is the weakening of responsibility, which of all things is to be deprecated.

Lieutenant-General W. T. Hughes, C.B., Commanding Sirhind
Division.

I think that both in peace and war the commissariat (supply) department should be altogether distinct from that of the transport.

Lieutenant-General J. Forbes,
Commanding Mhow Division.

No; it should not be a separate department. It should be under the commissariat, excepting the regimental transport referred to below. The latter should include the service ammunition, 200 rounds.

Major-Genl. R. G. Bright, C.B.,
Comdg. Hyderabad Army Force.

Under the commissariat.

Major-General R. G. Bright, C.B.,
Commanding Meerut Division.

Unless an enormous transport establishment is maintained in peace time, I do not see how it is possible to separate it from the commissariat in war time to the extent suggested in last answer.

Major-General H. B. Browne,
Commanding Sangar District.

I do not see that it is possible in time of peace to maintain transport to any extent sufficient to afford even moderate training to officers and men of a separate transport department.

The commissariat officers acquire this training to a great extent in the course of their ordinary duties, as they have a large acquaintance in the sources of supply, and are accustomed to movements of stores and troops.

I think on every ground transport in India should remain under commissariat direction.

Major-General J. W. Schneider,
C.B., Commanding Northern Division,
Bombay Army.

The transport should be under the commissariat in peace and war, to prevent friction with another department. This question seems to have been fully considered by the Committee appointed by the War Office in 1865, over which Lord Strathnairn presided.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

It should be a separate department; and it is essential to success that the officer appointed to its head should be carefully selected.

Brigadier-General F. G. Kempton,
Commanding Ceded Districts.

A separate department, totally distinct from commissariat, both in time of peace and war.

Brigadier-General T. J. Murray,
C.B., Mooltan Brigade.

If possible, a separate department, both in peace and war, and certainly in war.

Colonel J. A. Tytler, C.B., V.O.,
Commanding 4th Goorkhas.

The transport both in peace; and war should be a separate department, and not under the commissariat, except as regards providing and keeping up reserve animals, &c., as recommended in reply No. 8.

Colonel H. K. Burne, C.B., Secretary to the Government of India,
Military Department.

Under the commissariat department in peace; and in war generally under that department, but managed by a district transport branch, for which a nucleus might be kept up in time of peace capable of expansion when required.

Colonel J. Macdonald, Secretary to Government of Bombay, Military Department.

Yes, if the State can afford to keep up a well-trained separate establishment; but for the sake of economy during peace the carriage may be advantageously left in charge of the commissariat department.

Colonel A. H. Murray, Deputy Adjutant-General R. A. in India.

Separate most certainly.

Lieutenant-Colonel A. G. T. Hogg, Deputy Quarter-Master-General, Bombay.

Transport should be a separate department; and certainly not under commissariat, either in peace or war. No department of supply can control transport arrangements so well as the military commander.

Lieutenant-Colonel H. A. Little, Officiating Deputy Assistant Quarter-Master-General.

additions being obtained by application from the general officer commanding through the quarter-master-general, and, when sanctioned by Government on the recommendation of the Commander-in-Chief, supplied by the commissary-general. The commissary-general should not be called upon to be in any way responsible for the amount of carriage he supplied, nor for its disposal, nor for its subsequent condition. He should alone be the agent through whom the carriage is originally procured. The general officer would be responsible for always having his full requirements in carriage; that is, for always stating his wants in ample time to allow of their being complied with, for the condition of the carriage and for its organization and disposal; and for this he would have a transport superintendent.

Under the commissariat in peace; in war a separate department in the field, presided over by a commissariat officer, who should be subject to the orders of no one except the general officer commanding. The commissary-general should in the first instance provide all carriage and all reinforcements for the carriage originally supplied, such

Major A. A. A. Kinloch, Deputy Assistant Quarter-Master-General.

In my opinion it should certainly be quite independent of the commissariat at all times.

Lieutenant-Colonel R. Blundell, 3rd Hussars.

I think all transport, excepting that required by regiments to move them, and that required by the ordnance artillery and engineers to move them, should be under the commissariat. I don't think that it should be a separate department, but a department of the commissariat.

Lieutenant-Colonel R. S. Cleland, 9th Lancers.

I should think commissariat.

Lieutenant-Colonel Lord R. D. Kerr, Commanding 10th Hussars.

The transport should most certainly be a separate department, at no time under commissariat control, whether in peace or war. It is, I think, freely admitted that in war the departments should be distinct; but to amalgamate them in peace time and inaugurate a new system on declaration of war would be a cause of hopeless confusion, waste of public money, and inefficiency the result.

Lieutenant-Colonel J. C. Le Queuse, 12th Royal Lancers.

Regimental transport, managed solely by regiment.

Lieutenant-Colonel G. Luck, Commanding 16th Hussars.

Should certainly be a separate department.

Major J. W. Chaplin, 8th Hussars.

I consider that the transport should be under the commissariat in peace and war. If not, I hardly see how they could be kept in a state of efficiency in time of peace.

Major E. A. Wood, 10th Hussars.

In my opinion it should always be a separate department, and should never, under any circumstances, be under the orders of the commissariat.

It is a quite sufficiently important and large business to require special men, specially trained for its proper execution.

The commissariat also have quite enough to do without having to undertake the responsibilities of a transport service in addition to their own labors.

Captain J. A. S. Mackenzie, 9th Lancers.

The transport should be a department of itself, both in peace and war, so that there might be no clashing with the commissariat. The transport department would then alone be responsible for the carriage of the army.

Colonel J. A. Ruddell, 1-25th Regiment.

Lieutenant-Colonel T. Rowland, Commanding 1-5th Fusiliers.

Lieutenant-Colonel M. Macgregor, 1-18th (The Royal Irish).

Lieutenant-Colonel A. Templeman, Commanding 1-21st Fusiliers.

Lieutenant-Colonel G. F. Walker, Commanding 1-12th Foot.

Lieutenant-Colonel G. W. Pugh, Commanding 34th Regiment.

Lieutenant-Colonel J. S. Hand, Commanding 44th Regiment.

Lieutenant-Colonel C. B. Knowles, Commanding 67th Regiment.

Lieutenant-Colonel G. H. Parker, 92nd Highlanders.

Major F. Stephen, 4th Battalion Rifle Brigade.

Major F. S. Terry, 1-25th King's Own Borderers.

Major Hugh P. Pearson, 12th Foot.

Major J. H. Campbell, 33rd Regiment.

Major J. D. Dyson-Laurie, 34th Regiment.

Major W. H. J. Clarke, 72nd Highlanders.

Captain H. M. L. Hutchison, 1-14th (P. W. O.) Regiment.

Colonel C. R. O. Evans, Commanding Royal Artillery Recruit Division.

Lieutenant-Colonel I. Ketchen, Royal Artillery.

Major H. C. Lewes, Commanding 1-1st Royal Artillery.

Major E. T. Hume, Comdg. C-C Royal Horse Artillery.

Major W. W. Murdoch, Commanding E-A Royal Horse Artillery.

Answered by the previous answer (9).

A separate department.

It should be under the commissariat at all times.

I have had no experience of the internal working of these departments; but the fewer departments a regiment has to deal with in obtaining the requirements of moving the better.

I certainly think transport and commissariat should be separate departments, both in peace and war.

In my opinion, always under the commissariat.

Separate department, both in peace and war.

Consider there should be a separate department to supply regimental and general transport at the commencement of a campaign. A nucleus of the transport department to be maintained during peace, commanded by trained and experienced officers belonging to the department.

Under the commissariat in peace; a separate department in time of war.

Separate, as previously suggested (*vide* answer to question 7).

In peace a moveable establishment sufficient for a fixed proportion of regimental and departmental transport should be handed over to a sub-commissariat department for transport with autonomous organization, but subject to inspection and regulation (so far as keeping up its readiness for war is concerned) by a director and inspectors attached to the quarter-master-general's department.

In war I should recommend that this portion of the commissariat department, *viz.*, the regimental and departmental (a) and (b), expanded to requirements should be separated from the commissariat department and handed over to the director of transport; (c) still remaining under the commissariat, as also the responsibility of the supply of fresh animals indented for by the director of transport as required.

It should be a separate department, independent of the commissariat at all times. Its duties would be to supply every department and branch of the service with authorized carriage.

Certainly a separate department. By mixing two distinct services confusion only arises. The commissariat officer, however good, has sufficient work without having the transport.

I considered that the transport might have been administered successfully as a sub-department under the commissariat; but the experience of the late war inclines me to believe that a separation had better take place.

It should be under a separate department, both in peace and war.

Separate from commissariat.

I do not advocate a separate transport department for this country. The commissariat department, if made more of an army department and less a civil one, would in my opinion be more generally efficient for all war purposes.

Separate, as in last reply.

The transport department of the army service corps should supply all carriage required by the commissariat department of the same corps, as well as to regiments and other departments both in peace and war.

A separate department, responsible to the quarter-master-general.

It should be a separate department, both in peace and war.

The transport should, I consider, be a separate service in peace and war. The commissariat officer would have quite enough to do without the transport.

By having the transport separate, you would get officers who would study the subject. Regimental officers might be attached to a transport establishment for a short time for instruction.

Major T. M. Hazelrigg, Commanding E-3rd Royal Artillery.

Major the Hon'ble A. Stewart, Commanding I-C Royal Horse Artillery.

Major C. E. Nairn, Royal Horse Artillery.

Major P. FitzG. Gallwey, Royal Artillery.

Major W. H. Noble, Royal Artillery.

Captain G. C. Bayley, 13-8th Royal Artillery.

Lieutenant E. C. Wace, R.A., No. 4 Hazara Mountain Battery, Punjab Frontier Force.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

Captain M. G. Barrard, 2nd Central India Horse.

Brigadier-General C. J. Godby, Commanding Punjab Frontier Force.

Lieutenant-Colonel C. La Touche, Commandant Poona Horse.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

Major A. P. Palmer, 9th Bengal Cavalry.

Colonel J. Doran, Commanding 27th Punjab Native Infantry.

Colonel H. S. Obbard, Commandant 41st Native Infantry.

Colonel E. Dendridge, Commanding 40th Native Infantry.

Colonel G. W. Fraser, 89th Native Infantry.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Lieutenant-Colonel R. J. Walker, Commandant 17th Native Infantry.

No.—It should be under the commissariat in peace and war.

The transport department undoubtedly should be a separate department from commissariat in time of war, and therefore in time of peace, as nothing is more fatal than changing a system at the critical moment of war.

Undoubtedly separate.

The commissariat department have already more work than they can properly perform. The only transport they have under them in peacetime that I know of are the bullocks for second line wagons of artillery, which are almost invariably neglected and out of condition; and that this is from imperfect supervision is shown by the fact of their improving in condition directly they are made over to batteries for march or service.

No; only a branch of the commissariat, which latter should be divided into supply and transport; but both under the same department in peace and war.

I am in favor of a separate transport department. The legitimate duty of the commissariat is to provide and issue supplies.

Ne eutor ultra crepidam.

Vide answer 7.

A separate department in peace and war. For all questions of transport the commissariat should be considered as distinct as any other department.

From what I saw and heard on the frontier in the late campaign, I think the transport should be a separate department.

Should the transport be placed in a military organization, it should be a separate department, or associated with the quarter-master-general's department; but under no circumstances placed under the commissariat.

A separate department most decidedly, no matter how skeleton the framework in time of peace.

As regards supply it should be under the commissariat, but that the commissariat control over all carriage made over to transport department should cease.

I am an advocate for relieving the commissariat altogether of carriage arrangements, and having the transport in a separate department both in peace and war.

With the exception of that under regimental control, I think all the rest should be under the commissariat, both in peace and war. The hand work of the commissariat peace establishment would naturally be larger than those of regiments and departments.

No portion of the transport department that has a military organization should be under the commissariat in peace or war.

I should say a separate department; but in the case of Native army, I would suggest the transport being under regiments both in peace and war.

The transport should be under the commissariat both in peace and war. But I think it would be a good plan to appoint superior officers as superintendents of transport: *vide answer 7 (a).*

Vide answer 7.

I consider it should be an entirely separate department, distinct from the commissariat both in peace and war.

Have but little experience of the subject, but am of opinion that, to avoid friction, the transport officers should be subordinate to the commissariat.

Actual transport duties do not require the supervision of superior officers. Active young subalterns are quite capable of looking after their own particular sections of the *train*, receiving their orders direct from the commissariat officers of the column.

I think the transport should be under the commissariat at all times; but I would make it a more separate branch of that department than it is now.

Lieutenant-Colonel E. G. Rogers,
20th Punjab Native Infantry.

The regimental transport should be entirely under regimental control at all times, as should that of the artillery; the departmental and general under the commissariat or special transport department. All should be available for Government work at all times under the orders of general officers commanding.

The commissariat (or transport if established) should alone purchase to avoid multiplicity of purchasers and enhancing of rates; and all transport should before purchase be passed by competent committees, as are remounts.

Lieutenant-Colonel F. B. Norman,
Commanding 24th Punjab Native Infantry.

Under the commissariat both in peace and war. In war an officer of the department, relieved from all other duties, to have the general superintendence of the transport of a division, with subordinates as already detailed. I consider it most undesirable to increase the number of departments.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

It should be an entirely distinct department, having its own officers; and should be under the orders of its own director, who would take his instructions from the quarter-master-general, or, in time of war, from the general officer commanding.

Major Sir B. P. Bromhead, 40th Native Infantry.

I am well aware that this is a burning question. I however, after my own experience and observation, have no hesitation in saying that the transport, at all times, should be under the commissariat. In time of peace, if a system of regimental transport be adopted, there would be no regular transport establishment kept up, and there would be little even for the commissariat to do. In time of war, the transport officers and men would each have clearly defined duties and responsibilities,—see accompanying* memorandum; and though subordinate to it, the commissariat should not interfere with them, but limit its connection with them to giving them timely notice of all transport required, helping them to obtain forage and supplies for their cattle and drivers (in an enemy's country it may happen that the commissariat is the only source of supply), and—this really is one of the chief reasons why the transport service must be attached to the commissariat department—examine, audit, and settle all their accounts.

Major A. C. W. Crookshank,
Commanding 32nd Pioneers.

I have answered this in my replies to questions 7 and 8. The transport should be entirely under the commissariat department in time of peace, and form a separate sub-department in time of war.

In time of peace the commissariat department, who mostly use transport, have a large framework already in existence, and the executive commissariat officer can always act in a dual capacity when he has no assistant for transport.

I deprecate separate departments. Once create a civil or military department, however small, and it begins to make work and grow. First an assistant is wanted, then a deputy, here a clerk and there a clerk, chaprassies and office servants multiply, rent, &c., increases, until in a short time you have an overgrown department which has to be cut down.

We have already far too many departments.

Major F. F. Rowcroft, 4th Goozkhas.

It should, in my opinion, be either in peace or war quite a separate department.

Colonel H. Boisragon, Commanding 4th Sikhs.

Separate entirely as a transport department, and the sooner the better. The commissariat department has always, in peace and war, more than enough to do departmentally, and would, with the transport addition, probably cause a breakdown.

Lieutenant-Colonel J. J. Boswell,
Commanding 2nd Sikhs.

Entirely separate, both in peace and war, from commissariat department.

Lieut.-Colonel F. T. Bainbridge,
4th Sikhs.

I am of opinion that it would be better to be a separate department at all times.

Major A. G. [unclear] khs.

It should be separate in peace and war, and quite apart from commissariat. In war the transport should be generally controlled by the quarter-master-general or deputy quarter-master-general.

Colonel W. A. Gib, Commandant
25th Madras Native Infantry.

If expense is no object, by all means have the transport a separate department. The commissariat must have enough to do without that; but two departments instead of one means more expense. Perhaps it would be cheaper if it were made a branch of the commissariat department.

Colonel S. Edwardes, Commanding
2nd Bombay Native Infantry.

There should be one department called the "commissariat and transport department," and forming a branch of the general staff of the army. The officers should be conversant with both the commissariat and transport duties, and be employed as occasion required on either.

Colonel W. Bannerman, 4th Bombay Rifles.

I am of opinion that the transport should be distinct from the commissariat.

Colonel H. H. James, Commanding
10th Bombay Native Infantry.

Separate from the commissariat in peace and war.

Colonel J. Fairbrother, Commanding
22nd Bombay Native Infantry.

A separate establishment in peace and war.

Lieutenant-Colonel O. V. Tanner,
Commanding 29th Bombay N. I.

It should be under the commissariat, who are responsible for supply.

Colonel J. I. Willes, Commissary-
General, Bengal.

All transport must be under one department, whether commissariat or another. It cannot be expected that camels at one time in charge of commissariat, can at another work under, say, quarter-master-general, with "scratch" officers hastily collected together. I say, let the transport—that is, every description of animals—be at all times under one department. I am quite certain at the same time that no other but the commissariat can manage it, unless another department is trained to it.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

The difficult task of supplying an army in the field is simplified by unity of control, and by all concerned working under one lead and in one department. Instead, therefore, of creating a new department such as the transport-corps, when war breaks out it would seem preferable to attach the additional officers required for supply and transport to the commissariat department. Without transport, the commissariat cannot furnish the supplies on which the subsistence of the whole army depends; and one of its chief duties, which cannot well be dis severed from it, is to keep up the requisite transport. It also appears advisable that the department which in time of peace renders to Government the accounts for the expenditure for army supplies and transport should continue to do so in time of war.

Lieut.-Colonel M. W. Willoughby,
Acting Commissary-General, Bom-
bay.

The transport should be under the commissariat, both in peace and war. In India at the present time it is practically under the commissariat in peace time, and the whole of the duties connected with its pay, equipment, employment, and all matters of interior economy fall upon executive commissariat officers in whose charge it is placed, and to whom

it is indebted for such discipline and organization as it possesses; but these duties, in addition to its own legitimate work, are too heavy for any one officer to perform properly, and therefore in peace time an additional officer, who should be subordinate to the commissariat department, should be appointed to the charge of the field column carriage at each large centre. In war the head of the transport should be subordinate to, and receive his orders from, the commissary-general with the force, the staff of officers of the train being entirely distinct from the commissariat, under the orders and at the entire disposal of the head of the transport.

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

The transport is so intimately connected with the commissariat, that I am of opinion it should be under it both in peace and in war.

Colonel M. J. Brander, Officiating
Deputy Commissary-General, Cal-
cutta.

Both have been tried. In Abyssinia I believe a distinct transport department was kept up under its own director, who was subordinate to a controller, the latter being the senior commissariat officer in the field. But I have been informed that the accounts, returns, &c., of this department at the end of the campaign were in a state of utter confusion,

and never could be cleared up. In the late campaign the transport officers were under the direct control of the commissariat; but owing to their want of training, inexperience, and general unfitness for the work, this system failed. From both the above instances it may be deduced that a fully-officed and a previously-trained body of officers to manage the transport in time of war is absolutely necessary. As shown in my answer to question 7, I consider the transport should be under a separate department in time of war, but not in time of peace; the present commissariat organization being sufficient for all such requirements, and the transport ordinarily maintained being quite insufficient to give occupation as to its management to a separate branch of the service.

Colonel J. Keer, Deputy Com-
missary-General, Lower Circle,
Bengal.

It should be under the department which has most to do with carriage, viz., the commissariat, both in peace and war, I can see no ground in having a separate transport service. It would, I believe, greatly add to expense, and difficulties would arise, if not under the commissariat.

I know of no training so excellent as that which an officer or warrant officer gets in the department for transport work. New hands of any grade, with few exceptions, are almost useless. Non-commissioned officers whilst in their regiments have no dealings worth having with Natives, and can seldom speak the language; but this they learn in times of peace in the department, and they, if not stupid, learn good business habits, become efficient and able to act with confidence and decision.

Colonel G. S. Macbean, Deputy
Commissary-General, late in Com-
missariat charge of the Khyber
and Kuram Forces.

If the commissariat department is to be greatly increased in strength of officers and warrant officers, leave the transport under it. If not, institute a separate department; for at present commissariat officers have a great deal too much work on their hands, and will be glad of the relief.

Colonel R. C. Mainwaring,
Deputy Assistant Commissary-
General, Kamptee.

The transport should not be a separate department, as the more departments there are, the more hitches there are in work; and the commissariat is completely dependent on transport both in peace and war.

The absurdity of the present system of having the transport in charge of the commissariat and belonging to the quarter-master-general's department is glaringly exemplified in this cantonment,* which is four miles long from east to west. If the artillery or European regiment require a cart, the requisition must be sent from their quarters in the extreme east, past this office, to the quarter-master-general's at the west end, whence it returns to this office in the centre, and the order goes to the cattle lines in the east end. Either the quarter-master-general's department should take charge of the cattle, in the same manner as the cavalry and artillery do, or it should be left entirely to this department; but this will

* Kamptee.

probably never be accomplished until English generals learn to consider an executive commissariat officer as much a part of the working staff of a division as the assistant quarter-master-general.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-
General, Bengal.

I consider that the transport should be under the commissariat, both in peace and war. Its separation from the commissariat during peace time would be creation of great expense; and I cannot see how it can be worked separately, unless the supply of carriage, as well as its management, be entirely taken out of the hands of the department.

The control of carriage is greatly dependent on the power of hiring and discharging it and the payment of the hire. All these matters should be in the hands of the managing department.

Major M. A. Rowlandson, Ex-
aminer of Commissariat Accounts,
Bombay.

It should, I think, be under the commissariat in peace; and in war it should be a separate department, superintended by commissariat officers specially detailed for the work, and relieved from all purely commissariat duties.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

The transport department should either be made a separate department altogether, or, if placed under the commissariat, made to form a separate branch of that department.

As it may not be considered desirable to create a new department with the power to disburse public money, and as moreover there would be a general control over the expenditure of the transport department if placed under the orders of the commissary-general, I would give the preference to the latter course.

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

If it remains under the commissariat in peace time, there must be a considerable saving in expense; and if the commissariat were granted enough warrant and non-commissioned officers to manage it in war, it would I think be satisfactorily and economically done with the hearty co-operation of commanding and other officers to whom the carriage might be temporarily made over.

Without this co-operation no department could manage carriage or prevent its getting confused and mixed up.

J. H. B. Hallen, Esq., General
Supt. Horse-Breeding Operations.

Most certainly a separate department.

11. How can Indian transport be employed in time of peace? Can it be employed by departments, civil and military, or in such work as bullock-train, &c.?

Lieutenant-General C. T. Cham-
berlain, c.s.i., late Commanding
Oudh Division.

It can take the place of the present moveable column carriage. It could work from Jhelum to Lundi Kotal and Jhelum to the Peiwar Kotal.

It could be utilized from Rawal Pindi to Murree, Umballa to Simla, Saharanpore to Mussoorie, Moradabad to Naini Tal, Bareilly to Naini Tal, Siligoree to Darjeeling, Morar to Dholpore, Lucknow to Sitapur, and as feeders from large cities to lines of railway.

The public would be considerable gainers from well-organized trains, but private interests would suffer probably.

I do not think the civil authorities would find employment.

Lieutenant-General W. T.
Hughes, c.s., Commanding Sirhind
Division.

In time of peace the transport attached to brigades, regiments, and batteries could be advantageously employed by both civil and military departments, but under the direct supervision of the military authorities responsible for efficiency.

Lieutenant-General J. Forbes,
Commanding Mhow Division.

It could be employed in this manner in small quantities; but large demands on it would not be likely to arise in times of peace.

Major-General J. Macintyre,
c.s., Commanding Hyderabad Sub-
sidiary Force.

The transport of this force is already to a certain degree occupied in meeting local requirements of the troops. Any employment that takes the transport of the army beyond the supervision of its own department is open to objection.

Major-General R. O. Bright, c.s.,
Commanding Meerut Division.

I do not think it can to any considerable extent. In time of war all departments have more work thrown on them. Bullock-trains, where they still exist, become indispensable for the supply of the troops. It would be better, and I think a cheaper plan, to subsidize Natives to keep up a sufficient supply in the districts. It appears to me an excellent opportunity is now afforded for forming and utilizing a transport corps in the very country where it is most likely to be required. From Peshawar to Lundi Kotal, from Kohat to Ali Khel, and other stations in Kuram valley; and also the supplying of troops at Quetta, Peshin, and whatever other stations may eventually be held thus. This would give employment to a very considerable amount of transport, would be an excellent opportunity of teaching officers and men their duties, of testing any system that may be adopted, and at the same time paying its way and doing good service.

Major-General H. R. Browne,
Commanding Saugor District.

During six months of the year transport could certainly be utilized in movement of troops by road to a moderate extent. - But during the hot season it must remain idle at the public charge, or be discharged.

No doubt civil and military departments could afford some employment if the rates charged for the use of public transport should not exceed private contract.

Bullock-train work would only embrace one particular class of land carriage and not a class suitable for field service. Besides, any extensive employment of military transport in the bullock-trains would disorganize that service, if the transport should be at any time withdrawn.

Major-General J. W. Schneider,
C.B., Commanding Northern Division,
Bombay Army.

Field column carriage is already employed by the commissariat department. If the framework of an Indian transport were established on a larger scale than the present proportion of field column carriage, and it proved to be in excess of military requirements, it might be utilized by civil departments on payment, if they desired it.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

Indian transport could be employed in time of peace by the commissariat and other departments, and in carrying out the annual reliefs of troops. The field column carriage is so utilized now.

Brigadier-General F. G. Kempter,
Commanding Ceded Districts.

Available for all military purposes in time of peace. Doubtful if it could compete with civil carriage. No such thing as bullock-train in Madras presidency.

Brigadier-General T. J. Murray,
C.B., Mooltan Brigade.

I see no reason why it should not be so employed.

Colonel J. A. Tytler, C.B., V.C.,
Commanding 4th Goorkhas.

I do not see why it should not be so employed.

Colonel H. K. Burna, C.B., Secretary
to Government of India, Military
Department.

Some of the public transport can be, and is now, employed in station duties, gardens, and ambulances for the sick. It is not maintained at a strength that would admit of providing for bullock-trains. If it were, and the animals were so employed in time of peace, they would only be available for service at great and serious inconvenience in other directions, while it has always been found that Government animals left to the civil departments are liable to be neglected and deteriorate.

Colonel J. Macdonald, Secretary
to Government of Bombay, Military
Department.

Except in carrying Government stores, I know no other way of utilizing Indian transport during peace. The rates that would be charged for its use, if hired to the public, would prevent its being generally used by the civil population.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

In station work, and in certain cases and under certain conditions beyond the station in transport of ordnance stores, &c., but not too far. It should then be properly organized as for war, and thereby give opportunities to officers of obtaining experience in the working of the system. There are few stations where ample work cannot be found for a certain portion of transport, certainly with benefit to themselves and to the advantage of the State.

Colonel D. Standen, Assistant
Adjutant-General, British Burma
Division.

Public cattle can be usefully employed in times of peace (where the moveable column system would not be thereby interfered with) under the rules now in force for the loan of elephants, &c., to civil departments; but I doubt the desirability of using Government draught cattle to work bullock-trains.

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-General,
Bombay.

In time of peace Indian transport can be employed by the commissariat, under orders of the military commander, for station work and for ordinary movement of troops.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quarter-Master-General.

I do not think any organization of the kind in India would be found to work well unless the country was handed over to the military authorities and Government organized on a military system.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

As already proposed by me, transport when not required for actual military work, might advantageously be employed in station or departmental work, such as ploughing in cantonments, bringing in supplies for commissariat, &c. It would never do to employ animals in the bullock train, which would probably collapse on their withdrawal, at the very time that its services would be most required.

Lieutenant-Colonel R. Blandell,
3rd Hussars.

Speaking of places like Mhow and Ahmednagar, the only stations I have been quartered at, I should say that it could only be employed to a very limited extent. I would certainly employ it by lending it to the military and civil departments whenever they could find work for it; also to civilian contractors under proper supervision.

Lieutenant-Colonel R. S. Cleland,
9th Lancers.

The railway has done for the bullock train here.

Yes, if properly organized.

Lieutenant-Colonel Lord R. D. Kerr, Commanding 11th Hussars.

If under control of an organized transport department, the available public carriage of a station might profitably be allotted proportionally to the troops for cantonment work with advantage to the public service.

With respect to departments, civil and military, I should incline to the same opinion, so far as my limited knowledge reaches. To employ military transport in a regular train service in time of peace would be dangerous and injudicious; for the withdrawal of the transport for war purposes on declaration of hostilities would produce collapse at the time when such a calamity could be most fatal. At the same time the transport of Government stores might be undertaken by the transport department.

Lieutenant-Colonel J. C. Le Quesne, 12th Royal Lancers.

It could be utilized for the entire working of its own regiment.

Lieutenant-Colonel G. Luck, Commanding 15th Hussars.

In my memorandum attached to my answer to British Cavalry—B, I have shown how transport ponies can be employed in time of peace. Extra ponies required for transporting regiments might, I think, be easily obtained at very short notice, by subsidizing the large employers of pony labor that are always to be found where daks to hill stations are required; the number of ponies that each would have to supply being occasionally mustered by an officer of the commissariat department and a veterinary surgeon.

Colonel J. A. Ruddell, 1-25th Regiment.

It might be employed advantageously, I think, in the bullock-trains, &c.

Lieutenant-Colonel M. MacGregor, 1-18th (The Royal Irish).

Yes; transport could be employed by civil and military departments and in bullock-train in time of peace, provided they were periodically inspected by practical men to notice their condition and fitness for work.

Lieutenant-Colonel A. Templeman, Commanding 21st Fusiliers.

I venture to suggest, with all deference, that if all troops marched as formerly from station to station instead of being conveyed by railway, the whole of the transport stock and plant would be advantageously used for a considerable part of the year, and the troops much benefited, as alluded to in answer No. 1.

Lieutenant-Colonel G. F. Walker, Commanding 1-12th Foot.

It seems to me that this question could be much more satisfactorily answered by those who have more practical experience of the present system of working the transport—say, for instance, officers of the commissariat department.

Colonel J. S. Hand, Commanding 44th Regiment.

Transport could be employed in time of peace in various ways by both civil and military, as suggested in the question, and I think also could be let out on hire to local tradesmen and others, subject to the control and supervision of the transport officer of the district; but if any such plan was adopted, more officers would be required to each division than the number suggested in the answer to (a), question 7.

Lieutenant-Colonel C. B. Knowles, Commanding 67th Regiment.

My opinion is, that military transport in time of peace might be employed in any public service, but should not assist the commissariat. That department should be independent.

Lieutenant-Colonel G. H. Parker, 92nd Highlanders.

It might be employed by civil and military departments, but not by bullock-train.

Major F. Stephen, 4th Battalion Rifle Brigade.

It can in every way.

Major F. S. Terry, 1-25th King's Own Borderers.

In peace time I would recommend that all descriptions of Government military transport should be utilized by the commissariat department on requisition to the commissariat sub-department for transport for current military and civil Government work and bullock-train duty.

That portion of the transport detailed as (a) and (b), regimental and departmental, should be subject to inspection, as before stated, by the director and inspectors of transport in the quarter-master-general's office.

I would further recommend that the bullock-train work should be confined to those districts in which the communication with the railway routes require opening up for the benefit of the public in general.

Major Hugh P. Pearson, 12th Foot.

It certainly could not take the place of the bullock-train, for the simple reason that when required for war, the transport cattle would have to be taken off the line at the very time when, in all probability, an efficient bullock-train would be most needed. If troops were allowed to manoeuvre away from cantonments to a greater extent than is now permitted, the moveable column carriage would be well employed.

At other times doubtless employment on some public work would be found for it. It might take the place of hired carts, to some extent, for the conveyance of building material at stations where such work was

required. At Morar it might be very profitably employed in carrying grass from the rakhs to cantonments.

Each station has its own peculiar wants; and if public carriage were available, work for it would always be found.

Major J. D. Dyson-Laurie, 34th Regiment.

A nucleus only might be kept up, attached to regiments, for which profitable work surely might be found, in lieu of being kept idle as that of the moveable column which has come under my notice.

Major W. H. J. Clarke, 72nd Highlanders.

The transport could be employed in time of peace by the moveable columns at the different stations by regiments on relief, and most likely in certain civil and military works, but decidedly not in such works as bullock-train, &c.; for if it happened to be suddenly required for service, the bullock-train would be brought to a standstill, to the great inconvenience of Government, as most likely it would be most urgently required for the purpose of forwarding stores, &c., for the army.

Colonel C. B. O. Evans, Commanding Royal Artillery, Meerut Division.

This is just one of my objections to the introduction of an Indian transport department,—costly in time of peace and of doubtful utility in war.

Lieutenant-Colonel I. Ketchen, Royal Artillery.

I cannot see how advantageously.

The work of all departments, civil and military, including bullock-trains, increases on an outbreak of war; and that would not be an appropriate time to reduce their establishments.

Major Bertie Hobart, R.A., Military Secretary to His Grace the Governor of Madras.

No doubt work can always be found in the several departments (civil and military) for Government cattle. Some might be employed by municipalities, &c., where collectors, sub-collectors, and European officials reside; but I would never trust any animals out of the sight of European or high Native revenue officers. The care of such animals might be left to the collectors, &c., and some reward authorized to be given annually to the Native subordinates in immediate charge, if the animals are kept in good condition.

There is always much carting required in every cantonment, working wells, &c., to be provided for the troops. The public works department might also be allowed the charge of bullocks and camels within defined limits, beyond which they should not be taken.

Major H. C. Lewes, Commanding 1-1st Royal Artillery.

Employ it in all duties of cantonments, civil and military, on daily requisitions. Let it out on hire by day.

Major E. T. Hume, Commanding C-C Royal Horse Artillery.

In many ways, both by departments and as bullock-train.

Major W. W. Murdoch, Commanding E-A Royal Horse Artillery.

There are many ways in which Indian transport might be employed in peace time; but it cannot be expected that remunerative work could be found for all transport animals.

The evil of employing military transport in bullock-train work is, that during a war there would probably be a great deal of work to be done by the bullock-train; and this would be at the very time that the military transport would have to be withdrawn.

It might be employed by departments for all work required by them. Some of it might be hired out under certain conditions.

Major T. M. Hazlerigg, Commanding E-3rd Royal Artillery.

It might be employed locally by both civil and military departments, but better not for bullock-train purposes.

Major the Hon'ble A. Stewart, Commanding I-C Royal Horse Artillery.

I think when once organized it could easily be employed in all the ways named. The district transport officer would first of all organize his transport with the civil officer; and having ascertained the regular amount of transport required for his brigade in the district, he would have it divided, and apportion it to staff, regiments, and departments through the transport officers and subordinates of each; the general settling, in conjunction with civil officers, when it should be mustered, inspected, and mobilized.

Major C. E. Nairne, Royal Horse Artillery.

(1) In ordinary garrison work and bringing grass for mounted corps.
(2) In carriage of ordnance and other stores from station to station, or between arsenals when off line of railway.

(3) In postal or other bullock-train work, when time can be spared for such slow transport.

It is essential that the transport corps above roughly sketched should be practised during peace time in their carrying work.

Major P. FitzG. Gallwey, Royal Artillery.

For a considerable portion of the carriage required this is impossible; but I think that in cases of moveable columns as much of the carriage required as possible should be actually in use in the station on Government work, and not out in the district, often many miles off.

Major W. H. Noble, Royal Artillery.

It might be used for ordinary station duties, except for that portion of the army on a war footing; but few Government animals would be required. Ordinary transport and movements could be effected by hired cattle.

It is necessary to keep a supply of elephants and ordnance bullocks for siege trains, as such animals could not be provided on an emergency.

Captain G. C. Bayly, 19th Royal Artillery.

I think as much transport should be kept up as the various military departments can find work for in time of peace in charge of the commissariat, so that the hiring of carriage in time of peace for military purposes may be exceptional. I think the carriage so kept up in time of peace should be used as far as it will go for the conveyance of baggage for troops on the march, and conveyance of stores along roads where railway conveyance is not available. It should not be restricted to particular stations, on the mere chance of being wanted there while there is an actual demand elsewhere.

Lieutenant E. C. Wace, B.A., No. 4 Hazara Mountain Battery, Punjab Frontier Force.

If regimental transport be kept up in the proportion of half the amount required when on service, as is the system on the Punjab frontier, great saving might be secured to Government in making use of this transport for annual reliefs, and at places like Rawal Pindi for the movement of troops to the hills in the hot weather. A large portion of the Government traffic on the Grand Trunk Road might also be done by the regimental and general transport at a great saving to Government and increased efficiency of the transport itself.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

I am not prepared to express an opinion on this point beyond a conjectural one, that the transport might be employed such as bullocks in train or agricultural purposes; and I believe the Germans utilize cattle in this way.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

Undoubtedly in time of peace it might be utilized in such a way under the superintendence of its own officers, who would be responsible for the due inspection and accuracy of the numbers and registers.

The bullock-train is a department which should be entirely independent of all other aid, either from transport or country carriage.

Captain M. G. Gerard, 2nd Central India Horse.

All in excess of permanent military requirements should be utilized in any way it can be profitably. This would vary in different districts, being regulated by local conditions, such as existence or absence of railways, &c.

As a rule, it could be worked most profitably and cheaply in the carrying trade of grain districts. For instance, commissariat contracts for grain, instead of including delivery in cantonments, might be made at far cheaper rates in the villages themselves, and thence imported by transport train.

Brigadier-General C. J. Godby, Commanding Punjab Frontier Force.

This question can best be answered by the commissariat department, who have the experience with the moveable column establishments. It must be remembered that the *bullock-train* is rapidly disappearing before the extension of railroads; and not a vehicle or animal could have been spared from the bullock-train during the late war in consequence of the enormous increase of work that was thrown upon them.

Lieutenant-Colonel C. La Touche, Commandant Poona Horse.

How far it could be employed could be ascertained after the details of its organization and strength had been decided upon. In the meantime it appears to me that it could be utilized for the transport arrangements connected with the annual reliefs, and for all purposes for which the existing commissariat animals are now used; also for bringing in grass from the various Government *kooruns* for the British mounted establishments, such syces and camelmen as were available cutting it, and the Government transport conveying it to the head-quarters of regiments. I think if Government would make inquiries, they would find that in the contracts made for grass large sums are annually paid for cutting and carting in, which go to swell the profits of the contractors, and cause an unnecessary expenditure of public money. Such expenditure could easily be reduced by utilizing the wagons and carts of the transport corps, leaving the camels and ponies available for ordinary military purposes. Regarding the Government *kooruns*, I wish to make one more remark.

They are now sold every year at small sums of money to contractors, who retail the grass to the silledar cavalry corps at an enormous profit, which Government has eventually to pay for in the shape of compensation for dearth of forage. If a transport corps was kept up as recommended, there would be no necessity for this sacrifice. Government would retain the principal *kooruns* themselves, would have the grass cut by the camp-followers of the transport establishment, and, after providing for all its own wants, would dispose of the sale of the surplus,—thus saving a very large sum of money.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

Yes, to a moderate extent, having care always that it is only sufficient work to keep men and animals in training and not to exhaust their strength.

Major A. P. Palmer, 9th Bengal Cavalry.

The enrolled carriage (*vide* question 13) could be employed to the extent that moveable column carriage is used at present, and the registered baggage-animals of India (*vide* question 13) would in ordinary times be employed in their usual peace avocations. Bullocks employed on bullock-train service could not be counted on as available for other work in time of war.

Colonel J. Doran, Commanding 27th Punjab Native Infantry.

I can see no objection to its being so employed.

Colonel H. S. Obbard, Commandant 41st Bengal Infantry.

The transport it is necessary to keep up in time of peace is mostly occupied with the march of troops in relief, carriage of Government stores, station work of various kinds, cholera camps, &c. It would not pay to keep it up for use by departments, civil or military.

Colonel E. Daudridge, Commanding 40th Native Infantry.

Vide answer 7.

Colonel G. W. Fraser, 39th Native Infantry.

I see no reason why it should not be employed in any or all of the departments named. It should be, as far as possible, so utilized as to be self-supporting; but it should not be employed beyond such distances from where it is kept up as to prevent its ready re-collection wherever it may be required.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Regimental transport can certainly be employed in time of peace, provided it be of such a nature as to provoke demand. I should suggest the employment of pack ponies for regimental transport, as ponies could command such a demand. The officers, British and Native, would probably be glad to avail themselves of these ponies for private use, in return paying for their keep, and being held responsible for their condition. The animals would of course be mustered monthly, and all precautions taken to prevent abuse of the privilege. Other residents in cantonments might also be permitted to make use of regimental ponies on similar terms. Besides animals so let out, a regiment always requires a few for regimental purposes, such as carriage of guards' bedding, conservancy carts. Another way of employing carriage in peace is by insisting on municipalities and cantonments employing only Government carriage. These animals when required by the military can always be readily replaced from local resources.

Lieutenant-Colonel R. J. Walker, Commandant 17th Native Infantry.

Yes. I think the experiment might be tried of employing transport in the bullock-train and in the work of the station. I think many officers would be glad also to hire the transport bullocks for their garden wells, &c., paying for the feed of the bullocks and driver.

Lieutenant-Colonel R. G. Rogers, 20th Punjab Native Infantry.

On the north-west frontier and trans-Jhelum it never could be. The strain on departments (especially the bullock-train) is severest during war—the very time when it (the transport) would have to be withdrawn for military purposes.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

It could only be used to a limited extent—chiefly I should say by the public works department. I do not think that it could be used to any extent for such work as a bullock-train. In the Punjab, for instance, where the larger portion of the army is quartered, and where the railway to Rawal Pindi will soon be opened, the only lines on which it could be used would be from Ferozepore to Lahore, Umritsur to Dalhousie, Wuzeerabad to Sialkot, Rawal Pindi to Murree, and Rawal Pindi to Peshawar. The greater portion of the transport in the Punjab would always be camels and mules, and these could not conveniently carry many of the packages sent by bullock-train. The bullock-train is a most useful agency for assisting in the general supply of an army in time of war; and the substitution for it of carriage, which would be required for regimental and departmental transport in time of war, would, I think, be impolitic.

I think, however, that, as a rule, all Government stores should, as far as practicable, be carried by the transport animals.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

In time of peace it would be very unnecessary to keep up any great amount of carriage, as everything necessary could be done by the railway. At such stations where there is no railway, such as in Bundelcund or in some parts of the Punjab, the carriage could be kept up and used by any department requiring it, on sending a proper requisition for the carriage, which should be sanctioned by the officer commanding the station, unless there was any likelihood of the carriage being required for military purposes.

Major Sir B. P. Bromhead, 40th Native Infantry.

No, certainly not. As I have said above, I would have no establishment in time of peace. It would be a needless expense.

Major A. C. W. Crookshank, Commanding 82nd Pioneers.

It can partially be employed in ordinary station work, particularly in the vicinity of arsenals and railway termini. In the cold weather it should be employed wholly in the relief. All mule carriage should be employed at hill stations. There should be no such thing as a contract mule in India; or, if to contract for them is cheaper than purchase, they should be general service animals, and for the time being Government property. I don't think they could be worked in bullock-trains, as there is no need for purchasing or keeping up cart bullocks, which abound all over India; but in stations like Umballa, Pindi, Bareilly, Lahore, all stores to the out-stations in the hills should be conveyed by convoys of Government cattle, under charge of officers detailed from regiments—a system

which would give practice to officers. The group of hill stations near Simla could profitably employ a large number of camels and mules in the conveying of stores now carried by a civil department.

Major F. F. Rowcroft, 4th
Goorkhas.

I think Indian transport in time of peace could be utilized to a certain extent for the bullock-train both by departments civil and military.

Colonel H. Boisragon, Com-
manding 4th Sikhs.

Yes, certainly, as is done with camels and mules in this force, to the benefit of Government pecuniarily and of those kept in regular employ-
ment.

Lieutenant-Colonel J. J. Bos-
well, Commanding 2nd Sikhs.

It ought certainly to be employed by departments, ordnance, commis-
sariat, &c., also by private parties, so long as it is not taken beyond
a limited distance from head-quarters.

Lieutenant-Colonel F. T.
Bainbridge, 4th Sikhs.

I should say in various ways, and profitably. Cantonments can al-
ways employ a quantity of animals,—guards, commands, commissariat,
fetching in stores, department public works, &c.; it could be hired out
by the civil for trading purposes; ponies and mules could be used on the
mail-cart lines; wagons, carts, and bullocks could be utilized on many
roads as a bullock-train, where there is much traffic and trade, and with
profit.

Colonel W. A. Gib, Command-
ant 25th Madras Native Infantry.

I do not myself see how the Indian transport could be used to any
extent profitably in time of peace. If the animals were let out for hire,
they would probably be ill-used. Railways have nearly done away with
bullock-trains; and even if they were not, to suddenly remove the bullock-
train to go on service would throw the traffic of the country completely
out of gear, probably to the detriment of the Government; for if the
bullock-train was necessary in peace, it would probably also be required
if a war broke out.

Colonel S. Edwardes, Com-
manding 2nd Bombay Native
Infantry.

If a transport train were properly organized, there would be no necessity
for the commissariat to hire carriage in peace time for the transit of stores.
All Government stores should be forwarded by rail over long distances,
but for short distances by the transport train. All the stores for a
division or district might be brought by rail to a convenient spot and
distributed by the transport train.

Colonel W. Bannerman, 4th
Bombay Rifles.

To a certain extent by the commissariat department and in the
movement of troops on relief.

Colonel H. H. James, Com-
manding 10th Bombay Native
Infantry.

I should think it might be employed in all these ways, or even let
out to the public, under certain restrictions, at reasonable rates. Good
and cheap carriage is pretty sure to find employment.

Colonel J. Fairbrother, Com-
manding 22nd Bombay Native
Infantry.

It can be employed in the annual reliefs, conveyance of all military
and departmental stores and transport train, for instance, between
this and Vingorla, the port of embarkation, where it would be very
useful and convenient. In the event of several regiments being turned
into pioneers and stationed where the transport was located, where the
exigencies of the service admit the pioneers might be usefully em-
ployed in many ways for the improvement of the place, and the field
column carriage utilized.

Colonel J. I. Willes, Com-
missary-General, Bengal.

Railways carry everything. What demand can there be in time of
peace for Indian transport? If lent to other departments, it is neglected,
and found probably more expensive than hired carriage. For bullock-
trains—if it is meant by this to supersede that of the postal department—
it could only be used at great distances, and would not be available for
transport; and again, by the sudden withdrawal, the bullock-trains on
which the public depended would collapse.

Colonel R. A. Acting
Commissary-General, Madras.

If trains of bullock-carts were kept up at the principal stations, they
would do all the carrying work of the cantonment.

Lieutenant-Colonel M. W.
Willoughby, Acting Commissary-
General, Bombay.

The transport can be employed in time of peace to a considerable
extent at all stations on local transport duties, particularly if there is a
proportion of wheeled carriage, and should save whatever may be now
paid on cart-hire, &c., which saving might be taken as a set-off against
any increased cost of fixed establishment. Bullocks from the transport
might be used by the ordnance in the arsenals and factories, and for the
transport of the department from arsenals to railway stations. It is
doubtful whether it would answer to lend the transport to the civil
department, or to employ it on such work as bullock-train, unless for
purely military purposes. The organization in the former case would
soon deteriorate, and in the latter there would be a very considerable
wear and tear of animals.

Colonel T. H. Sibley, Deputy
Commissary-General, Bengal.

The transport I propose, consisting of mules and camels, could only
be employed in effecting reliefs, carriage of grain, &c., from cheap
markets, or used as auxiliary bullock or transport train for places beyond
which carts cannot travel.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

As at present, in assisting to carry out the relief of troops. As no transport is kept up but for the use of the troops, to meet emergencies, it would be a complete misapplication to lend such to civil departments; and it would not be advisable, for the above and the following reason, to lend transport for bullock-trains, as on the breaking out of war the necessary withdrawal of this aid would cause the collapse of the bullock-train when much would be required of it.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

See answer to question No. 1.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

Subject to the restrictions by the military authorities on the use of moveable column carriage, the commissariat carriage has always been doing the work of other departments. It has not done bullock-train work; but there is no reason why it should not where it can be properly supervised.

Colonel R. Q. Mainwaring, Deputy Assistant Commissary-General, Kamptee.

The transport is now in time of peace fully employed. Thus the whole of the animals here brought in the forage for the cavalry and artillery, whilst the attendants cut as much as they could. The mules and bullocks bring in stores, clothing, &c., from Nagpore daily all through the year, including the large supply of malt liquor.

Of the bearers, there is not a man idle. They are either pulling punkahs in barracks and hospitals, or working in the stores or a dozen other employments, for all of which coolie hire would have to be paid at a higher and higher rate as years roll on, but which now costs only three annas per diem by employing them.

The keeping up of hired cattle for detachments of troops in twos and fours is a useless expense, as we can get that number at any time without paying a contractor for keeping them up all the year round.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

The transport at present kept up in time of peace is exclusively for moveable columns and to provide for sudden emergencies, and the necessity for keeping it at hand precludes its being utilized.

If it is in contemplation to keep up additional carriage as a reserve for time of war, it could be utilized to some extent for import and export of grain and stores and for departmental work. I do not think it could well be used for bullock-train purposes, as that department has great pressure thrown upon it in war time, and requires to be kept up to its full strength in time of peace.

Major M. A. Rowlandson, Examiner of Commissariat Accounts, Bombay.

I believe the present establishment is fully employed during peace on duties belonging to garrisons, such as airing sick men, carrying stores and baggage for detachments, and also on private work, paid for by the employers of the animals.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

The transport now available is made use of for station duties, and in the relief season it is generally employed by the troops. If this transport was considerably increased, it appears to me very doubtful whether constant employment could be found for it, and on augmentation might thus lead to considerable expense having to be incurred on this account. I believe moreover that a great disinclination on the part of civil departments and bullock-trains would be found to employ cattle liable to be withdrawn at any moment.

Captain T. F. Hobday, Deputy Assistant Commissary-General, Umballa.

In the annual movement of troops, this, as a rule, occupies all the transport now kept up. Whenever it can be used for any Government purpose it is always utilized.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

The nucleus of a transport train as suggested would be employed in moving troops during 7 or 8 months of the year, and would be useful in allowing the troops to learn pack-loading, unloading, saddle-drill, &c., &c., during the rest of the year.

The mules and carts might also be of service in cantonments in distributing rations and forage, &c., and bringing commissariat stores from the nearest railway stations.

12. Will you be so good as to estimate even roughly the cost of any proposal you may be pleased to make regarding a reorganization of the Indian transport system?

Lieutenant-General C. T. Chamberlain, B.A., late Commanding Oudh Division.

I cannot venture to suggest.

The subject of questions 7 and 8 is very complex; and until the framework be elaborated, there is no data for cost.

Major-Genl. A. W. Macintyre, C.B., Comdg. Hyderabad Subey. Force.

Vide reply to question No. 7.

Brigadier-General F. G. Kempster, Commanding Ceded Districts.

Proposed peace establishment 25 per cent. of war strength, as follows, viz.—

	Rs.
1 Field officer at Rs. 800	800
2 Subalterns at Rs. 400 × 2	800
2 Non-commissioned officers per 100 at Rs. 20 × 30	600
1 Farrier per 100 at Rs. 25 × 15	375
1 Driver per 3 animals for 250 camels at Rs. 7 × 83	581
1 Driver per 3 animals for 1,000 mules at Rs. 7 × 333	2,331
Keep of 250 camels at Rs. 7	1,750
Keep of 1,000 mules at Rs. 7	7,000
Office establishment	50
Total	14,287

Lieutenant-Colonel A. G. T. Hogg, Deputy Quarter-Master-General, Bombay.

The cost of the scheme proposed for framework of transport in time of peace cannot be stated with accuracy sufficient to make the estimate of any value until the details are worked out; but the cost of my proposal would not exceed that of the present field column, which it would replace, the only new element introduced being that of one officer and a few men of Native infantry with each *depôt*, while a slight reduction in the number of animals now kept up would take place.

Major A. A. Kinloch, Deputy Assistant-Quarter-Master-General.

I have not the smallest idea what the plan I propose would cost, and can only record my opinion that from what I have seen almost any system that ensured efficiency would be economical compared with the present "no system," which causes such enormous waste.

Lieutenant-Colonel Lord R. D. Kerr, Commanding 10th Hussars.

I believe that at one time Government kept transport for the army of Bengal in the North-West as part of the standing military establishment: reference to the reports of that period would give reliable information on this point, bearing in mind the present increase in value of grain, fodder, &c., &c.

Major Hugh F. Pearson, 12th Foot.

This is a question which would take much time for consideration and enquiry; and to work out in detail this time I have not at command.

The scheme I have roughly sketched would certainly not be costly. There would be the staff pay of the superintendent and his two assistants and the pay of the veterinary surgeons to provide, and there would be the difference between the station and grazing rates of hire for the moveable column carriage at all stations to be provided for, as also the trifling additional pay of the junior grades of the department. But for this outlay we should have a system of transport capable of expansion; the carriage cattle in our charge would be properly fed and cared for, and therefore far more efficient than they now are; their attendants would be in some sense disciplined; employment would be found without extra cost for a certain number of officers who are now without appointments, and at small extra cost for deserving soldiers, both British and Native; the troops of moveable columns might be frequently exercised throughout the winter free of all cost (and this great advantage might be extended to much larger columns by the adoption of *tentes d'abris*). Regimental officers and men would be instructed in the care and management of transport animals; a staff of officers and subordinates trained to the work would be available for instant service with the transport of all departments, and for that comprised under the heading (c), general. And lastly, the data for immediate expansion would be collated, and ready for reference and action on the issue of the order for mobilization.

It must not be forgotten, too, that by the creation of this new department the work of the commissariat would be greatly lightened, and the officers of that branch of supply be free to give their whole attention to their more legitimate and sufficiently onerous duties.

The necessity for some such measure was virtually admitted by the hasty formation of a transport department, and the commissariat at the beginning of the Afghan campaign.

Captain H. M. Hutchison, 1-14th (Prince of Wales' Own) Regiment.

A regiment 1,000 strong would require about 215 of the 5 cwt. carts, which would cost about Rs. 130 apiece equal to Rs. 28,000 or thereabouts, plus harness for ponies.

Colonel C. R. O. Evans, Commanding R. A., Meerut Division.

I am not prepared to make any proposal to add without due necessity being shown to the burdens of the State.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

There should be no great extra expense beyond that now caused by moveable columns. Beyond the pay of a director of transport for an army-corps or province, and the few subordinate officers belonging to the department, there would be no extra expense beyond that now incurred in the payment of chowdries and other subordinates by the commissariat for moveable columns.

Probably the staff and establishment of a director and superintendents per army-corps would be about Rs. 5,000 a month.

Captain M. G. Gerard, 2nd Central India Horse.

Very rough estimates of a division on peace and war footing given below; but without following data it is impossible to estimate how many divisions are required:—

- (D) Number of commissariat cattle now employed for ordinary peace requirements, including reliefs.

- (3) Whether any system of regimental transport is to be adopted.
 (3) What scale of camp equipage and followers will be adopted; and whether kahars will be diminished by the use of caacolets.
 (4) Whether compressed provisions will be utilized.

1. Estimate of division transport train on *peace* footing :-

	Per mensem.
	Rs.
1 Commandant, with pay of rank	400
9 War officers	250
9 Nalunds and artificers	100
250 Syces	1,350
300 mules 2.5 seers	} 1,450
200 tats 1 seer	
at 20 seers = 1 Re.	} 500
Bounties, from Re. 1 to 4 annas for 750 animals	
Repairs, carts, shoeing, &c.	300
Clothing	100
	4,500

The value of the present commissariat cattle should go far towards purchasing more suitable animals; but I have no reliable information as to the necessary cost of carts.

A certain portion of this monthly expenditure would be recovered directly or indirectly by its employment in peace for transport of stores, &c.

2. Estimate of division transport train on *war* footing :-

	Rs.
1 Commandant staff	400
4 Subaltern staff	600
36 War officers	1,000
50 5th class	500
750 Syces	4,500
86 Nalunds, artificers, &c.	360
4,000 Seers grain per diem from 1 to 3 seers each. At 20 seers = 1 rupee	8,000
800 Mules and ponies hired at Rs. 4 to Rs. 8 per mensem, including risks, &c.	5,000
Repair of carts, &c., wear-and-tear	1,000
Sundries	640
	20,000
If across frontier, syces' rations extra	2,200

The following expenditure would also be required in putting division on war footing :-

	Rs.
500 Mules, &c., purchased	30,000
500 Chatties	2,000
Clothing for syces, &c.	8,500
Value of carts, harness, and equipments for store, say	50,000
	85,000
Six months' expenditure, at Rs. 20,000 as above	1,20,000

Or, reducing probably value of *war footing* material, remaining

50,000

Total cost for six months ... 1,50,000

Lieutenant-Colonel C. La Touche,
 Commandant Poona Horse.

The cost of the establishment proposed by me for complete arrangements for regimental and departmental transport for ten thousand men would be, roughly speaking, four lakhs of rupees a year; but against this, as before stated, would have to be put the reduction of the entire expenses of the commissariat carriage of the existing system, which I believe, if the establishments are taken into consideration, are enormous, and what Government would save by utilizing the transport in the time of peace for the cutting and casting in of the grass for the British mounted branches and such other measures of a similar nature as subsequent experience might prove feasible.

Lieutenant-Colonel J. H. P.
 Malcolmson, Commanding 3rd Sind
 Horse.

It must be remembered that I have only suggested the framework of transport for a cavalry regiment. The rough estimate would be 18 mules for carriage of some spare ammunition, of, and treasure to keep up with, regiment at Rs. 80 each.

	Rs.
First outlay	1,440
6 Muleteers at Rs. 7	42
12 Regimental camelmen at Rs. 7	84
4 Muccadums at Rs. 15	60
1 Native assistant at Rs. 30	30
1 Regimental European officer with staff pay at Rs. 100	100
Monthly pay	316
Feeding 18 mules at Rs. 12 each	216
Monthly expenditure	532
„ allowance	20
Total	552

Major A. P. Palmer, 9th Bengal Cavalry.

The staff and establishment of a director and superintendents would be Rs. 5,000 per mensem. I do not think that the present expenditure on moveable columns would be exceeded by the reorganization proposed.

Colonel H. S. Obbard, Commandant 41st Native Infantry.

Roughly, it would be that of the commissariat carriage department as it now stands.

Staff salary for superintendents might be provided for by reduction of staff allowance of the higher officers of the commissariat department.

Colonel E. Dandridge, Commanding 40th Native Infantry.

Vide answer No. 7.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

I have only made proposals as to the supervision of the transport system.

- (a) The officer charged with the superintendence of the transport of a division of the army to receive his departmental pay.
- (b) The subalterns under him Rs. 150 staff pay, in addition to pay of rank and half-staff pay of any permanent staff appointment they may hold.
- (c) European sergeants the pay of sergeants in the commissariat departments, with pony allowance.
- (d) Native non-commissioned officers Rs. 5 and 3 as staff pay.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

In peace, one director on Rs. 800 staff pay, with the staff corps pay of his rank; one personal assistant on Rs. 500 staff pay, with the staff corps pay of his rank and Rs. 150 a month office allowance. Four superintendents on Rs. 400 a month staff pay, with the staff corps pay of their rank and Rs. 100 a month office allowance. Four assistant superintendents on Rs. 150 a month staff pay, with the staff corps pay of their rank.

In time of war there would be more assistant superintendents on the same pay, and European and Native non-commissioned officers and men who should get—non-commissioned officers, Rs. 30 a month, in addition to their pay and free rations; men, Rs. 12 a month extra pay and free rations or compensation in lieu thereof. The number of assistant superintendents, non-commissioned officers and men cannot be determined, or any positive rules laid down about them, till it is known what sort of war it is to be.

Major Sir B. ... 40th Native Infantry.

I do not advocate the maintenance of any establishment in time of peace. On the contrary, I would do away with the existing moveable columns. It is obvious that an enormous saving would be annually effected thereby. In time of war, whatever the bill, it must be paid. But a transport service constituted, organized, worked, and paid on the system detailed by me in the accompanying memorandum, would, I believe, be thoroughly economical and thoroughly efficient.

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

I propose no new system, as I think that true economy lies in the utilization of our present agencies and resources (if possible simplifying them) and not in the creation of others.

I propose to utilize the commissariat framework, and maintain under its charge a certain amount of local transport to do local military work and be available at any time.

The expense lies in the provision of the carriage; and to arrive at the proportion we can afford to maintain I would take—

- (i) the cost of all carriage locally hired;
- (ii) the cost of the moveable column carriage;
- (iii) the cost of carriage kept up by frontier regiments;
- (iv) the cost of the present Government carriage;
- (v) the cost of carriage hired for relief purposes;
- (vi) the cost of carriage of military stores which could be carried by Government cattle.

Add all together, and then maintain carriage to the extent of about 50 per cent. of that sum to be distributed to stations, retaining the other 50 per cent. for contingencies and a possible saving. The carriage thus maintained would make a very respectable nucleus for a transport department in time of war.

Major F. F. Rowcroft, 4th
Goorkhas.

With reference to questions 12 to 19, on the subject of transport, I have not had sufficient experience in Indian transport to pronounce any decided opinion; but I am of opinion that in war time each regiment should have its transport handed over to it bodily, the regiment to be responsible for it. One officer in each regiment should be specially told off to look after the transport. Under this arrangement the animals are carefully looked after and seen to; and especially that every arrangement possible is made for getting their food regularly. I have been informed that in certain regiments in which the above system was tried in the late campaign it answered very well; the animals—well-looked-after and well-fed—were always in good condition and fit for work. I am of opinion that special transport arrangements should be made for Goorkha regiments, to be always kept up, so that each Goorkha regiment could march from its station when its services were urgently required within 48 hours of receiving the order. As regards my own regiment, it has always taken from a week to ten days for the regiment to march, the carriage having to come all the way from Meean Meer. Last year the regiment received orders to march on active service to the frontier on 24th September. It did not march till the 2nd October, simply for want of carriage.

Lieutenant-Colonel J. J. Boswell,
Commanding 2nd Sikhs.

The following is a very crude estimate. The saving that would be made by Government in the event of war with trained officers, men, and establishments would be very great, and compensate for the heavy outlay:—

	Per mensem, Rs.
One superintendent of transport, Rs. 600, in addition to staff corps pay, say	1,424
Twenty transport officers, one with each Native regiment in Punjab staff, Rs. 150	5,000
One hundred inspectors (sepoys) at Rs. 5	500
Feeding 200 camels per regiment, grain at 2 seers, at 20 seers per rupee	600
Bhoosa, 100 camels ($\frac{1}{2}$ at graze) at 8 seers, at 2 maunds	250
Feeding 100 mules, grain 2 seers each, at 20 seers	300
Bhoosa, 6 seers, each at 2 maunds	225
Pay of 50 camelmen at Rs. 8	400
„ 33 muleteers at „ 8	264
Repair of gear, say	50
	2,589
And for 20 regiments	51,780
Grand total per mensem	56,704

Government would thus have ready, available for immediate service, 4,000 camels and 2,000 mules, with trained officers and establishments.

I have not included clothing of establishments, as the amounts realized from private individuals in part would amply cover this item.

Colonel W. A. Gibb, Commandant
25th Madras Native Infantry.

This is impossible. It would take me weeks to obtain necessary data. In fact, the time given for the preparation of these papers, which involve much thought and consideration, is much too limited. Any suggestion for the reorganization of the Indian transport system must suggest great expense. The idea that it can be done more economically is, I am afraid, a false one.

Colonel S. Edwardes, Commanding
2nd Bombay Native Infantry.

The time at my disposal being very limited, I am unable to render even a rough estimate of the cost of the proposal here set forth. I have given only the general lines of a system for the formation of a transport train, and one which, I think, will be as economical as efficiency will permit.

Colonel J. S. Wiles, Commissary-
General, Bengal.

I cannot frame any estimate. If decided on a framework being formed, a committee of practical and experienced officers could alone work out an estimate.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

A train of bullock-carts of 100 carts would cost Rs. 1,894 per mensem.

Lieutenant-Colonel M. W.
Willoughby, Acting Commissary-
General, Bombay.

It will be observed that, with the exception of advocating the employment of special officers to supervise the transport, and who should be allowed staff pay as follows—

senior officers in charge of carriage at large centres	Rs. 300 staff pay per mensem,
regimental officers in charge of transport attached to regiments in peace time	„ 100 staff pay per mensem,
subaltern officers doing duty at centres	„ 75 staff pay per mensem,
and the employment of inspectors or jemadars in larger numbers and on better pay than now (with few exceptions) drawn in this presidency, and a few clerks, one for each large centre, the arming and	

RESERVE.		Cost of transport establishment for above number camels.	
Transport requirements.		Camels.	Rs.
Cavalry brigade	...	1,077	425
First infantry brigade	...	1,383	655
Second	...	1,383	655
Commissariat reserve line of operations	...	5,000	890
			1,650
		<u>8,843</u>	<u>4,475</u>

At say Rs.10 hire per camel per month Rs. 1,05,870

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

The increase of cost would entirely depend on the number of animals to be kept up. By consulting the cost of the moveable column now kept up, an approximate scale of cost for any required numbers could be fixed upon.

J. H. B. Hallen, Esq., General
Superintendent of Horse-Breeding
Operations.

I regret I have not the means of making out such an estimate; but I feel assured that with careful management and supervision the nucleus of a transport train on the lines above indicated would prove most economical in the long run, and would be a guarantee for the easy development of any amount of any *personnel* required for army transport work in time of war.

Moreover, the money saved by not requiring hired transport on reliefs, &c., would, in a great measure, counterbalance the cost of the nucleus; also, I would beg permission to add that the hardships often entailed on agriculturists and others in pressing their carts and bullocks during periods of ordinary reliefs would no longer exist.

13. It is very desirable that regimental officers all over India should qualify for employment in the transport service in time of war: can you suggest how they should be taught their duties?

Lieutenant-General C. T. Cham-
berlain, C.S.I., late Commanding
Oudh Division.

I have answered this question in my reply to question 8.

A book should be written upon transport duties, and every officer should be required to keep a copy.

When the regiment is inspected, the general officer should ascertain by examination what they knew individually.

Boards of examination should be held, and candidates who possess competent knowledge should be gazetted, the same as for musketry, languages, field telegraphy, and so on.

It should be included as one of the tests qualifying for staff employ.

Every year one or more officers should go through a practical course of this duty, and, if found sufficient, be registered for transport corps duty.

Lieutenant-General W. T.
Hughes, C.B., Commanding Sirhind
Division.

The regimental organization I propose would give every facility for enabling officers and non-commissioned officers to qualify themselves for transport duties.

Lieutenant-General J. Forbes,
Commanding Mhow Division.

They might be taught their duties at centres of instruction, e.g., at Poona and Mhow, under competent officers. There should be a director of transport with each *corps d'armée*, and assistants with smaller bodies.

Major-General A. W. Macintyre, C.B.,
Comdg. Hyderabad Subdy. Force.

By practical experience in camp of exercise or on the line of march.,

Major-General R. O. Bright, C.B.,
Commanding Meerut Division.

By sending every candidate for the staff corps to serve for a certain time with the transport I have proposed.

Major-General H. R. Browne,
Commanding Saugor District.

I think that if regimental commanding officers would place their transport, when marching in relief during the cold weather, under special charge of one or two of their officers, and require them to attend to the details of its "distribution, assembling, marching, loading, and unloading," a great deal of very useful training and acquaintance with transport would be gained.

The names of officers so employed during marches, with some information as to the qualities they have shown, might be returned at the conclusion of a march. These officers would form a sort of reserve for the purpose indicated, and they might be assisted by selected non-commissioned officers with the same object.

Major-General J. W. Schneider,
C.B., Commanding Northern Divi-
sion, Bombay Army.

They might be attached for a time to the commissariat department or to a transport train, if such should not be placed under the direct control of the former.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

I do not see how officers can obtain much practical knowledge of duties connected with transport unless a small train is kept up in each command; and this, in my opinion, even if we had officers available for it, which we have not, would be a needless expense.

Brigadier-General F. G. Kempter,
Commanding Ceded Districts.

By having the animals of moveable columns attached to regiments in peace time in charge of a named officer under transport supervision.

Brigadier-General T. J. Murray,
C.B., Mooltan Brigada.

Camps of exercise are the only schools for practical instruction on what may be called a war scale. I however do not consider that any very special training is necessary to make an officer who understands the language and of sufficient Indian experience an efficient transport officer. What is most required is a complete "field transport manual" adapted for India.

In the late campaign the want of any regular or approved system was grievously felt, and it was only after very dearly-bought experience that matters improved. Moreover, very young and inexperienced officers, with little or no knowledge of the language, were too frequently employed on duties for which they were quite unfitted.

In future I strongly recommend the employment of Native and non-commissioned officers on the transport service.

Colonel J. A. Tytler, C.B., V.C.,
Commanding 4th Goorkhas.

I do not see why a certain number of young officers from both British and Native regiments should not be attached to division and district head-quarters to learn their duties as transport officers, and after passing the necessary examination, to rejoin their regiments until such time as their services should be required.

Colonel J. Macdonald, Secretary
to Government of Bombay, Military
Department.

Attach the officers selected to the commissariat department for a certain time, and let them also go through a course in the veterinary school.

Colonel A. H. Murray, Deputy
Adjutant-General, R. A. in India.

See reply to clauses (a), (b), and (c) of question 7.

Colonel D. Standen, Assistant
Adjutant-General, British Burma
Division.

If a concise handbook of instructions relative to transport duties in time of war were published by authority, officers might be directed to attain the requisite knowledge of these duties; and a report as to their respective attainments in this respect might be made in the confidential report on the annual inspections of regiments.

Practical experience of these duties would, to a certain extent, be gained by officers at stations where moveable columns are kept up and exercised.

Lieutenant-Colonel A. C. T. Hogg,
Deputy Quarter-Master-General,
Bombay.

Officers might be attached for a course of instruction to the depôts above proposed. They would thus learn some important part of their duties.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quar-
ter-Master-General.

If appointments in the commissariat department are limited to five years on the same system as those to the general staff, many officers would gain experience in that department, which would to a great extent qualify them for transport work, supposing their time in the commissariat department is not devoted to office work almost exclusively as at present. For the rest, I think an officer who is a good regimental officer, possesses energy and common sense, with a knowledge of the language and character of the Natives, and furnished with printed instructions as to the habits of the transport animals, such as that camels will not graze at night, and that therefore marches must be timed accordingly, &c., will, with an active and practical superintendent at the head of the department, assisted by a few experienced assistant superintendents, be very quickly, without previous training, qualified to act as a transport officer.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

As will be seen above, the very essence of the system I propose is that regimental transport shall be purely regimental, and that every officer and man shall have opportunities of learning and practising all duties connected with transport.

Lieutenant-Colonel R. Blundell,
Brd Hussars.

I would suggest that this subject should be taught and studied at, say, two (transport) schools—one for Bengal, and one for Bombay and Madras; and that regulations on the subject should be published.

Lieutenant-Colonel B. S. Cleland,
9th Lancers.

We have so few officers, I do not see how any could be spared.

Lieutenant-Colonel Lord R. D. Kerr,
Commanding 10th Hussars.

One officer per regiment should be attached to the transport department to learn all particulars connected with that branch which are necessary to qualify him to undertake the superintendence of regimental transport. The department itself would, when established, soon acquire the practical knowledge of their business, and would be officered by men of experience in the transport of past campaigns. To avoid incessant change from one hand to another, as is the case with officers holding

adjutancies and regimental instructorships, the office in regiments should be a permanent staff office, like that of riding-master or quartermaster, open to intelligent non-commissioned officers. I should not advocate the withdrawal of any additional officers from regimental troop duty, the number of subaltern officers in cavalry having already been reduced to a minimum.

Lieutenant-Colonel J. C. Le
Queene, 12th Royal Lancers.

In England, commencing the year 1871 and on, during the autumn manoeuvres the subaltern officers of my regiment were instructed under my direction by the riding-master. Those employed acquitted themselves most creditably.

Major J. W. Chaplin, 8th Hussars.

Classes might be formed at large stations and also at camps of exercise. A small book of rules might also be issued containing useful information on this subject, and candidates for employment in the transport service in time of war might also be obliged to obtain a certificate of efficiency before being appointed.

Major E. A. Wood, 10th Hussars.

In regiments of British cavalry there are but few occasions on which an officer could be spared for a sufficiently long time to become acquainted with those duties. I fancy that a class of warrant officers by special selection from the ranks of both cavalry and infantry of British regiments might be used with advantage for this purpose.

Captain J. A. S. Mackenzie, 9th
Lancers.

I am of opinion that it would be a difficult matter to establish a school of instruction for this branch of the service, as officers could not be taught practically without having a large transport and opportunities to work it in time of peace. I would suggest a manual for divisional and regimental transport be drawn up, similar to the one issued by the Horse Guards for regimental transport. This one would have to include the carriage obtaining in India, as the English one only deals with horses and carts.

Colonel J. A. Ruddle, 1-25th
Regiment.

Officers should be attached to the transport department to qualify, and a book of regulations should be published for information and guidance.

Lieutenant-Colonel T. Rowland,
Commanding 1-5th Fusiliers.

Should a divisional transport cadre be established, officers from regiments might be attached and undergo a course of instruction in the management of animals, care of equipment, &c. Some non-commissioned officers and men should also be trained.

Lieutenant-Colonel M. MacGre-
gor, 1-18th (The Royal Irish).

By attaching a regimental officer to the commissariat during the relief season, to learn the system of procuring animals and carriage, the most suitable description of carriage, and the weights they should carry. They should be instructed in the management and feeding of the cattle, and should accompany corps moving in relief in charge of the transport.

Lieutenant-Colonel A. Temple-
man, Commanding 1-21st Fusiliers.

I cannot advocate officers being taken from their regiments for any such duties. It is to the detriment of their corps; and as the percentage of casualties in action is always high amongst officers, their services can least be spared from their regiments in time of war.

Lieutenant-Colonel G. F. Walker,
Commanding 1-12th Foot.

I should imagine the simplest plan would be to attach regimental officers to the transport service in time of peace, in order that they should be duly instructed in the event of war.

Lieutenant-Colonel D. Warren,
Commanding 2-14th (Prince of
Wales' Own) Regiment.

Officers could be taught their duties connected with regimental transport whilst serving with their regiments; but for departmental and general service connected with commissariat and army stores, I consider an officer must cease to be a regimental officer when he undertakes the necessary training for such duty. It would appear more economical to employ largely warrant or non-commissioned officers, who had received proper training in the management of animals and distribution of supplies.

Lieutenant-Colonel G. W. Puget,
Commanding 34th Regiment.

In my opinion, a proportion of company officers should be attached to the commissariat (or transport department if separated) to learn these duties.

Lieutenant-Colonel J. S. Hand,
Commanding 44th Regiment.

Should be trained at the centre dépôt, and afterwards do duty with his regimental transport.

Lieutenant-Colonel J. W. Hughes,
54th Regiment.

This, like other operations of active service, is very difficult to carry out in peace time. Something might be done by a clear and simple code of instructions, and attaching as many regimental officers as possible to the transport department, whenever any considerable force is collected and moved.

They might then be placed in charge of sections of transport, and at the same time be afforded opportunities for learning its general working.

Lieutenant-Colonel C. B. Knowles,
Commanding 67th Regiment.

Presuming that in future there will be a nucleus of a military transport corps maintained on the frontier, if not in each of the presidencies, I would suggest that "schools of instruction in transport duties" be formed at the stations where transport depôts are established, to which regimental officers should be sent for instruction in the management, feeding, loading, and powers of the various animals used for transport purposes, also weight of loads that wagons and carts ought to carry according to circumstances. A regular course of study to be pursued. Lectures to be given by veterinary surgeons and qualified transport officers.

Should recommend that the lectures on transport delivered by Colonel Colley when Professor of Military Administration at the Staff College be printed and issued to the officers attending the schools. All officers wishing to qualify as transport officers to have some knowledge (colloquial) of Native languages.

Officers passing through the schools to have a capital T placed opposite to their names in the army list.

Non-commissioned officers and privates might attend the school with great advantage to the service.

Lieutenant-Colonel G. H. Parker,
92nd Highlanders.

If a regular transport service was kept up, officers might then be taught; otherwise I do not see how they can.

Major F. Stephen, 4th Battalion
Rifle Brigade.

Supposing the transport department to be formed as suggested, by attaching regimental officers to it for a short period.

Major F. S. Terry, 1-25th King's
Own Borderers.

I would recommend that subaltern officers of between three and seven years' service, one from each British regiment, with a proportion from the staff corps, the former made supernumerary like adjutants in their regiments, should be appointed transport officers of their regiments, and be attached for duty to the sub-commissariat department for transport for three years. These would form the junior ranks of the department, the senior ranks being filled by selected commissariat officers.

They would, while so employed, receive the pay of assistant commissary officer, *viz.*, Rs. 150 per mensem, and would be available for general transport duty under the commissariat department for transport.

This service should prove most popular, as these officers would so often be called upon for field service, not only when their regiments were employed, but on other occasions. On return to their regiments from transport employment they would be absorbed by another officer being sent.

Major Hugh P. Pearson, 12th
Foot.

By the system I propose regimental officers would learn their duties as transport officers, and would be so employed in time of war. But these should not be called upon to supervise transport other than that of their own regiments. My scheme provides officers from other sources for all transport service not included under heading (a) regimental.

Major J. H. Campbell, 33rd
Regiment.

As young officers have to go through a garrison course of instruction, —and this takes place at large stations, where nearly every variety of transport is collected,—I think they might be instructed in transport duty at that time; but the course of instruction should be as simple as possible, and should not keep an officer from rejoining his regiment at the expiration of the garrison course.

Major J. D. Dyson-Laurie, 34th
Regiment.

In my opinion it is as essential that regiments should be efficient in the management of their transport as in marching, and it should be a part of their ordinary work to manage it. At present they are wholly inexperienced. An officer regimentally should be transport officer selected by, and responsible to, the commanding officer for all matters connected therewith under rules which would require defining.

Major G. K. Shaw, 68th Foot.

I do not see how they can be taught practically in peace. But it would be a step towards it to have a good "transport manual" published officially, and let every officer have a copy. Such a work could easily be compiled from Major Furse's papers on transport in the *Journal of the United Service Institution of India for 1878*. Last year officers were sent on transport duties who were quite unacquainted with the animals, the system, or the language of the men they had to do with.

I think more use might be made of non-commissioned officers of the European cavalry and artillery for the executive work of transport trains.

Major W. H. J. Clarke, 72nd
Highlanders.

It is very desirable that both regimental officers and non-commissioned officers should qualify for employment in the transport service in time of war, especially the latter, *viz.*—

1st.—By being attached to the transport department for duty in peace time.

2nd.—I think that a certain amount of the regimental transport should be always attached to regiments in peace time under the charge of an officer, assisted by non-commissioned officers, say sufficient for the purpose of moving the tents, baggage, &c., of the two companies belonging to the moveable column.

Major G. S. White, 92nd High-landers.

It would be necessary to know the system of transport likely to be carried out before suggesting a system of instruction. A treatise on the native capabilities and proper treatment of the animals likely to be used would be of some value to transport officers, who are now without any guide I fancy.

Captain H. M. L. Hutchison, 1-14th (Prince of Wales' Own) Regiment.

A certain number of beasts could be entertained by every regiment for local use, with which officers and men could be trained (*vide* answer 16).

Colonel C. R. O. Evans, Commanding Royal Artillery, Meerut Division.

I consider that any average regimental officer acquainted with mounted duties and many others were sufficiently qualified without much training, the chief qualifications in my opinion being the possession of sound common sense, great patience, and unbounded good temper.

Major Bertie Hobart, B.A., Military Secretary to His Grace the Governor of Madras.

I think regimental experience with a marching corps the best lesson. A camp of exercise, if the subject of transport is attended to, is a good school. Information may be collected by attending at commissariat yards to learn the loading of animals and vehicles, expedients for the ready repair of carts, gear, &c.; and if to this is added the study of the arithmetic of the subject, and the capabilities and care of animals, &c., with a knowledge of Hindustani and other vernacular, and above all a good temper, an officer will have a fair foundation for the next campaign.

Major H. C. Lewes, Commanding 1-1st Royal Artillery.

Detach a few from their regiments; nominate them each to a separate district. Let them learn the resources of their respective districts; make a register of all camels, bullocks, carts, coolies, &c. Let them subdivide them under jemadars appointed by themselves. Let them muster such sub-divisions, and, if possible, give them some actual transport of stores to effect. Order one or other of them to prepare a certain amount of carriage by a certain date; use it if possible.

The above presupposes legislation to enable the propositions to be given effect to.

Major E. T. Hume, Commanding C-C Royal Horse Artillery.

I do not consider it desirable that regimental officers should be employed in the transport service, and especially not in time of war.

Major W. W. Murdoch, Commanding E-A Royal Horse Artillery.

A reply to this question will be found in my answer to No. 7 in which I have dealt particularly with this part of the subject.

Major T. M. Hazlerigg, Commanding E-3rd Royal Artillery.

I imagine that good non-commissioned officers would be equally as efficient, and certainly much cheaper. If it is considered necessary to teach regimental officers, they might be taught the duties in a month at stations where there are divisional head-quarters.

Major the Hon'ble A. Stewart, Commanding I-C Royal Horse Artillery.

The only possible way would be to keep up a certain amount of transport with regiments under an officer and a certain number of men of those regiments. These last should be attached to cavalry and artillery and mountain artillery for a short time, and shown as much as possible as to the fitting of harness, saddles, &c., method of grooming, shoeing, and feeding, and the rest must be learnt, as at present, by *experience*.

Major C. E. Nairne, Royal Horse Artillery.

This is answered in 7 (a) and (b) and 11. I would always have one officer from each regiment attached to the transport corps and learning the duties under the director and his assistants.

Major P. FitzG. Gallwey, Royal Artillery.

As stated in answer to questions 7 and 8, I think the duties might be taught in garrison schools.

Major W. H. Noble, Royal Artillery.

A code of regulations, with suitable forms, similar to the ordnance code, should be drawn out by competent officers.

This code should lay down the duties of the *personnel* of the department; and give full directions as to how the *matériel* should be provided in different parts of India. Probationers should then be appointed from regiments serving in India, preference being given to young staff corps officers, and attached with staff pay for three years to the offices of the superintendents of districts.

A knowledge of the language is very desirable. I do not mean a standard knowledge, but a practical colloquial knowledge.

Captain G. C. Bayly, 13-8th Royal Artillery.

I do not see my way to any plan which is likely to be effectual without incurring great expense. But something might be done by drawing up a small (it must not be large) book of instructions for the transport service of an army in the field in India, laying down general principles for the management of the transport service; the different kinds of carriage available, as carts, camels, mules, coolies; the weights to be carried by each; how the transport is to be raised, by whom controlled; weight of baggage allowed, rates of pay; how stores are to be accounted for, and so forth; powers of transport officers as regards discipline, the enlistment or entertainment of the Natives required; forms, equipment, and clothing, &c.

Lieutenant E. C. Wace, R.A., No 4
Hassara Mountain Battery, Punjab
Frontier Force.

If Government would allow each regiment and department to keep up a certain proportion of transport permanently with a regular establishment, there would be but little difficulty in every regimental officer making himself acquainted with the work, and so qualify himself for work under the transport officers in time of war.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

As I am of opinion that two additional officers are required with cavalry regiments to complete their organization, I do not see how any officers could be spared for transport duties; that is to say, if they are supposed to be withdrawn from their corps.

Colonel Hugh Gough, Commandant
12th Bengal Cavalry,

A transport department having been organized, every British regiment should be called on to detail one officer, a subaltern, and every Native regiment, a Native officer, to be at all times attached for a period to the transport service of the station or district. These officers to be relieved on occasion.

Captain M. G. Gerard, 2nd
Central India Horse.

This is needless with Native cavalry, all ranks being accustomed to pony carriage—the most difficult of all to manage properly. For British corps, either by maintenance of a small amount of regimental transport in peace which could be utilized to carry firewood, rations, &c., in cantonments, or regimental stores from nearest point of railway, or by attaching officers for a few months to nearest transport train division, who would have charge of a section, if possible on convoy, and receive staff pay for the time, conditional on satisfactory performance of work.

Brigadier-General C. J. Godby,
Commanding Punjab Frontier
Force.

By attaching them for the time to the moveable column transport under the transport officer of the quarter-master general's department. But regimental officers could hardly be spared from the small establishment of a Native regiment, although perhaps officers of a British regiment might be.

Colonel T. G. Kennedy, 2nd
Punjab Cavalry.

Opportunities could be given by employing the moveable column, or at camps of exercise marched partly for the purpose—say, from Lahore to Peshawar and back. Reliefs too might be arranged with this object to march in large bodies.

Lieutenant-Colonel C. LaTouche,
Commandant Poona Horse.

I would attach young officers after passing their drill to the transport for six months during the busy season, say from 15th October to 1st March, in the same way as they are now sent to garrison instruction or army signalling. In this way two or three officers might always be attached to each section of the transport corps; and whilst learning their duties, they would be useful to Government, and would be available hereafter when the details of a reserve system had been decided upon.

Lieutenant-Colonel J. H. P.
Malcolmson, Commanding 3rd
Sind Horse.

The only plan that occurs to me is that every regiment in changing quarters should move with its transport and supplies as if on service, and it would be the duty of commanding officers to see that their officers knew their regimental portion of the work.

In the same way convoys of ordnance stores, ammunition, engineer stores, and commissariat should be moved in the winter complete as if in service, and extra officers might be attached to all to learn the organization of each; the commissariat being employed as on service in obtaining and furnishing supplies to the troops or departments with which they may be sent. This would of course entail a certain amount of expense on the State, but nothing can be learnt without actual practice.

Major A. P. Palmer, 9th Bengal
Cavalry.

One officer from each regiment, British and Native, in India should be detailed for transport duties, and changed annually, if possible.

Regiments and batteries north of the Jhelum should be permanently equipped to the extent laid down in Bengal Army Regulations, paragraph 2326, as follows: cavalry 1 squadron; infantry 200 men; artillery 2 guns.

Regiments south of the Jhelum: cavalry 1 squadron; infantry 100 men; artillery 2 guns.

Regiments across the old frontier and in the Derajat might remain equipped to the extent authorized for the Punjab Frontier Force.

The carriage, except in exceptional localities, should be available at 24 hours' notice, and receive, as at present, half rates while unemployed.

The flying column, consisting of the troops in each station, equipped as above, should be frequently exercised in the drill season, being sent out for a few days at a time with instruction to attack cantonments from certain points, as a skeleton enemy, or take up position within a radius of six miles of the station, &c.

The regimental transport officer, two non-commissioned officers, and two men would be in charge of the carriage of each detachment. Instructions for their guidance on all occasions would be circulated by the director of transport; and circle superintendents would make frequent tours of inspection to ensure regimental transport officers understanding their duties.

At camps of exercise, imperial durbars, or other large assemblages of troops, regimental transport officers would, under the system proposed, have wider opportunities of learning their duties.

Colonel H. S. Obbard, Commanding 41st Bengal Infantry.

Teaching is quite unnecessary as regards officers and men of the Native army, and almost so in British regiments that have had a march in India in relief. The men of Native regiments are used to the management of animals from their childhood.

Colonel E. Dandridge, Commanding 40th Native Infantry.

Officers would readily learn their duties, in the same way as they have qualified themselves to be musketry instructors, *viz.*, by the study of a handbook and of the regulations which would be published by Government for their guidance.

Colonel G. W. Fraser, 39th Native Infantry.

Officers at present in the service should be taught the duties appertaining to the transport department in the garrison classes, where those duties should form a separate subject of study.

Officers entering the army hereafter should be instructed in these duties at the military academies.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Regimental officers might with advantage be attached temporarily for duty to the commissariat or to the transport depôts suggested in answer 7.

Lieutenant-Colonel R. J. Walker, Commandant 17th Native Infantry.

Except at camps of exercise, I see no chance of an officer obtaining any practical insight into the transport system.

Lieutenant-Colonel R. G. Rogers, 20th Punjab Native Infantry.

No, unless the regimental transport system be established permanently, as in the Punjab Frontier Force.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

Transport duty is really very simple. An officer of a Native regiment, who has acted as quartermaster on the line of march, or with a moveable column, ought not to require further instruction.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

I would suggest that a book of all transport rules and regulations, and giving as much as possible every detail regarding transport carriage of all descriptions, should be written by the director, published by Government; and that every officer in the army should be directed to furnish himself with a copy, which should be produced with the other

books at the periodical inspections by the general commanding the division or district; and at the same time as the other examinations take place each officer should be examined as to his knowledge of its contents. Any officer desirous of being allowed to join the department should be allowed to serve under one of the superintendents for at least six or nine months, giving him every assistance, and learning up every detail as to the working of the department, how the accounts should be kept, &c.; and at the end of his probation he should be called upon to pass an examination, the papers being sent down by the director.

There should only be allowed a limited number of probationers for the department, and they should be allowed Rs. 150 staff pay in addition to the staff corps pay of their rank. These officers, after having passed the examination and made themselves perfectly acquainted with the working of the transport and the management of the accounts, would prove invaluable in time of war as assistant superintendents, or to officiate at any moment as a superintendent.

Major Sir B. P. Bromhead, 40th Native Infantry.

The introduction of a regimental transport system would effect something. It would be a good plan to put one officer—not the quartermaster—in charge of all the transport arrangements whenever his regiment marches. Let him make out all the indents, bills, &c., and settle up with the camel and cart men, and finally with the commissariat. It would be good practice. The publication of a concise set of rules and regulations would be of the greatest service.

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

Yes; this is a matter I have often thought out, and I have always regretted the want of some repository (not cemetery) for the vast experience gained in India. No army has had such experience of transport as the Indian, whether by sea, river, or road, over plains and mountains, through deserts and forests, and with every kind of animal; yet,

when a campaign breaks out, not an atom of knowledge is available; experience has to be acquired, every expedient thought of, and it is not until necessity as the mother of invention has brought about a system that matters run at all, chaos meanwhile reigning supreme. Had even a few little pamphlets been in existence at the beginning of this campaign, they would have been invaluable. Many transport officers did not know what a camel could eat. And blind indeed must have been an officer who, going along as I did from the Indus to the Helmund, could not trace much of the suffering of the animals and drivers to the inexperience of officers in charge. Now experience is most wanted at the opening of a campaign—*ce n'est que le premier pas qui coûte*—all the more necessary therefore that the first step should be taken well.

Much experience of transport matters has been lost to officers and men by the substitution of railway for route marching. On this score alone, if not for health's sake, I would advocate a reversion to the old system of marching regiments in course of relief.

To ensure a general knowledge of transport knowledge, there should be a transport school, where young officers can be trained by practical work and lectures.

Such a school would be inexpensive, if it did not pay its own expenses; and to work it practically a piece of road comprising hill and plain should be taken and worked on a war transport system. Umballa to the large hill stations round Simla would do; but now that we are to hold the Khyber, Kuram, and Peshin, the communications on these roads should be taken up by a transport sub-department and worked as in war. If started, there should be on each line an officer to superintend and assistant superintendents and transport officers as required. Stages should be appointed, with a proper

staff, and a regular system of invoices, journals, reports, and accounts brought into force. Young officers selected from regiments should be attached to these lines for six months at a time; and after undergoing at a head-quarter station a course of lectures on transport duties, care, feeding, and clothing of animals, ailments and remedies, construction of carts, fitting of pack-saddles, palans, kajawals, &c., conduct and defence of convoys, they should then be sent to assist at, and eventually command, an outpost. Once taught, they should return to their regiment, their qualifications be recorded according to merit, and their names published in the army list.

Government would thus have a body of officers ready at once to start on an accepted system.

An idea seems to prevail that any duffer is fit for the transport department; and the department is generally considered a convenient residuum for pestering volunteers, who cannot for many reasons be provided for elsewhere. Experience teaches that an officer cannot be too good for transport work, and that it requires a high order of intelligence and administrative ability for its efficient working.

Major F. F. Rowcroft, 4th
Goorkhas.

Vide answer 12.

Colonel H. Boisragon, Com-
manding 4th Sikhs.

The immediate organization of a transport department is of vital necessity. Collaterally, railways and tramways should be pushed on rapidly; traction engines used and light carts. The above course for the plains; in the hills elephants, camels, mules, ponies, bullocks, and coolies.

Lieutenant-Colonel J. J. Boswell,
Commanding 2nd Sikhs.

The younger officers with regiments whom it might be the intention of Government to appoint as transport officers might be attached to regiments of the Punjab Frontier Force to learn their duties as regards care and treatment of baggage-cattle. Were the superintendent of transport appointed, he might organize a system and teach them.

Lieutenant-Colonel F. T. Bain-
bridge, 4th Sikhs.

By being attached to the transport service during camps of exercise, and also temporarily doing duty with the transport in times of peace, in districts where they could learn the system.

Major A. G. Ross, 1st Sikhs.

Putting aside veterinary knowledge, which is good but not essential if good veterinary subordinates are supplied, I think you want as transport officers only good well-trained regimental officers accustomed to system and discipline, and who are of active habits and patient temper. For saddling, &c., an officer might attend a central depot for a month or so.

Colonel A. Jenkins, Command-
ant 2nd Madras Native Infantry.

I would suggest that all escort duty now performed by the police, such as charge of treasure, ordnance, and commissariat stores, should be performed by the Native army. Its experience would be valuable to officers and men.

Colonel W. A. Gib, Commandant
25th Madras Native Infantry.

Practically, by sending them out with moveable columns. But I do not quite understand this question, or what the officers are to learn. I am sure if I started with my regiment to-morrow for the field with so many bullock-carts, so many camels, so many ponies, I could take care of them with the assistance of my officers; but if any young officers are to be taught anything connected with the field, teach them practically by taking them out into it. They must be strong and healthy, and good riders, and able to stand any amount of exposure to the sun.

Colonel S. Edwardes, Command-
ing 2nd Bombay Native Infantry.

The commissariat and transport department should form a portion of the general staff of the army.

The appointments to it should be tenable for three years in the higher grade and for three years in the lower. No officer should be allowed to exceed five years in the department, even if promoted from a lower to higher grade. He might be reappointed after three years' regimental duty. In this manner a great number of officers might be passed through the department. It may be urged that the duties of the commissariat department require officers specially trained for it. Experience, however, teaches otherwise; for, whenever war breaks out, the experienced commissariat officers are sent to the front, and totally inexperienced officers take their places and conduct the duties efficiently. Under the system herein advocated, there would be, in time, a large number of experienced officers in the army; and when some were sent to the seat of war, others would be available who would be acquainted with the duties required. At present the knowledge of commissariat duties is restricted to a few, instead of being disseminated amongst the many. The addition of transport duties, and making the department a portion of the general staff of the army, would improve its status, and make it more acceptable to the army at large.

Officers should be induced also to qualify in transport duties. There might be a transport allowance, say Rs. 30 per mensem, to be drawn by an officer in each regiment and brigade of artillery who qualifies by serving a year in the transport train and by passing an examination in transport duties, a fair knowledge of the vernacular being one of the tests.

Colonel W. Bannerman, 4th
Bombay Rifles.

If some regular system was decided on, and the details published, officers could qualify theoretically, and would quickly master their duties when proceeding to join the transport. There are no means that I can see for an officer learning this work practically in time of peace.

Colonel H. H. James, Command-
ing 10th Bombay Native Infantry.

This can only be effectually done if there is some kind of fixed transport service in time of peace to which they could be attached for the purpose. Under the present system, I don't think it is possible to instruct officers beforehand, at least not practically.

Colonel J. Fairbrother, Commanding 22nd Bombay Native Infantry.

Let the transport service be regularly organized; have depôts of instruction at head-quarter stations, and attach officers to them for a certain time to pass a course, the same as in the case of army signalling or musketry instruction. This is the most simple part of the whole question of transport.

Colonel J. I. Willes, Commissary-General, Bengal.

According to my ideas there should be no transport kept up, save on the frontier, because of the expense. Should it be decided otherwise, then it will be composed, I presume, of carriage locally obtainable, which, if hired, would be engaged at two rates—one for cantonment, the other at graze. All the former would be worked by the commissariat in cantonments—a very limited quantity. The rest would be only seen once a month. I cannot suggest how regimental officers could learn anything of transport duty under such circumstances.

Colonel E. A. Moore, Acting Commissary-General, Madras.

By attaching them temporarily to the commissariat, and placing them in commissariat charge of a British regiment on the line of march; entrusting them with the charge of all the public carriage, and requiring them to provide the supplies on the march and to render the accounts.

Lieutenant-Colonel M. W. Willoughby, Acting Commissary-General, Bombay.

As explained in reply to question 7 (a), I would propose that regimental officers should be detailed to the charge of the transport at all large centres. This, if carried out, would give employment to a certain number of officers; and at the minor stations, where it may be decided to retain field column carriage, I would place it in regimental charge, on the understanding that the commissariat should have the use of it when required; and this small charge would afford some instruction to the regimental officer detailed to supervise it.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

All accounts of transport must be kept by Native agents, sending accounts to commissariat officers through the transport officers. Transport officers must learn their duties as regards feeding and care of animals. The rules laid down in Peshawar Field Force orders and in several circulars (copies put up, marked Appendix E, F) published by me during this campaign point out clearly the important features in these matters which should engage a transport officer's attention, such as repairs and refitting gear, grooming, feed and care of animals, adjustment of loads. These rules, if compiled in a concise form, could be easily learnt by all officers, especially at frontier posts.

APPENDIX E.

Copy of a circular No. 73, dated 2nd January 1879, from the Deputy Commissary-General to the Commissariat and Transport Officers.

The attention of executive commissariat officers is again called to the necessity of sending itlanamahs of all camels proceeding on service with regiments, &c., by the camelmen. See also to-day's circulars.

Copy of a circular memorandum, dated 10th January 1879, from the Deputy Commissary-General to the Commissariat Officers.

Executive officers are earnestly requested to assist the transport officers in making *at once a settlement of accounts* with the camelmen up to 1st January 1879, and to issue fresh itlanamahs from 1st January 1879.

2. The itlanamahs should give details of the owners of the camels and the date and place of original entertainment; but the pay on these fresh itlanamahs will be payable only from 1st January.

3. The assistance of commanding officers should be invited in making settlements up to 1st January 1879.

4. A chowdry for each brigade should be told off and sent to make at once a list of owners; and the transport officers must verify these lists in consultation with brigade officers.

Copy of a circular No. 81, dated 21st January 1879, from the Deputy Commissary-General to the Commissariat and Transport Officers.

As there is still some uncertainty felt by transport and commanding officers regarding the feeding of hired camels, it is notified for general information that the camels are to be fed daily while there is a scarcity of forage, and they are to receive one seer barley and four seers bhoosa daily.

2. Where the camel owners can provide for themselves, they will do so; where they cannot, the transport or commanding officers will purchase and supply, and record all purchases made.

3. As regards payment, the matter will be referred for orders of Government; but in the meantime General Stewart has issued a division order to the effect that one rupee per mensem per camel is to be deducted for the food the camels have received (irregularly in many cases) from Government; and settlement of accounts to 1st January has been ordered on this system.

4. It is the duty of transport and commanding officers (as if commanding officers) to see that the animals are properly treated and well fed, as the comfort of the army depends on the transport being kept in an efficient state.

5. This circular to be shown to all officers concerned.

Copy of a circular No. 84, dated 29th January 1879, from the Deputy Commissary-General to the Commissariat and Transport Officers.

1. Batches of camels are sent up as they become available; but in returning them try to get some class of men into one batch when practicable.

2. As there is a difficulty about officers and escorts, try to make up batches to 500 each. This is the largest number that can well be worked in one convoy.
3. *Government camels all to be put in one batch and not mixed with hired camels.*
4. Camels to be purchased as quickly as possible, and kept for convoy or godown purposes, where they can be easily supervised.
5. Convoys should start as early as possible to get over the stage early, and allow camels to get what little grazing there is to be had; and to enable officers to see food is procured and given to animals before it is dark. There should be no loitering on the road.
6. A *fatigue party* should be told off to supervise and assist in loading camels as quickly as possible.
7. As a rule, Quetta camels and guards should only go as far as Chumun, and camels and guards should be changed there. It is hoped a large number of camels will be allowed to work quickly from Kandahar to Chumun, as there are very few camels available on this side of Quetta.
8. Brahee camels work to Quetta most satisfactorily from Dadar, but at present they refuse to go beyond Quetta.
9. Letter to be sent to officer commanding at Chumun warning him to despatch convoys, so that he may be able to arrange for exchange of guards.

Copy of a circular No. 113, dated 17th February 1879, from the Deputy Commissary-General to the Commissariat and Transport Officers.

Transport and commissariat officers with troops are requested to have *careful muster rolls prepared and signed for all camels with each regiment.*

2. They will compare the itlanamahs with the camelmen, and note that the numbers present actually agree with numbers shown, as still alive, and present as per itlanamahs, noting any difference on those papers.
3. The accounts of all camelmen should be made up at once to end of each month. All accounts up to 1st January have, it is believed, been settled.
4. The accounts must be all made ready on the march and before troops reach Quetta. The attention of transport officers is specially directed to this very important point.
5. It is hoped all advances have been regularly entered in itlanamahs.

Copy of a circular No. 173, dated 23rd March 1879, from the Deputy Commissary-General to the Commissariat and Transport Officers.

Transport and executive commissariat officers are requested—

- (1) To see that the number of camels for which hire is claimed are present or accounted for.
 - (2) All differences between those now present and original itlanamahs and those noted on original itlanamah to be duly recorded on its back.
 - (3) Payments to be made in presence of the man whose name is on the itlanamah, the owner of the camels and both naib-chowdries.
 - (4) The owner's name and father's name and village to be recorded on the receipt.
 - (5) In the event of dates of deaths not being recorded, an average to be struck between the dates on which distinct information is noted.
 - (6) Where an owner presents an itlanamah and desires settlement without any details whatever being noted, a reference must be made to the officer with whom he was last employed.
 - (7) As the object is that the camel owners should be liberally dealt with and finally settled with, as soon as possible, the transport officer should exercise his judgment in preparing a fair settlement which, if concurred in by executive commissariat officers, may be paid at once as noted in paragraph 3.
- The above points to be attended to in making settlements with camelmen.

Copy of a circular No. 206, dated 1st May 1879, from the Deputy Commissary-General to the Commissariat and Transport Officers.

All *surwans and muleteers* should be paid monthly in presence of transport officer by the Government agent, and regular muster rolls of animals and men kept.

2. When men are sent on command, they will receive itlanamahs which will show that the men were paid up to the last day of previous month; and the itlanamah will be given to senior jemadar or attendant, his name being entered on that and also a muster roll for reference. The number of muleteers will be noted also in itlanamah and muster roll.
3. The itlanamah will show the date up to which the animals and men were rationed, and from whose rolls they have been noted as on command; and they will be included in the column as on command in the muster roll, as usual with all returns of Government cattle.

APPENDIX F.

Circular by Colonel T. H. SIBLEY, Deputy Commissary-General,—No. 208, dated Camp Quetta, 4th May 1879.

The Deputy Commissary-General has the honor to circulate a few rules for the guidance of officers of the transport department, and to solicit that, as far as practicable, they may be acted up to.

2. These rules are to be considered as supplementary to those published under sanction of Government and circulated with this office letter dated 20th October 1878; copy attached.
3. The transport officers will solicit the aid of all commanding officers to enable them to carry out the instructions herein contained, as the efficient condition of the transport is a matter of vital importance, and attention is here called to paragraph 5 of the old transport rules.

CARE AND FEEDING OF ANIMALS.

Rations.

1. The first point to which transport officers must pay attention is the condition of all the gear.
2. The palans and pads must be kept in perfect order, frequently re-stuffed, and made to fit each animal.

3. The gear must be carefully put on the animal's back, so that the load may be properly adjusted.

4. The animals should be laden quickly, the jemadar seeing that all the attendants assist in loading.

5. As a rule, the animals should be laden early in the morning, and should move off at once to the next encamping-ground, and on arrival should be sent to graze. A certain number of animals with nets should be sent to collect dhooosa or fodder.

6. The animals should return from graze one hour before sunset, when they should be well rubbed down, and jhools adjusted for the night.

7. The animals should be fed at sunset, and when possible the barley should be crushed, hand-mills being carried; one pair to 20 camels or mules being taken with each batch.

8. The condition of the animals should be reported daily by the jemadars, and transport officers should see the animals' backs as frequently as possible. Directly an animal is observed to be galled or otherwise rendered unfit for work, no loads should be put on the animal.

9. The attendants of all galled or unserviceable animals to be punished, either—

1st, by being put on half rations;

2nd, by fine;

3rd, by infliction of corporal punishment when the neglect is gross and culpable.

10. The jemadars should be warned that if more than 5 per cent. of their animals are rendered unfit for work, they will be put on half rations and fined.

11. As a rule, the salootrie, blacksmith, and moochiees will be kept at depôts to effect the repairs more quickly and satisfactorily; but with large convoys a portion of the establishment may sometimes be detached at discretion of transport officers.

12. Transport officers will be told off to superintend batches of about 1,500 animals, and will keep charge of the same animals as far as practicable; 1,500 animals being about the number required for a brigade of troops.

13. They will see that the daily ration is provided on the line of march, and when practicable will send on sowars to warn authorities of the quantity of food required for the animals at each stage. When moving with the army, they will assist commissariat officers in collecting supplies.

14. Transport officers must obtain monthly muster rolls from commanding officers, showing the number of animals employed daily with each detachment of troops, and the duties on which employed, i.e., with baggage, tents, ammunition, stores, private command. The neglect to obtain these muster rolls, which should show all increases and decreases, has caused much inconvenience.

ESTABLISHMENTS.

Camels.

1 Naib-chowdry	on Rs. 50 to every 1,000 camels
1 Missildar	on " 20 to every 330 "
1 Jemadar	on " 12 to every 160 "
1 Duffadar	on " 11 to every 80 "
1 Sarwan	on " 8 to every 3 camels for baggage & 4 for commissariat stores.

Commissary-General's letter No. 542, dated 22nd January 1879.

With warm clothing and ration.

Mules.

1 Jemadar	on Rs. 14 to every 100 mules or yaboos
1 Duffadar	on " 11 to " 50 " "
1 Syce or driver	on " 8 to " 3 " "
1 Salootrie	on " 12 " " "
1 Blacksmith	on " 12 } to every 500 " "
1 " "	on " 12 } " " "
2 Moochiees	on " 8 each.
1 Nalbund	(pay as may be found necessary).

Commissary-General's letters Nos. 240 and 705, dated 11th and 28th January 1879.

Commissary-General's letter No. 910, dated 5th February 1879.

With warm clothing and ration.

GEAR SANCTIONED FOR CAMELS AND MULES.

For camels.

- 1 Palan.
- 1 Nose rope.
- 1 Set of loading ropes.
- 1 Jhool.

For mules.

- | | |
|---|------------------|
| 1 Pack-saddle, new pattern, complete with 1 head chain, iron, head stall, bridle bit, reins or loading ropes, and suffra. | } per mule. |
| 1 Heel chain, iron | |
| 1 Set heel straps (loops) | } per mule. |
| 2 Pegs, iron | |
| Hammer, iron, for driving pegs, 1 per 25 mules. | } per mule. |
| Brush | |
| Curry-comb | } 1 per 3 mules. |
| Jhools, one per mule. | |
| Surcingle, one per mule. | |

Commissary-General's letter No. 243, dated 11th January 1879.

(Sd.) T. H. SIBLEY, Colonel,
Deputy Commissary-General.

The following rules are to be added to the general rules published with my circular No. 209, dated 4th May 1879, on care and feeding of transport animals and are to be read as paragraph 6a, 6b, and 6c:—

6a. Whenever any other description of fodder is procurable, white (*i.e.*, wheat or barley) bhoosa should not be given to camels. Missa (dhall or gram) bhoosa is the proper food, and these should be given, if obtainable. Grasses of sorts, including lucerne, green barley or wheat, are all good, and may be given.

6b. If jowar, moat, or gram are procurable, they may be given in preference to barley, and barley should, as before noted, be ground, if possible, and made into atta balls.

6c. It is to be noted that the ration of fodder is the minimum ration and is fixed on the supposition that all the animals will graze for 4 or 5 hours daily. Where no grazing is procurable, extra fodder may be given to the extent of 2 seers for mules and ponies and 4 seers for camels, under orders of general commanding.

(Sd.) T. H. SIBLEY, Colonel,
Deputy Commissary-General.

SCALE OF RATIONS FOR CAMELS AND MULES.

Camels.

2 seers of grain } per camel per diem, with grazing { Commissary-General's No. 1436,
4 seers of bhoosa } dated 25th February 1879.

Mules and ponies.

2 seers of grain } per animal per diem.
6 seers of bhoosa }

In Afghanistan, where fodder is scarce, 4 seers of bhoosa is to be the ration of fodder for mules and ponies, with grazing.

Formation of troops of mules and camels.

1. The mules to be formed into troops of 100 each, with one jemadar and two duffadars.
2. The camels to be formed into thokes of 80 under a duffadar, with jemadars to every 160 and missildars to every 330 camels.
3. The syces will receive 3 mules each and the survans 3 camels, and they will be kept with these animals and never changed. Sick animals, requiring separate treatment in hospital, will be looked after by spare attendants. As a rule, animals will be treated in their own lines.
4. The jemadars and duffadars will be responsible for the animals and gear of their troops or thokes, and the animals will not be changed from one troop or thoke to another.
5. Where troops or thokes are broken to complete equipment of regiments, animals detached from one troop will be attached temporarily to another troop or thoke, but will be kept on the rolls of their original troops or thokes.
6. A duffadar will always be detached when more than 25 mules or 40 camels of his thoke are sent on command.

(Sd.) T. H. SIBLEY, Colonel,
Deputy Commissary-General.

Dated Umballa, 15th October 1878.

From—COLONEL T. H. SIBLEY, Deputy Commissary-General and Chief Commissariat Officer in the Field,

To—The Superintendent of the Transport Train.

In forwarding the accompanying rough rules for guidance of officers appointed to do duty with the transport train, the chief commissariat officer feels confident all officers will use their best efforts to aid the officers of the commissariat department in introducing discipline and regularity among our transport men.

The services of Native troopers have been applied for, and the definite order of Government on this point will be circulated hereafter.

Extract paragraph 6 of Government, Military Department, No. 228K., dated 8th October 1878, to the Commissary-General, Bengal.

IV. For the rest, the proposed rules for the regulation of the transport service appear generally suitable, and are approved by the Government of India.

At present 3 assistants are required—		The formation of a transport train having been
For Kohat	1	ordered by Government for service with the troops
For Quetta	1	ordered on service, the following rules are laid down
For Dera Ghazi Khan	1	for guidance of all officers concerned:—
At present assistant superintendents are required—		1. The whole of the transport for the army in
For Kohat	6	the field will be collected and placed under the im-
For Quetta	6	mediate orders of the commissary-general in the
For Dera Ghazi Khan	17	field or the senior commissariat officer present.
At present there will be required Native officers or		2. The senior commissariat officer of each divi-
men of cavalry regiments—		sion will supervise the train of his division, and he
For Kohat	30	will be assisted by superintendent of transport train
For Quetta	30	for each division:—
For Dera Ghazi Khan	85	
		Staff pay.
4 Superintendents of transport, field officers or captains	...	Rs. 300
1 Assistant superintendent for every 1,000 camels, 500 carts, or 1,000 mules	...	" 150
5 Native officers, jemadars, duffadars, troopers of cavalry regiments, for every assistant superintendent, mounted	...	" 2) for jemadar.
	...	" 15 " duffadar.
	...	" 8 " sowar.

The attendants for camels and mules will be provided by contractors—one camelman to three camels, one muleteer to three mules, one cartman to each cart.

A naib-chowdry on Rs. 50 to every 1,000 camels, a mule-chowdry on Rs. 50 to every 1,000 mules; a hackery-chowdry on Rs. 50 to every 1,000 carts; those attendants will be under the orders of the assistant superintendents of transport.

Duties of transport officers.

1 Superintendent for each division.

1 Assistant superintendent for each brigade, with proportion of Native officers.
Military equipment, transport under commanding officers.

2. Commanding officers will retain with

Camp equipage, baggage, ammunition, 3 days' provisions, private carriage.

3. Commanding officers will return to

Signing returns.
Return of surplus private carriage to transport officers.
Private carriage hire to be debited to commanding officers monthly by pay department.

will be debited by pay department for the total private hire, as per the monthly returns which they will sign. Audit department officers will therefore see that all private carriage hire is recovered and credited in public accounts to Government month by month.

4. It will be the special duty of commanding officers to see that carriage made over to their

Commanding officers responsible for care, condition, and custody of transport made over to them.

having become inefficient.

Duties of transport officers.

To see the condition of gear.

Selection of grazing grounds; supervision of grazing.

Ficketting of cattle.

Sick animals to be separated.

9. On line of march all the transport officers and their assistants to move with transport and to wear distinguishing mark.

10. They will keep order on the line of

To remove obstacles and reload animals.

and in removing obstacles, such as broken carts, &c.

To place transport in a place of safety when column is attacked and to clear road for troops.

12. They will warn the naib-chowdries to purchase food where grazing is scarce, and it will

To see cattle are fed and report neglect.

the naib-chowdries to the superintendent of transport, who will recommend fines to be inflicted on the chowdry in all cases of neglect.

13. They will endeavour to enforce punctuality and regularity on the part of the attendants,

To enforce punctuality, to ensure animals not being kept laden longer than is necessary.

them as soon after arrival at camp as possible. The transport officers will be in constant communication with the staff officers on this particular point so as to ensure this being carried out carefully.

14. They will only comply with requisitions for carriage on indents after they have been signed

To comply with indents only after passed by commissariat officer.

To consult commissariat officer in matters of difficulty.

16. As transport with stores becomes available, it will be sent back under orders of commissariat

Transport officers to move with cattle fetching stores or provisions.

A superintendent of transport will be attached to each division of the army; an assistant superintendent to each brigade, to assist the military officers in looking after the transport with each regiment.

their regiments all the transport required for the military equipment of their corps and all private carriage, and they will sign monthly returns of the carriage so placed under their orders.

the commissariat through their transport officer all private carriage which may become surplus, and which will not be required again (nor can it be replaced), and the transport officer will arrange with commissariat for the monthly payment of all carriage, public and private; commanding officers

will be debited by pay department for the total private hire, as per the monthly returns which they will sign. Audit department officers will therefore see that all private carriage hire is recovered and credited in public accounts to Government month by month.

will be debited by pay department for the total private hire, as per the monthly returns which they will sign. Audit department officers will therefore see that all private carriage hire is recovered and credited in public accounts to Government month by month.

4. It will be the special duty of commanding officers to see that carriage made over to their charge is kept in an efficient state, and no carriage will be changed by transport officers unless satisfactory reasons are given for the cause of the cattle

having become inefficient.

5. Transport officers will direct their special attention to the following points:—

The transport officers will carefully see to the condition of the gear of all the animals.

The naib-chowdries to be forced to repair or renew all unserviceable gear.

6. They will select under orders of officer commanding safe and good grazing grounds, and send a Native assistant out with cattle while grazing.

7. They will see that all the cattle and stores are picketed in regular order, and in spots approved of by commanding officers.

8. A hospital for sick or diseased animals to be formed at some distance from healthy animals, and assistance of veterinary surgeon called for.

9. On line of march all the transport officers and their assistants to move with transport and to wear distinguishing mark.

10. They will keep order on the line of march, and with spare attendants, 10 men taken from each batch of 1,000 camels, assist in reloading animals which have thrown or dropped their loads,

and in removing obstacles, such as broken carts, &c.

11. They will on occasions of the enemy attacking a convoy place all the animals in a sheltered spot until attack is repelled.

12. They will warn the naib-chowdries to purchase food where grazing is scarce, and it will be their duty to ensure the animals being well fed and cared for, reporting all neglect on the part of

the naib-chowdries to the superintendent of transport, who will recommend fines to be inflicted on the chowdry in all cases of neglect.

13. They will endeavour to enforce punctuality and regularity on the part of the attendants,

and they will see that animals are not kept laden longer than is absolutely necessary, by not loading before they are required to move, and by unloading

them as soon after arrival at camp as possible. The transport officers will be in constant communication with the staff officers on this particular point so as to ensure this being carried out carefully.

14. They will only comply with requisitions for carriage on indents after they have been signed by the commissariat officer of the division or brigade, without whose sanction no alteration in the distribution of carriage should be made.

15. In all matters of doubt or difficulty, they will consult the commissariat officer of the brigade or division.

16. As transport with stores becomes available, it will be sent back under orders of commissariat

officers to the depôts in rear, with or without convoy, as the state of the country through which it will pass requires, and as the general commanding may decide.

17. The transport officers will always return with the same batch of animals as they take down to the depôt, and will bring up with them a duplicate of the invoice. The owners of the carriage are responsible for the stores laden on their animals or carts.
- To carry up invoices.
18. Transport for the ordnance and engineer departments will be made over to officers of those departments, and an assistant superintendent of transport will be detailed for duty with each of these departments. Carriage that becomes surplus after expenditure of stores will be made over to the superintendent of the division.
- Transport for engineer and ordnance departments to be made over with transport officer to supervise.
19. The superintendent of divisions will keep rolls of all transport, and arrange in communication with the commissariat officer for the payment of the owners through the chowdries.
- Superintendent of transport of division to keep roll of all transport.
20. The superintendent of transport of each division will countersign every roll of carriage before sending it to the commissariat officer for check and payment.
- To countersign all rolls of commanding officers and others.
21. All Government carriage, elephants, mules, bullocks, will be fed by a cattle agent with each brigade or division. These will generally be attached to regiments or departments, and will be supervised by the assistant superintendent of transport of each brigade.
- Government cattle fed by agents to be supervised by transport officers.
22. The hired mules to be trained and organized on the same system as that of the Rawal Pindi and Peshawar mule trains.
- Mule train of hired mules to be organized on Government system at Rawal Pindi and Peshawar.
23. They are formed in divisions of 100 mules under a jemadar on Rs. 15 per mensem, with two duffadars on Rs. 12 per mensem, to enforce orders and maintain discipline.
24. The loads fixed for the different animals are as follows:—
- Loads for animals, which should not be exceeded.
- Elephants, 16 to 20 maunds, according to size of animal.
Camels, 4 maunds.
Mules, 2 " "
Carts, 4 " " per bullock.
- It is the special duty of transport officers to see that these loads are not exceeded, as animals will break down after a long march.
- Care of elephants.
25. Printed instructions regarding care, &c., of elephants are sent to each transport officer.
26. Transport officers will carry a supply of ordinary medicines, and will apply for services of a veterinary surgeon in extraordinary cases of disease.
- Medicines for sick cattle.
27. The general officer will direct in what position on the column of march each class of transport is to be; and transport officers will enforce strict attention to this rule, and arrange that the different batches of transport are ready to take up their position at the proper time. Loading animals before they are required will thus be avoided.
- Position in column of each class for transport.
- | | | | | |
|----------------------------------|-----|-----|-----|---|
| Camp equipage | ... | ... | ... | 1 |
| " baggage | ... | ... | ... | 2 |
| Ammunition | ... | ... | ... | 3 |
| Regimental stores and provisions | ... | ... | ... | 4 |
| General stores | ... | ... | ... | 5 |
28. Stores should generally be placed within a circle and the cattle placed outside all round. This formation is a protection against thieves, and is the best for resisting a sudden attack of the enemy on any convoy.
- Stores to be placed inside a circle and cattle round outside.
29. To ensure rest for men and animals, the strictest silence should be enforced and flying sentries placed round all cattle encamping-grounds.
- Strictest silence enforced after dark.
30. In conclusion, the transport officers must use great tact and discretion in dealing with the transport attendants, who are nearly all hired men, speaking various dialects. They will find Native soldiers and others of much assistance in conveying their orders to the chowdries and attendants. They should therefore use these men freely in communicating with the Native attendants; they will find it much easier to enforce discipline by so doing.

(Sd.) T. H. SIBLEY, Colonel,
Depty. Commissary-General, and Chief Commissariat Officer
in the Field.

Circular by Colonel T. H. SIBLEY, Deputy Commissary-General, and Chief Commissariat Officer in the Field,—dated Umballa, 20th October 1878.

The Deputy Commissary-General has much pleasure in circulating copies of letters as per margin from the Government of India and the Adjutant-General regarding the employment of Native officers and troopers of cavalry regiments.

Military Department, Government of India,
No. 355K., dated 15th October 1878.

Adjutant-General's No. 103, dated 9th October 1878.

2. Each superintendent will apply to the general officers of the forces for the service of 1 jemadar, 3 duffadars, and 26 men from any regiment, and will keep these men attached to their column of superintendence.
3. The superintendent will draw the pay and staff pay for these men from their regiments, and will disburse it monthly, sending acquittance rolls to the officer commanding the regiment, and keeping a duplicate of the same for record in their own offices.
1. Kohat.
2. Quetta.
3. General Stewart's Division.
4. Peshawar Forces } from local forces.
5. Hassan Abdal " }

4. The Deputy Commissary-General hopes all transport train officers will recognize the interest His Excellency the Commander-in-Chief has taken in the successful working of this train, and he feels confident all will use their utmost efforts to raise the train to a high state of efficiency, by looking after both men and animals under their charge.

No. 355K., dated Simla, 15th October 1878.

From—COLONEL H. K. BURNS, C.B., Secretary to the Government of India, Military Dept.,
To—The Commissary-General, Bengal.

With reference to paragraph V of my letter No. 228K., dated 8th instant, I am directed to forward a copy of a communication from the Adjutant-General in India on the subject of the employment of Native officers and men with the transport train to accompany the troops on service, and to state that the views of His Excellency the Commander-in-Chief, as therein expressed, as to the rates of pay, &c., are accepted and sanctioned by the Government of India.

2. The Foreign Department will be addressed in view to the 55 officers and men required to complete the number needed for the transport train being furnished.

3. I am to request that you will be good enough to inform the Government at once as to what stations, and in what proportions, these detachments of Native cavalry are to be sent.

No. 1856, dated Simla, 18th October 1878.

Forwarded to the Deputy Commissary-General, Upper Circle, with reference to clause V of Military Department No. 228K., dated 8th October 1878, forwarded with this office No. 1692, dated 9th October 1878.

The report required in paragraph 3 of Military Department No. 355, dated 15th October 1878, should be furnished on an early date with the return of the letter.

(Sd.) J. I. WILLES, Colonel,
Commissary-General.

No. 103K., dated Simla, 9th October 1878.

From—MAJOR-GENERAL P. S. LUMSDEN, Adjutant-General in India,
To—The Secretary to the Government of India, Military Department.

With reference to the subject submitted with your No. 229K. of the 8th October, regarding the employment of mounted Native officers and men in the general superintendence of the transport train of columns under orders for service, I am directed by the Commander-in-Chief to state that, considering the important nature of the duty and its strictly military character, His Excellency thinks the most efficient method would be to select a Native officer's party, with say 1 jemadar, 3 duffadars, and 26 men, from several regiments for particular columns.

2. Such a measure would ensure the maintenance of discipline in the body not otherwise procurable, and would moreover afford great facility in adjustment of men's accounts.

3. I am to recommend a staff salary in addition to pay of—

Rs. 20 per mensem for jemadar.
" 15 " " for duffadar.
" 8 " " for sowars.

4. Should Government be pleased to approve of this suggestion, His Excellency will be prepared to call on three regiments to provide 90 of the number required; while the remainder, it is presumed, may be supplied from some of the local forces under the Government of India.

5. In the event of these men being taken away from corps, sanction should be given at once to replace them, as our weakness in Native troops is a matter of serious importance.

P.S.—The annexure of your letter under reply is herewith returned.

Copy of letter No. 816, from Chief Commissariat Officer, Umballa, dated 21st October 1878, to the Principal Commissariat Officer, Quetta Reinforcement Force.

All your camels are under your head-chowdry, who furnishes security. Naib-chowdries for every 1,000 camels are to be appointed on security of head-chowdry, and fresh security taken as necessary.

2. Payments will be made through head-chowdry, who will distribute the pay. He will arrange for payments at Mithankot before men start on the trip to Quetta, going right through; and at Quetta sometimes he will make other payments. As no camels will stay on the road, they will be paid at end of journey, receiving money enough for the trip, say to Quetta and back.

3. The chowdry will submit bills and rolls signed by transport officers, and you will pay them for your division (see transport train rules sent to you).

4. Transport train officers will draw their own pay, and will be in all respects on the same footing as all other staff officers. The muster rolls of each division will be signed by superintendent of transport, and countersigned by assistant adjutant-general, and sent to paymaster. Each officer will draw his own pay.

5. The pay of Native officers and troopers will be drawn by superintendent of each division through the regimental authorities, who will include the staff pay; and the pay will be disbursed under his orders.

6. The transport train officers will ascertain from the owners of the camels and carriage that they receive their pay monthly, and will take a monthly acquittance roll from them.

Foregoing circulated for information of officers of transport train.

The camels and mules are to be divided into divisions of 1,000 each, and called A, B, C, D, &c., divisions of camels or mules.

2. The camel divisions will be divided into troops of 80, and mules into troops of 100, and numbered 1, 2, 3, &c.; so A division camels would signify the first troop of the first or A division of camels.

3. Nominal rolls of the attendants of each troop and division should be at once prepared; the camel attendants called naib-chowdry, missildars, jemadars, duffadars. Surwans to be told off for each division; and in the same way, jemadars, duffadars, and syces will be posted to each troop of mules.

4. Long rolls of the attendants to be prepared of all the attendants (separate sheets for attendants of each troop) in form in use in the commissariat department, showing the caste, residence, &c., of each attendant.

5. The long rolls will be kept in the office of the superintendent, and the nominal rolls only sent with men detached on command.

6. The camels at Kandahar will be divided into divisions A, B, C, D; and the camels at Quetta into E, F, divisions as more camels arrive.

7. The mules at Kandahar (Government) will be the A division; those at Quetta and to arrive B, C, D, &c.

(Sd.) T. H. SIBLEY, Colonel,

Deputy Commissary-General.

Quetta, June 1879.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

I do not think all regimental officers are capable of being made into efficient transport officers. The method of enabling regimental officers to acquire a knowledge of their duties has been suggested in reply to question 7. I think that before an officer undergoes the proposed examination in transport, he should be attached to a commissariat office for two months. He would there learn a good deal as regards accounts, care and feeding of animals, and supply and repair of their gear; and for practical work all candidates and passed officers should be put in charge of the transport at camps of exercise, which could, in my opinion, be formed on a small scale at many of our large stations, at hardly any extra expense, every cold season. While employed on such duty, all transport officers should draw horse allowance and Rs. 100 a month staff, to reimburse them for extra expense involved, perhaps in separation from their own messes, having to keep extra horses, &c.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

I know of no other possible than what a commissariat officer receives. It would be well if an officer of every regiment could be attached for at least one year to an executive office. The training he could get would be to deal with Natives, to understand cattle, and to learn commissariat work generally. It is an excellent training. I would, however, recommend that they receive a certain staff pay during this time and when they are with their regiments or batteries on service, when their duties would be to look after the carriage, &c., provided by the commissariat on the part of the regiment or battery; the carriage, &c., however remaining under that department which would be represented by the non-commissioned officer and Native agent with the regiment or battery.

Colonel G. S. Macbean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

Let commissariat officers select officers from regiments, and order commanding officers to put the selected ones under the commissariat officer for tuition.

Colonel R. Q. Mainwaring, Deputy Assistant Commissary-General, Kemptee.

Whenever a regiment marches, the transport for baggage, tents, ammunition, &c., should be in charge of a subaltern instead of the commissariat sergeant. The interpreter who now receives a small allowance for a sinecure would be the best man, as he could communicate with the Natives; and a small increase during the march to his pay would make it worth his while to do the work if relieved from regimental duty.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

If the transport is to remain in the hands of the commissariat, regimental officers might be required to serve in turn in the local commissariat office for a short time in order to learn the work.

If it is to be a separate department, they should serve such term with such department.

Major M. A. Rowlandson, Examiner of Commissariat Accounts, Madras.

It is difficult to provide for the knowledge of the practical duties of transport; but the theory might be made a subject of examination for promotion.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

I think it very desirable that regimental officers all over India should qualify for employment in the transport service. To teach these officers their work it will be a matter of primary necessity that certain rules should be fixed for guidance, pointing out the way in which payments are to be made, and the manner in which the latter are to be accounted for.

The officers recommended to be kept up permanently for transport purposes should be appointed to stations in which the largest number of field column carriage is kept up, and the latter should be placed entirely under their charge. In this manner means could be afforded to enable them to train regimental officers and men practically, by placing them in charge of cattle; and these officers and men would thus acquire a knowledge of forms and accounts, distribution of carriage, treatment of sick animals, &c. Opportunities offered by camps of exercise, movement of troops, might be made use of to give them practical instruction in their duties on the line of march and in camps.

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

The duties could easily be learnt at the outset of a campaign. Thorough knowledge of the language is *necessary* and seldom obtained. Officers so selected should give their mind to the work required of them, and try to master the rolls and accounts required. The transport is unfortunately looked upon as a means of getting sent on active service and of pushing to the front. The *real* work is generally distasteful to officers, and would, I think, be better performed by warrant and non-commissioned officers.

J. H. B. Hallen, Esq., General
Supt., Horse-Reeving Operations.

This question has been replied to in answer No. 7.

14. Should there not always be an officer in each corps especially charged with the regimental transport?

Lieutenant-General C. T. Chamberlain, C.S.I., late Commanding Oudh Division.

The regimental quartermaster always does this kind of work at present; but his supervision and control is only limited to receiving carriage from the civil authorities or commissariat department, distributing it to companies, hospital, officers' mess, &c., and collecting the demands on public account.

Lieut-General W. T. Hughes, C.B., Commanding Sirhind Division.

There should, most certainly.

Lieutenant-General J. Forbes, Commanding Mhow Division.

Yes, there should, especially selected, under his commanding officer and the chief director of transport.

Major-General A. W. Macintire, C.B., Commanding Hyderabad Subsidiary Force.

Yes; in a British regiment, in which officers are numerous, one might be detailed to assist the quartermaster. In a Madras Native regiment the duty would devolve on the quartermaster. No other officer could be spared for this special charge. The transport of a British regiment is of sufficient importance to require the supervision of an officer detailed for that duty. In a Native regiment transport duties are considerably less.

Major-General R. O. Bright, C.B., Commanding Meerut Division.

Certainly, if the system of regimental transport is adopted to any great extent. The answer to the last question would soon provide suitable officers.

Major-General H. R. Browne, Commanding Saugor District.

If a system of regimental transport was established, such an officer would be necessary. But I am not prepared to recommend regimental transport.

Major-General J. W. Schneider, C.B., Commanding Northern Division, Bombay Army.

The quartermaster, or the officer representing him, is usually so charged. If an officer can be spared for the purpose, it would be advantageous to the efficient working of regimental transport. In Native corps there would be no difficulty in assigning this duty to a Native officer. In a British regiment it would depend on his knowledge of the language and temper necessary to manage Natives.

Brigadier-General G. Burrows, Quarter-Master-General, Bombay.

Yes; the quartermaster should be in charge of regimental transport.

Brigadier-General F. G. Kempton, Commanding Ceded Districts.

Most certainly very advisable. He would look after the interest of his own corps in a higher degree than a stranger is likely to do.

Brigadier-General T. J. Murray, C.B., Mooltan Brigade.

Certainly. Hitherto the quartermaster has generally been so employed, but on service his other duties take up too much of his time.

Colonel J. A. Tytler, C.B., V.C., Commanding 4th Goorkhas.

Most certainly.

Colonel H. K. Burne, C.B., Secy. to the Govt. of India, Milly. Dept.

Certainly. It is the duty of the quartermaster.

Col. J. Macdonald, Secy. to Govt. of Bombay, Mily. Dept.

Yes, the quartermaster.

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India.

Yes, with a staff to be changed from time to time: see reply to question 7.

Lieutenant-Colonel A. G. T. Hogg, Deputy Quarter-Master-General, Bombay.

I consider that in each corps an officer should be specially charged with the regimental transport.

Lieut.-Col. H. A. Little, Offg. Dy. Asst. Quarter-Master-General.

Yes in time of war; but in peace I do not consider that in India the system of regimental transport would be desirable.

Major A. A. A. Kinloch, Deputy Assistant Quarter-Master-General.

Yes; I have so recommended.

Lieutenant-Colonel R. Blandell, 8th Hussars.

I think there should.

Lieutenant-Colonel R. S. Cleland, 8th Lancers.

Yes, if the officer is appointed specially for that duty and no other.

Lieutenant-Colonel Lord R. D. Kerr, Commanding 10th Hussars.

Yes; he should be held responsible that the rules of the transport department be carried out, prepare all documents connected therewith, which now hamper and weigh down the regimental quartermaster when on service. He should receive and hand over carriage; be answerable for, and superintend, the cattle and stock. To enable him to keep proper records, a book specially compiled for the purpose should be attached to each regiment.

Lieutenant-Colonel J. C. Le Quesne, 12th Royal Lancers.

Yes, certainly.

Lieutenant-Colonel G. Luck, Commanding 15th Hussars.

The quartermaster is always in charge.

Major J. W. Chaplin, 8th Hussars.

I think that an officer should certainly be selected for this duty.

Major E. A. Wood, 10th Hussars.

Most decidedly there should be; and also a sergeant (staff) and either two sergeants (lance) or corporals to assist him.

In times of peace, however, they would not be required (except the transport sergeant), as the regimental transport would be in the hands of the troop or company officers. The staff sergeant appointed as transport sergeant should have an intimate knowledge of the transport of the district that would be mustered monthly. The supplementary transport of the district mentioned in No. 2, answer 7, should be divided and allotted regimentally, so that the transport sergeant, perhaps with one or two assistants, might be well acquainted with the cattle and drivers allotted to their regiments.

Captain J. A. S. Mackenzie, 9th Lancers.

Yes; but in India he should be in addition to the establishment.

Colonel J. A. Ruddell, 1-25th Regiment.

Yes; I think such is most advisable.

Lieutenant-Colonel T. Rowland, Commanding 1-5th Fusiliers.

Certainly in time of war; in time of peace the quartermaster does it.

Lieutenant-Colonel M. MacGregor, 1-18th (The Royal Irish).

Yes.

Lieutenant-Colonel A. Templeman, Commanding 1-21st Fusiliers.

I would suggest that such an officer be supernumerary to the combatant establishment, and his services utilized in some way when not actually employed with transport.

Lieutenant-Colonel G. F. Walker, Commanding 1-12th Foot.

Yes, presuming, however, that such an appointment is filled by a subaltern. I think that, in consequence of the paucity of officers of that rank now available for duty in some British regiments, it would be necessary to make the officer holding it supernumerary to the establishment.

Lieut.-Col. D. Warren, Comdg. 2-14th (P. W. O.) Regt.

Certainly; and another trained to take his place in case of casualty.

Lieutenant-Colonel G. W. Puges, Commanding 34th Regiment.

Most certainly. Regimental transport in the field requires, in my opinion, to be in charge of at least one officer and a staff of non-commissioned officers and privates. All should be mounted. Numbers, say 1 officer, 2 sergeants, and 2 men per company.

Lieutenant-Colonel J. S. Hand, Commanding 44th Regiment.

Yes. During peace all regimental transport at each station should be formed into a sub-division and under the orders of the sub-director.

Lieutenant-Colonel J. W. Hughes, 54th Regiment.

That duty is now done by the regimental quartermaster. The calls on a regiment for officers for special duties are so great, that I do not think it advisable to increase them.

Lieutenant-Colonel C. B. Knowles,
Commanding 67th Regiment.

Yes; but he should have some knowledge of the duties he has to perform, and should speak the language of the Natives who look after animals.

Lieutenant-Colonel G. H. Parker,
92nd Highlanders.

Yes.

Major F. Stephen, 4th Battalion
Rifle Brigade.

Most certainly.

Major F. S. Terry, 1-25th King's
Own Borderers.

I think there should always be an officer borne on the rolls of the regiment as transport officer; but that it would not be necessary that he should be always doing duty with the regiment. Except on special occasions, such as long marches and field service, I think it would be better to leave the regimental transport to the charge of quartermasters of regiments.

Major Hugh P. Pearson, 12th
Foot.

I have so recommended; also that this officer be relieved periodically, so that in every regiment there should be several, if not many, officers trained to transport work.

Major J. H. Campbell, 33rd
Regiment.

Certainly. The officer, a subaltern, should be especially selected by the commanding officer. He should not be exempted from any regimental or garrison duty, unless employed specially on transport work, but should be required to keep a horse, and of course receive the usual allowance.

Major W. H. J. Clarke, 72nd
Highlanders.

There should be an officer and non-commissioned officers in each corps especially in charge of regimental transport.

Major G. S. White, 92nd High-
landers.

I think there ought to be a regimental transport officer. If the regimental transport is to be employed away from the regiment, a transport officer becomes a necessity, as the quartermaster could not be spared from his regiment.

Capt. H. M. L. Hutchison, 1-14th
(Prince of Wales' Own) Regiment.

It will be necessary to offer inducements to officers to accept the post, which will require constant and very close attention to an irksome kind of work.

Colonel C. B. O. Evans, Com-
manding R. A., Meerut Division.

Certainly. He should receive a certificate of capability to instruct others.

Lieutenant-Colonel L. Ketchen,
Royal Artillery.

I should think it would be easy for the commanding officer to select such a one when required.

Major Bertie Hobart, B.A.,
Military Secretary to His Grace
the Governor of Madras.

A battery of artillery as at present officered could not spare one; but if one of the officers were placed in charge of the whole quartermaster sergeant's department (*vide* reply to query 2 of paper D), then this would properly fall to him.

Major H. C. Lewis, Commanding
1-Lst Royal Artillery.

Doubtless one officer in each corps should be ordered to look after the regimental transport; but he cannot have any charge independent of his commanding officer. Corps are not strong enough to spare officers for every *specialité*. The quartermaster of a regiment and the captain of a battery seem to be the proper officers for regimental transport duties, aided by the officers of the rear-guard in keeping the carriage moving.

Major E. T. Hume, Commanding
C-C Royal Horse Artillery.

Yes. If the duties of the quartermaster weigh too heavily for him to undertake it, another officer should be appointed.

Major W. W. Murdoch, Com-
manding E-A Royal Horse Arty.

Certainly there should be.

Major T. M. Hazelrigg, Com-
manding E-8rd Royal Artillery.

This question is also answered in reply No. 7.

Major the Hon'ble A. Stewart,
Comdg. 1-C Royal Horse Artillery.

I see no reason why the quartermaster should not perform the duty.

Major C. E. Nairne, Royal Horse
Artillery.

Most undoubtedly.

Major P. FitzG. Gallway, Royal
Artillery.

In peace time I would have all the officers trained in succession. In war time one of these trained men would be selected to take charge of that part of the transport train made over to the regiment. The quartermaster does it at present. I would make him one of the few not eligible for this duty, for many reasons.

Major W. H. Noble, Royal
Artillery.

I should prefer to see a warrant officer of the transport branch, commissariat department, told off to the carriage of each regiment. I think regimental officers should not be taken away from their own duties on service.

Would only be necessary in time of war; and during peace in regiments attached to brigades on a war footing.

Captain G. C. Bayly, 13-8th Royal Artillery.

Lieutenant E. C. Wace, B.A., No. 4 Hazara Mountain Battery, Punjab Frontier Force.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

Colonel Hugh Gough, Commandant 12th Bengal Cavalry.

Captain M. G. Gerard, 2nd Central India Horse.

Brigadier-General C. J. Godby, Comdg. Punjab Frontier Force.

Colonel T. G. Kennedy, 2nd Punjab Cavalry.

Colonel J. Blair, V.C., Commanding 1st Bombay Lancers.

Lieutenant-Colonel C. LaTouche, Commandant Poona Horse.

Lieut.-Col. J. H. P. Malcolmson, Commanding 3rd Sind Horse.

Major A. P. Palmer, 9th Bengal Cavalry.

Colonel J. Doran, Commanding 27th Punjab Native Infantry.

Colonel H. S. Obbard, Commandant 41st Native Infantry.

Colonel E. Dandridge, Commanding 40th Native Infantry.

Colonel G. W. Fraser, 39th N. I.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Lieutenant-Colonel R. J. Walker, Commandant 17th Native Infantry.

Lieutenant-Colonel R. G. Rogers, 20th Punjab Native Infantry.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

Lieutenant-Colonel G. C. Bowcroft, 35th Native Infantry.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

The officer so selected should be assisted by some non-commissioned officers of the corps, and should receive a staff pay.

On service yes. In peace there appears to be no need of any such appointment. Unless an establishment of regimental transport were always kept up, which I do not think desirable in peace, a regimental officer would not gain the experience necessary to make him really useful in war. Regimental transport in peace I look on as a useless expense, or at least an expense which would not be worth incurring. Of course, at a frontier station it might be necessary, but nowhere else.

Yes in time of peace. The quartermaster of the regiment might do the work in time of war, receiving an extra staff allowance for the increased work that would fall on his hands.

I scarcely think it necessary that an officer in each corps should be specially charged with the regimental transport.

Undoubtedly.

Yes; but in a Native cavalry regiment this duty should be entrusted to a Native officer.

The quartermaster of a Native corps is the fittest person to be in charge of the arrangements connected with the regimental transport.

No other I think than the quartermaster, who at present actually is so.

The quartermaster of a regiment and his staff are invariably told off for that special duty.

If a transport corps on the principles recommended were organized, I think it would be unnecessary to detail a regimental officer to look after the baggage-animals. Such portions of the transport corps as were attached to regiments should be under their own officers, and should not be interfered with in matters of interior economy; though they would of course be subordinate to the officer commanding the regiment as regards the special purpose for which they were attached to his regiment.

Certainly.

Vide answer 13.

I consider that under the supervision of the quartermaster most of the duties could be efficiently performed by a Native officer, assisted by a small staff of non-commissioned officers and men.

Yes, the quartermaster.

Yes on service, but under the supervision of the brigade transport officer, who would have to provide for casualties, &c.

Yes, with a small staff salary as remuneration for such duty.

Yes; the quartermaster should be that officer, and on service he should never be detached from the regimental transport.

Yes; the quartermaster is generally charged with the regimental transport.

Yes.

In a Native regiment it should be under the quartermaster, as I believe is the case in the regiments of the Punjab Force which keep up carriage. Of course he would be assisted by such a staff as the commanding officer might think fit. In a British regiment, where the quartermaster has onerous duties, an officer might be especially charged with the supervision of the regimental transport, and should receive horse allowance for so doing.

Yes; and I think the quartermaster should be that officer, as he could enter on the duties with a knowledge of his requirements in the way of carriage, &c. Assistants from the Native grades should be given him, with some small staff allowance for the work.

In time of peace it would not be necessary to keep up regimental carriage, as everything that is required could be sent up either by railway or bullock-train. In time of war, when each regiment has received its regimental carriage, a regimental officer should certainly

be put in charge of it, with two good non-commissioned officers to work under him. This regimental transport officer should report everything regarding the efficiency of the carriage and anything he may require, and receive orders from the officer appointed superintendent of his division of the transport train. The regimental transport officer should be allowed Rs. 50 a month extra pay and rations for his horse, and the non-commissioned officers each Rs. 15 a month in addition to their pay and free rations.

Major Sir B. P. Bromhead, 46th Native Infantry.

Yes, certainly (see previous answer, 13). He should know the language well.

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

No other officer is needed but the quartermaster, who from time immemorial has been the transport officer. In a British regiment he wants no extra assistance, having sufficient already; but in the Native army he should have the assistance of a Native officer as Native quartermaster and a quartermaster havildar. In the 32nd we created these appointments, and right well they worked. To detach any other officer is merely to take away a combatant officer just at the time he is most wanted.

Major F. F. Rowcroft, 4th Goorkhas.

Vide answer 12.

Colonel H. Boiaragon, Commanding 4th Sikhs.

Yes; and always is in this force under the regimental quartermaster, assisted by a Native officer (Native quartermaster) and non-commissioned officers and men as staff.

Lieutenant-Colonel J. J. Boswell, Commanding 2nd Sikhs.

Most certainly. There should be a transport officer on the staff of each regiment.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

I cannot answer for a British regiment; but in a Native regiment I think the quartermaster can easily look after the regimental transport. But in war time, when the transport is increased, and the duty is heavy, there should undoubtedly be an officer with a knowledge of transport duty, and also of the vernacular (the latter very essential), attached to each regiment and department in charge of the transport only.

Major A. G. Ross, 1st Sikhs.

Yes there should be. In a Native infantry corps the quartermaster suffices.

Colonel A. Jenkins, Commandant 2nd Madras Native Infantry.

I think the quartermaster should be charged with the regimental transport.

Colonel W. A. Gib, Commandant 25th Madras Native Infantry.

Yes; and I think the quartermaster generally *does* take charge of the carriage on the line of march or in the field.

Colonel S. Edwardes, Commanding 2nd Bombay Native Infantry.

Yes; the quartermaster, in the absence of an officer qualified under the conditions given in the previous answer.

Colonel W. Bannerman, 4th Bombay Rifles.

Yes; the quartermaster.

Colonel H. H. James, Commanding 10th Bombay Native Infantry.

Yes; this duty devolves on the quartermaster.

Colonel J. Fairbrother, Commanding 22nd Bombay Native Infantry.

Yes, most decidedly. But with the present paucity of European officers in Native regiments one cannot be spared.

Lieutenant-Colonel O. V. Tanner, Commanding 29th Bombay N. I.

The quartermaster, assisted by a Native officer.

Colonel J. I. Willes, Commissary-General, Bengal.

As before stated, there will not, I conceive, be any transport with a regiment.

Colonel R. A. Moore, Acting Commissary-General, Madras.

It does not seem necessary, if a commissariat officer is attached to each regiment.

Lieutenant-Colonel M. W. Willoughby, Acting Commissary-General, Bombay.

In time of war certainly; and in time of peace also in cases where field column or other transport is placed in regimental charge. See replies to questions No. 7 (a) and 13 of this paper. But to ensure the success of the regimental transport system, the commanding officer must be held responsible for, and all ranks must be personally interested in, the condition and the efficiency of the animals and equipments confided to the charge of the regiment; and nothing short of such cordial co-operation will prevent loss from the irresponsible use of carriage and recourse to the train to replace casualties or animals that have become useless from overloading, neglect, or other similar, preventable causes.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

All regimental transport should be under a selected officer and a detail of troops told off to aid him in care and distribution of animals.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

Certainly. An officer from each regiment should be struck off all regimental duty for this important service—one who has qualified in transport; and he should draw a staff pay of Rs. 100 *plus* horse allowance.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

On the part of the regiment to see to its own interests there should certainly be some one. His work should be to see that the full number of camels, &c., are supplied; that they are serviceable; and that the commissariat sergeant and agent properly distribute them. This has hitherto been done by the quartermaster and medical officer; but as they are well occupied with other work, an officer especially appointed for this purpose would be an advantage, especially if he possess a knowledge of the vernacular. It would be well to give him a special allowance for this; but the carriage, &c., should still remain under the commissariat, represented by, if a European regiment, a non-commissioned officer and a Native agent, or, if a Native regiment, a Native agent.

Col. G. S. Macbean, Dy. Comy-Genl., late in Commissariat charge, Khyber and Kuram Forces.

Yes; but under the orders of the head of the transport department.

Colonel R. Q. Mainwaring, Dy. Asst. Comy. Genl., Kamptee.

Certainly, as the Natives otherwise never know whom to look to; but it should be one who understands them.

Lt.-Col. J. Y. Hunt, Dy. Asst Comy.-Genl. Bengal.

Yes; such officer might transact all business in connection with carriage now performed by the quartermasters.

Major M. A. Rowlandson, Exr. Comt. Accts., Bombay.

This duty is the special province of the quartermaster.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

Yes; I recommend this measure very strongly. This officer should on all occasions of troops moving be made to keep the rolls and see to payments, feed, &c. He should be further responsible that the authorized loads are not exceeded, which, I submit to be a matter of the greatest importance, and quite beyond the control of commissariat officers in the field.

Captain T. F. Holdry, Dy. Asst. Commissary-General, Kandahar.

Yes; a code of transport rules should be drawn up, and it should be made part of the examination for promotion and for entrance to the staff corps.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

Yes; an officer of the station or corps to which transport animals may be attached should be always told off to assist in caring for the feeding, management, &c., of the animals, and thus learn the duties of a transport officer.

15. How would you propose to ensure a thorough knowledge of the amount of transport available for hire or purchase within each division or district, and of the time estimated to collect it?

Lieutenant-General Sir D. M. Stewart, K.C.B., Commanding South-eastern Afghanistan Field Force.

District officers ought to collect and compile statistical records of this nature, which might be periodically revised. Such officers would probably be the best judges of the time required to collect the transport available in their districts. In point of fact this is done now, I believe. These reports might be checked by military officers deputed to obtain information by reconnaissance in the course of duty.

Lieutenant-General C. T. Chamberlain, C.S.I., late Commanding Oudh Division.

If the local regiments which I have recommended for adoption (answer 7, paper A) were approved, it would be a part of the duty of the commander of the local battalion to keep himself informed upon the capabilities of the district in respect of carriage through his reserve men at their homes.

A system of registration of carts and animals kept for hire could easily be sanctioned by law, and the village chowkidars and putwaris might include all such information in their reports and diaries, as also the number of carts and bullocks used for agricultural purposes.

At first there would be a good deal of general buzzing all over the country from apprehension of a new tax, but a proclamation (or purwannah) by the district officer, and his personal influence, would speedily allay the suspicion, and when owners came to find that they were not interfered with, they would accept the order to register.

The time estimated to collect it must depend very much upon the ultimate destination and the position of the district chief town. As a rule, I suppose the whole available resources could be collected in a week, but there might be a great strain upon forage.

Lieutenant-General W. T. Hughes, C.B., Commanding Sirkind Division.

The executive officers attached to divisions and brigades should keep a register of the transport which could be made available for hire in each district and village. By personal investigation in the several localities they would from time to time, satisfy themselves of the correctness of these registers, and in preparing them they should always have the assistance of the civil authorities.

These registers should be handed over on relief to the relieving officers.

Lieutenant-General J. Forbes,
Commanding Mhow Division.

The transport officer should obtain this information through the civil officers.

Major-Genl. A. W. Macintire, C.B.,
Comdg. Hyd. Subsidiary Force.

By periodical returns from the civil authorities.

Major-General R. O. Bright, C.B.,
Commanding Meerut Division.

By requiring the different commissioners and deputy commissioners to send in periodical returns containing the information.

Major-General H. R. Browne,
Commanding Saugor District.

The officers of the quarter-master-general's department and station staff officers should obtain this information from the district civil officers, and record it in a tabulated form.

Printed forms might be furnished annually to the civil officers for the purpose.

Major-Genl. J. W. Schneider, C.B.,
Comdg. N. Divn., Bombay Army.

By communicating with the chief civil officer or political agent of a Native State.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

The civil and political officers could furnish this information.

Brigadier-General F. G. Kempster,
Commanding Ceded Districts.

By transport officers of skeleton depôts obtaining returns from civil authorities of amount and kind of carriage in the district half-yearly.

Brigadier-General T. J. Murray,
C.B., Mooltan Brigade.

The information might be obtained from the civil authorities by the quarter-master-generals of divisions or districts, unless a transport department is formed, when it would be an important part of its duties. In the camel districts of the Punjab a register is kept of the number available by the civil authorities for the collection of the grazing dues, and the same system might be adopted as regards other carriage.

Colonel J. A. Tytler, C.B., F.S.,
Commanding 4th Goorkhas.

The commissariat officers and chief transport officer of each division or district should have no difficulty in obtaining all the necessary information from the civil officers of the district.

Colonel H. K. Burne, C.B., Secre-
tary to the Government of India,
Military Department.

This should be the duty of the officers of the quarter-master-general's and commissariat departments at the head-quarters of each command, who, in communication with each other, and with the civil authorities, should collect the necessary information, which should be regularly kept up and periodically forwarded for the information of the heads of their departments and of the Commander-in-Chief and of Government.

Colonel J. Macdonald Secretary
to Govt. of Bombay, Milg. Dept.

Information on this subject ought to be in the possession of the officers of the quarter-master-general's department employed in the several districts or divisions.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

I imagine this can only be done and ascertained through the civil authorities and police. A quarterly corrected return might be rendered, a map being kept of the district showing the number of carts, animals, &c., in each town and village. Thus this information would always be at hand and could be seen at a glance.

Colonel D. Standen, Assistant
Adjutant-General, British Burma
Division.

Collectors of districts or other civil officers might be enjoined to forward periodically, to the different military authorities, returns giving full and precise information, under various headings, as to the amount of transport available for hire or purchase, and of the approximate time it would take to collect it.

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-General,
Bombay.

The civil officer of the district might furnish to the military commander a monthly return of transport available for hire, stating the time estimated to collect it.

The amount available for purchase could be ascertained whenever any likelihood occurred of such purchase being necessary.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quar-
ter-Master-General.

The district civil officers should be obliged to furnish quarterly to the principal commissariat officer of the command, for the general officer's information, a return showing the names of the owners of carriage, the description of carriage they are in possession of, their residence, and its distance in miles from the principal military stations in the command. Such information is supposed to be furnished now to the commissariat department, but it is supplied in such a way as to be useless, being generally incorrect. All carriage should be legally liable to be pressed.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

With the assistance of the civil authorities it should be ascertained what the capabilities of the country are. In the first place the inhabitants should be encouraged to voluntarily place their animals at the disposal of Government when required.

Should a sufficient number not be forthcoming in this way, what is required must, of course, be impressed. The available animals having been discovered, a selection should be made of those best suited for transport service to the extent required.

Those chosen should be branded and registered, and the owners should receive a small annual fee, payable as long as the animal remained in a serviceable condition.

The animals should be inspected annually by a competent selected officer, and in case of its having become unfit for work it shall be again branded with a different mark, and the annual fee discontinued.

Animals thus retained for Government service should, if possible, be occasionally called in and exercised with troops, a fair rate being paid for their hire while so employed.

When drivers could accompany the animals, it would be so much the better; and drivers who proved amenable to discipline and generally behaved well might receive certificates entitling them to a trifling annual allowance even when not employed. It is obvious that it would always be advisable to get animals and their attendants together when possible, as in that case the animals would be more likely to be well cared for. When it was once known where the cattle were, it would be very easy to calculate how long it would take to collect them.

Lieutenant-Colonel R. Blundell,
8rd Hussars.

The commissariat "resource book," if carefully kept, would show the amount of transport available. The commissariat should also furnish estimates of the time required to collect it.

Lieutenant-Colonel R. S. Cleland,
9th Lancers.

By taking a census of each horse, camel, mule, cart, &c., after the French system.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

It is probable that the civil officers have at least an approximate knowledge of this detail; if not, a process similar in nature to the taking a census of population would afford a tolerably accurate idea in each district: this once obtained, the district officers would without much difficulty keep up a fairly accurate knowledge of the increase and decrease of cattle, mules, camels, carts, &c., within their respective boundaries.

Tables showing these statistics in an approved form should be kept by each tahsildar, and copies thereof sent in at regular stated periods to be entered into a similar book in possession of the officer in charge of the district, who would furnish from time to time a return of all available carriage in his district to the governor of the province for information of Government. If in the neighbourhood of a military district, similar information would be by him supplied to the officer commanding the division.

Owners of carriage, with places of residence, would be recorded, and the time required for collecting the carriage would be estimated by the distance from the military station requiring it and the nature of employment of the carriage, *i.e.*, whether used for local transport or for conveying produce to and from distant parts.

Lieutenant-Colonel J. C. Le
Queuse, 12th Royal Lancers.

By comparison. Visit several villages; endeavour to number their population and their cattle; on this, strike an average.

Lieutenant-Colonel G. Luck,
Commanding 15th Hussars.

There ought to be no difficulty in getting this information. The civil authorities, if worth anything, ought surely to know the capabilities of their own particular districts.

Major J. W. Chaplin, 8th Hus-
sars.

This information could easily be collected by the collector of each district.

Captain J. A. S. Mackenzie, 9th
Lancers.

I would suggest that all owners of carts, horses, bullocks, &c., in each district be registered, showing the number of carts and animals belonging to each man, whether for hire or otherwise, the record to be checked quarterly and all alterations of increase and decrease stated. To estimate the time it would take to collect, I would suggest, after the register is compiled, to assemble it on a given day, and note the result.

Colonel J. A. Ruddell, 1-25th
Regiment.

By means of periodical returns to officer commanding from the chief civil authorities.

Lieutenant-Colonel T. Rowland,
Commanding 1-5th Fusiliers.

The civil authorities can give all this information. In communication with them, transport officers should keep up a transport map, showing what each village can spare in the way of carriage.

Lieutenant-Colonel M. MacGregor,
1-18th Foot.

By making the civil officers in charge of districts send in periodical reports of the amount of transport available for hire or purchase within their districts, and of the time estimated to be required to collect it, and holding them responsible that the numbers returned are forthcoming when required.

Lieutenant-Colonel A. Templeman,
Commanding 1-21st Fusiliers.

By charging collectors, magistrates, or other civil servants with an accurate registration thereof periodically within their districts.

Lieutenant-Colonel J. S. Hand,
Commanding 44th Regiment.

As provided for in answer to question 8, assisted by the civil officer specially of the district.

Lieutenant-Colonel C. B. Knowles,
Commanding 67th Regiment.

Consider the information might be obtained by the revenue department.

Lieutenant-Colonel G. H. Parker,
92nd Highlanders.

Through the commissariat and civil authorities, unless a regular transport service was organized, then through that department.

Major F. Stephen, 4th Battalion
Rifle Brigade.

By a system of monthly reports from the collectors of each district stating the amount of transport available, and the time it would take to collect it at the head-quarters of the brigade or district.

Major F. S. Terry, 1st Battalion,
25th King's Own Borderers.

I would recommend that the civil officers of districts should obtain the information and furnish the same to divisional and district general officers as well as to Government.

From this every station staff officer should obtain and tabulate that information which concerns itself, every portion of the country having been appropriated by some station.

The commissariat department for transport would obtain the information from general officers of divisions. The commissariat department itself would obtain the same information; but in addition would have its own sources of special information on the subject through its contractors, which need only be communicated to the quarter-master-general of the army.

This latter return could be used either as a check to the other, or as an additional resource in times of emergency.

Major Hugh F. Pearson, 12th Foot.

This would be the duty of the senior transport officer of each command assisted by the civil authorities of the district. Nothing would be easier than to establish a simple system of registration for every camel, hackery, mule, pony, or other means of transport. The owners might be given a very small retaining fee, in return for which they should bind themselves to hire their cattle or carriage to Government when required. Transport officers of commands should satisfy themselves by tours of visitation that the carriage for which the retaining fee had been paid was forthcoming and in fair condition.

The estimation of the time to collect outlying transport would be a very simple problem when the amount of carriage and its locality were recorded.

Major J. H. Campbell, 33rd Regiment.

I cannot suggest any way, unless the magistrates or civilians in charge of the districts are required to furnish the information.

Major J. D. Dyson-Lewis, 34th Regiment.

Answered in No. 8.

Major W. H. J. Clarke, 72nd Highlanders.

The knowledge of the amount of transport available for hire and purchase within each division and district should be procured by the head transport officer of the district or division, assisted by the civil department.

The whole of the information collected on this head should be in the hands of the principal transport officer. The time estimated to collect it should also be reported to this officer.

Colonel C. R. O. Evans, Commanding Royal Artillery, Meerut Division.

Surely this knowledge is on record in every office of the quarter-master-general's department throughout the country; if not, it should be speedily put there.

Major Bertie Hobart, B.A., Military Secretary to His Grace the Governor of Madras.

A general knowledge of the maximum amount of transport of all sorts available for hire in each civil division or district for ordinary marches could be obtained through the chief revenue officer. If a list were opened and maintained, showing names and residences of the cart and cattle-owners, and they were induced to register their stock, an idea could be given by the officer of the time required to collect the

carriage from employment at any given sub-centre, and then the probable time required to march it to a special rendezvous could be estimated by the branch of the military department concerned. To work this registration, however, impressment must be legalized. In this presidency impressment has for some years been abolished as a standing rule, and Government have no legal hold over the transport of the country. Hiring is now generally tantamount to impressment, owing to a reluctance to undertake the service, the dislike being more or less pronounced according to the time of year and the agricultural and carrying operations which will be interfered with. As long as impressment is disallowed, hiring will be always an expensive matter, and it will be difficult to get cart-owners to hire at all for any condition except to go on a short march. Legalized impressment for short distances under proper restrictions is necessary to get over the difficulty; for there can be no question that the civil authorities are now called upon to provide carriage when a large transport train is required, as regimental and commissariat powers of inducement then fail to overcome the reluctance to undertake the service. But even when the carriage required has been obtained, either by contract or impressment, there is no limit imposed on the rates of hire to be demanded by the owners of carts or by the "bandy maistries" (middlemen, who in large towns have all the carts under their control by means of advances or otherwise, and to whom the civil authorities apply).

The present state of things in the presidency is fully set out in the attached memorandum by His Grace the Governor, and the remedy suggested. The subject has not yet been reported on, but I am permitted to annex a copy.

Appendix C.

As regards purchase, I doubt ryots and other owners of carts and animals putting fair prices on their stock when they know Government are the enquirers, and this would probably have to be settled by official arbitration. Such enquiry would, I fear, be a disturbance to the Native mind, and the terms had, therefore, better be left for settlement till the necessity is actually impending. Any direct communication on the subject by the military department with the civil population is to be deprecated.

APPENDIX C.

Extract from the Proceedings of the Government of Madras, in the Revenue Department,—No. 538, dated 4th March 1879.

Read the following :—

Dated Madras, 24th February 1879.

Memorandum by the Military Secretary to His Grace the Governor of Madras.

The following memorandum by His Grace the Governor is forwarded to the Secretary to Government, Revenue Department, for communication to the Board of Revenue, with a request that the reports, as therein suggested, should be called for.

Memorandum by His Grace the Governor of Madras.

Cart-hire for troops on the march is costly to Government, and a heavy burthen to those whose carts are taken for long distances.

2. Some enquiries I have casually made lead me to think that the long distances to which they are taken is one of the main causes of dislike to the task and of excessive charge; and that is not to be wondered at when it is recollected, for instance, that carts engaged at Trichinopoly are liable to be taken to Secunderabad. It would be much the same as taking a Sussex cart to Aberdeen or Inverness.

3. Is it not possible that if carts were never taken (except in cases of absolute necessity) beyond the first village of the adjoining district or territory (without the full and willing consent of the owners), and the rate of hire and an extra rate for fodder were fixed periodically by the revenue officers for either a year or six months, the villagers' dislike to the carts being taken would be very much overcome, and Government be protected by a satisfactory rate being fixed in each district.

4. In England carts cannot be taken except voluntarily beyond the first march, or (in case of pressing emergency) 25 miles, and thus no man is deprived of the use of his animals for more than two days, or is taken more than a day's journey from home.

5. Rates for this service over and above those defined by the Legislature are fixed at quarter sessions where magistrates from all parts of a county meet. Probably, the nearest approach to this in the presidency would be the tahsildars of each taluk agreeing. Why could not such a system be introduced here? Would it not be a boon to the ryots?

6. According to military regulations, the collectors are only to be called upon to obtain carriage either by contract or, failing that, by impressment, when the regimental authorities and the commissariat are unable to procure what is necessary.

7. The rules for the guidance of collectors, when impressment is resorted to, are laid down in pressing orders of the Board of Revenue; but they contain no limit as to the rates of hire to be paid.

8. Such a limit is, however, laid down by Act of Parliament for Great Britain, being a normal rate of mileage fixed annually by the Mutiny Act, to which a further rate is added not exceeding a specific sum which is fixed by the justices at general sessions, as mentioned above, and varies with price of forage at the nearest market town. A further reasonable compensation is granted when the hiring distance defined by the Act is exceeded.

9. In determining rates for the districts of the presidency, both the mileage and the varying forage or grain rate, the circumstances of each district must, as now ordered, be kept in view. The rates might be laid down for the routes commonly used by troops both outwards and inwards from the point of departure according to the set of the ordinary carrying traffic. The further compensation should be given if a cart is taken beyond the limit of the agreement over the border of the district or the presidency.

10. A schedule of the rates should be periodically published in the district gazettes. Such notification may probably facilitate the military authorities obtaining carriage without the intervention of the collector, as it will then be known that there is no appeal from the fixed rates, and some cart-owners may be ready to undertake a job on those terms. In default of such voluntary hiring, it would be necessary to fall back on the collector's register of carts, which answers to the justices' list in England.

11. The obligation in the matter accepted by the general public at home is provided for in clauses 68, 69, 70, 71 of the Mutiny Act, which are annexed. It seems to me possible that similar obligations may fairly be imposed here.

12. It is desired that the Board of Revenue be moved to call upon collectors to report whether such arrangement might not lessen the inconvenience to the ryots caused by the necessary use of their carts, and whether it might not, in fact, render them ready more cheerfully to assist the marches of troops.

The reports to be submitted to Government with the Board's remarks.

Order thereon by the Government of Madras.

Ordered, that the above papers be forwarded to the Board of Revenue for consideration and report.

Major H. C. Lewes, Commanding
1st Royal Artillery.

As I have said before, by a system of registration.

Major W. W. Murdoch, Com-
manding E-A Royal Horse
Artillery.

By passing a law making it necessary for everyone keeping a cart or animals to register them in their own villages. The headman of a village might produce his register or give in the necessary information once a year to the tahsil or district authorities.

The time it would take to collect might be approximately given by the civil authorities I should say.

Major T. M. Haselrigg, Com-
manding E-3rd Royal Artillery.

By keeping up a careful register, and having a quarterly muster at certain places in each district.

Major the Hon'ble A. Stewart,
Commanding I-C Royal Horse
Artillery.

Through the assistance of the district transport officer and civil officer, who should keep registers.

Major C. E. Nairne, Royal Horse
Artillery.

I fancy the civil officers already sent in returns of their districts which give the information required; if not, they might be asked to do so: they could easily ascertain. See answer 19 also.

Major P. FitzG. Gallwey, Royal
Artillery.

By having for one army-corps in the Punjab and one division in Madras and Bombay sufficient permanent transport officers to give one per brigade on mobilization stationed in the districts. Camps of exercise would afford them excellent means of practice.

Major W. H. Noble, Royal Artil-
lery.

This could be done by district superintendents in communication with departmental and civil authorities.

A complete register should be kept in each district.

Captain G. C. Bayly, 13-8th
Royal Artillery.

To every two or three divisions and districts of the army I would appoint a commissariat officer of some years' standing, with the title of "inspector of supplies and transport," whose sole duty it should be to acquire the knowledge in question. He should be required to travel all over the country assigned to him, and by personal observation as well as by questioning ascertain what its resources were. He should be at liberty to make all such enquiries from civil as well as military authorities, as also from individuals, as the case might require. He should not be called upon to make frequent reports, but should send in one occasionally—say once in six months or so.

There should be an officer at army head-quarters specially charged with the duty of examining and digesting these reports. As soon as one of these inspectors had completely examined one district, he should be called on to send in a full report of its resources,—how and in what time they could be best utilized, &c. After doing one district he should be sent to another, where, with the assistance of his predecessor's reports, he might supplement his predecessor's deficiencies and correct his mistakes. I think that if this system were carried out thoroughly for a few years, the resources of the country would be very well known; but the information received should be very carefully digested, so as to give the maximum of useful knowledge in the minimum space.

Colonel O. Wilkinson, 2nd Bengal
Cavalry.

Excepting through the civil authorities, I do not know how a thorough knowledge of each division or district capabilities could be obtained.

Colonel H. Gough, Commandant
12th Bengal Cavalry.

Circle superintendents of transport should, in conjunction with the civil authorities, be thoroughly acquainted with the carriages, supply, and resources of the districts within their circle; registers and rolls should be kept, and constant inspections made for verification.

Captain M. G. Gerard, 2nd
Central India Horse.

By appointing regimental officers under orders of the commandant of the nearest division transport train, giving travelling allowances for a three months' tour in winter season through districts, to inspect and register animals.

Most of this could be most advantageously confided to reliable Native officers.

Brigadier-General C. J. Godby,
Commanding Punjab Frontier Force.

Vide Colonel Nicholett's memorandum: * this should be furnished through the divisional transport officer.

Colonel T. G. Kennedy, 2nd Pun-
jab Cavalry.

The district officer only can supply this information.

I think it would be well to try and make the supply of camels, at all events, less of a hardship than it undoubtedly is, if it cannot be made actually popular amongst owners. They are, as far as I know, the only men in India who are seized for service; and in consideration of this they should, I think, be better treated than they are.

I believe the majority of owners keep their camels for hire and not for their own trade purposes.

If this is so, sufficient inducements should prove attractive; and I think if the following terms would induce owners to register their names in their districts as willing to supply so many camels on demand, that Government would still be a gainer:—

A remission of all their tolls, taxes or other duties they may be liable to.

Besides the fixed hire for their camels, free rations for themselves, free grain and green fodder or bhoosa when grazing is insufficient.

Warm clothing for themselves and their camels if necessary.

And camp equipage found them.

In return for which they should bear the loss by death of any of their camels, so as to ensure their continued care for them, compensation only being allowed for camels killed or disabled by the enemy.

Lieutenant-Colonel C. LaTouche,
Commandant Poona Horse.

This knowledge should be obtained by the civilians in charge of districts, who in their turn would look to the mamludars (Native magistrates) of the various talukas. The amount of carriage available would probably be a variable quantity; but still in my opinion the resources of the country, so far as carts and bullocks are concerned, are enormous. I think that war is one of those momentous occasions which justify the Government pressing carriage, taking care of course that owners are liberally treated. The resources of the country must, in my opinion, always be the foundation for any scheme for the provision of the general transport at the permanent base of operations, even supposing that a good system of reserve, compatible with the financial requirements of the budget, could be hit upon.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 8rd Sind Horse.

My proposal in answer 7 (a) would give some portion of this knowledge; and if this were supplemented by a list kept by the civil officer of each district through his European and Native subordinates, corrected and checked at uncertain times, I think the arrangement would furnish the required information.

Major A. P. Palmer, 9th Bengal Cavalry.

By a register of all available baggage animals and attendants in each district being prepared by circle superintendents of transport, who would furnish staff officers of divisions, districts, and stations with such information as would enable the officer commanding to requisition the local civil authorities to the extent known to be available at the various seasons of the year.

Colonel J. Doran, Commanding 27th Punjab Native Infantry.

Through the civil officers of the division or district, and by periodical collections of the different animals.

Colonel H. S. Obbard, Commandant 41st Native Infantry.

By having district regiments and making the British officers responsible for such knowledge. It is useless trusting to civil officers or the quarter-master-general's department.

Colonel E. Dendridge, Commanding 40th Native Infantry.

The collector of each district could keep a register of such carriage as would be available on an emergency.

Colonel G. W. Fraser, 89th Native Infantry.

By instituting a system of registering and numbering or marking all animals or vehicles throughout the country that would be available for transport service in the event of war.

These registers should be prepared originally by the civil authorities, and sent to the officer of the transport department attached to the staff of the general officer commanding the division or district, giving the owners of all animals or vehicles so registered a small retaining fee to ensure their being available and in good condition whenever their services were required. All animals and vehicles should be inspected periodically, say once a month, but not always on a given date, by an officer of the transport department of the division or district in which it was stationed.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

By registration, through the police and civil officers, as suggested in answer 8. All animals and carriage should be liable to impressment by Government at fixed rates, unless exempted by taxation.

If a man values a horse or a camel at more than the Government rates, let him pay a small tax for exemption. This would involve no great hardship, as the tax would fall chiefly on the rich.

Lieutenant-Colonel R. J. Walker, Commandant 17th Native Infantry.

The civil authorities ought to be able to furnish this information; it would be very difficult for the military to do so.

Lieutenant-Colonel R. G. Rogers, Commanding 20th Punjab Native Infantry.

By insisting on the quarter-master-general's department making and keeping themselves acquainted with it.

Lieutenant-Colonel F. B. Norman, Commanding 24th Punjab Native Infantry.

Officers of the commissariat can do this in communication with the civil authorities of the districts.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Superintendent, Transport Train, 41st Native Infantry.

In a former answer I have proposed that four superintendents of transport should be appointed to the different provinces, such as one for Bengal, one for the North-West, one for the Punjab and one for Assam. The duties of these officers would be to ascertain from the different collectors of districts information as to the capabilities of each district; to furnish carriage, stating of what description, approximate number, and about the time it would take to collect; the best means of obtaining it, whether by hire or by purchase; and the resources of the country, and whether it is a good grazing district for animals, &c.; and report everything to the director, keeping him well informed of every fact, and any and every change that may take place in their provinces. For instance, the superintendent of the Bengal province could make his headquarters in whatever station he thought most central or best adapted for his work; and in the cold weather he should be travelling about collecting every information needed, and inspecting all his moveable column carriage and keeping the director informed as to his movements. The superintendent of the North-West should have Oudh and Bundelkund also under his charge, and the superintendent of the Punjab the whole of the Punjab and Frontier. The superintendent of Assam the whole of the Eastern Frontier. These officers on receiving the reports from the different collectors and other

district officers will forward them to the director with any remarks or suggestions they deem advisable. The director can then make out a full report, and have it printed in a pamphlet form for the information of the quarter-master general, and it would always be a reliable book for reference at any moment.

Major Sir B. P. Bromhead, 40th Native Infantry.

Officers commanding stations should communicate with the collectors, or other chief civil officers of their districts, who could give them accurate information on all the points required. To facilitate inquiry and reply, and for the sake of uniformity, I would suggest the submitting to them of a form to be filled up. I give one which appears simple, and to contain all that is necessary. At regular quarterly intervals, the filled up form should be returned to them for revision, alteration, and correction where necessary. The deputy assistant quarter-master-general of each division should collect and tabulate all the information gained, and send copies of it to the Quarter-Master-General's Office at Simla.

Memorandum of carriage available in the District. (Station.) (Date.)

No.	Description of Carriage.	AMOUNT RECOVERABLE AT			Usual rates of monthly hire in the District.	COULD ANY BE PURCHASED.		REMARKS. (Any useful information.)
		Threedays' notice.	A week's notice.	A month's notice.		How many.	At about what price.	
1	WHEELED CARRIAGE. { 4 Bullock-carts ... 2 Bullock-carts ...							
	{ Elephants ... Camels ...							
2	PACK ANIMALS. { Mules ... Ponies ... Pack bullocks ...							
3	MEN ... Kahars ...							

(Signature of civil officer.)

Major A. C. W. Crookshank, Commanding 32nd Pioneers.

Commissariat officers should be more closely under general officers' than they now are, as, although this is intended, it cannot be carried into practice until general officers are given as much control over the department in cantonments as they are in the field. Thus situated, it would be the duty of the chief commissariat officer to keep the general informed on the subject of carriage. He would have charge of all the Government cattle, and under the general's orders arrange for its full employment. He would make it his business to know of every baggage animal and cart in the district,—a knowledge easily got through the civil authorities and his assistants; he would know how all the transport resources of his district can be tapped, and what they will produce, and all this would be summarized and recorded, so as to enable a general to provide information to Government on this point by return wire, or to act on it himself.

Lieutenant-Colonel J. J. Boswell, Commanding 2nd Sikh Infantry.

By making it compulsory under severe penalties for all owners of carts, mules, and camels to register them in sub-collectorates (tahsils), a district register compiled from these being kept in the district offices, showing distance from head-quarters and probable time of collection.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

The circle or divisional transport officers should make it their duty, with the assistance of the civil authorities, to be perfectly acquainted with the resources of all the available carriage both for hire and purchase in the several districts of their circles, and also how long it would take to collect it at any given point.

Major A. G. Ross, 1st Sikh Infantry.

Obtain this knowledge quietly from district officers, and make them register as in France. Appoint officer to check and travel about as pension paymasters do. Only this officer must visit villages and know all the headmen. He could be in the transport corps.

Colonel A. Jenkins, Commandant 2nd Madras Native Infantry.

I would suggest that the commissariat officers of districts, &c., should obtain all the required information as to the available transport in their districts.

Colonel W. A. Gib, Commandant 25th Madras Native Infantry.

I should think the collectors of districts could do this with ease in a very short time.

Colonel S. Edwards, Commanding 2nd Bombay Native Infantry.

It should be one of the important duties of the commissariat and transport officer to make himself acquainted with the amount of transport available for hire or purchase in his district, and to submit periodical reports on the subject to the head of his department.

Colonel W. Bannerman, 4th Bombay Rifles.

Civil officers could give this information.

Colonel H. H. James, Commanding 10th Bombay Native Infantry.

This could only be done in communication with the civil authorities of each district. I don't see how military officers are to obtain the information independently.

Colonel J. Fairbrother, Commanding 22nd Bombay Native Infantry.

I know of no means except to make the district civil officers carefully collect and report the required information.

Colonel J. I. Willes, Commissary-General, Bengal.

I cannot suggest any reliable plan. After all my experience, I am firmly convinced that such information can never be obtained. The civil authorities could obtain it, but returns sent in by Native officials to the collectors and others are not prepared on reliable data. Supposing they were, is it reasonable to suppose that carriage in time of peace would be forthcoming in time of war? Does not every civilian know the tricks that owners resort to, even to avoid being sent with a regiment in ordinary relief? In time of war owners would abscond, injure their bullocks, destroy their carts; do all they could, in fact, to avoid the extremely unpleasant duty. I would instance a case that occurred some few years since when I reported the growing scarcity of camels all over the North-Western Provinces. My report went to that Government, and in course of time an attempt was made to refute my statement; and it was stated there was a man within a few miles of Agra ready and willing to supply 20,000 camels at, I think, a month's notice. I asked for the man's name, as it was not given. In time it was communicated to me; and he was found to be a man who had been discharged from the department, because, as a chowdhry, he could not supply even a hundred camels in a month! Such is a sample of information usually furnished of the resources of a district. There was a time however, twenty or thirty years ago, when the commissary-general could have found men able to produce 20,000 or 30,000 camels with reliable attendants for work in India without any difficulty; but these men have died out, and so have the camels. Yet, when I noticed this fact in my annual report of 1876-77, I was told that the Government looked to me to keep up the camel establishment and supply of camels, which was first being exhausted owing to the railways having indirectly caused the decrease by carrying what the camels formerly did. The late Viceroy, Lord Northbrook, whilst on one occasion discussing the subject of decrease of camels and the cause, admitted that such must be the result of the railways carrying all the merchandise that camels formerly carried. It was immediately afterwards I wrote my letter referred to, and received the reply quoted. The Government changed its views meanwhile; but my opinion as to decrease was proved only too true during the late war.

Colonel R. A. Moore, Acting Commissary-General, Madras.

This information should be furnished by the civil authorities, and might be included in the agricultural statistics prepared by collectors for the information of Government.

Lieutenant-Colonel M. W. Willoughby, Acting Commissary-General, Bombay.

This information could only be obtained through the civil or political officers of the several districts, and even then it is very doubtful if it would be thorough. Reports of this nature have at times been called for and submitted by executive commissariat officers in this presidency; but their accuracy, if subjected to the actual test of trial, is uncertain, as the transport of the country shifts from place to place in accordance with the season and demand for its use, and wheeled transport and bullocks at certain seasons are very largely engaged in agricultural operations. Statements, both as to extent of transport obtainable and time within which it can be collected, can be but approximate at the best. The civil and political authorities should be called on to ascertain the capabilities of their districts, and report to the general officers at fixed centres, and they should correct their reports once every five years.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

In the Punjab complete lists of the resources have, I believe, been prepared in Military Secretary's Office, and such statements should be in every district office, so that *the responsibility of each village to furnish its quota* should be fixed by authority.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

The statistics on this subject are, or should be, in every commissariat office in the Bengal presidency obtained from the civil officers of the several districts. But as what may be accurate one year as to number of carts, camels, mules, bullocks, bearers, &c., may not be so a year or two later, I consider that every year a fresh report on this head should be obtained from district officers.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

This information can only be obtained through the deputy commissioner or collector of the district, and he can only give it approximately. But, unless impressment is ordered, it is impossible to say how much would be available on the outbreak of war: probably none. It would be impossible to ascertain the number for sale; but high prices will generally tempt owners to sell. I don't think it possible to ascertain the time it would take to collect it. The system of having a certain number of carts, camels, &c., in the Government service, as proposed in answer to question No. 1 of this paper, would render a certain quantity of carriage always available within above 25 days' notice.

Col. G. S. Macbean, Dy. Comy, Genl., late in Comst. charge of the Khyber and Kuram Forces.

Every commissariat officer in charge of a district keeps a "book of resources," and has the required information in his office.

Colonel R. Q. Mainwaring, Deputy Assistant Commissary-General, Kamptee.

I have seen a return sent in by a deputy commissioner showing the number and quantity of carriage available in each village. The time taken to collect it would greatly depend upon the distance it had to come.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-
General, Bengal.

Executive commissariat officers are required to obtain this information as regards carriage for hire from the civil officers of the district and to record it. The same steps can be taken in regard to baggage animals purchasable.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

It would be the duty of the officers permanently appointed to the transport department to make themselves thoroughly acquainted with the resources of the district under their direction; and if not engaged with the training of the regimental officers and men, they should be employed to collect and record all information relative to the amount and description of transport available, &c.

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

This can only be done by civil officers. Commissariat officers are now so tied to the desk, that it is quite impossible for them to get leave or travel about the district; they can glean information from their Native subordinates; but it is not so reliable as that procurable from district officers; and as the collection of transport would rest with the civil authorities, they are the best authority on these matters.

J. H. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

The director and assistant directors of the transport train would, co-operating with district officers, obtain this information.

16. Could not a system of regimental transport be substituted with advantage for the present moveable column system?

Lieutenant-General Sir D. M.
Stewart, K.C.B., Commanding
Southern Afghanistan Field Force.

The regimental transport system is suitable and necessary in some cases, e.g., on the Punjab frontier; but it would be wasteful and extravagant if applied to the army generally. It would, however, be advantageous to place all transport cattle under the charge of troops in movement. By placing this responsibility on the troops, officers, and men would learn everything connected with the care and feeding of cattle, and the experience thus gained in peace would be of inestimable value on service.

Lieutenant-General C. T. Cham-
berlain, C.S.I., late Commanding
Oudh Division.

Yes. It could be introduced as the thin end of the wedge of a new transport system; but when troops move suddenly, the carriage of one regiment would have to be lent to complete the carriage of that under orders, as sufficient could not be kept up (without extra expense) for all.

Lieutenant-General W. T. Hughes,
C.B., Commanding Sirhind Division.

The system suggested in my answer to question No. 7 would be a substitute for that of moveable column.

Lieutenant-General J. Forbes,
Commanding Mhow Division.

I consider that a system of regimental transport should be combined with, not substituted for, the present moveable column system.

Major-General A. W. Macintyre,
C.B., Commanding Hyderabad Sub-
sidiary Force.

The regimental system would tend to limit the use of the transport to strictly regimental purposes, whereas under the present system the whole may be applied to the use of the force in general.

Major-General R. O. Bright, C.B.,
Commanding Meerut Division.

In all frontier districts near the hills it might, I think, with advantage, provided the carriage was entirely mule. Were camels employed, they would have to go long distances for grazing, and would not be more quickly procurable than by the present contract system.

Major-General H. R. Brown,
Commanding Saugor District.

No, I do not think so. I am no advocate for regimental transport. The cost would not be lessened, for the same amount of transport must be maintained.

The transport would cease to be generally available, and there would be increased difficulties in its maintenance and subsistence.

I am very doubtful of the advantage of maintaining transport at all for moveable columns, with the single exception of elephants, which cannot be hired.

Major-General J. W. Schneider,
C.B., Commanding Northern Divi-
sion, Bombay Army.

I have already expressed an opinion that the reasons for moveable columns no longer exist in this presidency. The completion of the State railway to Nusserebad in 1880 would seem to me to render their maintenance with carriage still more unnecessary. I do not see the object now of a system of regimental transport, except for frontier forces, where troops are likely to be called out at a moment's notice.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

No; the present system of field columns provides for only a very small force at each station.

Brigadier-General F. G. Kemp-
ster, Commanding Ceded Districts.

Yes; but to be under transport supervision.

Brigadier-General T. J. Murray,
C.B., Mooltan Brigade.

Yes, as in the Punjab force, where actually required; but a small regimental nucleus would, in my opinion, be sufficient for general adoption.

Colonel J. A. Tytler, C.B., V.C.,
Commanding 4th Goorkhas.

Certainly in single corps stations, where every regiment should have its transport ready to hand. In large stations I think the moveable column system would answer. It would be cheaper, I should think.

Colonel H. K. Burne, C.B., Secretary
to Government of India, Military
Department.

Certainly; the system of regimental carriage has been found to answer admirably, as shown in the experience of the recent operations with regard to regiments of the Punjab Frontier Force.

It ensures the mobility of regiments and the proper care and custody of the animals.

The loss of transport in the Punjab force was insignificant as compared with that amongst the hired and purchased animals.

But the question of the maintaining of regimental transport generally is one of cost, on which information is being prepared, and will doubtless be furnished to the Commission.

Colonel J. Macdonald, Secretary
to Government, Bombay, Mil. Dept.

No. The carriage would lie idle.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

Yes; I think any system which ensures the regimental transport being in possession of corps available for use and learning its functions is advantageous in the highest degree, as accustoming the corps to prepare in peace time for what must be undertaken (otherwise under disadvantages) in time of war.

Note in the beginning of a campaign, especially during the first few days in a young corps, how irksome and troublesome is the transport; mark the difference in a veteran corps accustomed to marching and campaigning; and see the improvement after a month on all; and it must be apparent to the most sceptical how requisite is a change in the present system, and the establishment of one which will accustom the soldiers to its use and prepare them for service.

Colonel D. Standen, Assistant-
Adjutant-General, British Burma
Division.

I think that the present moveable column system, always provided that it be so organized as to be ready to move out for immediate service, is to be preferred to a system of purely regimental transport. At the same time, transport in regimental charge might be of advantage at small isolated stations where no moveable columns are ordered to be kept up.

Lieutenant-Colonel A. G. T.
Hogg, Deputy Quarter-Master-
General, Bombay.

I do not think a system of regimental transport could be substituted with advantage for the present moveable column system.

Transport in regimental charge could, of course, be utilized for the movement of the regiment, but it would not be available equally with the framework transport for station work, or ordinary movement of troops.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quar-
ter-Master-General.

The moveable column system is applicable to certain stations only, not to all, and these moveable columns, except at a very few stations, are no longer required. I do not think the regimental system of transport is desirable in India. The economy of it would be questionable; regimental officers have more duties now than they can be expected satisfactorily to carry out, and the transport would be regimental in name, only entailing a great deal of extra trouble and superintendence on the regimental authorities without, I believe, any increase in efficiency or rapidity of mobilization. I have always found the commissariat department very prompt, marvellously so indeed, in responding to calls for carriage at the shortest notice. This would be the case still more were commissariat officers part of the general staff of the command, and under the *direct* orders of the general officer alone.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

Yes, I have already recommended the adoption of a regimental system.

Captain M. J. King-Harman,
Deputy Assistant Quarter-Master-
General.

Most certainly it could, by means of an organization similar to what obtains in the Punjab Frontier Force. Men with ponies or mules to be entertained (enlisted) at the rate of—

80 or 100 for each regiment, British infantry,
50 " " " " cavalry,
20 " " " battery, artillery,
40 " " " regiment, Native infantry,

to be attached to and under the sole care of the regiments or batteries.

Also a proportion of camels—

60 to each regiment, British infantry,
50 to " " " " cavalry,
20 to " " " battery, artillery,
55 to " " " regiment, Native infantry;

some of which would be trained to draught.

These camels would be in charge of the commissariat department for feeding, pay and work, provided that they are regularly told off to corps and brought in to be paraded and loaded and marched out at a marching order parade once a *month*, so as to ensure their being always efficient, as well as to practise men and animals in their regular work.

The ponies or mules should be all equipped, exactly as laid down by the Simla Comitétee of 1878-79, a selected few being trained to harness. They should remain the property of the men, whenever this is possible, and should be provided with gear, food and water by the State.

The men should receive pay at the rate of Rs. 5 a month rising to Rs. 7, one selected man at Rs. 10 being over all. One mochee to every 40 animals (or under), to be increased to two on service.

One nahlund to each corps, increased to two on service.

One driver to every two animals.

Each man to have one suit of clothes yearly, consisting of—

1 long skirted jumper,	|	1 pair trousers,
both of stout khaki drill,		
1 turban,	|	1 pair puttees,
1 pair shoes,		1 leather cross-sword belt.

One leather cross-sword belt and one short sword for each man to be kept in the regimental magazine.

In cantonments the men and animals would do such regimental work as carrying pucksals, grain for horses, carrying away stable manure, &c., &c., and would further be employed by the commissariat, on station work as required.

Four light carts for each regiment and two for each battery, which, with harness, &c., adapted to mules or ponies, would be kept in charge of the commissariat, to be used as required for carrying baggage of station guards, of small bodies of men moving by rail, &c., and the conservancy might be helped by the rubbish carts being also drawn by these animals; but they should be employed regularly once a week regimentally on a regular light marching order parade, so as to admit of officers, men and animals learning their work, as well as seeing that every thing was in proper order.

A certain number of animals would always carry pucksals on the line of march.

A regiment going on service would always take its ponies or mules with it by rail, making up the full complement required from the large mule trains, or on requisition by the commissariat at or near the base of operations.

Regiments marching in course of relief would take their animals with them as part of their transport; but when moving in relief by train, they would leave them behind, to be taken over by the relieving regiment.

On all marching order parades, a certain amount of ammunition would always be carried, so it will be necessary for each regiment to have in its care a fixed number of double slings, either of leather or gunny, as recommended by the Simla Comitétee of 1879. Such slings to form part of the regimental equipment.

Mule kajawahs for entrenching tools, medical stores and veterinary stores, &c., should also be with each regiment, as well as serviceable boxes for carriage of signalling stores.

Of course, special rules would be required for certain stations on the north-eastern frontier, Gwalior, Bukloh, and others, also in many places elephants would be kept in place of camels.

But I think that this principle is sound and worthy of a trial, subject, of course, to such modifications in numbers of animals and carts as may seem fit, and would have the effect of reducing considerably the number of camels kept up by the commissariat.

Economy in transport is hardly consistent with efficiency; but reductions can be made in other departments.

Lieutenant-Colonel R. Stundell,
3rd Hussars.

I think it could; but I think it would be much more costly. If the difficulty of expense could be got over, every regiment ought to have its own transport.

Lieutenant-Colonel R. S. Cleland,
9th Lancers.

Yes; I think a regimental system would be preferable. To do this, drivers and horses should be added to the present establishment.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

I think not.

The moveable column system appears to be a good one in theory. The substitution for it of regimental transport would be an enormous expense to the public, entailing the establishment of yards for each regiment in places convenient to the lines, the erection of suitable buildings for attendants and supervisors, and other items impossible to enumerate.

Unless the management of the transport remained in the hands of the transport department, much expense would soon ensue from regimental deviations from the ordinary pattern of gear introduced on theories of individual commanders, either on plea of economy, utility, or appearance. Whereas such matters of detail would be best arranged generally by departmental committees.

Lieutenant-Colonel J. C. Le
Queens, 12th Royal Lancers.

Yes (as before said).

Lieutenant-Colonel G. Luck,
Commanding 15th Hussars.

Yes; and, as regards cavalry regiments, be far more efficient and less expensive than the present system—*vide* memorandum* previously referred to.

Major J. W. Chaplin, 8th Hus-
sars.

I think that moveable columns should rather be supplemented with regimental transport instead of entirely doing away with them; by this means they could be much reduced.

Captain J. A. S. Mackenzie, 9th
Lancers.

Yes, with very great advantage: a regiment would be far more independent if it had its own transport as in England; and if the strength of British cavalry in India is increased to 549 rank and file, the English war establishment, it would include 22 drivers for regimental transport, *vide* page 8, tables issued with Army Circular, 1st December 1877.

Colonel J. A. Ruddell, 1-25th Regiment.

I am of opinion that this might be done.

Lieutenant-Colonel T. Rowland, Commanding 1-5th Fusiliers.

I don't think so. What would regiments do with the carriage in cantonments?

Lieutenant-Colonel M. MacGregor, 1-18th Foot.

A system of regimental transport would be very convenient to move a small force rapidly to suppress a local disturbance. To make it sufficiently expansive to undertake more extensive operations would, I should think, be very costly. The system, therefore, would be advantageous to a regiment on the frontier, but not to the army generally.

Lieutenant-Colonel G. F. Walker, Commanding 1-12th Foot.

I have no doubt such a system could be carried out, but doubt very much whether it would tend to economy.

Lieutenant-Colonel D. Warren, Commanding 2-14th (Prince of Wales' Own) Regiment.

The utilization of regimental transport, when regiments are not actually on the march, the building of cattle lines, the entertaining of extra staff, and followers, &c., &c.—these all present difficulties and point to heavy expense. In how far this extra expense thus incurred would be reduced by permitting regiments to march in relief instead of moving by railway, is a question for further consideration. Doubtless also increased efficiency in the troops would result from route marching being the general practice.

Lieutenant-Colonel G. W. Puget, Commanding 84th Regiment.

No; not with economy during peace. Regimental transport is seldom required; whilst under the moveable column system the carriage is available generally for station military purposes as required.

Lieutenant-Colonel J. S. Hand, Commanding 44th Regiment.

I would prefer the moveable column system with the whole of its transport under one or more of the regimental transport officers. On service or on a march, I am decidedly in favor of portions of the transport being handed over to each regimental transport officer.

Lieutenant-Colonel J. W. Hughes, 64th Regiment.

I think not. A regiment would become involved in great difficulties in feeding and managing the cattle and attendants, though no doubt it could be done if necessary.

Lieutenant-Colonel G. H. Parker, 92nd Highlanders.

I think not, except for Native regiments.

Major F. Stephen, 4th Battalion Rifle Brigade.

It could, but against it is the question of expense in peace time. It would therefore probably be better to hand over the moveable column transport to regiments in succession for training, making them for the time being responsible for the carriage of their supplies.

Major F. S. Terry, 1st Battalion, 25th King's Own Borderers.

Yes, I think so.

If a regiment were called upon to proceed on active service, it would indent for its carriage on the commissariat transport corps. It would receive complete a regimental section of peace establishment and additional carriage to the extent necessary from other sources, the two together being under the regimental transport officer.

On notice being given of the probable strength of a field column about to be formed, the director of transport belonging to the quarter-master-general's department for transport would indent on the commissariat department for transport for the formed sections of transport of the given number of regiments and departments and ordinary transport for the excess necessary to complete in service order with fourteen days' provisions and reserve carriage.

The commissariat transport department would furnish this, taking credit for the direct issues to regiments.

Additional transport officers would be drawn from regiments not required for service.

The commissariat department would at the same time indent on its own transport department for its own requirements of transport (regimental sections not being available) thrown into such organization as its wants and requirements necessitate.

The sub-commissariat department for transport would, on the other hand, indent on the commissariat for its supplies of fresh pack and draught animals.

The large contracts for supplies of hired and purchased carriage would, I think, be better left in the hands of the commissariat in India as hitherto.

Major Hugh P. Pearson, 12th Foot.

The scheme I advocate would be a combination of both, since in places the moveable column carriage as it now stands is the sole charge of the regiment. In all other respects the moveable column system would remain intact. As it is, even, it is an admirable institution, but in administering it there is room for improvement, and I hope I have so shown.

Major J. H. Campbell, 33rd Regiment.

I think a system of regimental transport would be advantageously substituted, and I would suggest that a small dépôt of carts and mules be always kept by a regiment for the purpose of training men. These should be employed daily in bringing the rations, &c., also straw for bedding, and in fact do all the minor work which is now performed by the commissariat. The soldier should groom the mules and learn to ride and drive them, clean harness, carts, &c., and in fact have the whole care of everything.

Major J. D. Dyson-Laurie, 34th Regiment.

I am strongly in favor of the substitution, which, whether or not directly more profitable financially, indirectly would be an enormous gain, in affording to officers and men the means of becoming acquainted

with the habits, requirements and treatment necessary for the animals, and for their attendants, with the care requisite for the fitting of the harness, &c., recent experience having clearly shown the cost to the country of the prevailing ignorance on these points.

Major W. H. J. Clarke, 72nd Highlanders.

Yes, it could, as stated by me in question 13. A certain amount of the regimental transport should always be attached to the regiments in peace time under the charge of an officer assisted by non-commissioned officers, say sufficient for the purpose of moving the tents, baggage, &c., of the moveable column.

Major G. S. White, 92nd Highlanders.

I think it would be an improvement in efficiency, but would involve considerably increased expenditure.

Captain H. M'L. Hutchison, 1-14th (Prince of Wales' Own) Regiment.

A complete transport establishment for every corps would be more expensive than the moveable column system. But a small establishment of animals might be constantly entertained which could be used for local requirements, instructional purposes, &c., and could easily be added to in case of local disturbances, marches, war.

Colonel C. R. O. Evans, Commanding Royal Artillery, Meerut Division.

I do not see any advantage to be derived from the change.

Lieutenant-Colonel I. Ketchen, Royal Artillery.

I certainly think it would be a great improvement if it could. Native cavalry regiments seem now to be able to move at very short notice. I believe they always have their own carriage present with themselves!

I cannot however see how the system can be applied to British troops economically.

Major Bertie Hobart, B.A., Military Secretary to His Grace the Governor of Madras.

Any regimental system is to be advocated, and every corps ought to have independence in transport up to a certain point; but a limit must be drawn, or too many non-commissioned officers and men will be taken from the ranks, already on most occasions too much thinned.

Major H. C. Lewes, Commanding 1-1st Royal Artillery.

I think so. But there would be the difficulty of finding constant employment for it.

Major F. T. Hume, Commanding C-C Royal Horse Artillery.

No, not entirely.

Major T. M. Hazelrigg, Commanding B-3rd Royal Artillery.

I do not think so. It would not be so available for general purposes.

Major the Hon'ble A. Stewart, Comdg. 1-C Royal Horse Artillery.

In my opinion "yes," as previously attempted to be detailed.

Major C. E. Nairne, R. H. A.

This is answered in No. 7. But the best system of transport of all would be the regimental system, as practised already in frontier batteries of artillery. I only did not propose it because of the expense; but the plan sketched in No. 7 proposes that each regiment shall always have a certain amount of carriage attached.

Major P. FitzG. Gallwey, Royal Artillery.

I think not, without some increase of expense.

Captain G. C. Bayly, 13-8th Royal Artillery.

No; such a change would, I think, add to the expense and diminish the efficiency of the transport kept up in peace, and give a great deal of trouble, especially when troops moved by rail or by sea. (N.B.—They move a good deal by both rail and sea in Madras and Bombay.) The regimental transport would not be so available for general purposes as if it were in charge of the commissariat. In the field regimental transport is desirable; but even there, if a corps be halted for more than two or three days, its transport should be available for general purposes. These regimental establishments appear to me to add to expense without adding to efficiency, at all events in a proportionate extent.

Lieut. E. C. Wace, B.A., No. 4 Hazara Mountain Battery, Punjab Frontier Force.

Yes, entirely, the transport of all the regiments being available for those forming the moveable column in cases of emergency.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

I believe a regimental transport system, such as prevails in the frontier regiments, would be preferred to a moveable column, but I suppose it would be more expensive.

Colonel H. Gough, Commanding 12th Bengal Cavalry.

As it has been decided to employ regimental transport in time of war as being far preferable, it would be necessary in time of peace to employ the same system as far as practicable, which could be easily done at most stations by exercising it in such manner during every drill season.

Captain M. G. Gerard, 2nd Regiment Central India Horse.

Yes; it would be decidedly advantageous for all arms, as the men could be thoroughly instructed in the loading and management of baggage and animals.

Native cavalry especially, both from the nature of their work, and the fact of all Native ranks being already provided with pony carriage, should have the system so completed (which can be done at

a trifling cost) as would enable a regiment to march at an hour's notice; and for a prolonged campaign with further help to move independently of the transport train.

Taking baggage, &c., on Cabul scale, which is ample anywhere for a strength of 500, and assuming it is so manifestly wrong to have two descriptions of carriage in one regiment, entailing separate baggage guards, &c., that ponies (*i.e.*, mules, yaboo, tattoos) only should be employed, we find that, though 125 are required to complete the regiment for service, by authorizing baggage ponies of English officers, and a monthly expenditure of Rs. 107, it could march and keep the field for some weeks without further assistance.

Of the 125 ponies required, 25 are for authorized baggage of European officers, mess, office, &c., and are paid for, and 100 have to be provided free by Government.

1st.—By authorizing two or three ponies as part of an English officer's equipment, no public carriage being then allowed, and giving them passage by rail with a few for mess and office, they should be then maintained privately; and as one of the authorized grass-cutters would lead them on march, instead of increasing followers 1 per officer would be saved to the transport train.

2nd.—The following public carriage kept up always would enable a regiment to take and keep the field in an emergency for a few weeks:—

	Ponies.
Hospital	6
Guard tent	1
Quartermaster's store	2
Spare ammunition, 25 rounds, rear rank only	5
Veterinary surgeon's and armourer's stores	3
Cooking pots	3
	—
	20 = Rs. 80
Cacolets, replacing } Mules	3 = Rs. 27
3 Dandies and	
24 Kahars.	

Total monthly expenditure if *maintained permanently* = Rs. 107

Of the 80 ponies required to complete service carriage, 35 are for reserve ammunition; and of these 20 (100 rounds for front rank) can well be spared as elsewhere suggested, carbines for the whole regiment being useless.

This would leave 60 to be handed over with saddles and 15 syces by the transport train. If intended for reduction after the war, they must remain the property of, and be maintained by, Government, otherwise they could be supported regimentally on a *permanent* allowance of Rs. 240. They would be thus detailed, including above:—

	Rs.
Hospital (10 per cent.)	37
100 rounds rear rank only	20
Quartermaster's stores	6
Volunteer sergeants and armourers	4
Guard tents	2
Cooking pots	6
Spare	5
	—
Total	80

If 3 per cent. cacolet mules are to be maintained on service, Government would further only have to provide 12 mules and cacolets, 12 drivers, 12 dandies, 77 (or better 95) kahars to complete equipment for longest war.

3rd.—A Government pony should be put in care of each sowar's syce, who should receive free rations and clothing in return, thereby enabling the regiment to carry six days' rations complete. These could easily be managed by a regiment; and as Government must inevitably, in any case, give aid in money or kind to these syces in a campaign, they will, by saving the pay and rations of 85 transport train drivers by above arrangement, be enabled to do so without loss to themselves.

The above weights are calculated at about two maunds per pony, who, as a matter of fact, more frequently carry over three. I have weighed loads of 400 lbs. that had been carried several days without injury. So that for an emergency 10 days' rations could be taken.

As instance of the necessity of completing carriage, were this regiment suddenly ordered into the Betwa or Koonoo districts, though all Native ranks can start instantly, and easily average 20 miles a day, camels for hospital, spare ammunition, and doolies and kahars for sick, &c., could only be procured from Gwallor or Agra, 130 and 200 miles. They would, therefore, have to start in bullock-hackeries, for which much of country is absolutely impassable, and which at best average 10 miles a day.

The English officers could only take the field by means of bullock carts or private ponies; and as these are not authorized, they would be left behind if the regiments were then ordered to proceed towards Indore by train. At starting we should have one doolie and four kahars for sick and wounded of entire regiment.

Estimate monthly cost for pony—		Rs. A. P.
Grain, 1 seer per diem, at 20 seers = Re. 1	...	1 8 0
One-fourth of syce at Rs. 5	...	1 4 0
Pack-saddle	...	0 4 0
Chanda, average of eight years' service	...	0 8 0
Shoeing	...	0 2 0
Medicine and sundries	...	0 6 0
	—	
Total	...	4 0 0

Estimate monthly cost of cacaolet mule—

				Rs.	A.	P.
Grain, 2½ seers per diem	...	...	...	4	0	0
Half syce, on peace footing only	...	...	...	3	0	0
Cacaolets	...	...	...	0	6	0
Shoeing	...	...	...	0	4	0
Chanda (ten years' work)	...	...	...	1	0	0
Medicine and sundries	...	...	...	0	6	0
			Total	9	0	0

Estimate monthly cost of rations carried on second pony—

				lbs.
Two horses	...	...	...	16
Two ponies	...	...	...	4
Two sowars and one syce	...	...	...	6
Share of public followers, &c., 165 men, 15 mules, 80 ponies.	...	...	...	24
			Daily supply	28.4

$\frac{170}{28.4} = 6$, number of days' supply.

In proof of capabilities of tattoos as baggage animals,—when ordered to join Khyber column, I had four baggage ponies for silkhar purposes, average price Rs. 37; 1 seer grain daily, and 1 syce to the four. So average cost must have been between Rs. 2 and Rs. 3 each monthly. With Ottago saddles of 17 lbs., two of these marched with loads of two maunds from Gooria to Dholpur between 6 P.M. of 21st and 7 A.M. of 27th November, or $\frac{196}{6.5} = 30$ miles daily.

They again marched loaded from Jhelum to camp near Nowshera, betwixt 30th November and 4th December $\frac{160}{4.25} = 32$ miles daily.

And again in June from camp Narkuh to Jhelum, betwixt 3rd and 11th, including 24 hours' halt in Peshawar, at rate of $\frac{225}{8} = 25$ miles, inclusive of halt, or 23 miles a day of actual travelling.

Extra gram was of course given on these marches.

Brigadier-General C. J. Godby,
Commanding Punjab Frontier
Force.

I do not think. The carriage of every brigade or column should be under the entire control of a transport officer. Should a regiment be detached, a subordinate European or Native (for a European or Native corps) should be in charge of the carriage.

Colonel T. G. Kennedy, 2nd
Punjab Cavalry.

It must be more expensive, as entailing in cantonments separate, and consequently more numerous, establishments, for whom shelter must be provided.

Colonel J. Blair, v.c., Command-
ing 1st Bombay Lancers.

An experiment should be at once made with two regiments.

Lieutenant-Colonel C. LaTouche,
Commandant Poona Horse.

A system of regimental transport might perhaps be instituted, which would be of great assistance to any moveable column system; but I do not see how it could supersede it, unless kept up on a sufficiently large scale to make it too cumbersome and extensive for ordinary regimental requirements. I am not, however, an advocate for regimental baggage arrangements for the infantry, except, perhaps, in special cases, where the locality may be favorable as regards abundant supplies of forage, and where expeditions against frontier tribes might be of constant occurrence. It is doubtful whether such arrangements for regimental transport would save very much money; and in my opinion it would be better for such transport to be kept up in the transport corps, where the animals used would be under the care of those who had made special study of their management. I think all Native cavalry regiments should keep up their own baggage animals, such animals serving in garrison as grass-cutters' ponies, and being equally useful therefore both in peace and war. As the baggage arrangements in my own regiment have always been most successful, I append a few notes on the system. In my own regiment the regimental carriage consists of a pony for every two horses for the non-commissioned officers, rank and file, and each Native officer has a pony for himself. This number is kept up most strictly, and the ponies are inspected every month on muster day by the squadron commanders. When the regiment is in camp, they are employed by the men in bringing in forage from the surrounding villages, making trips of from 10 to 20 miles, probably three times a week. They are thus in constant training for the work that is required of them on field service, and the syces in charge of them gain daily experience in the proper method of loading them. By this arrangement I am at any time able to start at a moment's notice with my regiment and nearly two hundred and fifty baggage ponies, and have never yet on the numerous occasions the regiment has been ordered out on various duties had to apply for outside assistance. The loads carried by these ponies is extraordinary, and they will march twenty and thirty miles a day for weeks, arriving always at the encamping-ground within half an hour of the regiment. The latest

occasion on which the services of my regiment have been required was the suppression of the dacoities in the Deccan. One detachment marched at an hour's notice, and covered one hundred miles the first forty hours. I append a few extracts from long reports I have just received from Majors Daniell and Westmacott, Superintendents of Police, in command of various parties:—"The Poona Horse possesses a very great advantage over other regiments I have seen here in being supplied with pony carriage. The result is that they can move literally as soon as the horses can be saddled and the baggage packed on the ponies, and they can travel over any country. On one occasion I marched with a detachment over one hundred miles in less than forty hours; but whenever we halted for a few hours the men's baggage was up, and they were able to get food for themselves and to make their horses and themselves as comfortable as they would be in their own lines within an hour of dismounting. Without this pony carriage, our movements would have been completely hampered in this country, where cavalry may at any moment be called on to travel long distances."

The above is from a report by Major Daniell.

Major Westmacott, commanding a flying column, writes as follows:—

"I applied for Government mule carriage for the infantry, and when it was really tested against the baggage ponies, the latter had the best of it by hours." In describing some very hard work the men had in the pouring rain from 24th June to 3rd July 1879 over the Western Gháts, he says, "six horses of the Poona Horse slipped off the path and rolled down distances varying from eighteen to fifty feet; the rain was incessant, and six nullahs were crossed in heavy flood. The ponies were again up within a few hours of the men; the mule carriage broke down altogether; three died from exhaustion and want of forage, and eighteen out of thirty-five went sick."

Further on, describing the end of this severe week's marching, he states, "the whole of the mules did not rejoin me for a week, and then had left their tents behind; three mules died, and thirteen were sent sick to Poona. Out of thirty-five of the ponies, some, I cannot give the exact number, were laid up with sore backs, but all, with one exception, were fit to march again on the 7th." Again,—"We have marched over some six hundred miles in wet and dry, over hills and through deep mud, and pony carriage has never failed."

I can fully endorse from my own experience how serviceable pony carriage is when kept up on our system, *i.e.*, with regimental syces to look after them in camp, and to take charge of them on the march; and with the training they have for carrying loads during the time of peace. Furthermore, it is of great advantage having regimental syces to look after them, for these men get into habits of discipline in camp, and it is always to their personal interest on the march to have the ponies up in good time, which is not the case with commissariat muleteers. I am strongly of opinion that every Native cavalry regiment in the service should have its own regimental carriage complete at all times. I have only one thing more to add regarding pony carriage, and that is that when committees are assembled to purchase ponies, many most valuable animals are rejected, because they do not come up to some ideal standard as regards shape, bone, and substance. I can state most positively that many such animals are capable of performing astonishing feats in the way of endurance, both as regards the amount of the loads they can carry and the distances they can go; and if pony carriage is ever used more extensively than it is at present, it would be as well not to be too particular on these points. Our men being under-paid, squadron commanders are often obliged to pass ponies that so far as appearances are concerned are most unpromising, and yet they do their work in the most astonishing manner.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

Certainly. A regiment with the skeleton transport system I have proposed would on being ordered to form part of a moveable column complete itself, and would do away with the necessity of a moveable column as at present organized.

Colonel J. Doran, Commanding 27th Punjab Native Infantry.

Yes; I consider a system, framed much as exists in the Punjab Frontier Force, might with advantage be substituted for the moveable column one.

Colonel H. S. Obbard, Commandant 41st Native Infantry.

I think a certain quantity of carriage should always be attached to regiments, but that it should be kept in one place in the station and as at present for a moveable column: see reply 7.

Colonel E. Dandridge, Commanding 40th Native Infantry.

Yes, under the supervision of brigade transport officer.

Colonel J. H. P. Malcolmson, Commanding 39th Native Infantry.

Yes, I think such a system might be adopted with advantage in substitution of the present moveable column system, but in view of partly paying the cost of its keep, it might be let out on hire in the vicinity of the station at which the regiment was quartered, on condition of its being available within 24 or at most 48 hours' notice, and returned in good order and condition.

Lieutenant-Colonel H. Worsley, Commanding 7th Native Infantry.

Undoubtedly! For with regimental transport, troops could move on the very shortest notice to repress local disturbances. All a regiment requires for such purposes is pack transport for cooking utensils, intrenching tools, and reserve ammunition for about two-thirds of strength. The men can themselves carry three days' provisions.

If necessary, tents, baggage, provisions, ammunition reserves, &c., can be sent on afterwards by means of carriage obtained from local sources. All that troops require *instantly available* is carriage for cooking utensils, intrenching tools and about 50 rounds a man. With that for two or three days they can be independent of other carriage. And in two or three days local carriage would certainly be available if properly registered.

When carriage is required in case of epidemics, we have always notice sufficient to enable us to procure it in the neighbourhood. In short, there seems to be no necessity for maintaining moveable columns on the present expensive scale.

Lieutenant-Colonel R. J. Walker,
Commandant 17th Native Infantry.

Only, I should say, at an increased cost to Government.

Lieutenant-Colonel R. G. Rogers,
20th Punjab Native Infantry.

Yes; with greatest advantage. Officers and men would learn transport duties; drivers, &c., would be disciplined; animals would be trained and better cared for; and regiments would always be able to move off *with secrecy* on an emergency at shortest notice, which they cannot now do.

Lieutenant-Colonel F. B. Norman,
Commanding 24th Punjab Native Infantry.

If pecuniary advantage is meant, I don't think so. But if efficiency and readiness to move at an hour's notice is meant, I think it would be advantageous to extend to all regiments serving trans-Jhelum the system in force with the regiments of the Punjab Frontier Force; but the carriage kept up by these regiments is only sufficient, I believe, to move a wing lightly equipped.

Lieutenant-Colonel H. St. G. Tucker,
41st Native Infantry, late Superintendent, Transport Train,
41st N. I.

No. The moveable column carriage is, for the most part, some distance away from cantonments, grazing. I believe a certain amount is kept for station work, such as bringing up from or to the railway station, or carrying supplies from commissariat department to regiments. This can quite sufficiently be done with the small amount of carriage which might be kept up at each cantonment under the charge

of a conductor or non-commissioned officer under the orders of the superintendent. The non-commissioned officer in charge would be obliged to furnish any carriage required on a station order.

Major Sir B. P. Bromhead, 40th
Native Infantry.

Yes, with the greatest advantage, both as regards efficiency and economy. (See reply 3.)

Major A. C. W. Crookshank,
Commanding 32nd Pioneers.

I do not think so: to distribute the present carriage among regiments would produce no practical good, and to provide regiments with even the smallest useful amount of carriage would be very expensive.

The system is partially carried out in the Punjab Frontier Force, and no one can deny the efficiency caused thereby, but the cost is enormous.

However, it would never be practicable to keep the carriage under regimental charge and employ it departmentally: there would be endless friction. Better leave the carriage with the department which uses it and best knows how to take care of it, to say nothing of the inconvenience of scattering cattle-sheds, &c., all over the place.

I do not see any practical good to be obtained by regiments keeping their own carriage. No doubt many commanding officers would like to have the free use of a lot of Government cattle, but not on the public account; so long as a regiment gets its quantum of carriage when required, what more is wanted?

For parade purposes a commissariat officer can always get the loan of a few mules for the ammunition, and the best way of accustoming the men to carriage is to march the regiments, and not send them so much by train.

Colonel H. Boisragon, Commanding
4th Sikhs.

Yes, assuredly, as roughly suggested herein, and to the benefit of Government and the regiment. As already stated, I am not aware of the moveable column system.

Lieutenant-Colonel J. J. Boswell,
Commanding 2nd Sikhs.

This is answered by No. 7. I strongly advocate the regimental transport system be introduced.

Lieutenant-Colonel F. T. Bainbridge,
4th Sikhs.

Certainly, and with great advantage, to a certain extent; but I think, for a regiment to keep up carriage enough for marching in ordinary relief, would be an unnecessary expense, and I also think that the transport kept by a regiment should belong to the transport service, so that it could be made of general use when necessary.

A regiment marching in ordinary relief could always be supplied with full transport by taking the carriage of other regiments of the brigade. If going on service, it would be filled up from the reserve.

Major A. G. Ross, 1st Sikh Infantry.

Yes, it could be done. But I think it would be expensive. If it is done, calculate for British officers and for bazaar, who are always left out, British officers especially.

Colonel W. A. Gib, Commandant
25th Madras Native Infantry.

As already stated, I have no experience of moveable columns, but I can quite understand that in regimental charge it would be more handy, and likely to be better taken care of. The quartermaster could look after it.

Colonel S. Edwardes, Commanding
2nd Bombay Native Infantry.

I do not quite understand this question. A column to be rendered *moveable* requires a certain amount of *regimental, departmental, and general* transport: the first being in regimental charge, and the second

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

I think it might be satisfactory with Native regiments, who have their Native officers and men to look after it and keep it up to the standard, but hardly so with European regiments, it would be better in the charge of the commissariat than with them.

J. H. B. Hallen, Esq., General
Superintendent of Horse-Breeding
Operations.

A regimental system of transport might be tested in a few corps in different parts of India; but I am inclined to think the army transport department, as above recommended, would, in the end, prove more satisfactory; experience has proved that the regimental system often fails in time of war.

17. What would be the weight to be carried by a regiment of ^{British cavalry} or a ^{Native cavalry} regiment of ^{British infantry} or battery of artillery, or company of sappers at present established strength for service in the plains of India; and what would be the amount of transport necessary under the undermentioned headings according to existing regulations on the following scale, *viz.* :—

- (1) Camp equipage, as laid down for field service in the plains.
- (2) Baggage ditto ditto ditto.
- (3) Ammunition (service scale for all arms.)
- (4) Cooking utensils at the rate of 2 camels per battery and 1 per company.
- (5) Entrenching tools at the rate of 2 camels per regiment.
- (6) Food for four days for men, not followers.
- (7) Grain for horses for two days.

The transport should be of the kind used locally.

Sick transport need not be entered.

Lieutenant-General C. T.
Chamberlain, C.S.I., late Com-
manding Oudh Division.

	Camp equipage for service in the plains	Baggage ditto	Ammunition (service scale)	Cooking utensils	Entrenching tools	Food for 4 days for men.	Grain (for horses) for 2 days.	CARRIAGE.		
								Elephants.	Two bullock carts (Oudh).	
Battery Royal Horse Artillery ...	200	26	98	30	8	56	14	44	87 or 65	
Battery Field Horse Artillery ...	200	26	98	30	8	56	14	27	30	84 or 53
Company of Sappers ...	No means of ascertaining.									
Regiment British Cavalry ...	425	572	100	30	Useless	136	56	...	528 or 165	
Regiment British Infantry ...	789	17	370	40	10	300	...	...	405 or 230
Regiment Native Cavalry ...	2335	220	63	14	39	Useless	56	108	178 or 73	
Regiment Native Infantry ...	138	240	130	40	10	88	17	...	152 or 60	

(c) Horse clothing, head and heel ropes, brushes, nose-bags, head-stalls, weigh heavily.

(d) This includes horse clothing, gear, brushes, nose-bags, head-stalls, &c., &c.

Statement shewing the weight of camp equipage, baggage, ammunition, &c., to be carried by the several arms of the service at the present established strength for service in the plains of India, and the amount of transport necessary under the undermentioned headings according to existing regulations.

CORPS, &c.	1										2				3				4				5				6				7							
	CAMP EQUIPAGE AND TRANSPORT.										BAGGAGE AND TRANSPORT.				AMMUNITION AND TRANSPORT.				COOKING UTENSILS AND TRANSPORT.				INTRENCHING TOOLS AND TRANSPORT.				FOOD FOR FOUR DAYS AND TRANSPORT.				GRAIN FOR HORSES FOR TWO DAYS AND TRANSPORT.							
	TENTS.		WEIGHT.				Elephants.	Camels.	Mules or pack-bullocks.	Carts, (c)	WEIGHT.		Mules or pack-bullocks.	Carts, (c)	WEIGHT.		Camels.	Carts, (c)	WEIGHT.		Camels.	Carts, (c)	WEIGHT.		Mules or pack-bullocks.	Carts, (c)	WEIGHT.		Mules or pack-bullocks.	Carts, (c)								
	Staff serjeants.	European.	Native.	Cwt.	Qrs.	lbs.					Cwt.	Qrs.			lbs.	Cwt.			Qrs.	lbs.			Cwt.	Qrs.			lbs.	Cwt.			Qrs.	lbs.	Cwt.	Qrs.	lbs.	Cwt.	Qrs.	lbs.
1 Regiment of British Cavalry	14	36	2	300	...	4	60	99	4	46	263	3	20	158	40	40	...	24	6	17	2	6	3	7	...	16	2	1	47	2	8	30	7	77	2	12	46	11
1 " of Native "	...	1	34	74	2	23	...	27	...	13	146	2	24	83	21	36	...	23	5	...	...	...	...	...	...	10	2	1	...	...	...	58	3	20	86	9		
1 " of British Infantry	13	67	2	403	2	1	83	166	4	77	453	3	6	290	64	133	...	83	19	23	1	20	6	4	7	...	16	2	1	94	...	6	68	14	...	...	...	...
1 " of Native "	...	...	44	86	1	16	...	88	15	200	1	12	112	28	112	...	60	16	...	...	...	...	...	...	...	16	2	1	...	...	...	...	...	...	...	...	...
1 Battery of royal horse artillery	6	14	6	123	...	8	19	38	10	10	87	3	20	68	13	...	...	...	5	3	12	2	1	3	14	8	1	1	16	2	12	10	3	31	3	4	20	8
1 Field battery of royal artillery	6	14	6	123	...	8	19	38	10	10	84	3	8	66	12	...	...	...	5	3	12	2	1	3	14	8	1	1	16	2	12	10	3	19	3	16	12	8
1 Heavy " of " "	4	8	14	96	...	10	12	23	27	16	59	4	20	36	6	...	...	...	5	3	12	2	1	3	14	8	1	1	0	...	24	6	2	...	3	16	1	2
1 Company of sappers and miners	1	...	9	23	3	4	...	2	19	4	36	...	12	22	6	12	...	...	8	2	...	...	...	...	...	3	14	8	1	1	...	...	...	...	...	...	...	...

(c) Local carriage at Madras being country carts, this mode of conveyance is entered in this statement as equivalent to the total number of elephants, &c., in each case when such cattle cannot be procured.
N.B.—I.—Camp equipage and transport have been calculated according to equipment tables and Madras Army Regulations.
 II.—Baggage and transport (both for officers and men) have been calculated according to Madras Standing Orders of 1879, No. 18, page 19, and Madras Army Regulations, Appendix VII, revised by Madras Standing General Order No. 96, dated 18th August 1879.
 III.—Intrenching tools and transport have been calculated at two camels per regiment of cavalry and infantry, European and Native, and in proportion for the other arms of the service.
 IV.—The above has been calculated for the established strength of corps as entered in next page.

Memorandum showing the established strength of corps, &c., as taken from the Quarterly Army List of 1879.

Corps, &c.	European commissioned officers.	Native commissioned officers.	Medical subordinates.	Staff sergeants.	European non-commissioned, rank and file.	Native non-commissioned, rank and file.	Store masons (ordinary)	Fusilliers.	Bhowas.	Native establishment for mountain battery.	European.	REMARKS.
1 Regiment of British cavalry	36*	...	4	11	444	13	438	Baggage and transport for public followers have not been calculated.
1 " of Native "	10*	12	3	...	...	377	...	6	...	...	830
1 " of British infantry	31	...	3	8	878	...	...	16	...	...	...
1 " of Native "	8	16	3	...	...	667	...	8	...	...	...
1 Battery of royal horse artillery	8	...	1	3	155	...	13	5	1	...	178	
1 Field battery of royal artillery	5	...	1	3	155	...	13	3	1	...	110	
1 Heavy " of " "	5	...	1	3	88	...	7	3	2	171	5	
1 Company of sappers and miners	3	3	1	...	...	119	...	1	...	...	...

* Includes one riding-master.

Major-General R. O. Bright, C.B., Commanding Meerut Division.

Full information given on this question under all its headings in annexed return.

Table of weights to be carried by the different branches of the army at present established strength for field service in the plains of India, and amount and nature of transport under existing regulations on the following scale; only officers and men bearing arms included in this estimate.

Mora. - 1. Weights calculated for a complete ration for British soldiers, including wood; officers are included in these numbers.	1	2	3	4	5	6	7	8	9	
	2.* Only for British officers and hospital. British officers' tents taken at 8 maunds 31 seers. 3.† Only for British officers. 4. The reserve ammunition, with ordnance park, is not included in this estimate, but only regimental first and second reserves, which should, properly speaking, be carried by mules or ponies.	Transport (camels).	Camp equipage.	Baggage.	Small-arm ammunition.	Cooking utensils at the rate of 2 camels per battery and 1 per company.	Entrenching tools at the rate of 2 camels per regiment.	4 days' food for men, exclusive of camp-followers.	3 days' grain for horses.	Total weights, maunds.
Transport equivalents. 1 camel = 2 pack-bullocks = 1 bullock in cart. 1 elephant = 3 camels.	One regiment, British cavalry	306	772	338	87	30	74	153	124	1,521½
	Ditto Native "	78	90	100	65	...	7½	61	120	374
	Ditto British infantry	481	990	645	184	40	10	379	...	3,165
	Ditto Native "	183	230	384	140	40	10	98	...	928
	One battery field artillery	144	279	176	10	...	...	83	46	872
	One company sappers and miners	53	71	58	15	6	100	16	...	268

Major-General J. W. Schneider, C.B., Commanding Northern Division, Bombay Army.

	FIELD BATTERY, ROYAL ARTILLERY.				BRITISH INFANTRY REGIMENT.				NATIVE CAVALRY REGIMENT.				NATIVE INFANTRY REGIMENT.			
	Weight.			No. of camels.	Weight.			No. of camels.	Weight.			No. of camels.	Weight.			No. of camels.
	owt.	qrs.	lbs.		owt.	qrs.	lbs.		owt.	qrs.	lbs.		owt.	qrs.	lbs.	
(1) Camp equipage.	126	3	4	36	498	1	10	144	13	3	8	32	119	8	27	83
(2) Baggage	71	1	20	20	451	0	4	133	...	...	...	390	1	13	110	
(3) Ammunition	...	...	...	...	159	0	0	46	88	3	...	...	119	1	27	33
(4) Cooking utensils.	4	1	9	3	27	0	13	8	...	...	...	...	...	...	...	...
(5) Entrenching tools.	...	...	...	...	8	3	3	...	...	...	...	...	...	...	...	...
(6) Food for four days.	10	2	21	6	105	0	13	31	47	0	16	13½	0	1	13	18
(7) Grain for horses for two days.	23	0	24	7	13	2	14	4	63	3	19	17½	1	0	16	1
GRAND TOTAL...	245	1	23	71	1,349	0	0	388	313	3	0	60	668	3	10	195

Brigadier-General G. Burrows, Quarter-Master-General, Bombay.

	lbs.
British cavalry	151,200
Native " Carry their own.	...
British infantry	192,400
Native " "	79,200
Field battery	86,400
Company sappers	11,600

	British Cavalry.	Native Cavalry.	British Infantry.	Native Infantry.	Field Battery.	Company sappers.
1. Camp Equipage ...	75	} Carry their own.	100	22	28	6
2. Baggage ...	67		97	55	23	8
3. Ammunition ...	7		24	19	0	2
4. Cooking utensils ...	3		4	0	1	0
5. Entrenching tools ...	0		1	1	0	0
6. Food for four days ...	} Commissariat will answer this.					
7. Grain for horses ...	}					

				lbs.
Elephants carry	...	...	...	1,200
Camels "	...	...	...	400
Mules "	...	...	...	200
Country carts "	...	...	...	800

Brigadier-General F. G. Kemper, Commanding Ceded Districts. Table showing weights to be carried by the several arms for service in the plains.

Equipments.	REGIMENT OF BRITISH		BATTERY OF FIELD ARTILLERY.	REGIMENT OF NATIVES		COMPANY OF SAPPERS AND MINERS.	REMARKS.
	Cavalry.	Infantry.		Cavalry.	Infantry.		
	R.	R.	R.	R.	R.	R.	
Camp equipage ...	24,463	31,418	7,068	11,279	12,667	2,842	
Baggage ...	32,200	41,480	9,968	17,865	20,669	4,527	
Ammunition ...	5,180	116,180	(a)	3,010	11,000	1,190	(a) Artillery 500 rounds per gun. Weight not ascertainable.
Cooking utensils ...	1,440	1,620	240	900	1,200	100	
Entrenching tools ...	...	1,446	...	...	1,346	(b)	(b) Weight of entrenching tools carried by a company of sappers and miners not known.
Food for four days (combatants).	10,820	19,760	8,440	4,460	6,060	1,160	
Grain for two days...	10,080	...	3,320	9,680	...	...
	83,839	211,303	23,968	47,374	54,001	9,979	
	T. Cwt. Q.	T. Cwt. Q.	T. Cwt. Q.	T. Cwt. Q.	T. Cwt. Q.	T. Cwt. Q.	
	37 7 0	94 5 3	10 14 0	21 2 0	24 2 0	4 9 0	

It would be difficult to state the amount of transport, as such would vary according to nature of service and character of the district where the seat of war might be carried on. For instance in this district, which is a black cotton soil, nothing but ponics, mules, and pack-bullocks would be of service across country; wheeled carriage could only traverse roads.

Colonel J. Macdonald, Secretary to Government of Bombay, Military Department.



British cavalry	...	...	...	151,200
Native cavalry carry their own.	...	...	...
British infantry	...	...	...	192,400
Native infantry	...	...	...	79,200
Company sappers	...	...	...	11,600
Field battery	...	...	...	86,400

Country Carts.	} Carry their own.	British cavalry.	75	Native cavalry.	100	British infantry.	22	Native infantry.	23	Field battery.	6	Company sappers.	8
			67		97		55		23		8		2
			7		24		19		0		0		0
			3		4		0		1		0		0
			0		1		1		0		0		0

6 } The Commissary-General will give accurate information.

Elephants carry	...	...	...	1,200 lbs.
Camels "	...	...	...	400 "
Mules "	...	...	...	200 "
Country carts carry	...	...	...	800 "

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

See table attached as far as artillery is concerned :—

Statement of transport required for a battery of Royal Artillery.

Nature of equipage.	WEIGHT.							Without officers' carriage, which is private and unlimited in plains.	
	Mds.	S ^{rs} .	lbs.	Elephants.	Camels.	Mules.	4-wheeled headdresses.		Bullocks.
E. P. tents, 14 ...	70	0	0	27	23	...	7	...	* Only two E. P. tents can be carried upon each elephant. † Only four boxes can go upon each elephant.
S. S. tents, 5 ...	81	22	1	2	6½	...	1½	...	
Lascar pals, 5 ...	16	13	1	2	3½	...	2	...	
Baggage for 167 men.	71	4	0	7	15	36	3½	36	
Ammunition, 2nd line.	175	0	0	15	36	...	9	72	
Cooking utensils...	8	9	0	...	2	...	1	4	
Commissariat rations for 167 men for 4 days.	27	22	0	3	6	14	1½	12	
Grain for 200 horses, say 145 walers & 55 stud.	47	10	0	5	10	24	2½	20	
Total ...	446	81	0	35	107	74	26½	133	

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-General,
Bombay.

				lbs.
British cavalry	...	...	...	151,200
Native cavalry carry their own.				
British infantry	...	...	...	192,400
Native infantry	...	...	...	79,200
Company sappers	...	...	...	11,600
Field battery	...	...	...	36,400

British cavalry.	Native cavalry.	British infantry.	Native infantry.	Field battery.	Company sappers.
		Country carts.			
75	Carry their own.	100	22	23	6
67		97	55	23	8
7		24	19	...	2
3		4	...	1	...
...		1	1	...	...

(6) and (7) Questions for the commissariat department.

Elephants carry ...	...	...	...	1,200
Camels	...	...	...	400
Mules	...	...	...	200
Country carts	...	...	...	800

Major A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

In the absence of books of reference, and being without the means of obtaining them at present, I am unable to reply to the various headings of this question.

It may perhaps be useful to give the numbers of mules which are considered necessary to enable a British or Native infantry regiment, a Native cavalry regiment, British mountain battery and a company of sappers to take the field with four days' supplies in the Khyber, where mules are the only suitable transport animals.

The baggage and camp equipage of followers, as well as their food, have been omitted in the calculation.

The load of a mule has been taken as 200 lbs.

The tents calculated for are sepoy pals.

Number of mules required by—

	British infantry.	Native infantry.	Native cavalry.	British mountain battery.	Company sappers and miners.
Camp equipage ...	111	63	Approximately on similar scale, but with different details.	Carried by battery mules.	Approximately on similar scale, but with different details.
Baggage ...	174	100		31	
Ammunition ...	87	95		Carried by battery mules.	
Cooking utensils ...	12	8		3	
Entrenching tools ...	16	12		NW.	
Food for four days ...	80	47		15	
Grain for two days (mules and horses) ...	29	19		25	
Puckals for water (absolutely necessary) ...	16	17	18		
Total ...	525	360	400	92	90

Lieutenant-Colonel R. Blundell,
8th Hussars.

38,908 lbs. This does not include the weight of tents allowed by Government for men, guards, hospitals, and followers. This would be 22,800 lbs. more, in all 61,708 lbs.

Lieutenant-Colonel R. S. Cleland,
9th Lancers.

	Maunds.	Seers.	Camels.
(1.)	382	2	71½
(2.)	444	22	89
(3.)	57		10
(4.)	30		6
(5.)	10		2
(6.)	170½		34½
(7.)	109		22

Lieutenant-Colonel Lord R. D. Kerr,
Commanding 10th Hussars.

The weight to be carried by a regiment British cavalry, according to last scale published for active service, is—

Maunds 1,161, seers 34.

The amount of transport required under these headings is as follows:—

(1) Camp equipage ...	weight	Mds. Srs.	624 4
" " carriage ...			125 camels.
(2) Baggage ...	weight	Mds. Srs.	315 14
" " carriage ...			63 camels.
" " " ...			4 mules.
(3) Ammunition ...	weight	Mds. Srs.	66 4
" " carriage ...			31 mules.
(4) Cooking utensils ...	weight	Mds. Srs.	17 34
" " carriage ...			6 camels.
Great economy of cost and weight would be obtained by introduction of block-tin cooking utensils.			
(5) Entrenching tools and signalling implements ...	weight	Mds. Srs.	8 16
" " " carriage ...			2 camels.
(6) Food for men ...	weight	Mds. Srs.	23 24.
" " " carriage ...			6 camels.
(7) Grain for 2 days ...	weight	Mds. Srs.	106 16
" " " carriage ...			27 camels.
Total carriage according to present scale ...			229 camels.
Ditto ditto ...			35 mules.

Lieut.-Col. J. C. Le Queene, 12th
Royal Lancers.

Including tents and horse blankets something over seven tons. Ten waggons should amply suffice.

Lieut.-Col. G. Luck, Commanding
15th Hussars.

I append a scale of weights required for a cavalry regiment. I have just received it from my regiment, but have no means at hand of testing its accuracy.

WEIGHT TO BE CARRIED BY A REGIMENT OF BRITISH CAVALRY ON THE PLAINS.

		Strength of the regiment.									
		Tents.		Pala.		Baggage.		Camp.		Baggage.	
		M.	S.	M.	S.	lbs.	M.	S.	M.	S.	M.
Lieutenant-colonel	...	...	...	...	...	...	...	...	...	...	1
Major	...	...	...	...	...	...	...	...	...	...	1
Paymaster—"major"	...	...	...	...	...	...	...	...	...	...	1
Surgeon-major—"major"	...	...	...	...	...	...	...	...	...	...	1
Captains	...	...	...	...	...	...	...	...	...	...	6
Subalterns	...	...	...	...	...	...	...	...	...	...	12
Adjutant	...	...	...	...	...	...	...	...	...	...	1
Quartermaster	...	...	...	...	...	...	...	...	...	...	1
Riding-master	...	...	...	...	...	...	...	...	...	...	1
Veterinary surgeon	...	...	...	...	...	...	...	...	...	...	1
Officers' mess	...	...	...	...	...	...	...	...	...	...	1
Staff sergeants	...	...	...	...	...	...	...	...	...	...	9
Rank and file	...	...	...	...	...	...	...	...	...	...	444
1 lieutenant-colonel	1 single-pole	20	16	1	3	26	480	24	2	6	
1 major	1 hill	8	15	1	3	26	480	12	1	6	
1 paymaster	1 "	8	15	1	3	26	480	12	1	6	
1 surgeon-major	1 "	8	15	1	3	26	480	12	1	6	
6 captains, each	1 "	8	15	.....	.....	400	50	10	30		
12 subalterns, each	1 "	8	15	.....	.....	320	100	20	48		
1 adjutant	1 "	8	15	.....	.....	320	8	18	4		
1 quartermaster	1 "	8	15	.....	.....	320	8	15	4		
1 riding-master	1 "	8	15	.....	.....	320	8	15	4		
1 veterinary surgeon	1 "	8	15	.....	.....	320	8	15	4		
Mess	1 E.P.D.P.	11	2½	1	pál	3 26	...	14	28	24	
9 staff sergeants,	5 7 S.S.	.....	.....	.....	.....	40 ea.	42	7	4½		
class A, 4 class B.											
444 rank and file	36 E.P.D.P.	11	2½ ea.	.....	.....	40 ea.	398	10	222		
Rations for 453 non-commissioned officers and men for 4 days	...	...	...	...	...	...	...	...	...	...	82
Grain for 453 horses for 2 days at 4 seers per diem	...	...	...	...	...	...	...	...	...	...	91
Grain for 67 chargers for 2 days at 4 seers per diem	...	...	...	...	...	...	...	...	...	...	13½
Entrenching tools	...	...	...	...	...	...	...	...	...	...	10
Cooking utensils	...	...	...	...	...	...	...	...	...	...	50
Ammunition, 80 rounds per man (20 carried)=61 boxes, 600 rounds in each box.	...	...	...	...	...	...	...	...	...	...	59
Arm chests, if full	...	...	...	...	...	...	...	...	...	...	45
Paulins and troop stores	...	...	...	...	...	...	...	...	...	...	120
Veterinary stores	...	...	...	...	...	...	...	...	...	...	30
Scales and weights	...	...	...	...	...	...	...	...	...	...	10
Saddlers	...	...	...	...	...	...	...	...	...	...	10
Saddletree-makers	...	...	...	...	...	...	...	...	...	...	5
Orderly-room	...	...	...	...	...	...	...	...	...	...	5
Pay office	...	...	...	...	...	...	...	...	...	...	5
Quartermaster's office	...	...	...	...	...	...	...	...	...	...	5
Armourer's stores	...	...	...	...	...	...	...	...	...	...	10

Transport required for a regiment of British cavalry.

	Camels.
1st.—For camp equipage, 699 maunds 20 seers	...
2nd.—For baggage, 859 maunds	172
3rd.—Ammunition, service, 59 maunds	12
4th.—Cooking utensils, 6 troops	6
5th.—Entrenching tools	2
6th.—Food for 4 days for 453 men	17
7th.—Grain for 453 horses	21
Grain for 67 chargers	...
8th.—Arm chests	9
9th.—Paulins and troop stores	24
10th.—Veterinary stores	6
11th.—Armourer's stores	2
12th.—Saddler's stores	2
13th.—Saddletree-maker's stores	1
14th.—Three offices—orderly-room, pay-office, quarter-master's office	1
15th.—Scales and weights	2
Total	317

Authorities.

- Officers' tents—Bengal Army Regulations, Appendix, page 865.
 Baggage—G. O. No. 186 of 1875.
 Weight of tents—Regulation for Encampments in India, Office of Quarter-Master-General in India, 1870.
 Scale of carriage—6 maunds per camel.

Major J. W. Chaplin, 8th Hussars.

British cavalry (strength)—

- 2 Field officers.
- 23 Officers.
- 9 Staff sergeants.
- 445 Non-commissioned officers, rank and file.
- 436 Horses.

(1) Weight, 568 maunds, at 5-maunds per camel, equal to 114 camels, or 38 elephants, officers' tents not included.

(2) Weight, 386 maunds (quarter-master's stores and artificer's tools not included).

(3) Weight, about 56 maunds in 58 cases lined with tin, at the rate of six boxes per camel, equal to 10 camels.

(4) Weight, about 27 maunds, at one camel per troop, equal to six camels.

(5) Weight, about 7½ maunds.

(6) Weight, about 57 maunds (does not include firewood or rum), requires about 14 camels for transport.

(7) At the rate of five seers per horse daily, equal to 109 maunds, requiring about 22 camels for transport.

Captain J. A. S. Mackenzie, 9th Lancers.

	Maunds.	Seers.	Camels.
(1)	... 382	2	71½
(2)	... 444	22	89
(3)	... 57	...	10
(4)	... 30	...	6
(5)	... 10	...	2
(6)	... 170½	...	34½
(7)	... 109	...	22

Colonel J. A. Ruddell, 125th Regiment.

	Maunds.		Camels.
(1)	... 1,188	...	198
(2)	... 900	...	150
(3)	... 267	...	45
(4)	... 48	...	8
(5)	... 12	...	2
(6)	... 168	...	28
(7)	... 2	...	½

Lieutenant-Colonel M. MacGregor, 1-18th (The Royal Irish).

- (1) 600 maunds, or 120 camels.
- (2) 560 " or 112 "
(at the rate of 8 men per camel.)
- (3) 221 maunds, or 37 camels.
- (4) 24 " or 8 "
- (5) 12 " or 2 "
- (6) 111 " or 22 "
- (7) 4 " or 1 "

Total 1,532 " or 302 "

Lieutenant-Colonel G. F. Walker, Commanding 1-12th Foot.

A battalion of British infantry 800 strong on service in the plains would require about 255 camels at five maunds each; total weight would be about 1,275 maunds:

	Camels.
(1) camp equipage E. P. tents 16 men per tent, for 800 men	... 100
(2) baggage	... 80
(3) ammunition 130 rounds per man	... 30
(4) cooking utensils	... 8
(5) entrenching tools	... 2
(6) food for four days, at 4 lbs. per man	... 32
(7) grain for horses for two days	... 2

Total number of camels ... 254

Lieutenant-Colonel D. Warren,
Commanding 2-14th (Prince of
Wales' Own) Regiment.

	Camels.	Ele- phants.	Country carts.	Weight.
(1) Camp equipage as laid down for field service in the plains	143	60	71½	Mds. 715
(2) Baggage equipage as laid down for field service in the plains ...	138	46	69	688½
(3) Ammunition (service scale for all arms) ...	52	22	26	260
(4) Cooking utensils (at the rate of two camels per battery and one per company) ...	...	...	...	...
(5) Entrenching tools at the rate of two camels per regiment	2	1	1	10
(6) Food for four days for men (not followers) ...	60	25	30	300
(7) Grain (for horses) for two days ...	...	...	...	...
	395	154	197½	1,973½

Calculated for 886 men and ammuni-
tion for 886 rifles.

Lieutenant-Colonel G. W. Puges,
Commanding 34th Regiment.

- (1) Camp equipage (light),—79 camels.
Camp equipage (heavy),—167 camels.
- (2) Baggage,—152 camels, 8 mules.
- (3) Ammunition,—20 mules.
- (4) Cooking utensils,—8 camels.
- (5) Entrenching tools,—8 camels.
- (6) } No information.
- (7) }

Lieutenant-Colonel J. S. Hand,
Commanding 44th Regiment.

- (1) Camp equipage 70,930 lbs. would require 71 boats, 60 elephants,
or 88 carts, or 177 camels.
- (2) Baggage 53,850 lbs. would require 54 boats, 45 elephants or
68 carts, or 135 camels.
- (3) Ammunition 737 boxes, about 73,000 lbs., would require 73
boats, 62 elephants, or 91 carts, or 134 camels.

(4) Cooking utensils 2,560 lbs., 3 boats, 4 elephants, or 4 carts, or 8 camels.

(5) Entrenching tools, 1 boat, 1 elephant, or 1 cart, or 2 camels.

(6) Food for 4 days 5,947 lbs., 6 boats, 5 elephants, or 8 carts, or 15 camels.

(7) Grain for horses for 2 days, 7 horses, 280 lbs., ¼ boat, ¼ elephant or ¼ cart, or ¼ camel.

N. B.—The boats are those used for baggage on the river Irrawaddy and carry lbs. 1,000.

The carts are two-bullock Burmese carts which carry lbs. 380.

Eight mules are about equal to three camels.

I omitted to add in my answer to question 7 that four-wheeled trollies drawn by two mules are excellent carriage over macadamized roads, and those in use at Secunderabad carried lbs. 1,120.

In connection with the transport service, I would train a company of each British regiment located in districts in transport duties as well as train them to become mounted infantry, for which purpose during a campaign on an emergency even transport animals might be utilized. The Otago pack-saddle is also adapted for riding purposes.

In Abyssinia all the mounted European superintendents rode in them.

Lieutenant-Colonel J. W. Hughes,
54th Regiment.

	Weight maunds.	Elephants.	Or two-bullock carts.
(1)	672	45	68
(2)	434	29	44
(3) { 1st Reserve ...	38½	3	4
{ 2nd Reserve ...	257	18	26
(4)	22½	2	3
(5)	10	1	1
(6)	*100	7	10
(7)	2½	1	1
	1,538½	106	157

* Estimated for 855 all ranks, the meat ration (28 bullocks) to march.

Elephants and two-bullock hackeries are the transport available in the neighbourhood of Calcutta.

Lieut.-Colonel C. B. Knowles,
Commanding 67th Regiment.

Weight in maunds.		Number of carts.	Number of camels.	Number of mules.
(1) ...	816	41	162	324
(2) ...	769	38	154	308
(3) ...	180	9	45	90
(4) ...	40	2	8	16
(5) ...	10	$\frac{1}{2}$	2	4
(6) ...	112	6	24	48
(7) ...	5	$\frac{1}{2}$	2	4
Total	1,932	97	397	794

Major F. Stephen, 4th Battalion
Bide Brigade.

		Maunds.	Camels.
(1) ...	...	864	151
(2) ...	...	665	136
(3) ...	...	165	29
(4) ...	...	32	8
(5) ...	...	10	2
(6) ...	...	70	14
(7) ...	...	35	7
Total	...	841	347

Major F. S. Terry, 1-25th King's
Own Borderers.

		Maunds.	Camels.
1st.	Weight for a regiment of infantry of 800 strong	2,585	...
2nd.	(1) Camp equipage	1,188	148
	(2) Baggage	900	150
	(3) Ammunition	267	45
	(4) Cooking utensils	48	8
	(5) Entrenching tools	12	2
	(6) Food for four days	138	28
	(7) Grain for horses for two days	2	$\frac{1}{2}$
Total	...	2,585	431 $\frac{1}{2}$

Major Hugh P. Pearson, 12th
Foot.

I will answer this question, so far as it applies, in all particulars given under the several headings, to a British infantry regiment. I will attach an Appendix (A) to show the calculations in detail which produce the totals given below. For convenience the carriage will be worked out in camels only.

(1)—Camp Equipage.			(4)—Cooking utensils.		
Weight...	M.	S.	Weight...	M.	S.
Camels ...	1,099	11 $\frac{1}{2}$	Camels ...	40	8
(2)—Baggage.			(5)—Entrenching tools.		
Weight...	920	25	Weight	10	
Camels ...	185		Camels	2	
(3)—Ammunition.			(6)—Food.		
Weight	176	19	Weight	287	10
Camels ...	31		Camels	58	
(7)—Grain for horses.			M.	S.	
Weight	...	1	8		
Camel	...	1			

or a total altogether of 2,534 maunds 33 seers, requiring 500 camels for its conveyance. (See recapitulation in Appendix A).

APPENDIX A.

Showing the proof of the replies to question 17.

The required weights will first be given, then the authorized carriage.

The calculations are based on the establishment of a British infantry corps as given in the Bengal Army List in the note on page 187 (1st Foot). Medical officers and subordinates are not included. The paymaster is calculated for as a captain. Tents for hospital are included.

I.—WEIGHTS.

(a)—Camp equipage (officers)—

	M.	S.	M.	S.
1 single pole tent @ ...	19	21½	=	19 21½
29 hill tents @ ...	8	31	=	254 19
4 pails (1 for men) @ ...	3	10½	=	14 2
1 double-pole tent (men) @	33	9½	=	33 9½

321 12

(Non-commissioned officers and men)—

	M.	S.	M.	S.
9 staff sergeants' tents @	6	12½	=	56 32½
67 E. P. tents @	10	30½	=	721 6½

Total weight C. equipment 1,099 11½

(b)—Baggage (officers)—

	M.	S.
1 lieutenant-colonel ...	25	0
2 majors ...	30	0
8 captains ...	80	0
16 subalterns ...	80	0
1 paymaster ...	10	0
1 quartermaster ...	5	0
1 adjutant ...	5	0
Mess allowance ...	125	0
	360	0

(Non-commissioned officers and Men)—

	M.	S.
4 staff sergeants, class A ...	10	0
881 non-commissioned officers, rank and file ...	550	25

Total weight baggage ... 920 25

(c)—Ammunition service scale, 1st and 2nd reserve—

40 sergeants @ ...	150	rounds=	6,000
788 non-commissioned officers, rank and file @	130	" =	102,440

Rounds ... 108,440

	M.	S.
108,440 rounds M. H. ammunition @		
600 rounds a box=181 boxes		
and 181 boxes @ 78 a box=	176	19

Total weight ammunition 176 19

(N.B.—There are 57 non-commissioned officers and men not armed with rifles).

II.—CARRIAGE.

The carriage is calculated in camels only.

(a)—Camp equipage (officers)—

	Camels.	Camels.
1 lieutenant-colonel at 4 ...	=	4
2 majors " 2 ...	=	4
8 captains " 2 ...	=	16
16 subalterns " 2 ...	=	32
1 paymaster " 2 ...	=	2
1 quartermaster " 2 ...	=	2
1 adjutant " 2 ...	=	2
Mess allowance " 7 ...	=	7

69

(Non-commissioned officers and men)—

9 Staff sergeants' tents at 1½ camels	=	12
67 E. P. tents including guard, hospital, &c., &c., at 2 camels	=	134

Total camels for camp equipage ... =215

(d)—Cooking utensils—

	M.	S.
At 5 maunds per company ...	40	0
Total weight cooking utensils ...	40	0

(e)—Entrenching tools—

	M.	S.
At 10 maunds per regiment ...	10	0
Total weight entrenching tools ...	10	0

(f)—Food for 4 men: daily ration per man—

Meat ...	1	lb.
Bread ...	1	"
Vegetables ...	1	"
Firewood ...	3	lbs.
Rice ...	4	ozs.
Sugar ...	2½	"
Tea ...	¼	"
Salt ...	¾	"

Weight ... 6 lbs. 7¼ ozs.

6 lbs. 7¼ ozs. × 885 men = 5,745 lbs. 14½ "

which × 4 days = 22,983 " 10½ "

which, in maunds ... =287 10

Total weight 4 days' food for regiment 287 10

(g)—Grain (for horses) for 2 days—

6 chargers at 4 seers each per diem @	2	days	8
---------------------------------------	---	------	---

Total Weight Grain ... 1 8

(b)—Baggage (officers)—

	Camels.	Camels.
1 lieutenant-colonel at 5 ...	=	5
2 majors " 3 ...	=	6
8 captains " 2 ...	=	16
16 subalterns " 1 ...	=	16
1 paymaster " 2 ...	=	2
1 quartermaster " 1 ...	=	1
1 adjutant " 1 ...	=	1
Mess allowance " 25 ...	=	25

72

(Non-commissioned officers and men)—

4 staff sergeants, class A, at ½ camel	=	2
881 non-commissioned officers, rank and file, at 8 men per camel	=	111

Total camels for baggage ... =186

(c)—Ammunition—
 181 boxes of M. H. ammunition at 6 boxes to each camel ... = 31
 Total camels for ammunition ... = 31
 (d)—Cooking utensils—
 At the rate of 1 per company ... = 8

(e)—Entrenching tools—
 At the rate of 2 per regiment ... = 2
 (f)—Food for 4 days for men (not followers)—
 Weight of 4 days' food for 885 men=287 maunds 10 seers, which, at 5 maunds per camel... = 58
 (g)—Grain (for horses) for 2 days—
 Weight of 2 days' food for 6 chargers=48 seers ... = 1

N.B.—Provision is not made in this calculation for carriage for arms of sick and wounded men hospital stores, medicines, &c., &c. Fractions of camels have not been considered.

The following is the —

Recapitulation.			
	Mds.	Seers.	Camels.
(a) Camp equipage ...	1,099	11	=215
(b) Baggage ...	920	25	=185
(c) Ammunition ...	176	19	= 31
(d) Cooking utensils ...	40	0	= 8

	Mds.	Seers.	Camel
(e) Entrenching tools ...	10	0	= 2
(f) Food for men ...	287	10	= 58
(g) Food for horses ...	1	8	= 1
Grand Total ...	2,534	33	=500

Major J. H. Campbell, 33rd Regiment.

Total weight for the regiment for all purposes, 2,135½ maunds—

Carriage.			

Carts	...	...	52
Camels	...	...	309
Mules	...	...	105

Major W. H. J. Clarke, 72nd Highlanders.

- (1) camels 142.
- (2) camels 110.
- (3) camels 29.
- (4) camels 8.
- (5) camels 2.
- (6) camels 36.
- (7) camel ½.

The strength of the regiment calculated at 850. Total number of camels required 327; weight to be carried, maunds 1,653-14. I attach a paper shewing Cabul scale of carriage both for camels and mules:—

Cabul scale of carriage.

	Camels.	Mules.
For 850 men's kits at 10 per camel and 5 per mule	85	170
" 850 tents at 22 per sepoy pal, 39 tents	78	156
" 1 sepoy pal for guard	2	4
" 1 lascar ditto	1	2
" cooks' kajawahs and cooking utensils	6	18
" entrenching tools	6	12
" quartermaster's stores	3	6
" company ammunition chest	4	...
" armourers' tools	½	1
" ammunition	46	112
" rum, 3 days' allowance	3	6
" regimental offices and camp equipage	1	2
" public followers at 10 lbs. each (85)	3	6
" billhooks, felling axes	1	2
" signalling instruments	½	1
" tents (3)	½	1
32 OFFICERS AND SERVANTS.		
Baggage and camp equipage	19	38
Add 5 per cent. on camels and mules	13	27
	272½	564

Major G. S. White, 92nd Highlanders.

For a regiment, British infantry, say—850 all ranks—

	Weight (Mds.)	Camels.	Mules.
	668	187	...
	532	129	8
	132	23	20
	32	8	...
	3	2	...
	150	37	...
Total ...	1,522	366	28

The above is about the calculation with heavy camp equipage. If light camp equipage, deduct—

	Mds.	Camels.	Mules.
	354	8,372	
leaving with light camp equipage—			
	1,168	278	23

Captain H. M. L. Hutchison,
1-14th (Prince of Wales' Own)
Regiment.

About 53 tons, including camp equipage, hospital equipage, ammunition, &c.

Colonel C. R. O. Evans, Com-
manding Royal Artillery, Meerut
Division.

For a battery royal horse artillery—

	Maunds.	Seers.
(1) Camp equipage	281	30
(2) Baggage	198	20
(3) Ammunition carried in service wagons.		
(4) Cooking utensils	10	
(5) Entrenching tools are carried on battery carriages.		
(6) Food for 4 days	18	6
(7) Grain (for horses) 2 days	60	30
	569	10

or at 5 maunds per camel, 114 camels would be required, with proportion of spare.

Major H. G. Lewes, Commanding
1-1st Royal Artillery.

The weight to be carried in the aggregate by a battery of artillery according to the scale laid down in orders issued by the Quarter-Master-General's Department, dated Simla, 26th September 1878, would be, including four days' food for men and two days' grain for horses, about 360 maunds. This would include—

- (1) Camp equipage, 60 maunds.
- (2) Baggage, stores, &c., 218 maunds.
- (3) Ammunition for 2nd line, 30 camels (500 rounds and gun in reserve-ammunition column).
- (4) Cooking utensils, 2 camels.
- (5)
- (6) Food, four days', 15 camels.
- (7) Two days' grain for horses, 8 camels.

or 125 camels in all. This is without spare, which should be calculated at 10 per cent., and without considering followers.

Major W. W. Murdoch, Com-
manding E-A Royal Horse Artil-
lery.

I attach a form showing the different weights and number of camels required under each heading. I have calculated the strength of the men at 140, which is quite as many men as are ever likely to be available for service and as many as it would be necessary to take :—

Carriage that would be required for the undermentioned items for a battery consisting of 140 men and seven officers.

Description.	Weight.	No. of camels.
1. Camp equipage as laid down for field service, consisting of—	Maunds.	
Tents, 10 E. P. including one guard M. S. tent, at 11 maunds 2½ seers each=	110 35	
Tents, 3 staff sergeants' at 6 maunds 12½ seers	18 37½	
Tents, 5 lascar pals, at 3 maunds 10½ seers	16 12½	146 5 0
2. Baggage, as laid down for field service, viz. :—		
140 men at 3 men per camel	...	18
4. Cooking utensils, at the rate of 2 camels per battery	...	2
6. Food (for 140 men) for 4 days (not followers at 6½ lbs. per man)	45 20 0	9
7. Grain for 2 days for horses (178) 89 walers and 89 stud breeds	40 0 0	8
Seven officers at 2 camels each for equipage and baggage	...	14

Major T. M. Hazelrigg, Com-
manding E-3rd Royal Artillery.

By a battery of field artillery—

	Maunds.	Secs.	Camels.
(1.)	187	35	38
(2.)	161	35	21
(3.)			
(4.)	10	0	2
(5.)			
(6.)	54	33	11
(7.)	39	0	8
	393	28	80

Major the Hon'ble A. Stewart,
Commanding I-C Royal Horse
Artillery.A table showing the transport allowed for a 9-pounder battery
horse artillery, is appended.*Weight of undermentioned articles and number of transport required.*

Nature of Equipage.	WEIGHT.			Elephants.	Camels.	Mules.	4-bullock hackeries.	Bullocks.	REMARKS.
	M.	S.	Ibs.						
E. P. tents, 14 ...	70	...	...	*7	28	...	7	...	* Only 2 E. P. tents can be carried upon each elephant.
S. S. tents, 5 ...	31	22	1	2	6½	...	1½	...	
Lascar paks, 5 ...	16	12	1	2	3½	...	1	...	
Baggage for 157 men ...	71	4	...	7	15	36	3½	30	
Ammunition, "2nd line" ...	175	...	...	+9	36	...	9	72	+ Only 4 boxes can go on each elephant.
Cooking utensils ...	...	...	...	...	½2	...	½	4	† This is an abominable arrangement for a battery of artillery. Everything should be divisible by three in a battery of artillery, which is organized by divisions and not wings like a regiment.
Commissariat rations for 157 men for 4 days ...	27	22	...	3	6	14	1½	12	
Grain for 200 horses, <i>vis.</i> , 145 walers & 55 studs ...	47	10	...	5	10	24	2½	20	
TOTAL ...	508	31	...	35	107	74	26½	138	

Major C. E. Nairne, Royal
Horse Artillery.

I have no books to refer to, but the total weight would be roughly 435 maunds; but this includes several items not asked about below, see list at end; and does not include weight of ammunition or stores now carried on the carriages.

And the transport as follows—

- (1) 39 camels.
- (2) 14 ...
- (3) 59 ... for second line wagons.

- (5) Carried on wagons and limbers.
- (6) About 3 camels.
- (7) 10 camels.

Besides the above, a battery, royal horse artillery, is allowed by regulation, and requires—

- 4 camels for paulins and troop stores.
- 3 camels for medicines, hospital records.
- 1 2-bullock cart for hospital furniture.
- 1 camel for veterinary stores.
- 1 camel for scales and weights, &c.
- 3 camels for bullock gear.
- 1 camel for bullock gram.
- 3 camels for 3rd horse blankets.

Major F. FitzG. Galloway, Royal
Artillery.I have no means at my disposal, I regret to say, to enable me to answer any of these questions except the one regarding ammunition, which I have already answered to a great extent in reply to question No. 6, Paper D, to which I would refer. The number of mules required for the only regimental reserve there is, *viz.*, of infantry 30 rounds a rifle, taking a battalion at 700 rifles, would be 35 to 40, according to nature. I think I have given the carriage required in all other cases, on the supposition that the ammunition column system is adopted.

Captain M. G. Gerard, 2nd Central India Horse.

Present strength of regiment (Central India Horse): 7 European officers, 493 Native officers, staff and men.

Only total transports, bullock carts, which would reduce marches of regiment to 10 miles per diem, although the ponies of Native ranks can average 20.

One cart = 2 camel loads only on Central India roads.

European officers, staff	...	...	...	6	} Above are excessive, and should be altered.
Mess	...	...	...	2	
Hospital and guard	...	...	...	5	
All Native ranks already provided with pony-carriage by regulation	...	...	...	0	
European officers, staff	...	...	...	8	
Mess	...	...	...	5	
Native ranks	...	...	...	0	
Both ranks, 100 rounds	...	...	...	10	
1 per squadron	...	...	...	3	
In addition to which the syces must be fed some how	...	...	...	4	
Horses and baggage tattoos	...	...	...	10	
Total 253 ponies = To be provided	...	...	...	54 carts.	

Brigadier-General C. J. Godby, Commanding Punjab Frontier Force.

I can only give that carried by a regiment of Native cavalry.

- (1) Light camp equipage, 34 camels; weight 136 maunds.
- (2) Light baggage, 77 camels, 6 mules; weight 320 maunds, including armourer's stores, quartermaster's department, regimental office.
- (3) 493 Native officers and men of all ranks can carry 40 rounds per man in holsters and pouch, 60 rounds per man reserve on mules, or 29,580 rounds, requiring 27 mules; weight 67½ maunds.
- (4) Cooking utensils require 6 camels; weight 30 maunds.
- (5) Entrenching tools as now issued to the men as part of their equipment.
- (6) For 493 men of all Native ranks at daily rate per man--

- 1 seer flour,
- 1 chittack ghee,
- 2 chittacks dball.
- 1 chittack sugar,
- 1 chittack tabacco--

for 4 days requires 16 camels; weight 64½ maunds.

- (7) For 517 horses for 2 days at 4 seers per diem would require 26 camels; weight 103½ maunds.

For 253 grass-cutters' ponies at 2 seers per diem, 6 camels; weight 25½ maunds.

Total transport required under the above headings--

Camels	...	...	...	...	165
Mules	...	...	...	...	23
Weight	...	...	...	...	747 maunds.

Colonel T. G. Kennedy, 2nd Punjab Cavalry.

I do not understand the question, but I have seen no regulations for camp equipage or baggage for field service in the plains, so I am unable to make any calculation.

In all scales published there seem to be no distinction allowed between summer and winter, or Bhootan and Afghanistan, baggage requirements, whereas of course one is just double the other.

Colonel J. Blair, V.C., Commanding 1st Bombay Lancers.

Regarding European officers, it is notified in Bombay Regulation that in case of a campaign the weight to be carried would be specified.

- (1) Native officers and men ... *9,900
 - (2) Baggage including horse gear and followers ... *31,055
 - (3) Six camels.
 - (4) Nil.
 - (5) 2 Camels.
 - (6) @ 10 lbs. per man ... †4,870
 - (7) 7,792 lbs for 487 horses: of this half is carried in bags on the horse, and half would have to be carried †3,896
- Camels and carts are procurable here.

Lieutenant-Colonel C. LaTouche, Commandant Poona Horse.

Heavy equipage	...	...	63 camels.
Baggage, including officers and followers	...	...	54 "
Ammunition ... 1st Reserve	...	...	1 mule.
Ditto ... 2nd do.	...	...	1 camel.
Cooking utensils	...	...	4 camels.
Armourer's stores	...	...	2 mules.
Arms of sick	...	...	1 camel.
Quartermaster's stores	...	...	2 camels.
Regimental office	...	...	1 camel.
Medical stores	...	...	3 mules.
Veterinary stores	...	...	1 mule.
Stable gear	...	...	24 camels.

* Carried regimentally.
† Extra carriage would be required.

Food for four days for four hundred and fifty-five officers, Native officers, non-commissioned officers, rank and file at three lbs. per man for each day=5,460 lbs.=17 camels. Grain for four hundred and seventy-four troop horses and officers' chargers at eight lbs. per day for two days=7,534 lbs.=24 camels. Grain for two hundred and thirty-five ponies at 4 lbs. each for two days=1,936 lbs.=6 camels.

Making a total of one hundred and ninety-seven camels and seven mules, which converted into local carriage at the rate of three camels or seven mules to a cart, would give seventy carts, or if carried entirely by ponies, at six ponies per cart, would give a total of four hundred and twenty ponies. All the above calculation, with the exception of those for food for horses and men, are taken from a Quarter-Master General's circular issued at the commencement of the late campaign from Simla, which are rather under the mark, as pointed out by me in my reply to his letter inviting criticism.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

- (1) 26 camels.
- (2) 60 camels, including stable gear.
- (3) 37 camels.
- (4) 4 ditto.
- (5) 2 ditto.
- (6) 18 ditto.
- (7) 30 ditto.

177 camels.

The Sind Horse could move without more than 60 camels, as they can carry two days' grain and two days' food for themselves on their own camels and baggage animals.

Colonel J. Doran, 27th Punjab Native Infantry.

- (1) Camp equipage as laid down for field service in plains, 125 maunds=25 camels.
- (2) Baggage equipage as laid down for field service in plains, 150 maunds=30 camels.
- (3) Ammunition, service scale, 150 maunds=30 camels.
- (4) Cooking utensils. Included in the baggage.
- (5) Entrenching tools, 2 camels.
- (6) Food for four days for men (not followers), 80 maunds=19 camels.
- (7) Grain (for horses—eight officers' chargers), 2 maunds=1 camel.

The transport is calculated for the kind used locally.
Sick transport not included.

Colonel H. S. Obbard, Commandant 41st Native Infantry.

All published in military regulations. A regiment of Native infantry of ordinary strength, that is, 600 sepoy, with complement of Native commissioned and non-commissioned officers, 7 British officers, and a medical officer, employed on service in the plains of India would require, under existing regulations—

	Maunds. Camels.	
(1) Camp equipage, as laid down for field service in the plains—		
British officers	60	12
Native ranks	125	25
(2) Baggage—		
British officers	40	8
Native ranks	160	32
(3) Ammunition, service scale—		
1st reserve	0	5
2nd reserve	0	17
(4) Cooking utensils	40	8
(5) Entrenching tools	10	2
(6) Food for four days for men not followers	80	16
(7) Arms and tools	0	1
(8) Medical pack	0	4
(9) Hospital medicine, &c.	0	1
Total	131	camels.

British officers are supposed by regulation to keep up tents and carriage for them, so as to be ready to take the field at an hour's notice, *vide* military regulations. But as a matter of fact they do not. Except under special circumstances, no carriage is kept up throughout the service, British or Indian; and in very many cases tents are not kept up either.

The question of tents seems to call for consideration. Those prescribed by regulation are almost too heavy and cumbersome for service. It would be an advantage if they were of such pattern that the several portions could be carried on mules or bullocks. The Cashmere tent would do very well for officers. The tent for British soldiers might be modified and lightened with great advantage. Sepoy tents are of bad pattern, and the tent accommodation is below requirement.

Baggage.—The service scale as regards British officers might be reduced to 4 maunds for field officers and 2 maunds for others.

Cooking utensils.—The weight of these on service might, I think, be restricted to 4 maunds per company, put up in maund bags.

Entrenching tools.—Those now issued are heavy and unsuitable for use by Natives. A good, well-formed phowrah, weighing not more than 3 seers, and a koodal pick, weighing about 2, would be

far lighter and altogether more effective. Work would be done much more rapidly with such tools, and there would be a saving of about 4 maunds in weight.

A piece of canvas (tat) looped for the handles, to be fastened over an ordinary pack-saddle, would, I think, be a better arrangement for carrying entrenching tools than the elegant little iron *katjawas* lately issued.

Lieutenant-Colonel H. Worsley,
Commanding 7th Native Infantry.

(1) *Camp Equipage.*

	Mds.	Srs.	Camels.
Officers' mess, &c.	134	11½	27
Native officers	20	0	4
Sepoy pals	101	2½	16
Guards' tents	7	6½	2
Hospital	12	25½	2
Followers	Nil		
Total	275	6½	51

(2)—*Baggage.*

	Mds.	Srs.	Camels.
Officers' mess, &c.	56	0	11
Native officers	36	0	8
N.-C. officers and men	179	0	36
Hospital			
Regimental officers and armourer			1
Total			56

(3)—*Ammunition.**1st Reserve.*

	Camels.	Mules.
80 rds. for 600 rifles	6	18

2nd Reserve.

100 rds. for 600 rifles	20	60
--------------------------------	----	----

Total 26 or 78

(4) *Cooking Utensils.*

	Camels.
At 1 per company	8
Total	8

Four would be enough, as the cooking utensils need not weigh two maunds.

(5) *Entrenching tools.*

Camels allowed 2
They can between them carry—

	lbs.
4 Felling axes	32
40 Pick axes	80
40 Shovels	80
40 Bill hooks	80

Total 322 lbs.

or Mds. 10, srs. 16

(6) *Food for four days for rank and file only—*

Mds. Srs.
71 8 or 14 camels.

(7) *Grain for two days for officers' chargers—*

1 md. 32 srs. or 1 mule.

Total weight to be carried about 650 maunds exclusive of ammunition, and food baggage, &c., of followers.

Total transport if camels only are used about 150 or 160 camels.

Appendix IV.]

(1132)

Lieutenant-Colonel R. J. Walker,
Commandant 17th N. I.

To answer this question properly, I have had to attach a table:—

Table drawn up in answer to question 17 of the Transport paper.

Name.	Scale.	Weight per unit.		Aggregate weight.		How estimated.	Carriage.
		Mds.	Srs.	Mds.	Srs.		
1. Camp equipage ...	40 paks per regiment	3	6½	126	20	By having the tents weighed. Carriage at the rate of one camel per tent.	20 camels. <i>Vide</i> scale for field service.
2. Baggage ...	Native officers' 30 srs.	0	30	12	0		
	Non-commissioned officers' 15 "	0	15	30	0	16 Native officers at 30 seers. 80 non-commissioned officers at 15 seers. 616 sepoy at 7½ seers. 2 Native doctors at 30 seers.	32 camels. <i>Vide</i> scale for field service.
	Sepoys' 7½ "	0	7½	115	20		
	Native doctors' 30 "	0	30	1	20		
3. Ammunition ...	140 rounds per man. Weight of one 1,500 rounds box.	2	13	151	5	698 men at 140 rounds = 97,440 rounds. 97,440 rounds at 1,500 rounds per box = 65 boxes nearly. 65 boxes at 2 boxes per camel = 33 camels.	33 camels. <i>Vide</i> scale for field service.
*4. Cooking utensils ...	1 camel per company	.....	.....	.....	.....	<i>Vide</i> remarks below.	8 camels. <i>Vide</i> questions.
5. Entrenching tools ...	2 camels per regiment	0	7½	9	10	50 picks and 50 shovels per regiment.	2 camels. <i>Vide</i> questions.
6. Food for four days for men	1 seer atta ... } per 2 chb. dal ... } man 1 chb. ghee ... } per ½ chb. salt ... } day.	0	1 3½	86	11	712 men at 1 seer 3½ chittacks a day, at one camel for 5 maunds.	18 camels. <i>Vide</i> weight laid down for 1 camel.
7. Grain for horses for two days	4 seers per horse per day.	0	4	1	24	8 chargers at 4 seers gram a day.	Nothing could be carried on the half-loaded camel for men's food.
	Total weight to be carried by regiment ...	.....	.....	533	30	Total Carriage ...	113 camels.

* Under 1½ camel per company, a high caste Hindoo regiment, like the 17th Native Infantry, could not manage, unless the men only ate *cherbana*—a diet which, if continued for any length of time, would unfit them for active service.

In addition to above weights, &c., must be added 4 arm chests for arms of sick, the weight of which, computing each chest to have its complement of 10 rifles, would be 7 maunds 4 seers, and the carriage require 2 camels.

Lieutenant-Colonel R. G. Rogers,
20th Punjab Native Infantry.

(1) Carriage for	...	...	220	maunds.
(2) "	...	...	438	"
(3) "	...	...	524	"
(4) "	...	...	40	"
(5) "	...	...	10	"
(6) "	...	...	86	"
(7) "	...	...	1½	"

not including transport, &c., for followers.

Lieutenant-Colonel R. G. Rogers,
20th Punjab Native Infantry.

The strength of a Native infantry regiment is as follows:—

British officers	...	...	8
Native officers	...	...	16
Non-commissioned officers	...	...	80
Buglers	...	...	16
Sepoys	...	...	600
		Maunds.	Camels.
1 Weight	...	126	25
2	...	190	38
3	...	154	30
4 Included in baggage.			
5 Weight not known ...	...	...	2
6	...	86	18
		3	1
Total number of camels	...	...	115

Lieutenant-Colonel G. C. Rowcroft, Commandant, 36th Native Infantry.

Four hundred and eighty maunds nine-and-a-half seers, viz.—

	Mds.	Seers.	
(1) <i>Camp equipage</i> ...	85	22½	29 camels.
(2) <i>Baggage</i> ...	213	...	42 "
(3) <i>Ammunition</i> ...	40	...	8 " or 20 mules.
(4) <i>Cooking utensils</i> ...	40	...	8 "
(5) <i>Entrenching tools</i> ...	10	...	2 "
(6) <i>Food for four days</i> ...	84	27	18 "
(7) <i>Grain</i> ,, two "	2	...	...

Total 111 camels or, if the reserve ammunition be carried on mules, then 108 camels and 20 mules.

Should only carts be available, 32 carts of 4 bullocks each, at 15 maunds per cart, or 48 carts of 2 bullocks each, at 10 maunds per cart, would be required.

By regulation ¼ camel per company is allowed for carriage of arms, &c., of sick men; and for hospital equipments, at service rate of 11 maunds, two more camels or one more cart would be necessary.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late Supt., Transport Train, 41st N. I.

With reference to this question, I have made out returns of the different cavalry and infantry regiments, a battery of artillery, and company of sappers, showing the amount of carriage that would be required.

On one side of the return is the present strength of the regiment and all sick transport with doolie-bearers, &c., &c., have been omitted.

I have made out the indents for camels and mules, as that transport carriage is in most use.

Indent on the transport department for the under-mentioned carriage for the use of a British cavalry regiment.

DATE

	Lbs.	Camels.	Mules.	REMARKS.
1. Camp equipage, as laid down for field service in the plains.	20,202	Including medical subordinates, office, guard, mess and hospital tents. Including quartermaster's stores, office allowance, signalling instruments, medical stores, stable gear, arms of sick at ¼ camel per company, veterinary stores, armourers' tools. Including officers' mess and cooking allowances and medical subordinates.
2. Baggage equipage, as laid down for field service in the plains.	28,940	9	4	
3. Ammunition service scale for all arms.	...	...	30
4. Cooking utensils at the rate of 2 camels per battery, 1 per company.	1,300	6	...	
5. Entrenching tools at the rate of 2 camels per regiment.	...	2	...	
6. Food for 4 days for men (not followers).	9,004	...	...
7. Grain for horses for 2 days (at 4 seers per dim).	7,408	...	...
TOTAL ...	66,854	17	34	Including officers' rations. Including officers' chargers. <i>Note.</i> —66,854 lbs. = 835½ maunds, at 4 maunds per camel. = 209 camels + 17 = 226 camels. Add 5 per cent. spare 11 237 camels. Total carriage required 237 camels, 34 mules.

Examined.

Lieut. and Quartermaster.

*Lieut.-Colonel,
Commanding*

Present strength of a British cavalry regiment.

DATE

	British officers.	Native officers.	Medical subordinates.	Rank and file.	Native doctors.	Officers' servants.	All other camp-followers.	Officers' chargers.	Troop horses.	REMARKS.
Present	...	24	...	5	450	...	158	400	63	400

Examined.

Lieut. and Quartermaster.

*Lieut.-Colonel,
Commanding*

Indent on the transport department for the under-mentioned carriage required for the use of a Native cavalry regiment.

	Lbs.	Camels.	Mules.	REMARKS.
1. Camp equipage, as laid down for field service in the plains.	10,032	...	...	Including Native doctors' office, guard, mess and hospital tents.
2. Baggage, as laid down for field service in the plains.	13,240	4	3	Including quartermasters' stores, office allowance; signalling instruments, medical stores, stable gear, arms of sick at $\frac{1}{2}$ camel per company, veterinary stores, armourer's tools.
3. Ammunition service scale for all arms.	...	...	25	
4. Cooking utensils at the rate of 2 camels per battery, 1 per company.	400	6	...	Including officers' mess and cooking allowance.
5. Entrenching tools at the rate of 2 camels per regiment.	...	2	...	
6. Food for 4 days for men (not followers).	913	...	...	Including officers' rations.
7. Grain for horses for 2 days (at 4 seers per diem).	2,936	...	...	Including officers' chargers.
TOTAL ...	27,621	12	28	<i>Note.</i> —27,621 lbs. = $315 \frac{3}{4}$ maunds, at 4 maunds per camel = 87 camels + 12 = 99 camels. Add 5 per cent. spare 5 104 camels, Total carriage required 104 camels, 28 mules.

Examined.

*Lieut. and Quartermaster.**Present strength of a Native cavalry regiment.**Lieut.-Colonel,*
Commanding

DATE

	British officers.	Native officers.	Medical subordinates.	Rank and file.	Native doctors.	Officers' servants.	All other camp-followers.	Officers' chargers.	Troop horses.	REMARKS.
Present ...	8	11	...	350	2	51	270	17	350	

Examined.

Lieut. and Quartermaster.

Indent on the transport department for the under-mentioned carriage required for the use of a British infantry regiment.

DATE

	Lbs.	Camels.	Mules.	REMARKS.
1. Camp equipage, as laid down for field service in the plains.	21,096	...	...	Including medical subordinates', office, guard, mess and hospital tents.
2. Baggage, as laid down for field service in the plains.	22,630	11	1	Including quartermaster's stores, office allowance, signalling instruments, medical stores, stable gear, arms of sick at $\frac{1}{2}$ camel per company, armourers' tools.
3. Ammunition service scale for all arms.	...	...	65	
4. Cooking utensils at the rate of 2 camels per battery, 1 per company.	1,100	8	...	Including officers' mess and cooking allowance and medical subordinates.
5. Entrenching tools at the rate of 2 camels per regiment.	...	2	...	
6. Food for 4 days for men, not including followers.	11,780	...	...	Including officers' rations.
7. Grain for horses for 2 days (at 4 seers per diem).	96	..	...	Including officers' chargers.
TOTAL ...	56,702	21	66	<i>Note.</i> —56,702 lbs. = $708 \frac{2}{3}$ maunds at 4 maunds per camel = 177 camels + 21 = 198. Add 5 per cent. spare = 208 camels. Total carriage required 208 camels, 66 mules.

Examined.

*Lieut. and Quartermaster.**Lieut.-Colonel,*
Commanding

Present strength of a British infantry regiment.

	British officers.	Native officers.	Medical subordinates.	Rank and file.	Native doctors.	Officers' servants.	All other camp-followers.	Officers' chargers.	Troop horses.	REMARKS.
Present	...	20	...	5	600	...	38	98	6	...

Examined.

*Lieut. and Quartermaster.**Lieut.-Colonel,
Commanding**Indent on the transport department for the under-mentioned carriage required for the use of a Native infantry regiment.*

	Lbs.	Camels.	Mules.	REMARKS.
1. Camp equipage, as laid down for field service in the plains.	10,816	...	...	Including Native doctors', office, guard, mess and hospital tents.
2. Baggage equipage, as laid down for field service in the plains.	15,190	5	2	Including quartermaster's stores, office allowance, signalling instruments, medical stores, stable gear, arms of sick at $\frac{1}{2}$ camel per company, armourers' tools.
3. Ammunition service scale for all arms.	...	...	70	
4. Cooking utensils at the rate of 2 camels per battery, 1 per company.	400.	8	...	Including officers' mess and cooking allowance.
5. Entrenching tools at the rate of 2 camels per regiment.	...	2	...	
6. Food for 4 days for men (not followers).	6,084	...	...	Including officers' rations.
7. Grain for horses for 2 days (at 4 seers per diem).	64	...	...	Including officers' chargers.
TOTAL	...	32,504	15	72
				<p>Note.—32,504 lbs. = 406 $\frac{3}{4}$ maunds, at 4 maunds per camel = 102 camels + 15 = 117 camels. Add 5 per cent. spare 6</p> <p>123 camels. Total carriage required 123 camels, 72 mules.</p>

Examined.

*Lieut. and Quartermaster.**Lieut.-Colonel,
Commanding**Present strength of a Native infantry regiment.*

DATE

	British officers.	Native officers.	Medical subordinates.	Rank and file.	Native doctors.	Officers' servants.	All other camp-followers.	Officers' chargers.	Troop horses.	REMARKS.
Present	...	8	14	...	600	2	33	48	8	...

Examined.

*Lieut. and Quartermaster.**Lieut.-Colonel,
Commanding*

Indent on the transport department for the under-mentioned carriage required for the use of a battery of artillery.

	Lbs.	Camels.	Mules.	REMARKS.
1. Camp equipage, as laid down for field service in the plains.	9,198	...	...	Including medical subordinates', office, guard, mess and hospital tents.
2. Baggage equipage, as laid down for field service in the plains.	10,890	8	1	Including quartermaster's stores, office allowance, medical stores, stable gear, veterinary stores.
3. Ammunition service scale for all arms.	...	...	...
4. Cooking utensils at the rate of 2 camels per battery, 1 per company.	390	2	...	Including officers' mess and cooking allowance and medical subordinates.
5. Entrenching tools at the rate of 2 camels per company.	...	...	...
6. Food for 4 days for men (not followers).	755	...	...	Including officers' rations.
7. Grain for horses for 2 days (at 4 seers per diem).	1,680	...	...	Including officers' chargers.
TOTAL ...	22,113	5	1	<i>Note.</i> —22,113 lbs. = 276 $\frac{1}{8}$ maunds at 4 maunds per camel = 69 camels + 5 = 74 camels. Add 5 per cent. 4 <hr/> 78 camels. Total carriage required 78 camels, 1 mule.

Examined.

Major,

Present strength of a battery of artillery.

Commanding

DATE

	British officers.	Native officers.	Medical subordinates.	Rank and file.	Native doctors.	Officers' servants.	All other camp-followers.	Officers' chargers.	Troop horses.	REMARKS.	
Present	...	7	...	2	150	...	30	367	10	200	

Examined.

Major,

Commanding

Indent on the transport department for the under-mentioned carriage required for the use of a company of Sappers.

	Lbs.	Camels.	Mules.	REMARKS.
1. Camp equipage, as laid down for field service in the plains.	3,276	...	...	Including Native doctors', office, guard, mess, and hospital tents.
2. Baggage, as laid down for field service in the plains.	3,940	...	2	Including office allowance, medical stores, stable gear, quartermaster's stores.
3. Ammunition service scale for all arms.	...	...	9	
4. Cooking utensils at the rate of 2 camels per battery, 1 per company.	150	1	...	Including mess and cooking allowance.
5. Entrenching tools at the rate of 2 camels per regiment.	...	2	...	
6. Food for 4 days for men (not followers).	1,256	...	...	Including officers' rations.
7. Grain for horses for 2 days (at 4 seers per diem).	32	...	...	Including officers' chargers.
TOTAL ...	7,654	3	11	<i>Note.</i> —7,654 lbs. = 95 $\frac{1}{8}$ maunds at 4 maunds per camel = 24 camels + 3 = 27 camels. Add 5 per cent. spare = 1 <hr/> 28 camels. Total carriage required 28 camels, 11 mules.

Examined.

Captain,

Commanding

Present Strength of a Company of Bappers.

	British officers.	Native officers.	Medical subordinates.	Rank and file.	Native doctors.	Officers' servants.	All other camp-followers.	Officers' chargers.	Troop horses.	REMARKS.
Present	3	2	...	120	1	13	47	4		

*Captain,
Commanding*

Major A. C. W. Crookshank,
Commanding 32nd Pioneers.

I do not reply to this question, as I am a member of a committee which is thoroughly working all the details out, and which in its report will fully answer this question.

Colonel R. Blair, Commanding
3rd Punjab Native Infantry.

The weight to be carried by a Native regiment would be 626 maunds. The amount of transport necessary would be 41 elephants or 62 bullock-carts.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

NATIVE INFANTRY, PUNJAB FRONTIER FORCE.
Total strength 750.

	Maunds.	Camels.
1.—Camp equipage	112	23
2 and 4.—Baggage and cooking utensils	168	42
3.—Ammunition, 140 rounds per man	172	43
5.—Entrenching tools	8	2
6.—Food for four days	92	23
7.—Grain two days for 40 regimental mules and 55 camels	9½	3
Total	561½	141
Regiment keep up	...	55
„ 40 mules which equal	...	20
Total camels	...	75

Therefore it would take sixty-six extra camels beyond the carriage kept up to move the regiment.

Colonel W. A. Gib, Commandant
25th Madras Native Infantry.

The weight would be about 63,025 lbs. to be carried in 79½ bullock carts, and 8 coolies for medicine chests, as per enclosed statement. This is for a Native infantry battalion up to full strength.

Baggage, according to existing regulations, to be carried on service in the plains of India.	Weight in lbs.	No. of carts required.	No. of coolies required.
Camp equipage, as laid down for service in the plains	11,970	15	...
Baggage, including medicine chests, hospital equipment, &c.	25,645	32½	6
Ammunition, service scale for all ranks, 200 rounds per man, 50 of which are carried by men in pouches	14,280	18	...
Cooking utensils, at the rate of 1 camel (or ¼ cart) per company	3,200	4	...
Entrenching tools, at the rate of 2 camels (or 1 cart) per regiment	800	1	...
Food for 4 days per man, at the rate of 2½ lbs.	7,130	9	...
Total	63,025	79½	6

The transport should be of the kind used locally, which in the district of North Arcot is carts with bullocks and coolies.

Colonel W. Bannerman, 4th Bombay Rifles.

	lbs.
British cavalry	151,200
Native cavalry carry their own.	...
British infantry	192,400
Native infantry	79,200
Company sappers	11,600
Field battery	36,400

	British Cavalry.	Native Cavalry.	British Infantry.	Native Infantry.	Field Battery.	Company sappers.
(1) Camp equipage ...	75	Carry their own.	100	22	28	6
(2) Baggage ...	67		97	55	23	8
(3) Ammunition ...	7		24	19	...	2
(4) Cooking utensils ...	3		4	...	1	...
(5) Entrenching tools ...	...		1	1	...	...
(6) Food for four days ...	...	} Commissariat will answer this.				
(7) Gram for horses ...	...	}			

Elephants carry ...	...	...	...	1,200 lbs.
Camels ...	...	...	...	400 "
Mules ...	...	...	...	200 "
Country carts ...	...	...	...	800 "

Colonel H. H. James, Commanding 10th Bombay Native Infantry.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Camels.	...	42	106	81	...	2	19
Included in men's baggage.
Officers' horses included in officers' baggage.
							200

It would be better to have some of this carriage mule instead of camel, if possible.

Mules or ponies for spare ammunition, entrenching tools, and men's baggage, sufficient for light order, say roughly half, or 200 mules in place of 100 camels.

Col. J. I. Willes, Comy.-Genl., Bengal.

Purposes for which carriage is required.	Battery of artillery.	Regiment of British cavalry.	Regiment of British infantry.	Regiment of Native infantry.	Company of sappers.	Regiment of Native cavalry.
Camp equipage of officers ...	20	63	75	26	4	26
Camp equipage of men ...	38	86	147	25	10	1½
Camp equipage for commissariat victualling establishment ...	1½	2	2	...	...	...
Baggage of officers ...	10	35	41	8	2	9
Baggage of men ...	23	61	115	30½	12	1
Ammunition ...	2	11	32	27	3	11
Cooking utensils ...	...	6	6	...	...	...
Entrenching tools ...	...	...	2	2	...	...
Food for four days ...	4½	12	22	18	3	11
Gram for horses for two days	10	25½	22½	7	½	24
Spare at 5 per cent.	6	15	22	7	2	4
Total ...	114 = 570 mds.	316½ = 1,582½ mds.	466½ = 2,332½ mds.	144 = 720 mds.	26½ = 182½ mds.	87½ = 436 mds.
Gram for bullocks for two days	2	...	...	...	...	...
Engineering equipment ...	...	...	...	...	20	...
Arms of sick ...	...	9	12	4	...	...
Armourer's tools ...	...	½	½	...	...	...
Field forge ...	...	2	...	...	...	...
Veterinary stores ...	1	2	...	...	...	...
Paulins or troop stores ...	4	36	...	...	...	...
Third horse blankets ...	3	...	...	...	...	...
Scales and weights ...	1	2	...	...	...	...
Bullock gear ...	3	...	...	...	...	...
Miscellaneous commissariat supplies (daily rations,ovens).	4	9	10	...	...	...
Spare at 5 per cent.	1	3	1	...	1	...
Total ...	19 = 95 mds.	63½ = 317½ mds.	23½ = 117½ mds.	4 = 20 mds.	21½ = 107½ mds.	...
GRAND TOTAL ...	133 = 665 mds.	380 = 1,900 mds.	490 = 2,450 mds.	148 = 740 mds.	58 = 290 mds.	87½ = 436 mds.

Detail of purposes for which carriage is required,	Battery of artillery.	Regiment of British cavalry.	Regiment of British infantry.	Regiment of Native infantry.	Company of sappers.	Regiment of Native cavalry.
Camp equipage ...	<p>FOR OFFICERS.</p> <p><i>Camels.</i></p> <p>1 commandant for 1 single-poled tent and 1 pāl ... 4</p> <p>1 captain, 3 lieutenants, 1 surgeon, and 1 veterinary surgeon = 6 officers, 1 hill and necessary tent each 12</p> <p>Mess for 1 single-poled tent and 1 pāl ... 4</p> <p>Total ... 20</p> <p>FOR MEN.</p> <p>5 staff sergeants, 4 staff sergeants' tents at 1½ camels each ... 5</p> <p>1 assistant apothecary, 1 staff sergeant's tent ... 1½</p> <p>153 men at 16 per tent, 10 E. P. tents at 2 camels each ... 20</p> <p>Hospital for 2 E. P. tents 4</p> <p>Hospital stores for 1 E. P. tent ... 2</p> <p>Quarter guard for 1 E. P. tent ... 2</p> <p>Artificers' shop, stores and lascars, 4 pāls at ½ camel each ... 3</p> <p>1 necessary pāl ... 1</p> <p>Total ... 38</p>	<p>FOR OFFICERS.</p> <p><i>Camels.</i></p> <p>1 lieutenant-colonel for 1 single-poled tent and 1 pāl ... 4</p> <p>1 major, 1 paymaster and 1 surgeon-major = 3 officers, 1 hill with necessary tent and 1 pāl each ... 6</p> <p>6 captains, 12 lieutenants, 1 adjutant, 1 quartermaster, 2 surgeons and 1 veterinary surgeon = 23 officers, 1 hill with necessary tent each ... 46</p> <p>Mess for 1 double-poled tent and 1 pāl ... 7</p> <p>Total ... 63</p> <p>FOR MEN.</p> <p>4 staff sergeants, class A, 4 staff sergeants' tents ... 5</p> <p>5 staff sergeants, class B, 3 staff sergeants' tents ... 3½</p> <p>445 men, 28 E. P. tents ... 56</p> <p>2 apothecaries, 2 staff sergeants' tents ... 2½</p> <p>2 hospital apprentices, 1 staff sergeant's tent ... 1½</p> <p>Hospital, 5 E. P. tents and 2 necessary pāls ... 11½</p> <p>Hospital stores, 1 E. P. tent 2</p> <p>Quarter and rear guards, 2 E. P. tents ... 4</p> <p>Total ... 86</p>	<p>FOR OFFICERS.</p> <p><i>Camels.</i></p> <p>1 lieutenant-colonel for 1 single-poled tent and 1 pāl 4</p> <p>2 majors, 1 paymaster, and 1 surgeon-major = 4 officers, 1 hill with necessary tent and 1 pāl each 8</p> <p>8 captains, 16 lieutenants, 1 adjutant, 1 quartermaster, and 2 surgeons = 28 officers, 1 hill with necessary tent each = 28 tents 56</p> <p>Mess for 1 double-poled tent and 1 pāl ... 7</p> <p>Total ... 75</p> <p>FOR MEN.</p> <p>4 staff sergeants, class A, 4 staff sergeants' tents ... 5</p> <p>4 staff sergeants, class B, 2 staff sergeants' tents ... 2½</p> <p>877 men, 55 E. P. tents ... 110</p> <p>2 apothecaries, 2 staff sergeants' tents ... 2½</p> <p>2 hospital apprentices, 1 staff sergeant's tent ... 1½</p> <p>Hospital, 9 E. P. tents and 2 necessary pāls ... 19½</p> <p>Hospital stores, 1 E. P. tent 2</p> <p>Quarter and rear guards, 2 E. P. tents ... 4</p> <p>Total ... 146½</p>	<p>FOR OFFICERS.</p> <p><i>Camels.</i></p> <p>1 commandant ... 4</p> <p>6 other officers and 1 medical officer ... 14</p> <p>Mess—16 maunds for baggage and for 1 single-poled tent and 1 pāl ... 8</p> <p>Total ... 26</p> <p>FOR MEN.</p> <p>10 pāls ... 6½</p> <p>1 staff sergeant's tent ... 1½</p> <p>1 E. P. tent... 2</p> <p>Total ... 9½</p> <p>FOR A REGIMENT.</p> <p>40 pāls at 1½ camels per 2 pāls ... 25</p>	<p>FOR OFFICERS.</p> <p><i>Camels.</i></p> <p>2 hill with necessary tents 4</p> <p>Total ... 9½</p> <p>FOR HOSPITAL.</p> <p>2 pāls ... 1½</p>	<p>FOR OFFICERS.</p> <p><i>Camels.</i></p> <p>1 commandant ... 4</p> <p>6 other officers and 1 medical officer ... 14</p> <p>Mess—16 maunds for baggage and 1 single-poled tent and 1 pāl ... 8</p> <p>Total ... 26</p> <p>FOR HOSPITAL.</p> <p>2 pāls ... 1½</p>
		<p>Appendix No. 2, page 82, Transport Regulations, Part II. G. O. No. 347 of 1874. G. O. No. 111 of 1877. Quarter-Master-General's No. 3404A, dated Simla, 12th August 1878, to Commissary-General.</p>				<p>Appendix No. 2, page 82, Transport Regulations, Part II. G. O. No. 280 of 1875. G. O. No. 452 of 1878.</p>

Detail of purposes for which carriage is required.	Battery of artillery.	Regiment of British cavalry.	Regiment of British infantry.	Regiment of Native infantry.	Company of sappers.	Regiment of Native cavalry.	
Baggage ...	<p style="text-align: center;">FOR OFFICERS.</p> <p style="text-align: right;"><i>Camels.</i></p> 1 major mds. 6 ... 2 1 captain " 5 ... 1 3 lieutenants " 12 ... 3 1 surgeon " 5 ... 1 1 veterinary surgeon " 4 ... 1 Mess " 10 ... 2 <p style="text-align: right;">Total ... 10</p> <p style="text-align: center;">FOR MEN.</p> 5 staff sergeants ... 2½ 1 assistant apothecary ... ½ 153 men, at 8 men per camel ... 20 <p style="text-align: right;">Total ... 23</p>	<p style="text-align: center;">FOR OFFICERS.</p> <p style="text-align: right;"><i>Camels.</i></p> 1 lieutenant-colonel, mds. 6 ... 2 1 major " 6 ... 2 6 captains " 30 ... 6 12 lieutenants " 48 ... 10 1 paymaster " 6 ... 2 1 adjutant " 4 ... 1 1 surgeon-major " 6 ... 2 2 surgeons " 10 ... 2 1 quartermaster " 4 ... 1 1 veterinary surgeon " 4 ... 1 Mess " 32 ... 6 <p style="text-align: right;">Total ... 35</p> <p style="text-align: center;">FOR MEN.</p> 4 staff sergeants, class A ... 2 5 staff sergeants, class B, and 44 men, at 8 men per camel ... 57 5 hospital subordinates ... 2 <p style="text-align: right;">Total ... 61</p> <p style="text-align: center;">G. O. No. 347 of 1874. G. O. No. 452 of 1878.</p>	<p style="text-align: center;">FOR OFFICERS.</p> <p style="text-align: right;"><i>Camels.</i></p> 1 lieutenant-colonel, mds. 6 ... 2 2 majors " 12 ... 4 8 captains " 40 ... 8 16 lieutenants " 64 ... 13 1 paymaster " 6 ... 2 1 adjutant " 4 ... 1 1 quartermaster " 4 ... 1 1 surgeon-major " 6 ... 2 2 surgeons " 10 ... 2 Mess " 32 ... 6 <p style="text-align: right;">Total ... 41</p> <p style="text-align: center;">FOR MEN.</p> 8 staff sergeants ... 3 877 men ... 110 4 hospital subordinates ... 2 <p style="text-align: right;">Total ... 116</p>	<p style="text-align: center;">FOR OFFICERS.</p> <p style="text-align: right;"><i>Camels.</i></p> 8 officers at 5 maunds each = 40 maunds ... 8 <p style="text-align: center;">FOR MEN.</p> 16 native commissioned officers and 2 hospital assistants at 30 seers each = 13½ maunds ... 3 40 havildars at 15 seers each = 15 maunds ... 3 656 men at 7½ seers each = 123 maunds ... 24½ <p style="text-align: right;">Total ... 80½</p>	<p style="text-align: center;">FOR OFFICERS.</p> <p style="text-align: right;"><i>Camels.</i></p> 2 officers ... 2 <p style="text-align: center;">FOR MEN.</p> For mess 6 maunds ... 2 For 1 staff sergeant and 5 British non-commissioned officers ... 2 For 2 Native officers and 1 hospital assistant ... 1½ For 114 rank and file at 10 seers each = 28½ maunds 6 <p style="text-align: right;">Total ... 11½</p> <p style="text-align: center;">G. O. No. 452 of 1878.</p>	<p style="text-align: center;">FOR OFFICERS.</p> <p style="text-align: right;"><i>Camels.</i></p> 1 commandant 480 lbs. = 6 maunds ... 2 7 other officers at 5 maunds each = 35 maunds ... 7 <p style="text-align: right;">Total ... 9</p> <p style="text-align: center;">FOR MEN.</p> 2 hospital assistants, 4 maunds ... 1	
	Ammunition ...	.....	For 9 staff sergeants and 445 men = 454 men at 80 rounds each = 36,320 rounds (Martini-Henri), at 3,600 rounds per camel 10½	For 876 men at 130 rounds each = 113,880 rounds, at 3,600 rounds (Martini Henri) per camel ... 32	For 696 men at 130 rounds each = 90,480 rounds, at 3,360 rounds (Snider) per camel ... 27	For 114 men at 80 rounds each = 9,120 rounds at 3,360 rounds (Snider) per camel ... 3	For 13 Native officers and 444 men = 457 men at 80 rounds each = 36,560 rounds (Snider), at 3,360 rounds per camel ... 11
	Cooking utensils... Entrenching tools	As per scales in G. O. No. 347 of 1874.	Revised paragraphs	1144-45, Bengal Army Regulations, published with G. O. No. 203 of 1878.	As per scales in G. O. No. 128 of 1876.		
	Food for four days	<p style="text-align: right;"><i>Camels.</i></p> For 159 men at 2½ lbs. × 4 days = 1,590 lbs. = 20 maunds ... 4 Rum at 1 dram each × 4 days = 636 drams, at 1,280 drams per camel ... ½ <p style="text-align: right;">Total ... 4½</p> <p style="text-align: center;">Paragraph 593, Bengal Army Regulations.</p>	<p style="text-align: right;"><i>Camels.</i></p> For 454 men and 5 medical subordinates = 459 men at 2½ lbs. each × 4 days = 4,590 lbs. = 57½ maunds ... 11½	<p style="text-align: right;"><i>Camels.</i></p> For 884 men and 4 medical subordinates = 888 men at 2½ lbs. each × 4 days = 8,880 lbs. = 111 maunds... 22	<p style="text-align: right;"><i>Camels.</i></p> For 714 men at 1 seer 3½ chitks. each × 4 days = 86 maunds and 11 seers 17½	<p style="text-align: right;"><i>Camels.</i></p> For 6 European non-commissioned officers at 2½ lbs. each × 4 days = 60 lbs. = 30 seers: rum at 1 dram each × 4 days = 24 drams = 2½ seers. 30 seers + 2½ seers = 32½ seers ... ½	<p style="text-align: right;"><i>Camels.</i></p> For 459 Native officers and men at 1 seer 3½ chitks. each × 4 days = 65½ maunds ... 11

	Camels.	Camels.	Camels.	Camels.	Camels.	Camels.
Gram for horses for 2 days.	For 200 horses at 5 seers each \times 2 days = 2,000 seers = 50 maunds ... 10	For 506 horses at 5 seers each \times 2 days = 5,060 seers = 126½ maunds ... 25½	For 8 officers' horses at 5 seers each \times 2 days = 80 seers = 2 maunds ... ½	For 10 officers' horses at 5 seers each \times 2 days = 100 seers = 2½ maunds ... ½	For 4 officers' horses at 5 seers each \times 2 days = 40 seers = 1 maund ... ½	For 37 officers' horses and 444 for men = 481 horses at 5 seers each \times 2 days = 4,810 seers = 120½ maunds 24
	G. O. No. 347 of 28th December 1874.					
Gram for bullocks for 2 days.	For 59 bullocks at 3 seers each \times 2 days = 354 seers = 9 maunds ... 2					
	G. O. No. 347 of 1874.					
Arms of sick ...	.....	As per scale in G. O. No. 347 of 1874.		As per scale in G. O. No. 280 of 1875.		
Armourer's tools...	.....	As per scale in G. O. No. 424 of 1878.				
Field forge ...	.....	G. O. No. 424 of 1878.				
Veterinary stores...	.....	As per scale in G. O. No. 347 of 1874.				
Faulins or troop stores.	G. O. No. 347 of 1874.	G. O. No. 117 of 1878.				
Third horse blankets.	G. O. No. 342 of 1878.					
Scales and weights	As per scales in G. O. No. 347 of 1874.					
Bullock gear ...	G. O. No. 347 of 1874.					

Colonel R. A. Moore, Acting
Commissary-General, Madras.

Vide following statement:—

Statement showing the weight of camp equipage, baggage ammunition, &c., to be carried by the several arms of the service at the present established strength for service in the plains of India and the amount of transport necessary under the undermentioned headings according to existing regulations.

CORPS, &c.	1 CAMP EQUIPAGE AND TRANSPORT.										2 BAGGAGE AND TRANSPORT.				3 AMMUNITION AND TRANSPORT.				4 COOKING UTENSILS AND TRANSPORT.				5 INTRENCHING TOOLS AND TRANSPORT.				6 FOOD FOR 4 DAYS AND TRANSPORT.				7 GRAM FOR HORSES FOR 2 DAYS AND TRANSPORT.									
	TAMRS.			WEIGHT.			Elephants or Camels.	Mules or pack-bullocks.	Carts. (e)	Elephants or Camels.	Mules or pack-bullocks.	Carts. (e)	Elephants or Camels.	Mules or pack-bullocks.	Carts. (e)	Elephants or Camels.	Mules or pack-bullocks.	Carts. (e)	Elephants or Camels.	Mules or pack-bullocks.	Carts. (e)	Elephants or Camels.	Mules or pack-bullocks.	Carts. (e)	Elephants or Camels.	Mules or pack-bullocks.	Carts. (e)													
	Staff sergeants.	European.	Native.	owt.	qrs.	lbs.																						owt.	qrs.	lbs.	owt.	qrs.	lbs.	owt.	qrs.	lbs.	owt.	qrs.	lbs.	owt.
1 regiment of British cavalry ...	14	86	2	300	...	4	80	99	4	46	333	3	20	168	40	40	24	6	17	3	8	6	3	7	...	16	2	1	47	2	8	30	7	77	3	12	48	11
1 regiment of Native cavalry	1	34	74	3	22	...	27	...	13	145	2	24	82	21	35	23	5	7	...	16	3	1	88	3	20	36	9
1 regiment of British Infantry ...	13	67	2	463	2	1	83	165	4	77	183	2	8	209	64	133	83	10	23	1	20	8	4	7	...	16	2	1	04	...	8	68	14
1 regiment of Native infantry ...	...	...	44	88	1	10	...	...	...	85	15	200	1	12	112	28	119	...	...	69	16	...	...	...	...	7	...	16	2	1	...	...	...	...	...	...	...	...	...
1 battery of royal horse artillery ...	5	14	5	123	...	8	19	38	10	19	87	2	20	68	13	...	...	...	...	5	3	12	2	1	3	14	8	1	1	16	2	12	10	8	31	3	4	20	8	
1 field battery of royal artillery ...	5	14	5	123	...	8	19	38	10	19	84	2	8	56	12	...	...	...	...	5	3	12	2	1	3	14	8	1	1	16	2	12	10	8	19	2	16	13	3	
1 garrison battery of royal artillery	3	8	2	60	1	3	11	23	4	11	59	3	8	38	9	...	...	...	...	5	3	12	2	1	3	14	8	1	1	9	...	24	6	2	...	...	...	...	...
1 heavy battery of royal artillery ...	4	8	14	08	...	10	12	23	27	16	69	4	20	38	9	5	3	12	2	1	3	14	8	1	1	9	...	24	6	2	3	18	1	1
1 mountain battery of royal artillery	4	8	7	84	...	3	12	23	14	13	59	4	20	38	9	5	3	12	2	1	3	14	8	1	1	9	...	24	6	2	3	24	1	1
1 company of sappers and miners	1	...	9	22	3	4	...	2	19	4	39	...	12	22	6	12	...	...	8	2	...	...	...	...	...	3	14	8	1	1	...	...	...	...	...	...	...	...	...

(e) Local carriage at Madras being country carts, this mode of conveyance is entered in the statement as equivalent to the total number of elephants, &c., in each case when such cattle cannot be procured.

- N. B.—1. Camp equipage and transport have been calculated according to Equipment Tables and Madras Army Regulations.
 2. Baggage and transport (both for officers and men) have been calculated according to Madras Standing Orders of 1870, No. 18, page 19, and Madras Army Regulations, Appendix VII, revised by M. S. G. O., dated 5th August 1870, No. 96.
 3. Intrenching tools and transport have been calculated at two camels per regiment of cavalry and infantry, European and Native, and in proportion for the other arms of the service.
 4. The above have been calculated for the established strength of corps as entered on next page.

Memorandum showing the established strength of corps, &c., as taken from Quarterly Army List of 1879.

CORPS, &c.	European commissioned officers.	Native commissioned officers.	Medical subordinates.	Staff sergeants.	European non-commissioned rank and file.	Native non-commissioned rank and file.	Stores lascars (artillery).	Punjabis.	Bhicties.	Native establishment, heavy and mountain battery.	Horses.	REMARKS.
Regiment of British cavalry ...	26*	...	4	11	444	12	436	Baggage and transport for public followers have not been calculated.
Regiment of Native cavalry ...	10*	12	2	...	...	377	...	6	...	...	330
Regiment of British infantry ...	31	...	3	8	878	...	...	16	...	...	...
Regiment of Native infantry ...	8	16	2	...	...	697	...	8	...	...	...
Battery of royal horse artillery...	6	...	1	2	155	...	13	5	1	...	178	
Battery of field artillery ...	5	...	1	2	155	...	13	3	1	...	110	
Battery of garrison artillery ...	5	...	1	1	86	...	7	2	...	...	...
Battery of heavy artillery ...	5	...	1	2	86	...	7	2	8	171	5	
Battery of mountain artillery ...	5	...	1	2	86	...	7	2	...	23	Ponies. 4	
Company of sappers and miners	2	2	1	...	6	119	...	1	...	...	...

* Includes one riding-master.

Lieutenant-Colonel M. W. Willoughby, Acting Commissary-General, Bombay.

The required information is given in the accompanying six tabular statements, which shew the weight to be carried under each head (1) to (7) and the total weight to be conveyed for each regiment. The baggage (and grain for horses for Native cavalry regiments) is not shewn in the statement, as under the silladar system carriage for these purposes should be provided by the regiment itself.

REGIMENT, BRITISH CAVALRY.

STRENGTH—

Medical subordinates ...	...	4
Staff sergeants ...	...	9
Non-commissioned officers, rank and file ...	...	444

CAMP EQUIPAGE—

Tents—		
Staff sergeants ...	...	10
European privates ...	...	36
Pals ...	...	2
Carriage—		
Maunds ...	...	425½
Camels ...	...	85

BAGGAGE—

Maunds ...	...	300
Camels ...	...	60

AMMUNITION—

Maunds ...	...	147½
Camels ...	...	30

COOKING UTENSILS—

Maunds ...	...	30
Camels ...	...	6

RATIONS FOR FOUR DAYS, INCLUDING RUM—

Maunds ...	...	30½
Camels ...	...	16

GRAIN FOR TWO DAYS—

Maunds ...	...	114½
Camels ...	...	23

TOTAL WEIGHT AND CARRIAGE—

Maunds ...	...	1,096½
Camels ...	...	220
Or mules ...	...	440
Or elephants ...	...	74
Or carts ...	...	110

Wood ration estimated for one day only.

NATIVE CAVALRY REGIMENT.

STRENGTH—		AMMUNITION—	
Native commissioned officers ...	19	Maunds ...	154
Medical subordinates ...	2	Camels ...	31
Non-commissioned officers, rank and file ...	474		
CAMP EQUIPAGE—		RATION FOR FOUR DAYS—	
Tents—		Maunds ...	59 $\frac{1}{2}$
Pals ...	2	Camels ...	12
Weight and carriage—		TOTAL WEIGHT AND CARRIAGE—	
Maunds ...	5 $\frac{1}{2}$	Maunds ...	219 $\frac{1}{2}$
Camel ...	1	Camels ...	44

REGIMENT BRITISH INFANTRY.

STRENGTH—		AMMUNITION—	
Medical subordinates ...	4	Maunds ...	718 $\frac{1}{2}$
Staff sergeants ...	8	Camels ...	144
Non-commissioned officers, rank and file ...	876		
CAMP EQUIPAGE—		COOKING UTENSILS—	
Tents—		Maunds ...	40
Staff sergeants ...	9	Camels ...	8
European privates ...	67		
Pals ...	2	ENTRENCHING TOOLS—	
		Maunds ...	10
		Camels ...	2
CARRIAGE—		RATIONS FOR FOUR DAYS, INCLUDING RUM—	
Maunds ...	726 $\frac{1}{2}$	Maunds ...	156 $\frac{1}{2}$
Camels ...	145	Camels ...	31
BAGGAGE—		TOTAL WEIGHT AND CARRIAGE—	
Maunds ...	567 $\frac{1}{2}$	Maunds ...	2,218 $\frac{1}{2}$
Camels ...	115	Camels ...	445
		Or mules ...	890
		Or elephants ...	149
		Or carts ...	223

Wood ration estimated for one day only.

NATIVE INFANTRY REGIMENT.

STRENGTH—		AMMUNITION—	
Native commissioned officers ...	16	Maunds ...	565 $\frac{1}{2}$
Medical subordinates ...	4	Camels ...	113
Non-commissioned officers, rank and file ...	696		
CAMP EQUIPAGE—		ENTRENCHING TOOLS—	
Tents—		Maunds ...	10
Pals ...	44	Camels ...	2
Weight and carriage—		RATIONS FOR FOUR DAYS—	
Maunds ...	123 $\frac{1}{2}$	Maunds ...	86 $\frac{1}{2}$
Camels ...	25	Camels ...	17
BAGGAGE—		TOTAL WEIGHT AND CARRIAGE—	
Maunds ...	388	Maunds ...	1,173 $\frac{1}{2}$
Camels ...	78	Camels ...	235
		Or mules ...	470
		Or elephants ...	79
		Or carts ...	118

BATTERY OF FIELD ARTILLERY.

STRENGTH—		COOKING UTENSILS—	
Medical subordinate ...	1	Maunds ...	10
Staff sergeants ...	4	Camels ...	2
Non-commissioned officers, rank and file ...	154		
CAMP EQUIPAGE—		RATION FOR FOUR DAYS, INCLUDING RUM—	
Tents—		Maunds ...	30 $\frac{1}{2}$
Staff sergeants ...	5	Camels ...	8
European privates ...	14		
Pals ...	5	GRAIN FOR TWO DAYS—	
		Maunds ...	33
		Camels ...	7
CARRIAGE—		TOTAL WEIGHT AND CARRIAGE—	
Maunds ...	183 $\frac{1}{2}$	Maunds ...	365 $\frac{1}{2}$
Camels ...	37	Camels ...	74
		Or mules ...	148
		Or elephants ...	25
		Or carts ...	37

Wood ration estimated for one day only.

A COMPANY OF SAPPERS.

STRENGTH—			AMMUNITION—		
Native commissioned officers	...	2	Maunds	...	30 $\frac{1}{2}$
Non-commissioned officers, rank and file	...	94	Camels	...	6
CAMP EQUIPAGE—			ENTRENCHING TOOLS—		
Tents—	...	...	Maunds	...	18 $\frac{1}{2}$
Pisls	...	9	Camels	...	4
Weight and carriage—			RATIONS FOR FOUR DAYS—		
Maunds	...	25 $\frac{1}{2}$	Maunds	...	11 $\frac{1}{2}$
Camels	...	5	Camels	...	2
BAGGAGE—			TOTAL WEIGHT AND CARRIAGE—		
Maunds	...	51	Maunds	...	137 $\frac{1}{2}$
Camels	...	10	Camels	...	28
			Or mules	...	56
			Or elephants	...	10
			Or carts	...	14

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

The following statement shows the weight to be carried by regiments of British cavalry, Native cavalry, British infantry, Native infantry, battery of field artillery and company of sappers and miners:—

Probable weight to be carried by the undermentioned regiments at present strength for service in the plains of India.

	Regiment British cavalry.	Regiment Native cavalry.	Regiment British infantry.	Regiment Native infantry.	Battery field artillery.	Company sappers and miners.	
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	
Probable weight to be carried, exclusive of commissariat stores and hospital purveyor's necessaries, which can only be determined according to the nature of the service.	1179	152	1869	666	427	142	The weight here shown includes carriage for— Medicine and medical instruments. Arms of sick. Troop stores. Veterinary stores. Scales and weights. Bullock gear. For artillery and cavalry. But not carriage for food for men and grain for horses.

Probable amount of transport necessary under the undermentioned headings according to existing regulations on the following scale.

	Camels.	Camels.	Camels.	Camels.	Camels.	Camels.	
	A.	B.	C.	D.	E.	F.	
1. Camp equipage as laid down for field service in the plains.	82	14	140	24	36 $\frac{1}{2}$	9 $\frac{1}{2}$	A or 27 elephants B or 47 " } when available. C or 12 "
2. Baggage as laid down for field service in the plains.	83 $\frac{1}{2}$	8	147	38 $\frac{1}{2}$	24 $\frac{1}{2}$	7	Includes officers' baggage and mess property. Page 403, Military Regulations.
3. Ammunition (service scale for all arms).	13	12 $\frac{1}{2}$	49	39	...	6	Calculated at 200 rounds per man for infantry and 100 for cavalry, paragraph 1104 of B. A. Regulations.
4. Cooking utensils (at the rate of two camels per battery and one per company).	6	...	8	...	2	...	
5. Entrenching tools at the rate of 2 camels per regiment.	...	...	2	2	...	...	Five mules with suitable kajawah per regiment, as per recent circular order by Commissary-General.
6. Food for men for four days (not followers).	12	11	22	17 $\frac{1}{2}$	4	3	
7. Grain (for horses) for two days	23	23	...	...	5 $\frac{1}{2}$...	

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

See the following statement:—

(1) For 1 battery of artillery.

M. S.	M. S.	Camels.	Camels.
5 S. S. tents at 6 12½ = 81 22½	at 1½ = 6½		
14 E. P. tents at 10 30 = 150 20	at 2 = 28		
5 Páls = 15 31½	= 3		

For 1 British cavalry.

14 S. S. tents at 6 12½ = 88 15	at 1½ = 17½
36 E. P. tents at 10 30 = 337 0	at 2 = 72
2 Páls = 6 12½	= 1½

For 1 British infantry.

9 S. S. tents at 6 12½ = 56 32½	at 1½ = 11½
67 E. P. tents at 10 30 = 720 10	at 2 = 134
2 Páls = 6 12½	= 1½

For 1 Native cavalry.

2 Páls = 6 12½	= 1½
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For 1 Native infantry.

40 Páls or 20 tents = 126 10	= 25
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For a company of sappers and miners.

1 S. S. tent = 6 12½	at 1½ = 1½
1 E. P. tent = 10 30	= 2
10 Páls or 5 tents = 31 22½	= 6½

(2) For 1 battery of artillery 87 at 4 per camel 21½

For 1 British cavalry 248	at 4 = 62
For 1 British infantry 462	at 4 = 115½
For 1 Native infantry 172½	at 5 = 34½

For a company of sappers and miners ... 25-5 at 5 = 5 Men.

(3) For 1 British cavy. 453 × 180 = 81,540 = 22½

For 1 British infy. 884 × 430 = 380,120 = 105½
For 1 Native cavalry 444 × 180 = 79,920 = 22½
For 1 Native infy. 696 × 430 = 299,280 = 83½

For a company of sappers and miners 122 × 180 = 21,960 = 6½

(4) For 1 battery of artillery ... 2

For 1 British cavalry ... 6
For 1 British infantry ... 8

Weight.

For British cavalry,	24 sets at 66-14 each = 1,605 lbs.,	or 20 M.	2½ S.
For British infantry,	33 sets at 66-14 each = 2,140 lbs.,	or 26 M.	30 S.
For battery of artillery,	6 sets at 66-14 each = 401 lbs.,	or 5 M.	0 S.

(5) For 1 British infantry ...	... 2	Camels.	For 1 Native infantry 86 at 5 per camel 17½
For 1 Native infantry ...	... 2	Camels.	For a compy. of sappers and miners 14-29-10 at 5 = 3

(6) For a battery of artillery 20 at 5 per camel 4		Mds.	(7) For 1 battery of field artillery, 130, at 5 seers = 32½ mds. at 5 mds. per camel, 6½.
For 1 British cavalry 57 at 5 = 11½		Mds.	For 1 British cavy., 436, at 5 seers = 109 mds., at 5 mds. per camel, 22 mds.
For 1 British infantry 104 at 5 = 20½		Mds.	
For 1 Native cavalry 55-18 at 5 = 11		Mds.	

Colonel G. J. Dalrymple-Hay, Examiner of Commissariat Accounts, Bengal.

Vide following statement:—

Statement shewing the weight to be carried and the amount of transport required by regiments proceeding on field service in the plains of India, under the following headings.

DESCRIPTION OF GOODS.	Camp equipage.		Baggage.		Ammunition.		Cooking utensils.		Entrenching tools.		Food for four days for men (not followers).		Grain (for horses) for two days.		Total.		REMARKS.
	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	Weight.	Camels.	
British cavalry ...	458 35	86	299 15	60	126 10	23	90 0	6	130 22	25	109 0	22	1148 2	222	The calculation of the amount of transport has been made with reference to camel carriage only, which is more extensively employed than any other mode of conveyance, such as elephants, carts, &c.
Native cavalry ...	6 12½	3	...	...	135 11	24	...	...	...	...	53 20	11	45 28	10	240 37½	47
British infantry ...	794 0	147	569 30	114	585 4	105	40 0	8	10 0	2	237 34	48	...	...	2235 29	424
Native infantry not drawing batta ...	126 10	25	159 0	32	508 23	90	...	...	10 0	2	84 4	17	...	...	685 37	166
Native infantry drawing batta ...	126 10	25	...	...	508 23	90	...	...	10 0	2	84 4	17	...	...	720 37	134
Battery horse artillery ...	198 18	38	102 20	21	...	...	10 0	2	...	...	41 32	9	50 0	10	402 30	80
.. field ..	198 18	38	102 20	21	...	...	10 0	2	...	...	41 32	9	50 0	10	402 30	80
.. heavy ..	156 39	32	58 30	13	...	...	5 0	1	...	...	23 14	5	...	...	244 8	50
.. garrison ..	111 20	23	89 10	19	...	...	5 0	1	...	...	23 14	5	...	...	190 4	40
.. mountain ..	153 20	31	65 0	13	...	...	...	...	...	...	24 23	5	...	...	243 8	49
Company of sappers and miners ...	46 23	10	15 0	3	34 20	7	...	...	...	...	13 21	3	...	...	113 5	23

Sick transport has not been entered in this statement.

Major M. A. Rowlandson, Ex-
aminer of Commissariat Accounts,
Bombay.

Fide following statement :—

The amount of transport necessary under the undermentioned headings according to the existing regulations on the following scale in Bombay Presidency.

	BRITISH CAVALRY.			NATIVE CAVALRY.			BRITISH INFANTRY.			NATIVE INFANTRY.			BATTERY OF ARTILLERY.			COMPANY SAPPERS.			REMARKS.					
	Carts.	Elephants.	Camels.	Carts.	Elephants.	Camels.	Carts.	Elephants.	Camels.	Carts.	Elephants.	Camels.	Carts.	Elephants.	Camels.	Carts.	Elephants.	Camels.						
(1) Camp equipage as laid down for field service in the plains ...	41½	27½	83	168	1	1	2	72	48	144	288	11	7½	22	44	17½	11½	85½	71	21½	11	4½	9	
(2) Baggage ditto ditto ...	29½	19½	58½	117	...	...	...	60½	37½	112½	225	38	25½	70	168	104	6½	20½	41	61½	31	10½	21	
(3) Ammunition (service for all arms)	13½	9	27	54	62	44	13½	27	23	16½	46	02	19½	13	30	78	2	...	...	...	22½	11½	6½	11
(4) Cooking utensils, at the rate of two camels per battery and one per company ...	3	2	6	12	...	...	...	4	2½	8	16	...	...	...	...	1	½	2	4	...	...	...	...	...
(5) Entrenching tools at the rate of two camels per regiment ...	...	...	...	...	...	...	...	1	½	2	4	1	½	2	4	...	...	...	...	...	...	...	...	...
(6) Food for four days for men (not followers) ...	16	10	30	60	...	...	...	22	14½	44	88	...	...	...	...	6½	4½	13	26	...	...	...	...
(7) Grain (for horses) for two days ...	11	7½	22	44	...	...	...	...	...	...	...	...	...	...	...	5	3½	10	20	...	...	...	...
TOTAL ...	113½	76½	229½	453	71	44	144	294	178½	118½	356½	713	69½	46½	130	278	40½	27	81	162	101	61	30½	41

The present weight for—
Carts ... 33,200 lbs.
Elephant ... 400 " "
Camel ... 400 " "
Mule ... 300 " "

The weight to be carried under the undermentioned headings according to existing regulations on the following scale.

	British cavalry.	Native cavalry.	British infantry.	Native infantry.	Battery of artillery.	Company sappers.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
(1) Camp equipage as laid down for field service in the plains ...	33,200	400	57,600	8,800	14,200	1,800
(2) Baggage ditto ditto ...	23,400	...	45,000	80,400	8,200	4,200
(3) Ammunition (service scale for all arms)	10,647	5,282	18,429	15,511	63	2,095
(4) Cooking utensils, at the rate of two camels per battery and one per company ...	2,400	...	3,200	...	800	...
(5) Entrenching tools, at the rate of two camels per regiment ...	...	...	800	800	...	...
(6) Food for four days for men (not followers) ...	11,939	...	17,592	...	5,102	...
(7) Grain (for horses) for two days ...	8,800	...	...	...	4,000	...
TOTAL ...	90,386	5,682	142,621	55,511	32,365	8,095

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

The following table gives the required information :—

1. CAMP EQUIPAGE AS LAID DOWN FOR SERVICE IN THE PLAINS.

For one battery of artillery.

	Mds.	Srs.	Mds.	Srs.	Camels.	
Five staff sergeants' tents at ...	6	12½	=	31	22½ at 1½ camel ea.	6½
Fourteen European privates' tents at 10	30	=	150	20 at 2	" "	28
Five pāls ...	...	=	15	31½ at 1½	" "	3

For one British cavalry.

Fourteen staff sergeants' tents at ...	6	12½	=	88	15 at 1½	" "	17½
Thirty-six European privates' tents at 10	30	=	387	0 at 2	" "	" "	72
Two pāls at	8	12½	=	6	12½ at 1½	" "	1½

For one British infantry.

Nine staff sergeants' tents at	6 12½ = 56	32½ at 1½ camel ea.	11½	Camels.
Sixty-seven European privates' tents at	10 30 = 720	10 at 2 "	184	
Two páls at	6 12 = 6	12½ at 1½ "	1½	
For one Native cavalry.				
Two páls	6 12½ ...	...	1½	
For one Native infantry.				
Forty páls or twenty tents	126 10	at 1½ camel ea.	25	
For a company of sappers and miners.				
One staff sergeants' tent ...	6 12½ at 1½ camel ea.		1½	
One European privates' tent	10 30 at 1½ "		2	
Ten páls or five tents	31 22½ at 1½ "		6½	

2. BAGGAGE AS LAID DOWN FOR SERVICE IN THE PLAINS.

		Mds.	Mds.	
For one battery of artillery ...	87	at 4 per camel	21½	
" British cavalry ...	248	at 4 "	62	
" " infantry ...	462	at 4 "	115½	
" Native ...	172½	at 5 "	34½	
" a company of sappers and miners ...	25½	at 5 "	5	

3. AMMUNITION SERVICE SCALE OF ALL ARMS.

For one British cavalry ...	453 men × 180 =	81,540 =	22½
" British infantry ...	884 " × 430 =	380,120 =	105½
" Native cavalry ...	444 " × 180 =	79,920 =	22½
" Native infantry ...	696 " × 430 =	299,280 =	83½
" a company of sappers and miners ...	122 " × 180 =	21,960 =	6½

4. COOKING UTENSILS ON SERVICE.

For one battery of artillery ...	...	...	camels	2
" British cavalry ...	...	...	"	6
" British infantry ...	...	...	"	8

Weight.

			Mds.	Srs.
For British cavalry twenty-four sets at 66-14 each =	1,605 lbs. or	...	20	2½
" infantry thirty-two " 66-14 " =	2,140 " "	...	26	30
For battery of artillery six " 66-14 " =	401 " "	...	5	0

5. ENTRENCHING TOOLS ON SERVICE.

For one British infantry ...	...	...	camels	2
" Native infantry ...	...	...	"	2

6. FOOD FOR FOUR DAYS FOR MEN (NOT FOLLOWERS.)

		Mds.	
For a battery of artillery ...	20 at 5 per camel	...	4
For one British cavalry ...	57 " "	...	11½
" British infantry ...	104 " "	...	20½
For one Native cavalry ...	55-18 " "	...	11
For one Native infantry ...	86 " "	...	17½
For a company of sappers and miners ...	14-29-10 " "	...	5

7. GRAIN FOR HORSES FOR TWO DAYS ON SERVICE.

For one battery of field artillery 130, at 5 seers =	32½ mds. at 5 mds. per camel	6½
For one British cavalry 436, at 5 seers =	109 mds. at 5 mds. "	22

18. How far could the grass-cutters' ponies in a cavalry regiment be made available for regimental transport under a proper system of organization?*

Lieut.-General C. T. Chamberlain,
C.S.I., late Commanding Oudh Division.

* For the last two years I have been endeavouring to press upon the attention of Government the need for bettering the condition of grass-cutters in batteries and cavalry regiments, and I suggest that my letters be applied for from the adjutant-general's office.

Their present burden is simply insufferable. They are very much under-paid. They are almost all in debt owing to the heavy losses in ponies, and the only wonder is that they do what they do.

I strongly advise that the men be registered as Government servants, and that the ponies be brought under regimental discipline *authoritatively*, in view to being properly fed and clothed.

I do not advocate the State providing the ponies, as I know that the grass-cutters would take less care of them; but if a system of *chanda* be introduced by monthly subscriptions from grass-cutters, whose pay should be increased (as proposed in my letters alluded to above), a better class of ponies would be purchasable, and then (and not until then) the horse clothing, stable kit of the horses for which grass was brought, might be carried by them as is now done in the Bengal cavalry, which for years has been the only efficient branch as regards transport.

Lieutenant-General W. T. Hughes,
C.B., Commanding Sirhind Division.

Under a proper organization grass-cutters' ponies might be made most useful for transport purposes. See what is done with these ponies in a regiment of Native cavalry.

Lieut.-General J. Forbes, Com-
manding Mhow Division.

Major-General A. W. Macintire,
C.B., Commanding Hyderabad Sub-
sidiary Force.

Major-General R. O. Bright, C.B.,
Commanding Meerut Division.

Major-General H. E. Browne,
Commanding Saugor District.

Major-General J. W. Schneider,
C.B., Commanding Northern Divi-
sion, Bombay Army.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

Brigadier-General F. G. Kemp-
ster, Commanding Ceded Districts.

Brigadier-General T. J. Murray,
C.B., Mooltan Brigade.

Colonel J. A. Tytler, C.B., V.C.,
Commanding 4th Goorkhas.

Colonel J. Macdonald, Secretary
to Government, Bombay, Military
Department.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-General,
Bombay.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant Quar-
ter-Master-General.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

Captain M. J. King-Harman,
Deputy Assistant Quarter-Master-
General.

To commence with, the ponies should remain, as they are, the property of the men.

All large European private tents should be discontinued for all arms.
All ranks should be served out with mule sullectabs. Each pony should be provided with a leather pad complete, as recommended by the Simla committee in July 1879, in addition to his present equipment.

On the line of march the ponies would carry two maunds each; and grass for the horses would be purchased by the commissariat.

In cantonments, the men would go out as usual for grass; but, should any number of the ponies be required to carry the baggage, &c., of a troop or squadron ordered out for a few days' manœuvring with the moveable column, the grass deficient owing to their absence would be supplied by the com-

For many reasons I consider that this arrangement would not be feasible.

No grass-cutters' ponies are maintained at the Government expense in the Madras presidency.

In a European cavalry regiment, were tents provided suitable for a pony-load, one pony per horse would enable the regiment to move at a moment's notice, provided officers were obliged also to keep up a marching establishment. Some larger tents for hospital purposes would have to be carried by the commissariat and also the spare ammunition. A Native cavalry regiment, with the same establishment of ponies, ought to be entirely independent of any help from any quarter.

I could not recommend the proposal. These ponies have exceedingly heavy work, on a march especially.

They have frequently long distances to go and heavy loads to bring home; any attempt to utilize them as baggage animals in addition would lead to a break-down in the supply of the regiment.

There are no grass-cutters in the Native cavalry regiment in the northern division.

I should say not at all; it could hardly be expected that a pony heavily loaded and marching 12 or 14 miles in the morning would be available for bringing in fodder during the day.

Grass-cutters' ponies of British cavalry and Native cavalry (regular) would only be available for carrying line gear, and jhoals, if required to bring in grass; otherwise available for carriage in addition to line gear, &c.

I cannot give an opinion as regards a British cavalry regiment; but in a Native corps they could not be more utilized than at present.

Having never served in a Native cavalry regiment, I am unable to reply to this question; but I do not see why they should not be so employed.

I do not think that the grass-cutters' ponies can afford any more aid than they do at present as regimental transport.

I do not think this is advisable or feasible. My experience tells me that no organization will be found practicable by which the grass-cutters' ponies can be utilized for regimental transport.

Grass-cutters' ponies in a cavalry regiment, both in time of peace and war, are sufficiently well employed in their legitimate work, and could not, I consider, be made available for transport, except, perhaps, in Native cavalry regiments where they are kept up in sufficient numbers for transport work.

These ponies could be doubtless so used; but their numbers would have to be largely increased above the present complement.

I do not think that the grass-cutters' ponies could be depended upon to do much more than is at present demanded from them. As it is, they relieve the regular transport to a certain extent, by carrying the bedding, &c., of the grass-cutters, and various odds and ends. When the march is a long one, they frequently carry loads of grass from one camping-ground to another. Otherwise they have to go out for grass after the arrival of the regiment in camp, which they would hardly be able to do if they had to carry loads on the march. They would, moreover, frequently be delayed.

Altogether I think the grass-cutters' ponies are sufficiently hard worked already.

1st proposal.—I must premise by stating that grass-cutters' ponies are never, for some unaccountable reasons, used for transport; but I will endeavour to shew how this can be done.

missariat. However, supposing a regiment marching on service, full strength, only employing ponies or mules for carriage, they would require an additional number.

25 officers at 1 maund each	...	...	...	...	7
" " tents, light service	...	...	...	...	7
456 all ranks, baggage at $\frac{1}{2}$ maund each	...	...	...	...	114
* 12 pāls at 36 men each	...	...	...	...	} 55
2 " for guards	...	...	...	...
3 " hospital	...	...	...	...
Staff sergeants and apothecaries in 7 tents of 120lbs. each	...	...	...	...	5
Ammunition	...	...	...	...	27
Cooking utensils	...	...	...	...	6
Grain	...	...	...	...	...
Hospital stores	...	...	...	...	10
Quartermaster's stores	...	...	...	...	15
Forge, &c.	...	...	...	...	1
Officers' mess tents	...	...	...	...	3
Stable gear	...	...	...	...	...
Veterinary stores	...	...	...	...	3
Mess	...	...	...	...	4
Followers' tents	...	...	...	...	8
" " baggage	...	...	...	...	50
" " &c.	...	...	...	...	...
Spare	...	...	...	...	...

Altogether the regiment would require very nearly double the number of ponies or mules that they have now, or say one pony to each horse.

In cantonments only half would be required to go for grass daily, so the other half would remain in and the men would take the place of the present syees.

Considering the few moves made by cavalry regiments in times of peace, it is very doubtful if this plan would be an economical one. But in case of war its advantages would be enormous.

2nd proposal.—To abolish all grass-cutters with British cavalry regiments and batteries of artillery as such, and to distribute them, as far as they will go, in the proportion of—

80 or 100 to each regiment of European infantry,	
50 to " " of " cavalry,	
20 to " battery of artillery,	
40 to " regiment of Native infantry,	

commencing with the troops forming the northern army-corps.

These to be attached to, and to be under the sole care of, regiments and batteries. To be the property of Government, the men to get Rs. 5 a month pay, rising to Rs. 7. The ponies to be fed by the commissariat.

To be paraded, loaded and marched out once a week with baggage and ammunition of that portion of the regiment or battery forming part of the moveable column, and at all other times to be employed by the commissariat department in carrying grain, grass, rations, baggage of station guards, &c., &c.

My reasons for abolishing the British cavalry and artillery grass-cutters are—

1st.—Because the same quantity and quality of grass can at all times and places be purchased at a less cost to Government than the pay of the grass-cutters, so long as they remain in India; and beyond the frontier they are almost useless, under the present system.

2nd.—The value of land, and consequently of grass, has so immensely increased since regimental grass-cutters were first established, that the people of the country will not permit grass to be cut and carried away without payment. This leads to constant fights and disputes, which entail trouble, expense and hardship on all concerned.

3rd.—The diminution in the number of followers.

Amongst the many advantages are the following:—

(1) The saving of all future trouble and expense connected with the supply of grass to British cavalry and artillery, while at the same time taking a heavy burden off the zemindars and creating a new and profitable trade for them.

(2) The establishment of the nucleus of a transport train.

(3) It will be the means of thoroughly training officers, men and mules or ponies to the work required of them on service.

(4) It will save the expense of keeping up camels, &c., in cantonments for local commissariat purposes, more especially if each station was provided with a few light platform carts adapted for the ponies.

Each infantry regiment of the Punjab frontier force has now 40 mules† as part of its establishment, and most certainly all regiments and batteries of the northern army-corps should be provided with regimental transport also.

In order that this shall be of real use, each regiment should have in its possession—

- Service entrenching tools.
- Kajawahs for do.
- Mule suleetahs for kits.
- Mule kajawahs for cooking pots.
- Slings for ammunition boxes.

And in the regimental store one *partalla* or cross-belt and one short sword for each mule driver.

* Single-fly pāls, 52' x 20', weighing 6½ maunds.

† And 55 camels, except the two regiments at Abbottabad; they have 100 mules, as the country there is not suited to camels.

Each driver should be given yearly—

- 1 jumper,
- 1 pair loose trousers,
- 1 pugree,
- 1 pair putties,
- 1 „ shoes.

The jumper and trowsers to be of khaki drill.

These old grass-cutters, as they die or take pension, to be replaced by men entertained at the rate of one for every two animals, and their ponies purchased if good enough.

Lieutenant-Colonel R. Blandell,
3rd Hussars.

The grass-cutters' ponies with the 3rd Hussars now only number 12, and would be required to move the grass-cutters. I think very little transport could be got out of them. If grass-cutters are done away with, there would be no ponies of this sort with a regiment.

Lieutenant-Colonel R. S. Cleland,
9th Lancers.

I do not see how the grass-cutters' ponies could be made available, as they carry the grass to be consumed by the horses.

Lieutenant-Colonel Lord R. D. Kerr,
Commanding 10th Hussars.

The grass-cutters' ponies of a cavalry regiment could not be made available for transport of baggage for the following reasons:—

(1) Grass-cutters' ponies are not in themselves a necessary component part of a regiment; a double grass-cutter (jorawallah) represents by a private arrangement two single grass-cutters, and for my part I should prefer to go on service with only single grass-cutters and no ponies, as a

more effective arrangement.

(2) If employed as a baggage animal, the pony is not in a fit condition to do his legitimate work at the end of a day's march heavily laden.

(3) The class and stamp of grass-cutters' ponies is not of a sort to be fit for the drudgery of bearing a long day's dead-weight burden in addition to a pack-saddle.

(4) His employment on this work would necessitate the carriage of a large amount of extra forage for the horses of the regiment as well as for himself.

(5) The grass-cutters' ponies are private property (*i.e.*, their own), and no allowance whatever is made by the State for maintenance or labor done.

The owner or jorawallah grass-cutter merely agrees with the captain of his troop to supply daily grass rations for two horses; his means of obtaining grass and fulfilling his agreement are his own.

(6) If mules or ponies, the property of Government, were supplied to regiments, and the entertainment of jorawallahs abolished, the same objection as to the overworking of the animal would hold good; for no amount of feeding which is likely to be authorized in the field would keep animals doing double duty long in working condition.

When the advance from Gandamak on Kabul was in preparation, owing to the break-down of transport, I prepared the ponies of the 10th Hussars, or rather portion of them, to perform such work as baggage-animals as they might each be capable of; but this was an emergent case under peculiar circumstances, *viz.*, that the passes through which we were to force our way afforded no grass, consequently the ponies would have no work to do, but were free to be utilized for the moment in any possible way for the public good.

Lieutenant-Colonel J. C. LeQueane,
12th Royal Lancers.

My regiment has no grass-cutters' ponies; I do not see how it would be feasible to employ ponies, such as mentioned, for a double purpose.

Major J. W. Chaplin, 8th Hussars.

I consider that very little assistance from grass-cutters' ponies could be obtained beyond the carriage of line gear, picket post, &c.

Major E. A. Wood, 10th Hussars.

I would draw attention to proposition contained in following "Notes on Transport," which I wrote with a view of making grass-cutters' ponies available for this purpose:—

NOTES ON TRANSPORT.

It is ~~not~~ remarkable that, lately, on the return of certain regiments from Afghanistan, the hired mules and ponies were in better condition than the Government mules and ponies that were handed over to regiments.

Why was this?

That can easily be answered.

The hired mules were tended by their owners, who had experience in managing them.

The Government mules were tended by any coolies that could hastily be hired.

These men had no interest in the animals under their charge; stole their grain; did not care whether the animals were galled or not, and were the most difficult men to manage.

The regiments (European) had little or no previous knowledge of the packing, much less of the care and feeding, of baggage-animals. In several cases, the animals arrived as it was getting dark at the lines of the regiment to which they were to be attached—frequently on the eve of a march before dawn. What was the result? Loads badly packed and animals unevenly and often very much overloaded, thereby showing the European soldier at a disadvantage to the Native troops of the frontier force and others who were accustomed to the packing and management of mules and baggage animals.

I think it will be agreed, on all sides, that our transport system is far from being what it ought to be.

During the recent campaign, animals were bought by committees only to be condemned by fresh committees on reaching the front. Saddlery was badly fitted; and I knew of a case where several

baggage animals, passed at Peshawar by a committee as fit for service, had, a day or two after their arrival at Jellalabad, to be cast by a committee as unfit for service; and yet these animals had not carried up any loads. Officers who volunteered for service, and who were attached to the transport service, might have worked most zealously; but it is possible that their experience of the management of baggage animals was but very slight.

It is obvious that, if you have not a *trained transport* service during times of peace, you cannot expect to *organise one* during war. I would suggest that all transport should be done under regimental system. Why should not all regiments in India possess their full *war* equipment of tents and transport? If this should prove too large an undertaking, could not the experiment be tried with those regiments in the Punjab and those nearest to the frontier? Should, however, this be deemed unsuitable, I would strongly urge that every regiment be supplied with a certain amount of baggage animals for reserve ammunition and puskals, a certain number of days' rations, and, if small tents were likely to be used on being ordered suddenly on service, according to the situation of the regiment, baggage animals for the conveyance of the same. If European privates' tents are in the possession of regiments, a sufficient number of camels, for the carriage of the same, should always be attached to the regiment; and, although these animals might, when not required for regimental work, or practice of regiments, in loading the animals and making up of the loads, be used for general public service, I would have them completely given over to the care of commanding officers of regiments, who would be held responsible for their efficiency as much as any other Government or regimental property entrusted to their charge. These animals should then be allotted by the commanding officers to the different troops and companies, who would vie with each other in the welfare of the animals belonging to them, as well as in the celerity and security with which their kits, tents, ammunition, &c., could be made up into loads and packed. Nothing but constant practice at this last-named occupation will ensure loads being properly made up, and securely and evenly distributed.

I cannot help thinking that, with the two European cavalry regiments stationed at Rawal Pindi and Sealkote, a good trial might, be made of the animals now used as grass-cutters' ponies, being bought by Government, or, better still, if the regiment could be provided with mules sufficiently numerous to carry the whole of the regimental transport.

Instead of paying the double grass-cutters Rs. 8 per month and making them find the ponies, I think the State would be better served, and with very little more expense in the end, if the grass-cutters were paid Rs. 5 per month, and were provided with animals, mules, if possible, by Government, who would, of course, also feed the same. The extra quantity of baggage animals could always be used in cantonments for public service, which would greatly reduce, if not altogether dispense with, the present moveable column system.

It has been urged, I know, that this arrangement leads to difficulties between the commissariat, or other public service, and the commanding officers of regiments to which their animals would belong, and that, probably, would exist to a slight degree with commanding officers who were proud of the condition of the animals under their charge, and who would be apt to think that the animals were unfairly worked when taken away from the regiment; but that would be but a small matter compared with the gain to the regiment suddenly ordered on service, of being in possession of a complete transport service, the characters of the attendants of the animals known to their troop officers, the men accustomed to make up loads and to distribute them evenly and to secure them properly, and officers, non-commissioned officers and men accustomed to the habits, feeding and care of the baggage animals attached to their troops, as well as to the habits and management of the attendants of their animals, who would be on the same footing as the syces attached to a regiment.

For a cavalry regiment, 400 strong in the field (as that is about the strength one could really calculate on) equipped with tents of the pattern suggested for baggage of men on the Cabul scale, together with the regimental number of puskals, ammunition reserve, forge and veterinary stores, armorers' tools, &c., and quartermaster's stores, but *without provisions* for men or grain for horses, as that could only be ascertained by the number of days for which provisions would have to be carried, 263 mules would be required. The grass-cutters' ponies for 400 horses would amount to 200. If mules were substituted for these and mule puskals (12), as well as reserve ammunition mules (27), were always entertained with the regiment, there would only remain mules for forge and veterinary stores (9), armorers (1), quartermaster's stores (14).

Thus, only these 63 additional mules would be required to be enabled to move the whole of the regimental baggage at a few hours' notice.

Captain J. A. S. Mackenzie,
9th Lancers.

I am of opinion that the grass-cutters' ponies, to perform their duties properly, should only bring in grass; else after a march, laden, it is manifestly impossible that they could go out and bring in grass, which is often far distant from the halting place. During the late operations in Afghanistan, the grass-cutters' ponies carried the line gear, grinding mills, &c., which was a great tax on their strength and impaired their efficiency.

Major F. Stephan, 4th Rifle
Brigade.

It seems practicable; but I am unable to answer the question in detail.

Major Hugh P. Pearson, 12th Foot.

They are always utilized to the utmost during the march of a cavalry regiment. I do not think that anything would be gained by introducing them into any system of transport.

Major J. H. Campbell, 33rd
Regiment.

Refers only to cavalry.

Major J. D. Dyson-Laurie, 34th
Regiment.

The guides cavalry system seems an admirable one, and to offer an excellent example.

Colonel C. R. O. Evans, Commanding Royal Artillery, Meerut Division.

I think they could be much more profitably employed in their legitimate work of bringing in forage for the horses, whether for the commissariat department or for their regiment direct. They are not beasts of great burden.

Lieut.-Col. I. Ketchen, R.A.

I think not at all.

Major Bertie Hobart, R.A., Military Secretary to His Grace the Governor of Madras.

I doubt the ordinary stamp of grass-cutters' ponies being of much use; besides, they are private property; and to take them up "under a proper system of organization" is certain to cost money, which might be better laid out.

Major H. C. Lewes, Commanding 1-1st Royal Artillery.

I am of opinion that it would be better to abolish them altogether and make the grass-cutters bring in the grass themselves, increasing their number if necessary.

Major W. W. Murdoch, Commanding E-A Royal Horse Artillery.

With the present number of ponies they could not be made available. When a cavalry regiment marches in an ordinary way, the grass-cutters' ponies have quite as much work as they can do to bring in grass for two horses.

Were the number of grass-cutters' ponies doubled, they could of course be made available; but I do not see that they would be of much good. They might carry the men's kits, but could never carry big tents.

Major T. M. Hazelrigg, Commanding E-3rd Royal Artillery.

Not at all. It would be next door to impossible for the commissariat to supply grass, and troop horses would starve. Added to this, the ponies are private property.

Major the Hon'ble A. Stewart, Commanding 1-C Royal Horse Artillery.

If the ponies were the property of the State, they could doubtless be utilized to carry linegear and a certain number of days' grain. But I think it would be a very expensive arrangement, which economy would soon call for a reduction of, after a short trial in time of peace. I feel quite sure an immense saving might be effected by growing grass and cutting and stacking hay in many stations.

Major C. E. Nairne, Royal Horse Artillery.

I think not worth considering. The grass-cutters at present carry a large amount of their own kit on them, and bring in very little grass on the march. If loaded by the State, they would, of course, bring in no grass at all, and would carry only 1 maund each; while, if loaded to their full carrying power, it would be extremely difficult to prevent the grass-cutters, from old-established habit, from putting their own kit and probably themselves on top of all, and so break down the ponies. If a better class pony were introduced and supplied, either wholly or in part by the State, something might be done; but I believe it would not be a cheap way.

Major P. FitzG. Gallwey, R.A.

I presume this alludes to a British regiment. I fear the size of the tents carried would make it impossible to use the ponies to any advantage. Camp equipage is the principal baggage in a British regiment, together with the commissariat stores. In a Native cavalry regiment the small tents used easily go on the ponies.

Lieutenant E. C. Wace, R.A., No. 4 Hazara Mountain Battery, Punjab Frontier Force.

Only, so far as they do at present, in carrying the tents of the *sowars*. If these ponies are heavily laden on the march, it is difficult to expect them to go out for grass, as they have to do, on arriving at the camping-grounds.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

As the ponies would be only just sufficient to carry the men's kits, I do not think they could be utilized in any other way.

Colonel J. H. Gough, Commandant 12th Bengal Cavalry.

With the exception of British officers, and the carriages necessary for reserve, ammunition and Government stores, every Bengal cavalry regiment has its own regimental transport. But, to show how far it can be utilized, I will quote the fact that, at the period when an advance on Cabul was critical, the two regiments of Bengal cavalry, with the cavalry brigade of the Kuram force, not only *entirely* supplied their own regimental transport, but were also prepared to carry supplies and relieve the commissariat department to a great extent. The grass-cutters' ponies of British cavalry regiments are of little or no use, being too small and weedy for carriage purposes.

Captain M. G. Gerard, 2nd Regiment, Central India Horse.

They should certainly be utilized for British corps, as they are already for Native cavalry.

The former should for service become the property of Government, and, similarly to what was proposed in answer 16, a second Government *tattoo* for rations should be placed in charge of each grass-cutter.

At present "carriage" to the extent of that sufficing for a similar number of Native cavalry is absolutely neglected by British.

Brigadier-General C. J. Godby,
Commanding Punjab Frontier
Force.

The grass-cutter's pony carries the horse-gear for two horses, the men's kits and a small tent, and probably is taken out for grass some distance beyond camp after arrival. Nothing more could be expected of the animal.

Colonel T. G. Kennedy, 2nd
Punjab Cavalry.

Under no system that I know of could they in their present numbers, namely, one between two men, be made more available than they are for regimental transport. If they were doubled in number, *i. e.*, one to each man, no camel carriage would be required to move a cavalry regiment; but against the camels and their attendants dispensed with must be set off the extra ponies and their syces.

Colonel J. Blair, Commanding
13th Bombay Lancers.

The only ponies that are in a cavalry regiment are those belonging to the sowars, and these are employed on service to carry their tents and baggage.

Lieutenant-Colonel C. LaTouche,
Commandant Poona Horse.

The grass-cutters' ponies in my regiment are already so available. They are the property of the men of the regiment, not of the grass-cutters. They are brought up for the approval of squadron commanders before being passed into the regiment, and are inspected by them once a month. Silladars are held personally responsible that otherwise kept in good condition; and if a pony becomes in any way un-

they are properly fed and serviceable, he is at once cast,

No measures appear to me to be necessary beyond such as may secure the supervision above indicated.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd
Sind Horse.

The baggage animals of the Sind Horse are kept up and bought and replaced at their own expense; so that, with the exception of ammunition, regimental stores and treasure, they never require any Government transport. In this you may say their animals are made available under a proper system of organization, and the same could be done in other regiments.

Major A. P. Palmer, 9th Bengal
Cavalry.

I would advocate returning to the old system of each man keeping a pony, instead of one between every two sowars, as at present.

If this were done, a regiment of Bengal cavalry of 400 sabres taking the field, would, according to the Cabul scale, only require assistance from the transport department to the extent of 38 camels, instead of 139 camels and 38 mules as at present.

Every cavalry officer should keep up two baggage ponies, one of which might be available for the mess and be shared generally on the regiment moving.

At present, officers are the only individuals in a British cavalry regiment totally unprovided with carriage.

Colonel H. S. Obbard, Commandant
41st Native Infantry.

I am informed that the grass-cutters' ponies in a Native cavalry regiment are so utilized.

Colonel E. Dandridge, Commanding
40th Native Infantry.

I do not quite see the drift of the question; the grass-cutters' tattoos are always used for regimental transport, carrying the whole of the men's tents, bedding, &c., as well as a supply of food on emergency.

Colonel G. W. Fraser, 39th
Native Infantry.

Whether it obtains in the British cavalry regiments I cannot say; but I believe they are used for this purpose on the line of march by Native cavalry regiments.

Lieutenant-Colonel B. G. Rogers,
20th Punjab Native Infantry.

Unknown. Probably for men's baggage and tents.

Lieutenant-Colonel H. St. G. Tucker, 41st Native Infantry, late
Superintendent, Transport Train,
41st N. I.

They would be very useful in carrying the men's tents, &c., and thus saving a great deal of regimental carriage. At the same time I am of opinion that the grass-cutters' ponies should be under the charge and supervision of the regimental transport officer—the same as the other carriage.

Major A. C. W. Crookshank,
Commanding 52nd Pioneers.

Very nearly, I should say, to the complete transport of the regimental kit, and indeed, if it could not do this, the ponies should be left behind and the commissariat be required to supply forage. So far as I could judge in the past campaign, the Native cavalry regiments had as many camels as the infantry regiments, and the ponies appeared to me to carry Occasionally I saw them returning to camp with *dhooas*, but the camels There being no forage whatever in winter in southern Afghanistan, the ponies nearly added so many more men and beasts for the commissariat to feed and were really a very serious extra tax. Probably, where grass is forthcoming, it could be cut and brought in by local labor or fatigue parties, as it would be at home. The question of keeping grass-cutters or buying forage is a large one, which has often been discussed, but is worth re-opening both for peace and war. Formerly Government merely paid the grass-cutters; now, in addition to this, they have to purchase land and form *rakhs*.

Colonel H. Boisragon, Commanding
4th Sikhs.

Not at all. All would be required for carrying horse-gear of sowars, the traps of the syces and grass for animals.

Lieutenant-Colonel J. J. Boswell,
Commanding 2nd Sikh Infantry.

I do not think they could be withdrawn for transport purposes without interfering with the efficiency of the cavalry regiment.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

I do not think these animals could be made available for more than the work they do. On the line of march they carry the all of two sowars and their horses, including a day's feed, and are daily used to bring in grass, and sometimes from long distances.

Colonel S. Edwardes, Commanding 2nd Bombay Native Infantry.

Grass-cutters are to a certain extent already acquainted with discipline by being under regimental control; they and their ponies could be made use of and form a portion of the transport allotted to the corps.

Lieutenant-Colonel O. V. Tunner, Commanding 29th Bombay Native Infantry.

I think these might be utilized, as they are in cavalry regiments of the Punjab force.

Colonel J. I. Willes, Commissary-General, Bengal.

Grass-cutters' ponies are always employed on grass duty. If not wanted for this duty, why keep them at all? They would in that case only add to the impediment of an army. It is on field service they are particularly required for the collection of grass.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The grass-cutters' ponies could not be better employed than in bringing in fodder for the horses.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

In this campaign grass-cutters and their ponies have been *worse than useless*; they have been an *incumbrance*.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

I do not see how the ponies, who have to bring on heavy loads of grass, could also be employed in any other way. If, as during the recent winter campaign in southern Afghanistan, there is no grass to be obtained, then of course these ponies could take the place of other baggage animals as carriers of regimental baggage.

Colonel J. Keer, Deputy Commissary-General, Lower Circle, Bengal.

Never, I fear, as they have to bring in grass daily, whether the troops are marching or not.

Lieutenant-Colonel J. V. Hunt, Deputy Assistant Commissary-General, Bengal.

The grass-cutters' ponies with Native cavalry regiments are used for conveyance of baggage on the line of march. But with European cavalry it would be more difficult to utilize them for this purpose, as they would form such a small portion of the required transport and the loads are mostly unsuitable, being too bulky and heavy. They might, however, be used for carriage of a certain number of days' grain for the horses.

Major M. A. Rowlandson, Examiner of Commissariat Accounts, Bombay.

Cavalry (Native) in this presidency find their own carriage, and it is not known how far the ponies are available for any duty but that of carrying forage.

Major W. Luckhardt, Deputy Assistant Commissary-General, Umballa.

I see no reason why these ponies should not be used for the purpose pointed out; but, useful as these animals are for station work in the Bengal presidency (in the Bombay presidency hay is contracted for), they are generally found to be an incumbrance on service, as it is manifest that in an enemy's country, if forage is obtainable, it can only be collected in the immediate vicinity of the camp. These ponies add greatly to the difficulty of providing sufficient food for cavalry horses in the field, since, when they have to be fed, as was found necessary throughout the late campaign in southern Afghanistan, they get half the ration of a charger, whilst for all purposes they are practically useless.

Captain F. Hobday, Deputy Assistant Commissary-General, Kandahar.

I do not think the grass-cutters' ponies could be made of much use; they are in countries where fodder is scarce obliged to cut grass during the march. Native cavalry regiments include their grass-cutter ponies as part of their carriage, and they must often be inconvenient in consequence for that of the grass they would otherwise bring in.

J. H. B. Hallen, Esq., General Superintendent, Horse-Breeding Operations.

I do not believe in grass-cutters, as I have already noted in reply to question 12, paper L, Horses; but if grass-cutters are continued, they should be "double," and the ponies might be rendered available for baggage purposes. Still it must be borne in mind that, as a rule, from poverty of condition they would be found of little use.

19. Would it be possible to organize a system of reserved transport which should be used in civil work, or by inhabitants in time of peace, and only drawn upon when required?

Lieutenant-General Sir D. M. Stewart, K.O.B., Commanding Southern Afghanistan Field Force.

If by the term "civil work" used in this question work among the civil population of the country is intended, I do not think the suggestion is a feasible one. At the same time, such departments of the public service, civil and military, as employ transport habitually might advantageously be required to use cattle which could be made available for military purposes in time of war. It is assumed that such cattle would always be well cared for and

be at all times fit for service. But the organization of a transport establishment which shall remove the cattle from the direct supervision of responsible officers seems to me impracticable. Experience in the present campaign shows incontestably that hired animals are always better cared for than those in the Government service, regimental cattle excepted.

Lieutenant-General C. T. Chamberlain, C.S.I., late Commanding Oudh Division.

I have made suggestions in answer to question 13. I cannot advocate lending animals to private individuals (as is done in France and elsewhere), as Natives are too cruel and unreliable. There would be much abuse, I am positive, and all kinds of troubles in stamped agreements and security, and so on. The advantage to the State would be very

doubtful, and the trouble of collection, when needed, might be considerable. The extension of railways is gradually diminishing the need of carriage for any distance for civil purposes.

Native states might be laid under embargo to supply carriage for field service according to local capabilities.

Lieut.-General W. T. Hughes, C.B., Commanding Sirhind Division.

It would certainly be possible. See my answers to questions 7 and 11.

Lieutenant-General J. Forbes, Commanding Mhow Division.

I consider that this would be impracticable.

Major A. W. Macintire, C.B., Commanding Hyderabad Subsidiary Force.

Not without great expense to Government. In cases of emergency, transport would necessarily be drawn from the inhabitants of the country, and liberal remuneration would be less expensive than continuous pay for transport that might never or seldom be required.

Additional remarks.

In compliance with paragraph 4 of confidential memorandum No. 164 from the secretary to the army organization committee, dated 11th August 1879, I have the honor to offer the following suggestions.

No portion of a tent should be heavier than 200 lbs.; and, if possible, 160 lbs. should be the maximum weight, with a view to pack-bullocks being used when elephants and camels are not available. In the case of "tents—European," the outer fly might be made in two parts and joined together by lacing, if it is considered unadvisable to reduce the tent in size. In rainy weather the additional weight is of serious consideration; all portions of a tent should, therefore, be well under the weight that can be carried on one animal.

Two maunds (160 lbs.) is the weight of grain which is carried by the bunjaries on the bullocks of the Deccan, and they always have a number of spare bullocks to take the place of those that get sick or galled.

The tent-poles should be jointed, so that they can be carried on bullocks with the tents, as every portion of a tent should be kept together. Camels are not suitable for the rocky ground or the deep cotton soil of the Deccan, and are unable to travel in wet weather; and it is doubtful whether keeping such delicate animals repays their expenses. Mules are excellent and most useful for the general transport duties of the force.

Major-General H. R. Browne, Commanding Saugor District.

I should much doubt the practicability or advantage of such a system in India.

Major-General J. W. Schneider, C.B., Commanding Northern Division, Bombay Army.

I do not believe either in the feasibility or economy of this proposal. I feel confident that the inhabitants of districts in time of peace, whether cultivators of the soil or the possessors of carts for hire, would not keep up transport carriage to be drawn upon when required, on terms that would be profitable or advantageous to Government. The cattle would certainly be neglected by them, as at present. We have only to look to the condition of a large proportion of beasts of burden belonging to the Natives of India to be satisfied on this point. The existing system of pressing carriage, if it is found necessary to do so, is understood by the Natives, and has, no doubt, existed from time immemorial.

Brigadier-General G. Burrows, Quarter-Master-General, Bombay.

So long as we have an ample supply of carriage in the country always available, I see no advantage to be derived from such a system, which could not be introduced without expense.

Brigadier-General F. G. Kempster, Commanding Ceded Districts.

In Madras presidency there are large tracts of uncultivated land, called *rusunnahs*, on which mules and ponies could not only live, but thrive for nine months in the year. Only a few men, say 4 per 100, would be required to keep them from straying; and for the remaining three months a small addition in food would be necessary. The animals might be let out to civil population in the immediate vicinity, provided they were mustered at stated periods.

Brigadier-General T. J. Murray, C.B., Mooltan Brigade.

It would not only be possible, but very acceptable to the zemindars, who would, I conclude, receive a small yearly remuneration for each cart and animal on the register. But, as practically the whole carriage of the country is at the disposal of Government, I would restrict it to the transport hitherto kept up for moveable columns.

It would also ensure a readily available supply of carriage of a better quality than that now obtained with no little oppression, when required for the movements of troops. It would, however, necessitate the use of carts, unless in camel districts; but I do not consider this a serious objection where roads exist.

If the system is found to answer, it might be extended, particularly in the camel and mule districts.

Colonel J. A. Tytler, C.B., V.C.,
Commanding 4th Goorkhas.

I should say that it would be perfectly possible to organize such a system. The carriage so employed to be under the control and charge of the civil authorities, who would be responsible that it should be kept in an efficient state and produced when required.

Colonel J. Macdonald, Secretary
to Government, Bombay, Military
Department.

Yes; if Government are prepared to offer the transport for hire at lower rates than the ordinary carriage of the district could be procured. But the scheme would be worked, if at all, at a loss to the State.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

The only system I can recommend would be registry, with a retaining-fee where permanent transport was not kept up.

Lieutenant-Colonel A. G. T. Hogg,
Deputy Quarter-Master-General,
Bombay.

Such reserve transport now exists, and would be drawn upon by the military when required. I do not think it would be advantageous to attempt any organization of such transport in time of peace.

Lieutenant-Colonel H. A. Little,
Officiating Deputy Assistant
Quarter-Master-General.

Not practically or with any advantage to the State or to the military service, and with a heavy standing charge upon the revenues of the country, although no doubt with advantage to the agricultural classes and owners of carriage.

Major A. A. A. Kinloch, Deputy
Assistant Quarter-Master-General.

I have forestalled this question (which I had not previously read) in my replies to question 15, where I have recommended that all transport animals which are considered fit for service should be branded and registered, the owners being paid a small annual fee as long as the animals remain serviceable, and being required to produce them when required for Government service.

The animals thus selected, or a portion of them, should occasionally be called out for peace manoeuvres, when the drivers should be placed under some sort of discipline, and taught to keep silence and order, in addition to a very simple drill. Men who learn their work intelligently might receive certificates entitling them to a small annual fee, payment of which would be dependent upon their presenting themselves with their animals when required. Those who showed exceptional activity and aptitude for transport duties might receive a somewhat higher fee, and be eligible for subordinate appointments in the department when the reserves were called out.

Probably a good many men who had served in the army would be forthcoming, and would require but little teaching.

Lieutenant-Colonel R. Blundell,
3rd Hussars.

I do not think such a system is possible in India.

Lieutenant-Colonel R. S. Cleland,
9th Lancers.

Yes; by (as before said) numbering each village cattle and carts and enlisting so many of the villagers on a reserve pay as would be needed to look after them.

Lieutenant-Colonel Lord R. D.
Kerr, Commanding 10th Hussars.

Any really effective reserve to be at all times ready for use when required could under no circumstances be withdrawn from field service without leaving a serious gap in the transport or cultivation of the district.

In England yeomanry horses are exempt from taxation; in India, I believe cattle are not taxed; consequently some retainer is necessary to ensure their appearance when required. I should suggest that every owner of more than two head of suitable cattle be taxed so much per month per head (less two), unless he agrees to keep the cattle in fair working order as reserve stock to be handed over to Government on hire or purchase at a moment's notice. Should he agree to this, exemption from the payment of poll-tax, and in addition he should receive some small payment per month as a retainer.

In the immediate neighbourhood of a station, cattle might be let out for garden-work, conveyance &c. in limited numbers, and they might be employed for conveyance of grass from rukhs in the neighbourhood; the numbers in any one station would not be very great, though, perhaps, considerable in the aggregate.

Lieutenant-Colonel J. C. Le
Queuse, 12th Royal Lancers.

Such might be under the executive at civil work, but the required carts would not be adapted to the habits of the Natives; and, besides, if such could be, the wear and tear and inattention to cleanliness would detract from their value and their condition when called into request.

Major J. W. Chaplin, 8th
Hussars.

In large military stations or cities, such as Calcutta, Bombay, &c., it might work well, but I should say that in smaller stations and cantonments not.

Captain J. A. S. Mackenzie, 8th
Lancers.

Yes, I think so; and if, as I suggested (in answer 15), a register of all carts and cattle in each district was kept up, the transport officer in each district, with the assistance of the civil officials, should inspect the register from time to time, and satisfy himself of its accuracy.

Colonel J. A. Ruddell, 1-25th
Regiment.

Yes; I am of opinion that a reserve transport might be organized by paying owners of carriages, camels, mules and ponies who could be depended on by the civil authorities a certain monthly or half-yearly sum, to place their carriages, camels, mules and ponies at the disposal of the transport officer whenever required in time of war or other emergency.

Lieutenant-Colonel T. Rowland,
Commanding 1-5th Fusiliers.

No doubt a system of reserve cattle, &c., to be used for these purposes in time of peace might with advantage be established, or a system of small reserved payments to Natives, in consideration for which their cattle and carts to be at once available might be tried.

Lieutenant-Colonel M. MacGregor,
1-48th Foot.

No; the Native villagers and farmers would not take care of the cattle without constant supervision; the animals would be badly fed and overworked.

Major F. S. Terry, 1st Battalion,
25th King's Own Borderers.

Yes; by a system of registration, by which owners of pack and draught animals should be rewarded for registering their animals for Government service, divided into 1st, 2nd and 3rd class reserves.

The reserves would be available at given periods of notice and in different degrees of emergency. The civil government of provinces should be charged with this organization.

Additional remarks.

I beg to suggest that a more thorough organization of regimental and departmental transport requirements should be instituted.

In every staff office should be tabulated scales for regiments, and in every departmental office the same for its own department, the whole being regulated, approved and tabulated in the divisional and district offices—the scales being drawn up to suit their own locality only and for different seasons of the year.

They should be drawn up for four orders of march—

1st.—Raid order—none; or cooly carriage.

2nd.—Bivouac order—mule carriage in tents.

3rd.—Marching order—tents carried by mules or in mule carts.

4th.—Full service order—any description of carriage.

The 1st order would include provisions for three or four days.

The 2nd, 3rd and 4th for fourteen days.

The 3rd order would include tentage.

The differences between the three orders of march would be represented by distinct baggage and transport.

Thus, a regiment marching in full service order would parade its transport in four sections, representing the four different orders of march. It might be ordered forward in raid order; the following day it might send back for its bivouac order baggage; the day after for its marching order baggage; and the following day for the remainder to complete to full service order.

Regimental guards would not be left behind to take charge of baggage; batmen only would be left in charge, and it would be treated the same as other army stores, the troops lining the communication being responsible for its safe custody.

Major Hugh P. Pearson, 12th
Foot.

Quite possible. This is, in fact, a portion of my scheme, and has been dwelt on at some length in my answers to the earlier questions in this paper. The reserve transport would be that for the due maintenance of which its owners would receive a retaining fee, its amount, description and locality being registered in the books of the superintendent and his assistants, and in those of the civil authorities of the district.

Major J. D. Dyson-Laurie, 34th
Regiment.

The State could possess the power of utilizing available carriage in the country when requisite.

Major W. H. J. Clarke, 72nd
Highlanders.

I have not a doubt that one could be organized; but I have no suggestions to offer.

Captain R. H. Fawcett, 33rd
Foot.

I think it would be possible and most useful in emergency; but the worth of such a system of reserve transport would mainly depend on the cordial co-operation of the local civil authorities. I think a tax on holders of cattle, whose animals would then be exempt from use for any transport except in cases of great emergency, and which which tax those who agreed to place their cattle at disposal would be relieved, would lead to a considerable accession of revenue, or to a permanent transport reserve. The prices for purchase or hire of the cattle ought not then to be subject to fluctuations in proportion to our necessities; or a remission of a portion of land revenue from those who would place their cattle at our disposal might give us a similar transport reserve. Of course a register would be kept by the police of the animals ready for service; and the civil authorities would know best how to draw them, when required, with the least pressure on the people when the wants of the army or troops had been expressed. It must be remembered that there is an immemorial custom in India for the requisition of all transport cattle in case of need. The remembrance of this is dying out; but it was constantly used in our former wars in this country, and in the marching of reliefs up to a few years ago. By obtaining the consent of the cattle-holders and registering the cattle, a larger proportion ought to be collected in a shorter time than was formerly the case, and the good will of the people retained as far as possible.

Colonel C. R. O. Evans, Com-
manding Royal Artillery, Meerut
Division.

Quite possible; but in my opinion uselessly expensive. Government can at any time take up such transport as may be used ordinarily in civil works when required.

While deprecating, as stated, the establishment of a separate transport department, to be kept up throughout the country in time of peace, there can be no doubt that all troops stationed on an exposed frontier should, similarly as the Punjab frontier force, have a complete transport establishment at all times.

Lieutenant-Colonel I. Ketchen,
Royal Artillery.

Transport used in civil work in time of peace and taken away (possibly when most needed) as soon as war broke out would cause great confusion.

If arrangements could be made for its being used by inhabitants in time of peace, at cheap rates, on the condition of its being liable to be called up by Government at pleasure, of course this would be exceedingly advantageous: as to how to arrange this I can give no suggestions.

Major Bertie Hobart, R.A., Military Secretary to His Grace the Governor of Madras.

I do not think any transport owned by Government could safely be permitted to be used in civil work, except within the general supervision of European officials, as indicated in the answer to question 11.

If reserve transport means a certain portion of the registered carriage of the country, probably some retaining fee (a direct outgoing) will be necessitated. It may be feared that such a system would be a source of constant trouble from the partial restriction of free employment leading to intentional or unintentional evasion. Prosecutions would have to be instituted,—a matter to be deplored—and perhaps special legislation would be necessary—a matter to be avoided.

No. 297, dated Ootacamund, 30th August 1879.

From—MAJOR B. HOBART, R.A., Mily. Secy. to His Grace the Governor of Madras,
To—The Secretary, Army Organization Commission, Simla.

In reply to your letter No. 217 of the 13th instant, forwarding from the army organization commission a series of questions, I have the honor to return herewith such replies as I have been able to draw up in the short time that could be allowed.

I regret that I have been unable in so few days to put together any detailed schemes as asked for in paper H, questions 7 and 8, 9 and 10 and 17 or append such further statements as might have had some value in the present enquiry.

The opinions I have hazarded are submitted in case they may chime in with similar expressions from other officers of the army.

I have assumed that the intention of the questions is to elicit ideas and proposals for economy where it will not decrease efficiency.

I beg, therefore, respectfully to record my opinion that the organization, equipment and sanitary condition of the British portion of the army of India has reached a point of completeness which, for all practical purposes, is quite sufficient and well adapted to the country.

This satisfactory state of things is not, I am sure, susceptible of reduction in the face of modern military improvements. The increased care and attention bestowed on the British soldier of late years, and on his comfort in such matters as indirectly conduce to maintain his health, are not waste of money, and cannot be curtailed. The invaliding and death statistics under the more liberal system will shew that these measures have been a direct saving to the State; but where the increasing military expenditure has tended to make it appear that the British soldier is getting too expensive is, I believe, in the outlay on "accommodation," not only for large permanent barracks (which at some stations have shewn unsanitary conditions that did not exist in the simpler old buildings), but in new demands for subsidiary works, which might possibly, in many instances, have been done without or provided for by other arrangements.

Annual repairs to the extent lately demanded have, I feel certain, been in excess of what was absolutely necessary.

Further, the supply of stores from England has become a very serious item of expenditure, and requires to be reduced by imperative orders that the resources of this large empire are to be depended on as a rule instead of as the exception.

As regards, I would not curtail any legitimate convenience or comfort to the soldier in this land of ours, but I would not seek to save him what is simply troublesome from entailing some extra expense in the matter of barrack arrangements or followers; nor would I supply Europe goods when our own resources to all intents and purposes equally good.

As regards the power of employing the soldier without danger to his health, there is the fact that the field artillery is generally the most healthy corps in the country (the cavalry coming next), to prove that a judicious amount of work is a sanitary necessity, and therefore economical to the State.

Major E. T. Hume, Commanding
C-C Royal Horse Artillery.

I should say quite possible. It is very much the present system.

Major W. W. Murdoch, Commanding
E-A Royal Horse Artillery.

I do not see why it should not be possible.

Major T. M. Hazelrigg, Commanding
E-3rd Royal Artillery.

Yes; by paying owners of carriage a retaining fee.

Major the Hon'ble A. Stewart,
Commanding I-C Royal Horse
Artillery.

This is what I have tried to propose in my answer to No. 7 question in this paper.

Major C. E. Nairne, Royal
Horse Artillery.

I think it would be easy either to encourage by small payment, or compel every village to keep up a certain number of bullocks, carts and mules, which should be registered and available as carriage when required. These would of course be used in civil work when not required by the State.

Major P. FitzG. Gallwey, Royal
Artillery.

Government might possibly subsidize large landed proprietors to a certain extent, on the condition of their keeping a specified amount of carriage in their districts. I can see no other plan.

Major W. H. Noble, R.A.

I do not think it would answer to hire out Government cattle during peace, as the animal would run the risk of being unfed or injured.

A system of retaining fees might be adopted, by which the inhabitants of a district might be encouraged to keep up a number of transport animals.

Colonel O. Wilkinson, 2nd Bengal Cavalry.

I think that the civil officers would be better able to answer this question. I have no idea how the inhabitants would co-operate in such a system.

Colonel H. Gough, Commandant 12th Bengal Cavalry.

Undoubtedly this proposition should form part of the scheme of transport re-organisation.

Brigadier-General C. J. Godby, Commanding Punjab Frontier Force.

It is necessary to ascertain, first, if the country can supply the necessary amount of carriage for, say, an army of 30,000 men: if not, carriage must be kept up by Government or in reserve.

Civil officers will be better able to afford information regarding this latter proposal. With regard to the supply of camels, I believe that it might be enormously increased at a very small cost comparatively. The breeding of camels is attended with no expense.

Camel farms might be established at a very small cost, and the camels hired out when not wanted to Natives to a great extent. It must be remembered that camels are not suitable carriage for a very cold climate, and require great care and regular grazing. Neither can the camels be worked to any extent in very hot weather. It is a delicate animal; but with care I do not see why they should not work for an army as well as they do for the 30,000 Powindas that come from Turkistan to India and back every year.

Colonel James Blair, V.C., Commanding 1st Bombay Lancers.

With ponies it is difficult to see to what use in a civil capacity they could be put to. If the regiment had camel carriage, they could be let out on hire.

Lieutenant-Colonel C. LaTouche, Commandant Poona Horse.

I am not prepared to say that such a system is impossible; but I consider that any scheme embracing such an idea would bristle with difficulties, and could at all events only be satisfactorily carried out after a good many practical experiments. Reserve transport for an army

represents such an enormous item that it is difficult to conceive how it could be kept up on an organized system without the expenditure of prodigious sums of money; and, if not organized, it would in no way be more serviceable than the ordinary resources of the country. I think that to a certain limited extent reserve transport is a question capable of solution, but only to a limited extent; and that, before dealing with it, it would be as well to work out the system of permanent transport as represented by the establishment of a small transport corps; and then, having fairly grappled with the details and difficulties involved in the minor problem, to see what can be done towards extending the system on an enlarged basis.

Lieutenant-Colonel J. H. P. Malcolmson, Commanding 3rd Sind Horse.

Yes; I think so. The extension of my proposal for regimental transport would virtually be this; only in forming a reserve transport it would be well to have some distinguishing marks on the animals and other transport. The owners of the transport might be allowed a small

monthly retaining fee, and for this they should be bound to report the despatch of any transport for their own purposes, stating how far it has gone or is going, and the probable date of its return, so that regiments and departments would always be acquainted with the whereabouts of their transport. I think it would be almost always found that, if the transport of one place had gone to another, that other transport would always be arriving; and if the owners received tickets or orders stating that they were registered as transport and were not to be harassed or used for any purpose except under great necessity, I think the immunity such a recognition of their being as it were in Government employ would give them from being passed at different places for the convenience of travellers or small parties or other reason would alone make the lien on them by Government in case of emergency quite popular.

I am afraid I have given but a very limited explanation of my ideas; but to work out detail would only give immense trouble to the commission, and many better suggestions will be received.

Major A. P. Palmer, 9th Bengal Cavalry.

A reserve transport would be organized by having all baggage animals and attendants registered and mustered by circle superintendents of transport at least once annually at several convenient centres in each circle.

A small retaining-fee might have to be given for each efficient baggage animal mustered and the animals branded with V. I. Further inducements should be offered to breeders in the way of prizes at fairs, and the law taxing baggage animals repealed.

The civil departments would have to render assistance; and it might be necessary to inflict a penalty or fine on registered owners who failed to attend musters.

Note.—It would greatly strengthen us on our rectified frontier if six months' supplies for a division of all arms were kept permanently stored at Lundi Kotal, Shalugan and Pishin.

In case of an advance from either of the points at some future day being necessary, delay that might be disastrous would thus be avoided.

I believe that three years' supply of grain is always stored in the granaries at Floriana in Malta.

Colonel J. Doran, Commanding 27th Punjab Native Infantry.

Quite possible I should say, though I am not prepared to say how such a scheme should be drawn out.

Colonel H. S. Obbard, Commandant 41st Native Infantry.

Quite so; but it would not be worth the cost.

Colonel E. Dandridge, Commanding 40th Native Infantry.

For service in the plains a system of registry would, I think, suffice without going to the expense of keeping up a reserve establishment. Such an establishment could doubtless be organized; and for external warfare, i.e., warfare elsewhere; the plains and in the vicinity of frontier stations, it is a necessity.

Colonel G. W. Fraser, 39th
Native Infantry.

The system suggested in answer to question 15 would be of this nature, both animals and vehicles being private property, and ordinarily in use by their owners, who would only be bound to make them over to the transport department on hire, when their services were required. If kept up as the property of Government, the answers to questions 11 and 16 would apply in regard to transport being made available in time of peace for the use of civil and military departments, and also for bullock-train purposes, and regimental transport being similarly hired out on certain conditions therein stated.

Lieutenant-Colonel H. Worsley,
Commanding 7th Native In-
fantry.

Possible; but unnecessary if all transport were registered as suggested in answers 8 and 15; for under such a system the whole transport of the country would be available at the ordinary rates of hire or purchase, while regimental transport would be kept up at the expense of private individuals, as suggested in answer 11.

Lieutenant-Colonel R. J.
Walker, Commandant 17th
Native Infantry.

I do not know of any way in which a reserve transport system could be organized.

Lieutenant-Colonel R. G.
Rogers, 20th Punjab Native
Infantry.

Not for departments, for reasons above given (answer 11), nor for villagers; for the reserve cattle would probably have to be called in when most required for agriculture.

Lieutenant-Colonel F. B.
Norman, Commanding 24th
Punjab Native Infantry.

Only by paying a retaining-fee in some way or other, and I do not think that the expense would be balanced by the advantages.

Lieutenant-Colonel H. St. G.
Tucker, 41st Native Infantry, late
Superintendent, Transport Train,
41st Native Infantry.

No; I do not think it possible. Any reserve transport there might be, if lent or hired for any civil work, or to be used by the inhabitants would be sure to come to some harm; either the animals would be left unfed and uncared for, or they might die, &c.; and a very troublesome correspondence would ensue as to what party was culpable and would have to bear the cost, and it would lead Government to great expense. The great object is to keep the inhabitants in a good temper, so that they would always be willing to hire out or sell their cattle to Government whenever it might be required.

Major Sir B. P. Bromhead,
40th Native Infantry.

Yes, certainly (please see my replies Nos. 3, 7, 11, 12 and 15). All carriage should be owned by the people, not by Government, with a few exceptions noted in the concluding sentence of answer No. 3. It could always be hired when wanted. In cases of emergency it could be requisitioned.

The term "regimental" transport system is a misnomer. It should be called a "general transport system."

Major A. C. W. Crookshank,
Commanding 32nd Pioneers.

Hardly to a greater extent than is done at present, our reserve being the cattle of the country. India swarms with transport of all kinds, and to collect it is merely a matter of time. Formerly this was not felt, as regiments coming from all parts of India brought their own carriage, and all districts bore the tax alike; now, however, in the days of railways, troops are shunted out at the termini, and Government expect to find a full supply of carriage awaiting their arrival.

Taking the carriage *seriatim* we have—

Elephants.—These we must catch and keep to the extent required. They are, however, delicate and expensive beasts, and the number to be kept should be very limited.

—These are decreasing in proportion as their grazing grounds are being cultivated. There are the plain camels; and, as this animal must form our principal beast of burden, Government should encourage the number required in stations being purchased or contracted for. Due encouragement should be given to zemindars to breed them by securing them tracts of grazing lands.

Horses and bullocks.—Both are plentiful all over India, and can be requisitioned at once. I have suggested that a standard pattern cart be made up, tried and introduced for general use. Complete carts should be ready and the component parts of others, and on the first sign of war railed at once to the base of operations. Cattle could also be hired or bought and railed also in trucks. Had this been done in September last, a cart train would have been in full operation on all lines long before the troops reached the bases. As it happened, the local Sindhi cart on the Kandahar line could absolutely hold nothing.

Mules.—This breed is increasing, and Government should purchase large numbers and utilize them in peace at all the hill stations. Some 4,000 to 5,000 could be thus maintained, and would form a valuable nucleus to start with, furnishing alone transport for 12,000 to 15,000 men.

Ponies, donkeys, can be got as required; also *coolies*. *Kahars* must, however, be enlisted in peace time and trained. The newly-caught men sent to Afghanistan were quite unable to carry a laden doolie.

This is all I can suggest. To get a lien on private carriage would be merely money thrown away, as there would be no guarantee of it, or an equivalent in lien, being forthcoming. And our experience of lending Government cattle out to civil and private work is not encouraging: it certainly does not return any the better for the work.

Besides, I cannot see what possible apprehensions we need labor under as to carriage not being forthcoming. We have only to look at actual facts. Within three and a half months of the date of the first warning, *not order*, being given to the commissariat department, both of General Stewart's divisions were at Kandahar; and Generals Browne and Roberts might have been at Cabul had they

gone on. We need not fear any want of carriage in the future. People have only to remember that camels are not all to be got in one spot; that they do not ordinarily travel by train; and that, when got, they require food and periodical halts; and bearing these points in mind, carriage will always be forthcoming, even for a large campaign, and do good work under all possible difficulties.

Colonel H. Boisragon, Commanding 4th Sikhs.

Yes.

Lieutenant-Colonel F. T. Bainbridge, 4th Sikhs.

I think it would, but that it would be better to buy the cattle and hire out to traders, &c., to go within fixed limits rather than to keep up a reserve of hired animals on a retaining-fee.

Colonel S. Edwards, Commanding 2nd Bombay Native Infantry.

I do not think so.

Colonel W. Bannerman, 4th Bombay Rifles.

It might be possible, but not without heavy expense.

Colonel H. H. James, Commanding 10th Bombay Native Infantry.

Without more information I am unable to speak positively; but it appears to me there ought to be no difficulty in carrying out a system of this kind with the assistance of civil officers of districts.

Colonel J. Fairbrother, Commanding 22nd Bombay Native Infantry.

worked and half-starved, and not worth much when called in for military service. I do not see a satisfactory way in which this might be arranged. My idea is to have thoroughly trained depôts capable of imparting instruction on all subjects appertaining to the transport service, including veterinary knowledge to some extent, to young officers in peace time, and which could be expanded to any extent necessary in time of war. If a certain number of young officers were trained annually at depôts, after a few years there would be no difficulty in finding sufficient and efficient supervision for the exigencies of the service on war breaking out. Some distinctive mark, such as are given for army signalling, musketry instruction, &c., should be granted to men qualifying for the transport train, and then there would be no lack of applicants for admission to the several classes formed periodically.

If the animals were to be the property of the inhabitants, and that they received a small sum annually for enrolling them, binding themselves to produce so many within a certain time when required, such a plan might succeed; but if the cattle belonged to Government and were hired out to the farmers, &c., I believe they would be over-

Lieut.-Colonel O. V. Tanner, Commanding 29th Bombay N. I.

Not impossible, I should think.

Colonel J. I. Willes, Commissary-General, Bengal.

I think not. The natives of the country are mercenary; have not the remotest idea of patriotism; consider it always a grievance to work for the State, though well paid. Such a system of reserve transport would never be reliable. The owners would take a retaining-fee, however large or small, without hesitation for years; but if suddenly called on to serve abroad, would evade doing so by every imaginable trick, as explained in answer 7.

I strongly advise that no reliance be placed on the natives of the country for any voluntary assistance in the way of transport out of India. All to be relied on must be solely Government property, organized, if possible, before an army actually takes the field.

The inconvenience that was caused to the troops and the unfortunate owners of cattle during the late war was caused almost entirely by troops advancing so hurriedly from base, of course for urgent reasons. Had the time fixed by me as necessary to equip a force in my confidential memorandum to Government of 21st July 1877 been given, the troops would have advanced properly equipped, and camels and establishments organized and camp-followers clothed, instead of the disorganized way they did.

Colonel B. A. Moore, Acting Commissary-General, Madras.

I do not think any reserve transport of the kind could be depended on.

Lieutenant-Colonel M. W. Broughby, Acting Commissary-General, Bombay.

This could only be done by a registration in each district of carriage liable to be called out to serve on emergency, and the would have to be devised and carried out by the civil authorities in charge of districts.

Colonel T. H. Sibley, Deputy Commissary-General, Bengal.

It might be possible to arrange with headmen of villages that a certain number of carts or animals should be available for service, and to pay a small retaining-fee, the animals or carts being mustered by civil authorities once a year.

Colonel M. J. Brander, Officiating Deputy Commissary-General, Calcutta.

Impossible, I should think; nor do I see the necessity, if proper steps are taken to know exactly where and in what time the carts and baggage animals of a district are to be found when wanted.

Col. J. Keer, Deputy-Comy-General, Lower Circle, Bengal.

Yes; see reply to question No. 1 of this paper.

Colonel G. S. Maclean, Deputy Commissary-General, late in Commissariat charge of the Khyber and Kuram Forces.

Possible; but unnecessary, unless it is meant to organize binding establishments to supply a reserve. I doubt if the people of the country would be found to give employment to Government carriage but on particular lines of country.

the road there, as well as the The 4,000, or 5,000 Cabuli

The cattle in the country are always available for Government hiring—witness the 60,000 or 80,000 camels hired for recent campaign. The 5,000 carts worked from Jhelum (1,200 of them up to Jellalabad, road from Thull to Peiwar, having been made passable at my request), the 4,000, or 5,000 Cabuli camels worked in the Khyber Pass, organized by commissariat officers,

and worked on *my* responsibility, on a system which made them equal to 16,000 or 18,000. It was by their means only that we maintained the army in the Khyber, when, had the commissariat not done it, the army would have had to leave the upper pass in March. Yet the commissariat department, I am told, failed!

Colonel R. Q. Mainwaring,
Deputy Assistant Commissary-
General, Kamptea.

The animals would be useless when required, as the generality of Natives do not know how to feed and keep them.

Lieutenant-Colonel J. V. Hunt,
Deputy Assistant Commissary-
General, Bengal.

I do not think that such a system would answer. It would be better, in my opinion, to remove, in the case of reserve carriage, the prohibition which is enforced in regard to moveable column carriage against the use thereof for the private benefit of the owners, and only to require such carriage to stand muster once in, say, three months instead of monthly. The carriage could be efficiently branded, so as to prevent substitution of inferior animals; and it might be stipulated that it should only be used within certain limits of country; and that in emergency it should be liable to be called in—say quarter of the amount within three weeks, half within five weeks, and the whole within 50 days.

Camels, mules, bullocks and carts might, on the above system, be retained at small cost; for instance, the rate of hire for camels at work being Rs. 8, those at graze receive now only Rs. 5; and, if the restrictions to which I have alluded were removed, they would probably be obtainable for Rs. 2 or less, on the understanding that, when worked, they should receive the full hire, which should further be allowed from the date of their standing muster at the nearest station to the point of assembly.

Major W. Luckhardt, Deputy
Assistant Commissary-General,
Umballa.

I am afraid that such a system would involve a great expenditure, and would require constant supervision, necessitating the employment of many officers; for, unless strict surveillance was exercised over the cattle thus lent out, the probabilities are that they would not receive proper care and attention paid to them, when they would fall off in condition, &c. If the transport officers suggested to be kept up permanently made themselves thoroughly acquainted with the resources of their districts, there should be no difficulty to obtain the requisite number of transport animals at any time, either by hire or purchase.

Captain T. F. Hobday, Deputy
Assistant Commissary-General,
Kandahar.

Civil officers who know the natives of different districts would best be able to answer this question. Carriage so kept up would have to be collected and inspected at least twice a year, and very heavy penalties enforced for its non-production in time of war. It is possible that such a system might be organized in time in such places where camel and pony carriage is still much in vogue; but such a system would require a separate staff of officers and Native officials to organize and keep it going, and would take some time to develop; it could only be organized under advice and suggestion from district civil officers, at any rate to commence with.

J. H. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

Yes; the nucleus of a transport train as above cursorily laid down could be extended in the neighbourhood of large cities and towns, where the animals might be used for civil work by municipal authorities, &c., pending their being required for army purposes.

Major-General J. Ross, Com-
manding Presidency District.

The questions embraced in the paper with the heading Transport are of so extensive a character that time has not allowed of my collecting the information which would enable me to answer them in detail.



The extension of railways has caused such a change in the means of concentrating troops that it seems to me undesirable to keep elephants for moveable column carriage, except at a limited number of important stations.

Agency district camels are useless. The extension of railways has caused such a change in the means of concentrating troops that it seems to me undesirable to keep elephants for Burma or the Malay states, and should be such that at very short notice the corps would be able to take the field.

I do not see how transport can be employed in times of peace, except by the commissariat department, which could be divided into two branches—"transport" and "supply."

A system of regimental transport would be advantageous on service and would work well under regimental officers and non-commissioned officers, who should previously have gone through a course of training and instruction with the transport service.

Colonel A. C. J. S. Gough, 5th
Bengal Cavalry.

I regret I am quite unable to take up the question of transport in the manner suggested by the questions in the paper on this subject.

I consider that the present system of hiring carriage when required either for the march or for service in the field is the best practical plan, and that, with a little organization and method, it will, as it has done hitherto, answer for internal and external warfare.

I do not think that it is possible to keep up any framework of a transport department in time of peace, as there would be no regular work for it, and without that it would collapse. Its employment in such work as bullock train would be no advantage, because when war occurs there is a greater strain than ever on the bullock train; and if that depended on a department and material that would be withdrawn in war time, it also would fail, and thereby cause serious detriment to the service.

I consider that the commissariat department should, as heretofore, continue to entertain the animals required for transport, whether camels, carts or mules, and that they should be furnished on indents in accordance with a regulation scale of allowances for baggage, camp equipage, &c., and that the transport should be divided when in the field into regimental, departmental, general, which appears to me a sound system; that there should be special officers appointed to charge of transport of divisions, brigades and departments, and these officers responsible for the care and feeding of the animals, and also for the proper driving of them along the line of march to the officers commanding divisions and brigades and heads of departments.

When a long halt takes place, such as occurred at Jellalabad, the transport animals should be made over to commissariat department to be utilized in bringing up supplies, but only along that part of the line nearest to the Brigade, &c., to which it may belong.

As regards moveable columns, during the whole course of my service over 31 years I cannot recollect a single instance of moveable column ever being exercised as such, that is, being moved suddenly or even with due notice out into camp; but I consider that, carriage being supplied, any regiments should be able to move out within twenty-four hours of notice, though perhaps some individual inconvenience might be occasioned.

There is no difficulty in making use of the grass-cutters' ponies of cavalry regiments for the conveyance of commissariat or other supplies, particularly of grain for the horses; and all that has to be done is to make over the quantity to the charge of the officer commanding the regiments.

Colonel W. Osborn, Officiating
Commandant 9th Regiment, Madras
Native Infantry.

My experience with regard to transport does not warrant my expressing an opinion, beyond that I consider that the transport service should be a separate and special one, with men and officers regularly trained for the work. At present, on service, officers for transport service are generally taken from regiments; are new and strange to the work, and difficulty and confusion are often the result.

I have had no experience of moveable columns, and therefore can offer no opinion regarding them.

K.

ORDNANCE.

1. Please state what are the recommendations of the Ordnance Commission of 1874-75, and Ordnance Committee of 1877-78, which have not yet been carried out.

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

Very few of the recommendations of the Special Ordnance Commission of 1874-75 have been carried out. Time would fail were I to attempt to enumerate all that have not been carried out; but I may enumerate the following:—

The arsenal at Fort St. George has not been abolished, nor has a new one been built at St. Thomas' Mount.

No siege trains are maintained at Mooltan or Kurrachee, and therefore the recommendation of the Commission, that at the two abovenamed places 1st class depôts should be created, has not been carried out.

The arsenal at Ferozepore is still maintained, contrary to the recommendations of the Commission, and no new one established, as recommended in paragraph 143 of the report of the Commission.

No arsenal has been built at Khandwa.

A 2nd class arsenal has not been established at Bellary.

The depôt at Dera Ismail Khan has not been abolished.

The capability of converting Agra into an arsenal has been rendered difficult by the other departments of a portion of the buildings which formerly comprised the arsenal.

The Ordnance establishment at Neemuch has not been abolished.

An arsenal is still maintained at Mhow.

No new depôt has been established at Bangalore within the proposed military zone at that place, Bengal.

The gun-carriage factories are still maintained in India.

The Madras gun-carriage factory has not been extended, nor have any steps been taken to make it in a state of efficient defence.

None of the recommendations of the Ordnance Committee have as yet been carried out. They have been accepted by Government in their entirety, and an order will shortly appear notifying the approval accorded by Government to the various reductions in the amount of Ordnance reserves which the Committee have recommended.

Colonel S. Chamier, B. A., Officiating
Deputy Inspector-General of
Ordnance and Magazines, Madras.

I. Removal of Madras arsenal to St. Thomas' Mount.

II. Raising of Bellary depôt to rank of a 2nd class arsenal.

III. Reduction of Nagpore magazine to a 1st class depôt (*not fully but for the most part carried out.*)

IV. Reduction of Secunderabad arsenal to a 2nd class depôt.

V. Abolition of the Hyderabad Contingent Ordnance depôts at Aurangabad, Ellichpore, and Hingolee; *but these are not under the Madras Ordnance Department.*

* Replies were given originally by Colonel Chamier, who quoted Colonel Cadell's views. The latter officer afterwards requested certain modifications might be made. These have been entered in italics.

- VI. Reduction of Bangalore magazine to a 1st class dépôt (*not fully but for the most part carried out*).
- VII. Abolition of Cannanore dépôt (nearly completed).
- VIII. Extension of the Madras gun-carriage factory.
- IX. Placing the Madras gun carriage factory in a state of efficient defence.
- X. Testing of *certain* gun-carriages made at Madras and those manufactured at Fatehgarh.
- XI. Extension of Madras gunpowder factory by addition of another group of incorporating mills. (*The machinery has been sent from England, but no local expenses have been incurred.*)
- XII. Provision of duplicate buildings and plant complete for the more dangerous processes in the gunpowder factory.
- XIII. Efficient defence of the gunpowder factory.
- XIV. The supply of harness, saddlery, and accoutrements to Madras from Cawnpore, *the latter having been unable to supply.*
- XV. Section VI of report. Allotment of stores to arsenals and dépôts.
- XVI. Commissariat department in Madras presidency does not undertake landing, shipment, and transport of stores: *vide* letter No. 484 of 26th October 1877, from Secretary to Government of India, Military Department.
- XVII. The system of supply of barrack furniture and supplies to other departments. (*This has been for some time under consideration of Government.*)
- XVIII. Proposed European and Native establishments of the Madras arsenal. (*This is now under consideration of Government.*)
- XIX. Proposed system of accounts for arsenals and factories.
- XX. European establishments of three presidencies to be thrown into one general list.
- XXI. Proposals regarding pay and rank of lascar establishment. (*This is now under consideration of Government.*)
- XXII. Master armourer at Rangoon to be replaced by an armourer sergeant: *vide* letter No. 1305 of 31st July 1878, from Secretary to the Government of India, Military Department.
- XXIII. Abolition of laboratory at St. Thomas' Mount. (*N.B.—The Madras arsenal itself was recommended to be placed there.*)
- XXIV. Proposal that posts of assistant overseer and master overseer in gun-carriage factory be held by foremen.
- XXV. Permanent establishment (Native) of artificers and laborers in the Madras factories be gradually reduced and replaced by temporary labor, *carried out to a great extent.*
- XXVI. That tindals and laborers employed in gunpowder-making shall receive increase of wages for length of service.
- XXVII. Camp equipage.—(*This subject is now under the consideration of Government.*)

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

The undermentioned recommendations of the Ordnance Commission of 1874-75, affecting the Bombay presidency, have not yet been carried out:—

- a.—Increase of accommodation in Bombay arsenal only partially carried out. I consider the removal of the arsenal to Poona preferable.
- b.—Maintenance of a 1st class dépôt at Kurrachee.
- The Government of India has sanctioned the maintenance of a second arsenal at this station.
- c.—Abolition of Neemuch magazine. Awaits completion of railway to Neemuch.
- d.—Abolition of Mhow arsenal and the establishment of one at Khandwa.
- Government of India has decided to retain the arsenal at Mhow. Nothing, however, has yet been done towards building a new arsenal as proposed.
- e.—Location of 1st class dépôt in cantonment at Ahmedabad.
- Nothing has yet been done. The dépôt is in its old and objectionable position in the city of Ahmedabad.
- f.—Reduction of Poona arsenal and placing a 1st class dépôt in fort at Kirkee.
- g.—Reduction of Poona arsenal is now in progress; but nothing has been done in the way of the arsenal or dépôt at Kirkee.
- h.—Abolition of Belgaum arsenal.
- The arsenal at Belgaum has been reduced to a 2nd class dépôt, and will be entirely abolished when communications have been improved.
- i.—That the gun-carriage factory divided between Bombay and Poona be closed.
- That the gun-carriage factory divided between Bombay and Poona be closed. The recommendation of the Commission should be carried out.
- j.—Extension of gunpowder factories by the addition of another group of incorporating mills to each factory.
- The buildings at Kirkee have been commenced, part of the machinery has been received, and part is on its way from England; but work on the buildings has now been stopped. It is very desirable that the work should be again taken in hand.
- k.—Extension of small-arm ammunition factory at Kirkee.
- Has only been partly carried out. It is very desirable that it should be completed.
- l.—Immediate stoppage of Bombay arsenal harness manufacture.
- The continuance of harness manufacture in Bombay, for a limited period, has been sanctioned by the Government of India.
- m.—Circles of supply.
- The Kirkee small-arm ammunition and gunpowder factories have not yet been allowed to supply Mooltan and Perozepore, although the Indus Valley Railway is open. They should be so.
- Mhow arsenal does not yet supply Saugor or Goona.
- n.—Collection of ammunition in a central magazine in each station.
- Not yet carried out.

*.—Division of stations into two classes as regards camp-equipage.

Partly carried out only, as more stations have full supply of tents than was recommended by the Commission.

The recommendations of the Ordnance Committee of 1877-78 have not been published, except as regards reserves of small-arm ammunition. Their recommendation on this subject is consequently the only one that has been carried out.

2. Would it not be more conducive to the efficiency of the army of India, and more economical in every way, if there was one ordnance department instead of three for India?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

In answering this question in the affirmative, it may perhaps be as well to point out some of the evils which result from the maintenance of three distinct ordnance departments in India.

Too much stress cannot be laid on the necessity of uniformity in the patterns of all warlike stores required for the troops throughout India. Regiments and batteries located in one presidency are often called upon to serve in another and it is essential that no deficiencies in their equipments should exist.

If uniformity does not prevail, equipments varying in pattern have to be maintained, entailing considerable additional labor and expense, with always the risk of a wrong article being supplied to an indenting officer.

Again, with regard to alterations and improvements in fixed equipments, while every effort is made to publish each change in pattern to the inspector-general of ordnance of the three presidencies, cases have occurred in which alterations sanctioned by the Government of India or by His Excellency the Commander-in-Chief in India have not been communicated to the other presidencies.

One instance will illustrate the inconvenience and trouble occasioned by such an omission.

A pattern carriage and wagon for 9-pr. R. M. L. guns was received from England, which, when examined by the Superintendent, Gun-Carriage Factory at Fatehgarh, was found to differ in many respects from the pattern carriage and wagon already in use in India. The Government of India in consequence sanctioned certain alterations being carried out in equipments, and communicated their decision to the Governments of Madras and Bombay. Shortly afterwards it was ascertained in Bengal that all these alterations could not be carried out with batteries in the field; and, with the approval of His Excellency the Commander-in-Chief, it was decided that only some very trifling alterations were to be effected to batteries in the field, and the entire alterations only to carriages and wagons in future manufacture. But this was not communicated to the Governments of Madras and Bombay.

Again, it may happen that stores are surplus in one presidency which on account of a difference of pattern cannot be utilized in the other presidencies, or the information regarding such surplus may be received in the other presidency after arrangements have been entered into for the provision of the stores which may be deficient.

If the ordnance department in India was under one responsible head, these and other evils would be obviated; and I have no doubt that the efficiency of the army of India would be considerably increased thereby.

Were the *personnel* of the department also to be under one head, the services of warrant and non-commissioned officers throughout the department in India would be available at his discretion in time of need; and thus one of the great and serious inconveniences which resulted during the late war would be prevented, and there would be no necessity to deprive one or two arsenals of almost their entire permanent European establishment, and leave onerous and responsible duties in those places to be performed by young and inexperienced hands, at the very time when experienced subordinates are especially required.

Whether the amalgamation of the three ordnance departments would prove "economical in every way" must depend in great measure on the system under which the amalgamated department is to be worked. I regard with anxiety the creation of any new department. The mistake has been made in many instances in which such have been created on the plea of economy and have issued in wasteful expenditure. But careful provision may prevent such results.

The supervision exercised by an officer appointed to control an amalgamated ordnance department over the demands on England and the expenditure for local supplies I have no doubt that Bengal if efficiently exercised, result in considerable saving to Government; and in this direction a whole amalgamated department a large economy might be enforced.

The opportunity the head of such a department would have of distributing surplus stores and regulating the outturn from the several factories would also tend to lessen expenditure.

I would, however, deprecate a system, such as prevails in the military account department, of moving departmental officers on promotion in the subordinate grades from station to station. It would be well to ascertain what is the amount of travelling allowances annually disbursed to meet the expenses of officers of the military account department. At any rate, if freedom of action is allowed to the head of an amalgamated ordnance department to move officers, it would be well that he should be directed to exercise much discretion in ordering changes or reliefs.

Colonel S. Chamier, B.A., Officiating
Deputy Inspector-General of
Ordnance and Magazines, Madras.

General Cadell's views on this subject were expressed in the following terms when reviewing the proposition made by Colonel Wray, B.A., in his "Notes on the supply of ordnance stores to India from England, the reserves for India, the local manufacture of war materials, and the coast defences," to place the ordnance department of the three

presidencies under one head in Bengal:—

"Bengal, as I have already remarked, is admittedly our 'leading presidency'; but I do not believe that by making its inspector-general directly, as to details, supreme over the other presidencies, the

wants of India generally would be better of more cheaply supplied than by the present system of free and constant inter-communication and of earnest desire on the part of all mutually to assist each other as far as can be done with prudence and safety. It is simply impossible that Colonel Wray's proposal could be carried out without lessening the authority or responsibility of the inspectors-general at the minor presidencies, or destroying the efficiency of their departments in any way. Even Colonel Wray himself seems to have doubts on the point; but he does not say what he would propose, were the authority, responsibility, and efficiency to which he alludes destroyed. If I may judge from the amount of work I myself have to perform, the inspector-general of Bengal must have his time and thoughts most fully occupied. From necessity, I have been obliged to devote holidays and holy days to the writing of this twice-ordered letter. If still more extensive jurisdiction than that of the immense territories over which the inspector-general of Bengal at present holds ordnance sway is given to him, I have no doubt that the interests of the State will suffer, however able and however hard-working he may be. He cannot be omniscient, and he cannot be omnipresent; and if he is made the ordnance store dictator of the empire, his unavoidable mistakes will sooner or later produce danger and pecuniary loss."

There is practically at present only one ordnance department in India, divided into three divisions, each of which has a head who, with his deputy, has full responsible work to do. Very few know the duties performed by these heads, and without such knowledge clear questions cannot be given and answered. Almost all matters of importance to the smallest detail relating to patterns of guns, gun-carriages, rifles, kinds of powder, &c., are decided, not in India, but in England; and their numbers, proportions, &c., are clearly laid down in easily-arranged equipment tables and orders. From a siege train to a rifle, the whole is composed of a certain number of well-known items. The ordnance department is essentially one dealing with minute details. Their multitude and value and intimate relations to military efficiency constitute their great importance. Questions relating to them have to be daily adjudicated by the present three divisional heads of the ordnance branches in accordance with existing orders. They cannot be dealt with economically in the absence of a thorough intimate knowledge and a constant study of details. On almost every point reference to memory or to orders, or to experimental results, and also a consideration of local wants and abilities to supply, are required. The duties now done by the three divisional heads are essentially for far the greater portion duties of details, and must be done by officers of standing and experience; otherwise they will be badly done, and money will be lost.

From the third question it appears that it is contemplated to concentrate the duties of the present three heads into the duty of one head in matters of great importance. All mention of what these matters really are is carefully avoided in the question, although the subject has been under discussion for many years. To obtain a reasonable answer some definite information on this point is absolutely necessary. As matters now exist, details are already, and always have been, completely decentralized; and, as already mentioned, the duties of the inspector-general are composed of daily dealing with numbers of these details. Any change will, therefore, be one of more or less centralization, not of decentralization.

Doubtless the Government of India as well as the Government of the minor presidencies require efficient experienced ordnance advisers; but I am not aware that the present system has in any way failed. No one has demonstrated this; but if it has, it has failed owing to some personal want of abilities, experience, or knowledge on the part of one or more of the inspectors-general of ordnance, which may occur again; and hitherto the mistakes or omissions of one have been rendered for the most part innocuous by similar mistakes not having been made by the others.

When differences of opinion which are rare as to patterns or on any other special ordnance points arose, full intercommunication has, till recently, taken place among the ordnance heads; and the matter was usually finally decided by the advice tendered by the inspector-general in Bengal (the guiding presidency to the Government of India). Thus practically there has already been only one departmental head on such matters requiring reference, who has been higher paid than the others. The system has worked admirably as far as Madras has been concerned, while the local head was always of sufficient rank and standing to be able without giving much offence candidly to state his opinion to Government even where differing views had been formed by those in higher authority. This is a matter of great importance; otherwise important technical details have to be, to the disadvantage of the State, dealt with by men without any practical knowledge and experience.

It is intended to put the whole personnel of the three presidencies under one officer, it is impossible the service should not occur. One officer cannot have personal knowledge of the whole of the personnel, and the system of promotion by marks is one which is only useful when personal knowledge

General W. S. Hatch,
General of Ordnance and
Magazines, Bombay.

I doubt much whether anything would be gained in point of efficiency by an amalgamation of the three ordnance departments.

An officer or warrant officer who had been trained in one part of the country would, owing to difference of languages, &c., find himself at a loss when sent to another. The cost of transfers on promotion, &c., would, as now found in the case of artillery officers, be very heavy.

The separation of the ordnance lists, moreover, does not prevent men being sent from one presidency to serve in the arsenals of another, e.g., six non-commissioned officers of the Bombay ordnance department were sent to serve, and five are now serving, at Quetta and Kohat under Bengal commissaries.

Twenty Bombay store lascars are with the Kandahar siege-train.

Both non-commissioned officers and lascars have been favorably spoken of by officers with whom they have served.

Large quantities of stores have also been supplied to Bengal for the expedition; and I do not think that there would have been any important saving in time in the supply if there had been only one instead of three departments.

As long as there are three governments and three armies, I think three separate departments are required. In the event of an amalgamation of the armies, an amalgamation of the ordnance departments would be less objectionable than under present circumstances.

3. Please state what would be the *personnel* of the administrative staff of the amalgamated department, with the duties in detail of each, bearing in mind that the object is to centralize in matters of great importance and involving great expenditure, and decentralize in all details.

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

If the ordnance departments of the three presidencies are amalgamated, I consider that the *personnel* of the administrative staff of the amalgamated department should consist of—

- 1 Director-general of artillery in India.
- 1 First assistant to director-general.
- 1 Second assistant to director-general.

- 1 Inspector-general of ordnance.
- 1 Assistant inspector-general of ordnance.

} For each
presidency.

In suggesting the title of inspector-general of ordnance for the officer entrusted with the duty of supervising the ordnance department in each presidency, I do so, not only because I am of opinion that the officer occupying such a position is, by virtue of the duties required of him, entitled to it, but also because, even in the apparently slight matter of a name, there is a something which creates in men feelings of pride and self-respect which instigate the efficient and zealous performance of duty. Ordnance officers are, by reason of their duties not being generally understood, not regarded with favor by the regimental men, however ignorant the latter may be; and this causes a lack of that soldierly pride which is as essential an attribute to an ordnance as to any other officer. As hereafter shown, however, I do not propose that the inspectors-general should draw the pay at present given to officers of that grade.

The monthly staff pay drawn at present by the administrative staff of the ordnance department in the three presidencies and the monthly staff pay I propose for the performance of the same duties in the amalgamated ordnance department are as follows:—

	Present monthly staff pay.	Proposed monthly staff pay.	Remarks.
	Rs. A. P.	Rs. A. P.	
1 Director-general of artillery in India	.....	2,500 0 0	Consolidated.
1 First assistant to director-general of artillery in India	.....	500 0 0	} With regimental pay and allowances.
1 Second assistant to director-general of artillery in India	.....	300 0 0	
1 Inspector-general, Bengal	2,500 0 0	1,850 0 0	Consolidated.
1 Deputy inspector-general, Bengal	800 0 0	.....	} With regimental pay and allowances.
1 Assistant to inspector-general, Bengal	500 0 0	300 0 0	
1 Inspector-general, Madras	2,200 0 0	1,650 0 0	Consolidated.
1 Deputy inspector-general, Madras	600 0 0	.....	} With regimental pay and allowances.
1 Assistant to inspector-general, Madras	.....	300 0 0	
1 Inspector-general, Bombay	2,200 0 0	1,650 0 0	Consolidated.
1 Deputy inspector-general, Bombay	600 0 0	.....	} With regimental pay and allowances.
1 Assistant to inspector-general, Bombay	.....	300 0 0	
Total	9,400 0 0	9,350 0 0	

Bearing in mind that the object in forming an amalgamated ordnance department is to centralize in matters of great importance and involving great expenditure, and decentralize in all details, I suggest that the following duties be assigned to the several officers above enumerated as appropriate to each.

Duties of the director-general of artillery in India.

1. He will advise the Secretary to the Government of India, Military Department, on all questions relating to ordnance, munitions of war, and stores supplied by the ordnance department.
2. It will be his duty to carefully watch the progress of artillery science; and to submit to the Secretary to the Government of India in the Military Department all such suggestions and recommendations as he may think calculated to improve the arms, artillery material, or other ordnance stores of the service, to increase their efficiency or to cheapen their manufacture in India.
3. He would have to examine and report upon all questions relating to inventions or proposals connected with the arms, artillery material, or other ordnance stores of the service.
4. All commissioned, warrant, and non-commissioned officers of the ordnance department would be under his direct orders and control as regards appointment, promotion, transfer, and leave.
5. He would be looked to as the officer responsible for the conduct of all business connected with the ordnance manufacturing departments in India, except such as belong to the account branch. From him would emanate all orders to the superintendents of factories, who would have to refer to him all questions which might require the decision of a higher authority than their own. The superintendents of factories would at the same time be held individually responsible for the efficiency of the establishments under their respective charges, and for the proper manufacture and strict conformity to the sealed patterns of all articles constituting the outturn of such establishments. For the interior

economy and discipline maintained in factories, their superintendents would, of course, be held responsible.

6. He should frequently inspect the ordnance manufacturing establishments in India, and, as he has opportunity, the several arsenals and depôts.

7. The inspectors-general of the several presidencies, superintendents of factories, and officers in charge of arsenals and depôts would have to furnish the director-general with all such information and returns as he may require, and report to him their opinion on any questions which he may refer to them.

8. Under his directions and orders all ordnance patterns would be sealed on behalf of the Government of India.

9. With regard to the preparation of the annual indent on England for ordnance stores, the following course would be followed.

Statements of the machinery required to be obtained from England would be submitted to the director-general not later than 15th June. These statements would be prepared and forwarded direct to the director-general by the superintendents of the several factories for their respective factories, and by inspectors-general of ordnance for the arsenals and depôts under their supervision.

A tabulated statement of all machinery proposed to be obtained from England for the ordnance department in India would be submitted by the director-general to the Secretary to the Government of India for approval not later than 15th July.

Estimates of the probable cost of ordnance stores for arsenals and depôts, in anticipation of the demands to be made in an annual indent on England, would be submitted by inspectors-general of ordnance so as to reach the office of the director-general not later than the 20th June.

Superintendents of factories would have to prepare estimates of the probable cost of stores which might be required for their respective factories in anticipation of the preparation of the annual indent on England, and forward them so as to reach the office of the director-general not later than the 20th July.

These estimates of the probable cost of ordnance stores to be obtained from England will be collated in the office of the director-general, and submitted to the controller of military accounts not later than 10th July.

Requisitions for ordnance stores required to be obtained from England for factories would be prepared by superintendents of factories and forwarded direct to the director-general, so as to reach not later than 15th July, with the view to such of them as might be approved by the director-general being embodied in the annual indent on England.

Officers in charge of arsenals and depôts would prepare requisitions for stores required to be obtained from England and submit them to inspectors-general of ordnance, who, after carefully inspecting such requisitions, would be required to forward them to the director-general with a covering letter, bringing to notice any particulars in them which might call for remark, and detailing any stores which have not been included in these requisitions, but which, in the opinion of the inspectors-general of ordnance, it might be deemed necessary to obtain. These requisitions would have to be submitted to the director-general not later than 15th July.

From these factory, arsenal, and depôt requisitions a tabulated statement would have to be prepared in the office of the director-general, showing the quantities of the several stores available for transfer and those which would have to be demanded from England.

On the orders passed by the director-general, the indents on England would be prepared from this tabulated statement, and forwarded to the controller of military accounts so as to reach that officer not later than 10th September.

Instructions would be issued by the director-general for the transfer of stores, if necessary, from any one station in India to another, and the inspectors-general and superintendents of factories would be held responsible that such orders were carried out; and these officers will also be furnished with copies of indents for stores which have been demanded from England for their respective establishments.

Supplementary requisitions for stores on England might be submitted by inspectors-general and superintendents of factories to the director-general only if absolutely necessary; but special or extraordinary demands would have to be very carefully examined and restricted in number, their being only justified under exceptional circumstances or unforeseen emergency; and the reasons for their submission would have to be fully detailed.

Articles required to be made in manufacturing establishments would be submitted by superintendents in charge of arsenals and depôts to inspectors-general, who after carefully examining such articles, and noting what articles should in their opinions be provided, would have to forward them to the director-general.

The director-general would furnish each inspector-general with a statement showing the quantities of each article to be supplied from the several factories.

Estimates for stores to be purchased locally would be submitted direct by superintendents of factories to the director-general, and by officers in charge of arsenals and depôts through inspectors-general of ordnance so as to reach the office of the director-general not later than 1st September.

These estimates would, after having been passed by the director-general, be returned to the inspectors-general and superintendents of factories.

The tenders received by superintendents of factories for the purchase of local stores would be submitted for the orders of the director-general. Those received by officers in charge of arsenals and depôts would be dealt with by inspectors-general.

The budget estimate for the ordnance department in India would be prepared and submitted by the director-general to the controller of military accounts not later than 1st November.

The estimates for permanent and extra establishments, office-rent, stationery, telegrams, &c., would be submitted to the director-general by superintendents of factories and inspectors-general of ordnance for their respective establishments not later than 1st September.

An annual statement of buildings required for factories would be furnished to the director-general by superintendents, and those required for arsenals and depôts by inspectors-general so as to reach the director-general not later than 1st July.

An annual statement of buildings to be erected would be submitted to the Government of India by the director-general not later than 1st August.

An estimate for petty works to be carried out in the several factories, arsenals, and depôts would also be submitted by the director-general to Government.

He would deal with all questions of army equipments as regards ordnance stores; issuing from time to time, under the orders of Government, equipment tables for the several branches of the army.

The director-general would submit to the Secretary to the Government of India, Military Department, an annual report on the state of his department, giving information regarding the working of the department during the preceding year, the changes in equipment which may have been effected, the state and cost of the manufacturing establishments, and all other matters which he might consider desirable or expedient to bring to the notice of Government.

He would submit annually for the information of Government a detailed statement of the qualifications and characters of the several officers serving in the ordnance department.

The assistant director-general would aid the director-general in the discharge of his duties; and the senior assistant would assume temporary charge of the director-general's office in the absence of the latter, and supervise during such time the current work.

One of the assistants should be a young officer selected in England specially with reference to his scientific qualifications, which should be of a high order and such as might render unnecessary any references being made to the home authorities on subjects of any recent changes effected in artillery material. Such an officer should be relieved every five years, to enable another younger man taking his place, primed with all the latest practical professional knowledge to be gained in England.

Duties of Inspectors-General of Ordnance.

An inspector-general would be held responsible for the efficiency of the several arsenals and depôts in his circle, and for the carrying out of all instructions he might receive from time to time from the director-general.

He would have to conduct all business connected with the arsenals and depôts in his circle, except such as related to the account branch.

He would have to inspect the arsenals and depôts in his circle biennially, or oftener if necessary.

It would be his duty to carefully examine and check the following documents from officers in charge of arsenals and depôts before submitting them to the director-general, giving any further necessary information regarding them in a covering letter:—

- I.—Statements of machinery required to be obtained.
- II.—Estimates of cost of ordnance stores to be demanded from England.
- III.—Requisitions for ordnance stores to be obtained from England.
- IV.—Estimates of articles required from manufacturing establishments.
- V.—Estimates of articles required from local markets.
- VI.—Estimates for permanent and extra establishments, &c.
- VII.—Statement of buildings to be erected.

He would check and pass all tenders and contracts from arsenals and depôts in his circle.

He would be expected to exercise a strict and careful supervision over the expenditure of the sanctioned budget grant.

He would be responsible for the maintenance of the established proportion of stock in the several arsenals and depôts of his circle.

He would have to audit all indents for unauthorized stores and those on payment from batteries, and departments, and arsenal indents, forwarding those on manufacturing establishments to the director-general with his recommendation.

He would have to submit monthly to the director-general a statement of the stores in the arsenals and depôts within his circle.

Stores arriving from England for his circle would be distributed under his order.

He would have to submit quarterly to the director-general reports on the qualifications and characters of the warrant and non-commissioned officers under his orders, and annually a report on the characters and qualifications of the commissioned officers under his orders.

He would have to submit annually to the director-general a report on the working of the branch of the ordnance department under his supervision, giving information and statistics on all matters which he might consider desirable to bring to the notice of the director-general.

The assistant inspector-general of ordnance would aid the inspector-general of ordnance in the discharge of all his duties, and assume charge of his office during his absence.

Colonel S. Chemier, B. A.,
Officiating Deputy Inspector-
General of Ordnance and Magazines,
Madras.

I am not prepared to give an opinion as to what should be the personnel of the head-quarter administrative staff of the department if amalgamated, in the absence of information as to the extent of supervision and control it is intended to invest in the head of the department over the ordnance departments of the other presidencies as regards the administrative staff of the minor presidencies. I am of opinion that no reduction could be effected in consequence of such amalgamation, as work would be rather increased than decreased by constant references and submission of returns to Bengal. There is now ample work for two administrative officers and the small office establishment at their disposal.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

I think that, in the event of an amalgamation of the ordnance departments in the three presidencies, an administrative staff as follows would be requisite :—

One director-general to act as adviser to the Government of India, to examine demands on England from arsenals, prepare indents on Home Government. This officer would, I think, necessarily move with the Government of India; but a great part of his office might be stationary at either Calcutta or Simla.

One inspecting officer to inspect all arsenals and factories periodically, and to make special inspections when ordered by director-general. He must be an officer of considerable standing and experience.

One deputy inspector-general in each presidency to examine committee proceedings, examine indents for stores not authorized by equipment tables, arrange for distribution of stores within his presidency, and conduct correspondence with local authorities, and probably one assistant in Bengal, to be attached to the office of the deputy inspector-general of that province.

Even with this staff I doubt whether the work could be carried on so well as at present.

An inspector-general can now visit a portion of his arsenals and factories, not only at the formal inspection, but when there is any subject for enquiry, which could hardly be the case with a director-general at India head-quarters, or an inspector constantly on the move.

4. Should not all the military factories be under the chief officer of the ordnance department in India?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

Certainly. I believe very great economy could be exercised if they were.

I have good reason for believing that at the present time of my writing this answer, were I in possession of certain detailed information which I require before I can commit myself to assume the responsibility, I might prove the perfect practicability of closing one of the gunpowder factories, if not at once, at no very distant period. But I have not this information or the means of obtaining it, save by assuming a position which the inspector-general in Bengal is not entitled to.

Colonel S. Chamier, B.A., Officiating Deputy Inspector-General of Ordnance and Magazines, Madras.

The arguments used by General Cadell against the placing of the ordnance departments of the three presidencies under one head are doubtless applicable to any similar proposition regarding the factories. Unless the factories are under local control, the inspector-general would have to refer to Bengal for sanction for the manufacture in the gun-carriage factory of articles of every description, and many delays and much inconvenience might accrue therefrom.

In no paper which I have ever seen have I observed the slightest fault found with the working of the Madras factories. Surely some fault to be remedied should be shown before a proved good system is abolished. Hitherto the factories of the three presidencies have fully helped each other whenever possible, and whenever their wants were made known, as they always, I believe, have been. I am aware of no single point where more control exercised by a distant, and necessarily to a certain extent ignorant, official would not be baneful.

Major-General W. S. Hatch,
Inspector-General of Ordnance and
Magazines, Bombay.

There is free intercommunication between the three inspectors-general, and, so far as my experience goes, each of the three has shown thorough willingness to assist any one of the others, so that I do not see any necessity for placing the factories under one head. The only advantage to be gained is that probably a central authority would divide the work more equally between the several factories than is the case at present.



Please state in detail your opinion of the economy which would result from a central authority, as a director-general of ordnance for all India, controlling the supplies on England, the estimates of arsenals generally, and the expenditure on local supplies. Will you be good enough to detail the process of preparing and checking the indents on England?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

An officer such as a director-general of artillery for all India, to whom a central authority were accorded, would be in a position, and would have opportunities, to ascertain the wishes and intentions of Government with regard to armaments, equipment, &c., throughout the country, and could submit, without unnecessary delay, any subjects connected with such for the consideration of the Government of India.

Having the whole of the manufacturing establishments under his direct control, he would not only know the resources and capacity for work of each and all the factories in India, but would be in a position to regulate them with due regard to requirements and economy.

He would have before him a statement of the entire reserves of all stores of ordnance supply available in each and all the arsenals throughout India, and would thus be in a position to distribute them as required, and check the unnecessary demand of any from England.

With this knowledge in his possession, he would be in a position to check indents on England and the estimates of arsenals with far better prospect of effectually and economically controlling the expenditure than when this work is done, as it now is, in three distinct offices, in not one of which is such complete information at the disposal of the officers engaged in the work of preparing those returns.

As regards local supplies, the economy resulting from a central authority would not be so great as in the other two instances. It would generally be found that the cost of transferring stores of purely local supply from an arsenal when a surplus existed would be greater than purchasing the articles at the station when they were deficient.

This would not hold good in every case. Some economy, however, would result from requisitions for stores of local supply being checked by a central authority, though the economy might be slight.

The direction in which to look for any considerable reduction in the expenditure of the ordnance department is in the checking of demands on England. But it must be remembered that even any attempt to exercise economy in this way may be rendered abortive by the Government sanctioning extensive armaments for forts and station cities of refuge.

The process of preparing and checking the indents on England in the Bengal presidency is as follows.

Blank forms of indents are forwarded to each officer in charge of an arsenal or factory, to be filled up and returned to the ordnance office.

The information furnished in these returns comprise the established proportions to be maintained, the stock in hand, the probable expenditure during the remaining portion of the official year, and the probable balance in store at the commencement of the next official year.

Two separate indents on England are prepared from these returns. The one includes the requirements of Fort William and Allahabad arsenals and of the factories at Dum-Dum, Ishapore, Cossipore, Cawnpore, and Fatehgarh. The other includes the requirements for the arsenals of Ferozepore and Peshawar.

To take the latter indent as an example. A tabulated statement is prepared showing the proportion and stock at Ferozepore and the proportion and stock at Peshawar, and the surplus or deficiency is calculated.

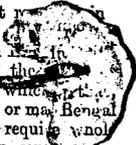
As far as possible, the deficiencies are obtained by transfer of stores from the surplus shown in the other statement prepared in the same manner for the lower arsenals and factories.

The remaining deficiencies, or such as are considered absolutely necessary to be obtained from England, are noted in the tabulated statement; and from the orders passed thereon the indent on England for the upper arsenals is prepared.

Colonel S. Chamier, B.A., Officiating Deputy Inspector-General of Ordnance and Magazines, Madras.

A central authority, reasonably and without waste of money and efficiency, controlling the details of indents must have complete knowledge of how all remaining stores stand as to quantities and conditions. Only the control department has returns of these stores, which in the Madras presidency are always available to the inspector-general, as the offices are on the same floor of the same building. If away from these returns, which contain

different articles, and without complete local knowledge, any controlling authority must make mere shots at economy. In some cases, by a rare chance, he may hit the mark; in most his wild attempts will probably be baneful. If he demands written explanation, endless and unlimited correspondence will ensue; and if he has to accompany the Government of India as an ordnance adviser, he cannot possibly by minute personal inspection make himself acquainted with actual stock balances and with local wants, &c. Dealing with these must remain, as at present, with the presidential ordnance heads. At present documents showing surplus stores are circulated among the three presidential divisions of the one Indian ordnance department, and demands are modified accordingly. If the central controlling authority is to go into the details of indents in a manner which will not do harm, he must have a large establishment to devote himself for weeks unceasingly to the study, and must also involve himself in unlimited correspondence.

General Cadell's opinion on the first part of this question will be found in the extract  answer to question 2.

The following is the procedure observed in the preparation and checking of indents on England. In the first place, an indent is prepared by the commissary of ordnance in charge of the Fort St. George, the largest and most important arsenal in the Madras presidency, to which the articles originally received from England are distributed to all the other ordnance arsenals, depôts, or magazines belonging to the Madras ordnance department. The total demands made are based on the requirements of all the said arsenals, factories, and depôts, as also those of the arsenal itself. It is then sent to the superintendents of factories, by whom their respective requirements are entered, and then forwarded through the ordnance officer, Madras arsenal, to the ordnance office. Here it is checked as to nomenclature. It is then sent to the examiner, ordnance accounts, who returns it to the inspector-general of ordnance and magazines after having inserted in the appropriate place the number or quantity of each article demanded in the indent which is at the time in store. In the ordnance office, a careful calculation is made with the view to ensure that the numbers or quantities of the articles demanded in the indent, *plus* those of a like kind under supply from home, and *plus* those of a like kind in store on the date the requisition is made, shall not exceed a three years' supply, which three years' supply is calculated either on the average actual expenditure of the three years preceding the dates of submission of indent, or on the actual expenditure of the year immediately preceding such date. Of course, in cases in which distinct allotments are laid down, the demands are regulated with a view to maintain such; and should the necessity arise for putting forward a requisition in excess of any established allotment, a satisfactory reason is given for the special and excessive demand being made.

When the numbers or quantities of the several articles of store which have to be demanded from home have been fixed by the inspector-general, this same indent is once more submitted to the examiner of ordnance accounts, to enable that officer to enter in it the value of each article demanded as recorded in the "priced vocabulary." The original Madras arsenal indent having thus been carefully examined and checked in every detail, the home indent is prepared from it in the office of the inspector-general of

ordnance and magazines, subject, of course, to any further modifications or alterations which it may in the interval be found necessary to make, and which by reason of the arrival of stores from England or other causes have frequently to be made within a few days of the final despatch of the indent to the controller of military accounts, by whom the document is once more forwarded to the examiner of ordnance accounts for final check and report; and of course if the examiner of ordnance accounts were to discover any very serious errors in it, he would return the indent for further revision; but this seldom, if ever, occurs. *The indent, it is known from remarks made upon it, is subjected to scrutiny by orders of the Government of India.*

Major-General W. S. Hatch,
Inspector-General of Ordnance and
Magazines, Bombay.

I do not think that there would necessarily be any economy from a central authority controlling the indents on England.

The proportions of stores to be kept up is now definitely laid down; equipment tables for regiments and batteries have been published, &c.; so that the demands for stores on Home Government can be easily regulated. I am of opinion that the excessive demands in former years have been caused, not so much by the want of a controlling authority, as by want of standards showing scale on which supplies should be kept up. In matters such as patterns of carriages, &c., there has practically been a director-general in Bengal for some years past. Changes have been ordered for the three presidencies by the Government of India, acting on the advice of the inspector-general in Bengal, without any reference to the other presidencies; and the result of the system has not been advantageous. I would instance the changes in 9-pr. R.M.L. carriages regarding wooden and iron axletree beds, the cost needlessly caused by which must have been very great, and the difficulty which recently arose about "bags-kit," which was only rectified in consequence of a reference made by myself; and again the confusion which has arisen about locks and spring turn-buckles for ammunition boxes.

In England the director-general of ordnance has a number of selected officers to assist him. The several inspectors-general might constitute a similar consulting body; and if they were allowed to do so, I think that there would be less probability of mistakes than is now the case.

At present in the Bombay presidency each arsenal prefers an annual indent (in which stores required from England are included) on the Bombay arsenal. These indents are carefully scrutinized in the ordnance office by the deputy inspector-general, questions being put as to the necessity for procuring particular stores the necessity of the demand for which is not obvious. These indents are then passed on to the Bombay arsenal, which then prepares an indent for stores required from England, both for itself and other arsenals. These demands and those from the factories are again scrutinized in the ordnance office; and when all doubtful points have been settled, the general indent is prepared, and scrutinized item by item, first by clerks, and eventually by myself. When ready, the indent is sent to the examiner of ordnance accounts for valuation; and subsequently to the controller of military accounts, by whom anything he may think objectionable in the indent is brought to notice. The indent is then sent to the Secretary to Government, Military Department, Bombay, and afterwards to Bengal, where it is again examined, and is finally criticized by the store department in England.

6. What will be the approximate saving, present and prospective, if the recommendations of the Ordnance Committee are effectually carried out?

Major-Genl. Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

This is a question it is impossible for me to answer, even by approximation.

The Government of India by adopting the recommendations of the Special Committee on Ordnance have, I believe, been saved from spending upwards of £400,000, which would, but for their recommendations, have been spent.

I cannot commit myself by saying what prospective savings will be the result of their recommendations. It can, however, be no doubt that, provided no great scheme of procuring new armaments and from England are propounded, the reduction in the reserves of ordnance, ordnance ammunition, small-arm ammunition, &c., &c., will, once our reserves are complete, probably be very great, especially in the reduction of one or more of our factories. I cannot give figures any estimate of prospective savings, but am ready to answer any question that may be put to me with the view to my establishing my reasons for expecting that savings will result.

Colonel S. Chamier, R.A., Offg.
Dy. Insp.-Gl. O. & M., Madras.

Proceedings of the committee alluded to not yet received.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

I have not yet seen the whole of the papers connected with the recommendations of the Special Committee on Ordnance, and am therefore unable to reply on this point.

7. On the recommendation of the Ordnance Commission of 1874-75, ordinary indents are now dealt with by commissaries of ordnance, instead of being sent to inspectors-general. What reduction in the office establishment of the latter does this admit of?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

The office establishment of the inspector-general of ordnance has been reduced by two auditors on a monthly salary of Rs. 110 each since the system has been introduced by which ordinary indents are dealt with by commissaries of ordnance. It has been found impossible

in the meantime to effect further reductions. The new system under which regimental indents are dealt with is scarcely yet in full operation by reason of the difficulty that has been experienced in getting regimental officers to comprehend it or to conform to orders lately issued on the subject. The late war also has caused the accumulation of indents, which now encumber the table of the assistant to the inspector-general of ordnance in abnormally large numbers; and it will be some time before the arrears of indents are brought up. They are still coming in dated so far back as November or December 1878.

Colonel S. Chamier, B.A., Offg.
Deputy Insp.-Genl. of Ordnance
and Magazines, Madras.

No establishment ever existed in the Madras ordnance office for this purpose, the system always in force being that proposed by the Ordnance Commission.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

There are only three clerks employed in the indent branch of this office. They are fully occupied; as, although the indents for authorized supplies no longer pass through this office, the number of other indents for supplies to troops and for supplies to civil departments, police, volunteers, is very large. Moreover, this branch of the office examines committee proceedings of all descriptions, which are very numerous. I do not think that any reduction is *at present* feasible.

8. Can you suggest any method by which the expenditure on military stores, whether imported from abroad or purchased in India, can be reduced?

Major-General Napier Campbell,
Officiating Inspector-General
of Ordnance and Magazines,
Bengal.

As far as concerns the supply of local stores at stations other than presidency towns, I can suggest no better or more economical system than the one now in force.

If tenders from contractors at these stations are very carefully scrutinized; and the lowest tenders, except under peculiar circumstances, invariably accepted, it may be taken for granted that all articles of local supply will be obtained at the lowest remunerative rates at which they can be supplied.

I of course mean by articles of local supply those articles which can be manufactured or purchased locally, *e.g.*, tents, cloth, certain descriptions of rope, &c., &c. I do not include in the term "articles of local supply" those articles which have to be obtained by the contractor from England or from a presidency town, *e.g.*, English thread, screws, Manila rope, &c.

The former are obtained from manufacturers direct, and supplied to the department with only a slight addition to manufacturing rates. The latter have passed through so many hands before being delivered to an arsenal, that a very considerable increase on their original cost has to be paid.

It is possible, perhaps, that the expenditure on account of articles obtained in India (except purely local stores), as well as of many now procured by indent on England, might be reduced.

There are respectable European firms in Calcutta, Madras, and Bombay who would gladly undertake the duty of providing the ordnance department with some stores at least from England or elsewhere.

In March 1879 a proposal was submitted to Government by Messrs. Gillanders, Arbutnot and Co. for the purchase of stores in England and on the Continent.

They proposed to "send original invoices of the supplies of goods, and give the department the benefit of all trade discounts and allowances of any description for which they might arrange, their remuneration being limited to 2½ per cent. commission on cost and charges incurred."

Of course, it would be necessary to complete the details for working out such a scheme. I daresay that by this method, or one somewhat similar, a saving might be effected in the expenditure on military stores, and the delay which now often occurs in the supply of stores at Bengal arsenals, as such stores could be landed in India within six weeks or two months from the date of the order being given to the agent.

Further, it would be unnecessary to maintain the large reserves of many stores now kept in our arsenals, as such stores could be landed in India within six weeks or two months from the date of the order being given to the agent.

This, however, is a matter into which I have not yet examined fully and properly. I have had no time to do this and many other things which might lead to economy, if I only had more assistance to get through current work, especially at this time, when the results of the war are telling on the department.

Colonel S. Chamier, B.A., Offg.
Deputy Insp.-Genl. of Ordnance
and Magazines, Madras.

I can suggest no method, except that of reducing the present ordered reserves of arms, ammunition, carriages, and accoutrements, &c. These alone guide our demands on England and our local purchases.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

I think that the recent orders under which heads of departments are allowed to procure stores other than purely warlike stores by private arrangement are likely to cause considerable saving, and am of opinion that this system should be fairly tried.

I think the existing system for local purchase works well; but for heavy supplies, such as that of coal, it might be desirable to make contracts in England, or to employ an agent to procure a supply.

9. Can you give the Commission information of the system obtaining at the India Office and in the India store department for the supply of stores to India ?

Major-General Napier Campbell, Officiating Inspector-General of Ordnance and Magazines, Bengal.

I am not familiar with the system; but I believe all articles which are manufactured in the different departments under the War Office, such as ordnance and small arms, are, as a rule, obtained by application to the War Office direct; to which the director-general of stores simply writes after a demand received from India is approved by the Secretary of State for India, and says that such and such articles are required. The War Office in reply informs if the articles can be supplied or not.

Some supplies are obtained by contracts entered into by the director-general of stores at the India Office.

Colonel S. Chamier, B.A., Offg. Deputy Inspector General of Ordnance and Magazines, Madras.

There is no information in this office of the systems referred to, further than from perusal of the bi-monthly return of stores under supply. It appears that the majority of the stores are provided by contract; the remainder by the War Office.

Maj.-Genl. W. S. Hatch, Insp.-Genl. of Ord. & Mag., Bombay.

I have no knowledge of the system, except from rumour.

10. Do you not consider that a saving might be effected by the supply of military stores *direct* from Woolwich or contractors, without the intervention of the India store department, to the ordnance department at Calcutta, Madras, Bombay, Kurra-
chee, for delivery to arsenals; and what general arrangements would you propose ?

Major-General Napier Campbell, Officiating Inspector-General of Ordnance and Magazines, Bengal.

I consider not only that no saving will be effected by obtaining stores direct from Woolwich or contractors without the intervention of the India store department, but that heavy loss will be entailed on India if such a course was adopted.

Officers in this country have not the opportunity of ascertaining the best sources from which to obtain stores, and it would be impossible for them, when requiring stores from contractors in England, to know to whom to apply.

And I may add that a very serious risk would be incurred in receiving stores from contractors without examination of some kind before despatch from England.

Very great difficulty will be experienced in rejecting stores after arrival in India; and contractors in England will not submit to the stores supplied by them being examined in India without charging for the risk which they incur thereby.

To obtain stores supplied by contractors in England through the War Department would be to incur an unnecessary expense of 5 per cent. on all stores thus obtained; and in the case of the War Department having similar contracts for its own service, the Indian demands would be postponed.

I have already pointed out, in my reply to question No. 8, how a saving may be effected by obtaining stores from England through respectable European firms at presidency towns. Sooner than obtain stores from contractors direct from England, or through the agency of the War Department, I would advocate an extension of the above system.

Arms, ordnance, and such stores as are manufactured by the War Department should of course be sent to India from the War Department; but even with regard to these stores, I believe that the system by an authority independent of the War Department is necessary before the despatch of stores from England.

I feel half inclined to recommend our relying on Woolwich for all stores which could be procured there. On second thought, I think it is as well to have some one to watch the stores of India at the India Office. Much will depend upon the person or persons appointed to exercise such watchfulness. Some one like Major W. H. Noble of the Royal Artillery, an officer who has had the opportunity of making himself well acquainted with the working of the ordnance department in India, and is at the same time familiar with the method of doing business at home, would be adapted for such a post.

Colonel S. Chamier, B.A., Offg. Depy. Insp. Genl. of Ordnance and Magazines, Madras.

This matter seems to have been fully considered in the proceedings of the Government of India, Financial Department, dated Simla, 8th November 1878, No. 3947.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

I think that, as regards material, a saving and better stores might be obtained through the agency of contractors; and would employ local agents, some of whom will procure stores on a very moderate commission. I have procured much better iron in Bombay than has been sent by the India store department.

I think the intervention of the India store department in procuring stores from Woolwich advisable, inasmuch as the officers of the department become aware of changes, and are able to alter or cancel demands when the stores asked for become obsolete owing to change of patterns.

I have known the store department do this.

11. Will you state your opinion as to the strength and efficiency of your establishment of warrant officers ?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

The established strength of warrant and non-commissioned officers of the Bengal ordnance department for duty in arsenals and depôts is—

3 Deputy commissaries of ordnance.
3 Assistant ditto ditto.
3 Deputy asst. ditto ditto.
39 Conductors, including 14 permanent conductors.
22 Sub-conductors.
37 Magazine sergeants.

This establishment should be slightly increased to ensure the efficient working of the department. I attach copies of correspondence which has taken place on the subject. At present the supervision is not effective in the Bengal ordnance department, and loss of Government property is frequently the result.

There are many good and efficient warrant and non-commissioned officers in the department; some few, I fear, not efficient. There were more of the latter kind when I joined the department; but I have got rid of a good many.

I attribute whatever inefficiency there is amongst the warrant and non-commissioned officers of the Bengal ordnance department to the want of careful selection when admitting them into it, and the fact of their not having been subjected to sufficient stringent educational tests before admission.

Late orders of Government amend these defects.

Extract from a letter from the Officiating Inspector-General of Ordnance and Magazines, Bengal, to the Secretary to the Government of India, Military Department,—No. 671, dated 17th May 1878.

Establishment of commissioned officers. 26. The authorized establishment of commissioned officers for the Bengal Ordnance Department is—

Commissaries of ordnance, 1st class	...	...	3
2nd	"	"	2
3rd	"	"	3

one of whom is employed as timber agent, leaving only seven for arsenals and depôts; and these officers are at present distributed as follows:—

COMMISSARIES OF ORDNANCE.

First Class.

Major F. V. Eyre, B.A., on leave of absence, medical certificate, six months.

Captain G. Lamb, B.A., in charge Fort William Arsenal.

 " C. Cowie, B.A., in charge Agra Depôt.

Second Class.

Captain J. A. S. Colquhoun, B.A., in charge Ferozepore Arsenal, officiating 1st class.

 " S. Cargill, B.A., proceeding on leave of absence, medical certificate, six months.

Third Class.

Captain R. Bazett, B.A., Timber Agent, officiating 2nd class.

 " S. Murray, B.A., in charge Allahabad Arsenal.

 " A. F. Fletcher, B.A., in charge Peshawar Arsenal.

 " F. Galloway, B.A., ordered to Fort William Arsenal, officiating 3rd class.

When, therefore, an officiating appointment, *vice* Captain Cargill, is made, one of the large arsenals will still be left with only one officer; and at the others the junior commissary will be a new officer, who will have all his work to learn.

27. This establishment of seven officers has to supply a force of about 109,000 men occupying upwards of 100 stations, and distributed over the whole of the presidencies of Bengal and Peshawar.

28. With such a limited number of officers, the duties cannot, in my opinion, be properly carried on in time of peace; and to meet the requirements of war, to meet the press of work which the whole operations would entail on our arsenals, would, with the present establishment, be, I submit, impossible.

29. I know it may be said, as it has been said, that in such a case officers could be obtained from the artillery. Even supposing that artillery officers could be spared, say two for each arsenal, practical knowledge of the use of stores, though quite necessary to the proper performance of the duties of supply, is not alone sufficient. Until an officer has made himself acquainted with the latter duties, he cannot afford much real assistance.

30. In addition, however, to the number of officers required to assist in arsenals, provision would have to be made for the army in the field. How are officers to be obtained? A few must inevitably be taken from arsenals, as it is quite necessary that the senior officers with the field train should be acquainted with the duties of supply. But nearly the whole would necessarily be taken from regiments and batteries; and the artillery again would be expected to supply, if not all, the greater portion of the number required. If the insufficiency of the present establishment is doubted, I would invite comparison with the War Office establishment.

31. In making such a comparison, it seems to me to be necessary to take into consideration the requirements of the forces rather than their actual numbers.

32. The establishment of the army in Bengal is about 109,000 of all arms. Of these, about 37,700 are British, and the remainder, or about 71,000, are Native troops. But the ordnance supplies

to Native troops are less than one-half of the supplies to an equal number of British troops. For purposes, therefore, of comparison between the Bengal and War Office store departments, the establishment of troops in Bengal may, I think, fairly be considered as equal to 70,000 of the Home establishment.

33. On reference to the Army List, it will be seen that for the comparatively small force in Ireland, there are 19 officers of the store department. The demands on that department from the whole force in Ireland, regular and auxiliary, cannot, I feel sure, amount to one-half of the demand on the Bengal department. According, therefore, to the number in Ireland, there should be about 40 ordnance officers in Bengal.

34. It may, however, be said that the home system of having depôts of stores at all the principal stations necessitates a larger number of store officers than would be required under the Indian system. No doubt it does; but I see that of the 19 officers in Ireland, 10 are at Dublin and 5 at Cork. Striking out therefore the officers at smaller stations, there remain 15 officers for the supply of a force whose requirements, I am convinced, are less than one-half of the requirements of the army in Bengal.

35. I have taken Ireland as an example of the home system, because there are there no very extensive coast armaments, no siege trains, and, compared with Bengal, a very small force of artillery.

36. It may be that the number of store officers in Ireland, that the number in fact in the whole department, is in excess of its actual requirements in peace, and that with but little augmentation it is sufficient to meet the demand of war. If this be so, the anomaly presents itself of an army at home on a peace footing maintaining a store department calculated with but slight increase to meet the requirements of war, and an army in India on a war establishment with a store department insufficient for the ordinary requirements of peace.

37. I see that in the war establishment of an army-corps issued with army circulars, dated 1st December 1877, 29 ordnance store officers and 200 non-commissioned officers and artificers are included for a force of 38,993 of all arms.

38. Assuming an army-corps of similar strength required for service in this country, whence, I would ask, can not that number but one-fourth of that number be obtained of trained officers? Our arsenals, far from being in a position to spare a single officer, would require to have their establishments at once increased.

39. Some officers, however, must be taken from them; for it would, I submit, be utterly wrong to leave the supply of such a force in the hands of officers unacquainted with the work. For the remainder the artillery again appears to be the only resource.

40. It may be said that, in estimating the number of officers required for the department, the 9 warrant officers with honorary rank should be taken into account. I do not think they should. Under proper supervision they are no doubt good subordinates; but they have, as a rule, neither the education nor intelligence necessary to qualify them for the responsible duties of a commissioned officer.

41. The men who join the department are, as a rule, only average specimens of the non-commissioned grades of the army. Men whose zeal and ability have already obtained for them the position of staff sergeant, or even men likely to obtain that position, do not join the department. The men, therefore, who join the department, and who by good conduct and industry rise to the higher subordinate grades, are not qualified for duties requiring the educated intelligence of the commissioned officer. They are seldom fit for an independent charge. Moreover, promotions in the department being almost entirely by seniority, warrant officers do not obtain honorary commissioned rank until their best days are past and old age is rapidly rendering them unfit for the arduous duties they would have to perform in the field. The youngest of these officers at the present time is 55 years of age, and the senior 66. (I venture to think that the introduction of compulsory retirement at a fixed age for the whole of the warrant grade would greatly benefit the department.)

42. I have stated that staff sergeants will not join the department. There is, however, one noteworthy exception. A battery quartermaster sergeant of high character has applied to be enrolled as a candidate; and the reason he gave me when I saw him at Agra was that the new organization of the artillery so affected his prospects of further advancement in the regiment, that he wished to join the department.

43. In my endeavours to show that the present establishment of commissioned officers in the department is insufficient to meet the requirements of the service, I have been actuated by a desire to do more for the interests of the department in which I am officiating than for the interests of myself or of the country I belong.

44. In all that has been done of late years, and so successfully done, to place the army in this country in a thoroughly efficient state, this important supply department has, I venture to think, not been allowed to stand still; but by the action taken in reducing its establishment of officers has been forced to retrograde. In 1870 commissaries of ordnance were removed from magazines, and magazines were converted into depôts and made a warrant officer's charge; and the establishment of commissioned officers reduced from 12 to 8, including the timber agent.

45. In comparing the numbers of the Home and Bengal establishments, I do not wish it to be understood that I am advocating an establishment for this presidency in proportion to that maintained at home. I would not, for instance, recommend that the department should be so augmented as to be enabled to furnish the home complement of 29 officers, even for one army-corps, in addition to those required for its arsenals and depôts. But I do recommend such an increase to the Bengal establishment as will admit of 5 or 6 officers trained in the duties of supply being sent with an army-corps without crippling our arsenals. Full employment, with beneficial results, both as regards efficiency and economy, could, I feel sure, be found for 3 officers in each of the large arsenals. Rawal Pindi arsenal would require 2; and to the Agra depôt, which should, I submit, be made a second class arsenal, 2 also might be allotted. For each of the depôts, Mooltan, Dera Ismail Khan, and Peshawar, I would propose 1. This would make an establishment of 16 officers in all, exclusive of the timber agent.

46. In the event of a large force taking the field, I would propose to withdraw one officer from each of the large arsenals and depôts, and if necessary from one of the minor depôts, supplying their places by artillery officers. This would give 6 trained officers for the field force, any more that might be required being obtained from the artillery.

47. This addition, I venture to think, is not one too many. It will certainly place the department in a state of thorough efficiency during peace time, but will only provide a limited number of officers for the field. But with such assistance as may reasonably be expected from the artillery, that number will, I think, be found sufficient.

48. One more subject connected with the establishment of commissioned officers I wish to refer to.—I mean the five-years' rule under which most of the officers in the department are now serving. The ordnance officers all belong to the artillery; and I consider that the department should benefit much by obtaining its officers from that arm. To do so, however, it is necessary that they should be not only artillerymen, but artillerists, possessing practical knowledge of the latest details, only to be acquired by periodical return to regimental duty. It is therefore, I submit, most desirable that the rule limiting appointments to five years should be strictly enforced.

Copy of a letter from the Officiating Inspector-General of Ordnance and Magazines, Bengal, to the Secretary to the Government of India, Military Department,—No. 2344, dated 17th August 1878.

In reply to Military Department No. 565 Ordnance—Organization of 17th May 1878, calling for a statement of proposals for the establishment deemed necessary for the ordnance department in Bengal, I have now the honor to submit my proposals for the establishments of arsenals and depôts.

2. It will be seen that I have recommended a considerable increase to the establishment of commissaries of ordnance: my reasons for this recommendation were fully stated in this office letter No. 671 of 17th May 1878. I will therefore only say that the knowledge I have since acquired of the working of the department has fully confirmed me in the opinion I therein expressed. I have now certainly not recommended an officer for the Dera Ismail Khan ammunition depôt, not because I consider the total number then recommended too many, but because I do not think that depôt would be a good school for a young officer; and the little to be done there may well be left to a steady warrant officer of superior grade. The increase therefore now proposed is from eight commissaries of ordnance, as recommended by the Ordnance Commission, to fifteen.

3. The increase of warrant and non-commissioned officers which I have proposed is but small, and is, in my opinion, absolutely required for proper supervision.

4. I have proposed an additional armourer sergeant for each of the first-class arsenals. There will be ample work for him, especially during the cold season when the chief civil master armourers are absent on tour of inspection.

5. In the establishment of lascars I have proposed little alteration, except as regards pay.

6. Both in Calcutta and Allahabad wages have risen considerably of late years; and good laborers cannot be obtained at the old rates. I need scarcely observe that to ensure good men, artificers or laborers, the pay given by Government must be nearly, if not quite, equal to that given by private establishments. The necessity of this appears to have been fully realized at the Government Dockyard, Kidderpore, as will be seen by the statement in the margin, obtained by the Commissary of Ordnance, Fort William. There is, I feel sure, no worse economy than giving wages far below the local rates, and which no good workman will accept.

CLASS.	Per day of 8 hours.			Per month of 25 days.		
	Rs.	A.	P.	Rs.	A.	P.
Blacksmith maistria ...	1	6	0	34	6	0
Blacksmith, { 1st class ...	0	13	0	20	5	0
{ 2nd " ...	0	11	0	17	3	0
{ 3rd " ...	0	8	0	12	8	0
Hammerman { 1st class ...	0	7	6	11	11	6
{ 2nd " ...	0	6	0	9	6	0
{ 3rd " ...	0	5	0	7	13	0
Turner maistrie ...	1	6	0	34	6	0
Turner { 1st class ...	0	12	0	18	12	0
{ 2nd " ...	0	10	0	15	10	0
{ 3rd " ...	0	9	0	14	1	0
Brazier maistrie ...	1	6	0	34	6	0
Brazier { 1st class ...	0	12	0	18	12	0
{ 2nd " ...	0	9	6	13	13	6
Lascar syrang ...	1	4	0	31	4	0
Lascar ...	0	5	0	7	18	0
Factory engine-driver, at Rs. 30 per month ...	...	...	...	30	0	0
Stoker, at Rs. 18 per month ...	...	...	...	18	0	0

7. I have proposed a considerable increase in the number of smiths and their assistants, the flemen and hammermen. This increase is entirely for the up-country arsenals, and is, in my opinion, rendered advisable by the introduction of wrought-iron bridges for siege and field artillery. It is, however, certainly not advisable to increase the permanent establishment of these or other artificers at the increased rates of pay which I have recommended for them in Bengal. There are no doubt objections to the establishments of workmen, as pointed out in paragraph 549 of the Commission's report. These objections are, in my opinion, outweighed by the good effect which should be produced on the large body of extra laborers by the example set by a small permanent establishment of really good workmen. But a permanent establishment of inferior workmen cannot but be injurious.

8. I have recommended a slight increase to the establishment of clerks, and a considerable increase to their pay. This establishment has been a weak point in the organization both of the arsenals and factories. Its insufficiency has thrown a great deal of unnecessary clerical labor on the officers in charge, and interfered with their more important duties of supervision. This clerical labor is about to be increased by the new system of dealing with indentants recommended by the Commission in paragraph 444, and approved by Government in Military Department No. 555 (Ordnance—Organization) of 9th March 1877. It will be adopted as soon as the equipment tables, still under preparation, are completed, and will considerably increase the clerical labor in arsenals and depôts, necessitating

corresponding increase in establishment of clerks. The total cost of proposed increase for these office establishments, exclusive of the additional cost if Agra is raised to an arsenal, is Rs. 833 per mensem; but of this only Rs. 465 is for the provision of clerks for checking indents, the remainder being for an increase in number and pay of establishment for the performance of their present duties.

10. The scale of establishment for factories is now under preparation, and will be submitted shortly.

Comparative statement showing total monthly expenditure on account of establishments for arsenals and depôts in the Bengal presidency, as proposed by the Ordnance Commission and as now recommended by the Officiating Inspector-General of Ordnance, Bengal.

Description.	AS PROPOSED BY THE ORDNANCE COMMISSION.			AS NOW RECOMMENDED BY THE OFFICIATING INSPECTOR-GENERAL OF ORDNANCE.					
	No.	Total monthly cost of each rank.	Total monthly cost.	AGRA MAINTAINED AS A DEPOT.			AGRA MADE A 2ND CLASS ARSENAL.		
				No.	Total monthly cost of each rank.	Total monthly cost.	No.	Total monthly cost of each rank.	Total monthly cost.
		Es. A. P.	Es. A. P.	Es. A. P.	Es. A. P.	Es. A. P.	Es. A. P.	Es. A. P.	
Commissaries of ordnance { 1st class ... 3 1,500 0 0	3	1,500 0 0		3	1,500 0 0		3	1,500 0 0	
{ 2nd " ... 1 400 0 0	1	400 0 0		1	400 0 0		1	400 0 0	
{ 3rd " ... 4 1,000 0 0	4	1,000 0 0	2,000 0 0	7	1,750 0 0	4,850 0 0	7	1,750 0 0	
Chief civil master armourers ... 4	4	1,000 0 0	1,000 0 0	4	1,000 0 0	1,000 0 0	4	1,000 0 0	
<i>Warrant officers.</i>									
Deputy commissaries ... 8	8	1,500 0 0		8	1,500 0 0		8	1,500 0 0	
Assistant commissaries ... 1	1	375 0 0		2	750 0 0		2	750 0 0	
Deputy assistant commissaries ... 2	2	600 0 0		3	900 0 0		3	900 0 0	
Permanent conductors { 1st class ... 9 1,000 0 0	9	1,000 0 0		10	2,200 0 0		11	2,450 0 0	
{ 2nd " ... 8 1,140 0 0	8	1,140 0 0		4	790 0 0		5	950 0 0	
Conductors ... 22	22	5,520 0 0		25	4,000 0 0		24	3,840 0 0	
Sub-conductors ... 24	24	5,000 0 0	12,115 0 0	26	3,250 0 0	18,380 0 0	25	3,125 0 0	
<i>Non-commissioned officers.</i>									
Store sergeants ... 49	49	8,648 7 4		58	4,409 3 0		58	4,409 2 0	
Armourer sergeants ... 3	3	369 8 9	4,007 13 1	7	867 13 8	5,276 15 8	7	867 13 8	
<i>Native establishment.</i>									
Sirdars ... 8	8	180 0 0		8	180 0 0		8	180 0 0	
Tindals ... 72	72	754 0 0		75	794 0 0		75	793 0 0	
Lascars ... 870	870	5,742 0 0	6,646 0 0	878	6,289 0 0	7,243 0 0	878	6,274 0 0	
<i>Artificers, supervisors.</i>									
Maltris { carpenters ... 6 120 0 0	6	120 0 0		4	80 0 0		5	100 0 0	
{ armourers ... 4 80 0 0	4	80 0 0		4	80 0 0		4	80 0 0	
{ smiths ... 4 100 0 0	4	100 0 0		4	80 0 0		5	100 0 0	
{ painters ... 1 11 0 0	1	11 0 0		4	44 0 0		5	54 0 0	
{ sailmakers ... 1 11 0 0	1	11 0 0		4	43 0 0		5	52 0 0	
{ braziers ... 4 56 0 0	4	56 0 0		4	53 0 0		5	72 0 0	
{ polishers ... 7 77 0 0	7	77 0 0		5	55 0 0		6	66 0 0	
{ turners ... 8 42 0 0	8	42 0 0		5	55 0 0		5	55 0 0	
{ leather-workers ... 4 38 0 0	4	38 0 0	535 0 0	4	47 0 0	466 0 0	5	58 0 0	
<i>Artificers, workmen.</i>									
Carpenters ... 74	74	793 0 0		80	874 0 0		80	874 0 0	
Agouers ... 5	5	50 0 0		7	88 0 0		7	88 0 0	
Smiths, including filemen, hammermen, and bellowsmen ... 81	81	623 0 0		127	1,055 0 0		135	1,097 0 0	
Painters ... 25	25	187 0 0		24	182 0 0		25	186 0 0	
Coopers ... 10	10	80 0 0		10	84 0 0		10	84 0 0	
Sailmakers ... 34	34	218 0 0		35	241 0 0		39	297 0 0	
Braziers ... 26	26	193 0 0		27	200 0 0		29	248 0 0	
Polishers ... 36	36	248 0 0		39	250 0 0		39	255 0 0	
Turners ... 14	14	119 0 0		14	129 0 0		16	148 0 0	
Leather-workers ... 28	28	164 0 0		24	181 0 0		24	181 0 0	
Stokers ... 3	3	24 0 0		6	49 0 0		7	57 0 0	
Engines ... 8	8	87 0 0		6	74 0 0		7	86 0 0	
Small ... 14	14	98 0 0	2,790 0 0	14	102 0 0	2,509 0 0	15	110 0 0	
<i>Other establishments.</i>									
{ Bellanons ... 8 87 0 0	8	87 0 0		8	87 0 0		8	87 0 0	
{ and ... 28 135 8 0	28	135 8 0		29	140 0 0		31	149 0 0	
{ Mount ... 28 95 0 0	28	95 0 0	317 8 0	24	108 0 0	330 0 0	25	107 0 0	
{ ... 65	65	.....	8,813 0 0	72	.....	4,449 0 0	72	.....
GRAND TOTAL ...			34,524 4 1			41,100 15 8		41,998 15 8	

Colonel S. Chamier, R.A.,
Officiating Deputy Inspector-
General of Ordnance and Maga-
zines, Madras.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

There are sufficient warrant officers for work in times of peace; but should an ordnance park be required to accompany a force into the field, great difficulty would be experienced in supplying the required number of warrant officers from the present establishment.

The strength of the Bombay arsenal as regards warrant officers is barely sufficient; that of the other arsenals sufficient, but not more than sufficient. With one or two exceptions, the warrant officers, as a body, are quite efficient.

12. What is the annual cost of the condemnation of arms in your presidency; and is the system of training of Native armourers a good one?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

The system under which Natives are sent to an arsenal to be taught their duties as armourers under the chief civil master armourer is the only practical method of training these men that can be adopted under existing circumstances.

I however consider that the system under which Native armourers are maintained at present is faulty, and it might, I think, be improved without additional expense to Government.

Frequently officers commanding regiments of Native infantry experience difficulty in obtaining suitable men for the post of regimental armourer; and during the late war I found it impossible, even by offering additional pay, to procure armourers to send to the Peshawar arsenal.

I would advocate the establishment of a corps of Native armourers, who should all be enlisted men.

These men could be thoroughly trained in arsenals under the chief civil master armourer in every branch of armourer's work, and could be employed in arsenals in the care and preservation of the reserves.

As an inducement to these men to work and become expert tradesmen, all appointments to the post of armourer with regiments should be made from the corps of Native armourers.

By adopting some such scheme, should we have the means of at once providing good and efficient armourers for Native regiments. But in case of war, and when the duties at any particular arsenal are very heavy, there will be no difficulty in providing trained men capable of supervising and repairing arms.

A corps of Eurasian armourers, if one could be organized, would be a good move.

Information regarding the annual cost of the condemnation of arms in the Bengal presidency will be forwarded as soon as obtained from the examiner of ordnance accounts.

Colonel S. Chamier, R.A., Officiating Deputy Inspector-General of Ordnance and Magazines, Madras.

Average of last three years as reported by the examiner of ordnance accounts—

		Rs.
Value of condemned arms broken up	...	1,63,895
Value of components	...	8,401

The system is a good one. There can be no better instructors than the trained chief civil master armourers sent out from England.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

The cost of condemnation of arms was—

		Rs.	A. P.
In 1876-77	...	91,076	0 8
„ 1877-78	...	1,09,353	2 10
„ 1878-79	...	98,853	8 8
		3,2,99,287	12 2
		99,762	9 5

These sums include the loss by condemnation of obsolete arms. I cannot ascertain the loss by condemnation of arms become unserviceable separately.

13. Do you not consider that two gun-carriage factories are sufficient for India?

Major-General Napier Campbell, Officiating Inspector-General of Ordnance and Magazines, Bengal.

That depends entirely on the amount of outturn which is likely to be demanded of our gun-carriage factories, and the time which may be allowed for that outturn to be completed.

If only the reserves of siege trains, heavy batteries, and howitzer field artillery at present sanctioned for India have to be completed, and a reasonable time allowed for their completion, I think that two gun-carriage factories might suffice for the work.

But if ordnance for coast defences, for forts, existing or contemplated, for "places of refuge," &c., &c., have to be provided, and that within any very limited time, it is necessary to have correct information as to the extent and nature of such armaments, and the period within which they are expected to be provided, before it is possible to say how many gun-carriage factories are needed to complete them within that period.

Colonel S. Chamier, R.A., Officiating Deputy Inspector-General of Ordnance and Magazines, Madras.

In my opinion it is advisable to retain the number of gun-carriage factories as at present. Centralization in the manufacture of warlike equipments, such as are turned out of the gun-carriage factories, might, in the event of communication being cut off, lead to disastrous results.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

I think that when reserve-siege trains and heavy field batteries have been completed, and the Bengal gun-carriage factory removed to Allahabad, two gun-carriage factories will be sufficient; but that now, and for probably some years to come, three are required.

14. Can you suggest the abolition or modification of any other military factories in the interests of economy?

Major-Genl. Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

I cannot, with my present information. I believe I could if I had the information needed for the purpose.

As I have already remarked, I think it quite possible that one gunpowder factory might be closed, if not immediately, at an early date, if the reserves of gunpowder are as near completion in the other presidencies as in Bengal. But this I cannot say.

If I had a little more assistance in my office, even for a few months, I could go into the question; but as it is, I am forced to delay consideration of such matters, important as they are, under press of current work. As soon as I reach Calcutta, I hope to turn my attention to this subject.

Colonel S. Chamier, B.A., Offg.
Dy. Insp.-Genl. Ord. & Mag.,
Madras.

Having a view to efficiency, I am not prepared to suggest the abolition or a modification of either of the two factories in this presidency.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

I am of opinion that a more even distribution of work between the gunpowder and small-arm ammunition factories of Dum-Dum, Ishapore, and Kirkee will tend to both economy and efficiency, and that this could at once be carried out by allowing Kirkee to supply Mooltan and Ferozepore. The Dum-Dum small-arm ammunition factory has a supervising establishment much larger in proportion to its outturn than that at Kirkee. This might be reduced. The Kirkee factory could, without any increase to its supervising establishment, turn out a much larger quantity of ammunition than it now does, and at a less cost. The Kirkee powder factory could do the same, but not to the same extent as the small-arm ammunition factory.

15. Could not a factory which might not have enough work for ordinary times, but which from military considerations it might be thought desirable to retain with reference to contingencies of war, &c., be partially or wholly closed, but maintained in good order at a trifling cost, so as to be available if necessary hereafter?

Major-Genl. Napier Campbell,
Officiating Inspector-General of
Ordnance & Magazines, Bengal.

Certainly. I can see no reason why a factory should not be closed for work, and yet maintained in such a condition as to allow of its being opened for work in a very few days when required.

The small-arm ammunition factory at Kirkee is, I think, at this present time, not being worked at its full power, as there is a surplus of small-arm ammunition in the Bombay presidency.

But it is quite clear that if a factory were even partially closed, the saving in expenditure would be very considerable.

Colonel S. Chamier, B.A., Offg.
Deputy Inspector-General of Ord-
nance & Magazines, Madras.

A factory could be partially closed in ordinary times for economy's sake, but could not be wholly closed and yet maintained in a condition to render it available for work at short notice.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

I do not think that this suggestion could be carried out without very great risk of the failure of the factory so closed when required to resume operations. The supervising establishment of the factory, the most expensive part, must be kept up, even if idle; and if idle, would certainly lose their skill; and to ensure efficiency at a moment's notice the supervising staff must be kept at work, and must be practically acquainted with the peculiarities, as affecting their work, of the climate in which they are employed: e.g., when the gunpowder factory at Kirkee was first opened, the master-worker, a first-rate man and thoroughly trained, was unable at first to hit off the exact modifications of the several processes requisite to suit the peculiarities of the climate of Kirkee. Consequently several batches of powder had to be re-worked; but afterwards when pebble and R. F. G² powder was introduced, the same man knew at once what was required, and the powder of those descriptions made at Kirkee has been most favorably reported on. Again the master-worker at Madras could not for some time get his pebble powder up to standard. The inspector-general at Madras, after testing a batch of Kirkee-made powder, sent his master-worker to Kirkee. He carefully observed the process of manufacture there, and returned to Madras, where, I have been informed, he was again for some time unsuccessful in making pebble. I do not attribute this to any fault of the master-worker, but consider that the difficulty arose from the difference of climate between Waltham Abbey and Madras and Kirkee, and Madras requiring some slight modification of procedure which could not be discovered at once.

This was of slight importance in time of peace, but might cause difficulty in time of war; and affords, I think, an argument for keeping all factories constantly at work, which can only be done by dividing the work fairly between them, reducing of course all establishments as far as may be consistent with efficiency.

It should be remembered that, although by increasing the outturn of one factory and keeping others of the same description idle, the cost of the outturn of the one factory employed might be

made to appear low, this result would in reality be fictitious. To obtain the real cost of such outturn, the interest on land and buildings, pay of supervising establishment, and all charges of the factories kept idle should be added to the sum-total of the charges of the working factory. I believe that for real economy and efficiency the outturn of each factory should be equalized as far as possible, consistently with regard to economy in carriage to points of supply, and that the establishments should then be regulated with reference to the proposed outturn.

As regards unskilled labor, there is no difficulty in reducing or expanding the strength. The establishment need merely be what is called "extra"—be discharged or entertained as required. But if the whole unskilled establishment were discharged, and in case of urgency the factory had to commence *de novo*, efficiency could not be expected for a considerable time. The experience of the small-arm ammunition factories proves this. On both factories the complaints of ammunition made in the first years of their existence were numerous; and these complaints have decreased in each year since their establishment.

16. Taking any factory with which you are acquainted, will you be so good as to give a sketch of the arrangements which might in this case be proposed, and the saving?

Major-General Napier Campbell, Officiating Inspector-General of Ordnance and Magazines, Bengal.

I cannot reply to this question without looking more fully into it than I have now time or opportunity of doing. I should require to visit some factory, and consult practical engineers and mechanics as to the extent to which the working gear of machinery would have to be maintained, and the establishment which would have to be kept up to look after a factory which it might be decided should be closed for work in ordinary times, but all the machinery of which should be maintained in working gear and in such a condition as to permit of its being opened for manufacturing purposes at the shortest notice.

I have, however, instituted enquiries on this subject, and hope, before the Army Commission closes its sittings, to be in a position to submit some such sketch as is called for.

Colonel S. Chamier, B.A., Officiating Deputy Inspector-General of Ordnance and Magazines, Madras.

As an example, I would mention that, with a view to present *supposed* economy, orders have been issued by the Government of Madras that the outturn of the Madras gunpowder factory is to be reduced for the current year to one-half, in consequence of which the services of a number of laborers have been enabled to be dispensed with. It must be borne in mind that many of the employes in the gunpowder factory are men either especially sent out from England or men who come under

the uncovenanted service rules. It would be difficult to dispense with the services of the former; and gratuities according to length of service would have to be granted to the latter if their services were not required. In the event of full work being again commenced, great difficulty would doubtless be experienced in obtaining the services of competent men, as the business of powder-making is a special one, and not learnt in a short time.

Maj.-Genl. W. S. Hatch, Insp.-Genl., Ord. & Mag., Bombay.

I am of opinion that the proposed plan could not be carried out without an almost complete sacrifice of efficiency.

17. Are the reserves of powder and other munitions of war as approved by Government on the report of the Ordnance Committee complete? Can any of the factories be much reduced (for the time) in ordinary working-power?

Major-General Napier Campbell, Officiating Inspector-General of Ordnance and Magazines, Bengal.

As to the reserves of gunpowder, the position ~~is~~ stand in respect to such reserves is very clearly shown in a memorandum prepared by my Assistant, Major Lewis, from which it will be seen that with the exception of gunpowder for S. B. guns, our reserves in Bengal are complete as far as the established proportions for the several services are concerned; and the whole may be complete in a very short time if required.

If, however, any further new armaments are sanctioned, these reserves would be probably increased—to what extent will depend on the nature of the ordnance of which the armaments may be composed, and the number of them.

Projectiles for the rifled ordnance of new siege trains, heavy batteries, and fort armaments are considerably below the reserves to be maintained. What we have, however, is in my opinion sufficient to meet all probable immediate requirements; and as in the manufacture of projectiles at Cossipore the expenditure to be economical must be spread over a period, it will take some time to complete the reserves of such.

The reserves of small-arm ammunition for Bengal are very nearly complete; and, I believe, in Bombay and Madras would on enquiry be found to be in excess. When I talk of reserves, I of course take as my guide in calculating them those fixed by the Special Committee on Ordnance, the recommendations of which have not yet been communicated to either of the minor presidencies, and not even yet published in Bengal. It is only by reason of my having been President of that Committee that I am in a position to check the working of the factories in Bengal in order not to exceed what I know are to be the reserves.

As I have before remarked, I cannot say positively whether any of the factories can be, for the time, and immediately, reduced in ordinary working-power, because I do not know the actual state of the reserves in Bombay and Madras; but, judging from the reserves of gunpowder in Bengal, I believe one gunpowder factory might be so reduced, if not at once, at an early date.

Colonel S. Chamier, R.A. Offg.
Dy. Insp. Genl. of O. & M., Madras.

Proceedings of Committee referred to not yet received.

Major-General W. S. Hatch, In-
specter-General of Ordnance and
Magazines, Bombay.

The small-arm ammunition reserves are complete. Those of gun-
powder and ordnance carriages are not so.

The establishment of the small-arm ammunition factory has already
been cut down so as to reduce the outturn this year to about half the
quantity used annually. By this means the reserves will be reduced to
the extent ordered in about three years, while the small-arm ammuni-
tion factory will be kept in an efficient state.

18. What is the annual cost of the ordnance department under the headings—

1. Administration.
2. *Personnel* of arsenals and factories.
3. Stores { From England.
Local supplies.

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

The annual cost of the ordnance department is as follows:—

(1) *Administration*, Rs. 1,08,985.

I have taken the actuals for the year 1877-78 as entered in the
India military budget estimate for 1879-80.

Under this head I have included the pay of the supervising staff,
office-rent, travelling and out-station allowances, contingent expenses, and postage charges.

(2) *Personnel of arsenals and factories*, Rs. 12,79,568.

I have included in this sum the pay of permanent establishments, as also that of extra laborers, arti-
ficers, and others, family, medical, contingent, and travelling allowances, postage charges, and house-rent.
These figures have also been taken from the actuals for 1877-78 as entered in the India military
budget estimate for 1879-80.

(3) *Stores from England*, £260,274.

The cost of stores from England I have taken from the review of military stores expenditure
for 1877-78 prepared by the Accountant-General, Military Department. The cost of freight is
included under this charge.

Cost of stores, local supplies, Rs. 13,53,991.

This sum represents the actuals for 1877-78, as given in the military budget estimate for
1879-80, and includes the cost of—

- I.—Local supplies of stores for arsenals, magazines, depôts, and factories.
- II.—Repair of harness and saddlery with corps.
- III.—Freight charges of stores from England and from port to port.
- IV.—Gymnasia stores and apparatus.
- V.—Army signalling and telegraph stores.
- VI.—Miscellaneous.
- VII.—Camp equipage.
- VIII.—Line-gear.

I am however very doubtful whether the figures given by me and obtained from the military
budget grant really represent all actual charges; and in consequence of my ignorance of the system
under which the cost of the several heads of expenditure in the department are calculated by the
Accountant-General, Military Department, I am unable to reconcile the figures in the military budget
with those given in that officer's financial report.

Major Newell, which could give more reliable information on that point than I can.

Colonel S. Chamier, R.A. Offg.
Existing Deputy Inspector-General
of Ordnance and Magazines, Madras.

(1) *Administration*: sanctioned budget for current year Rs. 65,955.

(2) *Personnel of arsenals and factories*: sanctioned budget for current
year Rs. 5,66,746.

(3) *Stores from England*: average of last three years, Rs. 8,01,952.

Local supplies to arsenals, depôts and factories, including timber:
actual expenditure during 1878-79 Rs. 1,94,697.

Major-General W. S. Hatch,
Inspector-General of Ordnance and
Magazines, Bombay.

	<i>Administrations.</i>	Rs.
Sanctioned Budget 1879-80	...	66,508
Arsenals and depôts	<i>Personnel.</i> ...	3,83,803
Gun-carriage factory	...	62,526
Gun-powder factory	...	76,188
Small-arm ammunition factory	...	50,789

					Stores received from England.	
					Rs.	A. P.
1876-77	...	...	...	...	15,80,488	8 0
1877-78	...	...	...	...	12,22,571	2 0
1878-79	...	...	...	...	6,38,772	1 8
Total					33,91,831	11 8
Average					11,30,610	9 8

					Stores purchased locally—Miscellaneous.	
					Rs.	A. P.
Arsenals and depôts	{	1876-77	...	...	3,84,777	6 0
		1877-78	...	...	2,39,887	13 0
		1878-79	...	...	5,20,492	5 8
G. C. Factory	{	1876-77	...	...	16,267	6 0
		1877-78	...	...	81,159	11 0
		1878-79	...	...	23,480	14 3
G. P. Factory	{	1876-77	...	...	41,006	8 0
		1877-78	...	...	26,252	10 0
		1878-79	...	...	50,571	9 11
S. A. A. Factory	{	1876-77	...	...	19,376	0 0
		1877-78	...	...	31,312	10 0
		1878-79	...	...	24,373	6 9
Grand Total					14,13,958	8 7
Average					4,71,319	8 2

					Purchase of timber.	
					Rs.	A. P.
Arsenal and factories	{	1876-77	...	...	79,547	12 0
		1877-78	...	...	27,480	13 0
		1878-79	...	...	81,863	4 9
Total					1,88,891	13 9
Average					62,963	15 3

					Purchase of camp equipage.	
					Rs.	A. P.
1876-77	...	...	...	...	61,248	0 0
1877-78	...	...	...	...	42,373	8 0
1878-79	...	...	...	...	1,52,365	0 0
Total					2,55,986	8 0
Average					85,328	13 4

19. Do you consider the system of "examination of ordnance accounts" a good one; and can you give any facts in support of your opinion for or against the present system?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

I am not sufficiently familiar with the detail of the system under which the examination of ordnance accounts is conducted to speak with authority on this point.

I do not think that the audit of these accounts is conducted in such a manner as to afford reliable information; and in some instances at least, as far as my imperfect understanding of the subject permits of my judging, the audit of bills seems to be regulated by no very fixed rules.

Lately two bills passed by the examiner of ordnance accounts came accidentally under my notice. They were both submitted by regimental officers to the examiner of ordnance accounts. They were in both instances on account of the purchase of the same article (canvas). In the one bill the cost of the canvas was put down at six annas per yard, in the other one rupee per yard.

The checking of indents submitted on the ordnance department has, I suspect, never been efficiently carried on in the Bengal presidency. It is so in the Madras.

The order of Government under which examiners of ordnance accounts are no longer required to check such indents is a judicious one. It ought to lead to a reduction in the establishments of examiners of ordnance accounts if made applicable to the other presidencies, which, as far as I know it, has not been.

The very excellent remarks made by the Special Ordnance Commission of 1874-75, in paragraphs 470, 471, and 472 of their report seem to me to point to the necessity of the duty of the examiners

of ordnance accounts being more especially confined to the preparation of statistical returns compiled from the accounts proper furnished from departments.

The several returns which the Special Committee on Ordnance, guided by the views and opinions of the Special Ordnance Commission of 1874-75, have proposed for preparation and submission by commissaries of ordnance and superintendents of factories will enable this to be done more effectually than has hitherto been attempted. At present I do not believe we know the real cost of the output of our factories. The alleged costs, in some instances, seem to vary so much, that one cannot but be sceptical as to their accuracy.

Colonel S. Chamier, B.A., Officiating Deputy Inspector-General of Ordnance and Magazines, Madras.

I am of opinion that the present system is not a good one, and that examiners of ordnance accounts should be artillery officers who have professionally gained a knowledge of the armaments and other stores with which this department is specially concerned. I concur in the suggestion made by Colonel Wray, that "it might be worth considering whether the ordnance examiners in India, officers of artillery, would not be better employed under the different inspectors-general of ordnance in watching and checking returns and accounts as they pass through the department rather than in scrutinizing them after they have left it, and when it is frequently too late to rectify anything that may be wrong."

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

Until last year there were many complaints regarding the remarks made by the ordnance examiner on charges for making up and repairing stores. These remarks being considered in many cases as showing complete ignorance of his subject on the part of the ordnance examiner, caused much annoyance. I however some time ago arranged with the controller of military accounts for a preliminary audit of such charges as regards quantities of material and labor to be made in the ordnance office. This system has now been at work for some months, and has, it seems to me, worked well; and the controller of military accounts has authorized me to state that he is of opinion that the plan is satisfactory, as affording the technical knowledge in which the examiner's office is deficient, and that it has led to a considerable saving. I am of opinion that some such arrangement is necessary whenever the examiner of ordnance accounts is not an artillery officer. As an instance of style of remarks previously made, I may mention the examiner having checked charges for timber and carpenters on metal castings, being unaware that wooden patterns are used for such castings. I believe that the audit of ordnance accounts is now satisfactorily carried on in this presidency.

20. Is there any unnecessary expenditure in condemnation of stores by regiments and batteries? Please give your views on any improvements which may be effected in the interests of economy.

Major-General Napier Campbell, Officiating Inspector-General of Ordnance and Magazines, Bengal.

There is often unnecessary condemnation of stores by regiments and batteries, and thereby considerable expense, which might be lessened, is incurred not only as regards the value of the articles condemned, but also on account of carriage.

One case is at this moment under consideration, and I could furnish many others. But this one may possibly be sufficient as an illustration of the reckless condemnation of stores by regiments and batteries, and the unnecessary expense which Government thereby incurs.

One sepoy tent of two pāls was issued from the Ferozepore arsenal to the 9th Regiment Native Infantry. On receipt it was brought before a station committee and condemned as *unserviceable* for the following reasons:—

"The tent does not appear to be made with the proper cloths, but with material of an inferior description." The committee compared the tent with an old one, and found the material quite different."

The tent was then sent back to the Ferozepore arsenal, and on receipt was again examined by a station committee, who reported as follows:—

"The committee, having ripped open the tent in question and examined the several cloths with the cloth of the arsenal muster tent, are of opinion that the ghara of which the lining and inner cloths are made is equal to the muster tent cloth, and that the dosootie of which the outer cloth is made is superior to the muster." * * * "The committee consider the tent in every way serviceable and fit for issue."

It is unnecessary for me to make any further comments on such an instance of condemnation of stores.

Officers commanding batteries of artillery are notable for the persistency with which they frequently condemn harness and saddlery. I have been compelled on numerous occasions to appeal to His Excellency the Commander-in-Chief on this point. The orders under which such officers should act are so fully and clearly laid down, that nothing can be added to render them more explicit. The carrying out of these orders is now a matter of discipline.

The only suggestions I can offer that are at all likely to reduce the unnecessary condemnation of stores by regiments and batteries are—

I.—To withdraw all contract allowances. As long as officers receive a certain sum for keeping any portion of their equipment in a serviceable condition for a fixed period, so long will they continue to condemn these stores on receipt from an arsenal on trivial grounds and on account of slight blemishes.

II.—Stores issued from an arsenal should be received by a regiment, but if considered of inferior quality may be examined by a committee, who should state how long, in their opinion, the stores are likely to last.

III.—By paragraph 122 of the Equipment Regulations prepared by the Special Committee on Ordnance, half-yearly station boards are to be assembled on the 1st March and 1st September of each year to examine and report on all military stores and equipments in use with batteries or regiments which have become in the opinion of the commanding officers unfit for further service.

The assembly of boards to condemn stores between the dates specified above should be restricted to as far as possible, and only sanctioned under, the most urgent and exceptional circumstances.

It would seldom occur that a damaged article could not be sufficiently repaired to render it fit for use till the date fixed for the assembly of boards of survey, or it could be temporarily replaced from the surplus stores in regimental charge.

The condemnations by half-yearly boards under such a system as I propose would be large compared with the condemnations by half-yearly boards under present arrangements, as the assembly of regimental committees throughout the year to report on one or two articles at a time would be done away with, and all articles considered unfit for service during any six months would be brought before the half-yearly station board.

The proceedings of these boards of survey would be carefully scrutinized in the office of the inspector-general of ordnance, and any stores the necessity of condemning which appeared doubtful could be ordered to be sent for inspection and report by an ordnance officer; or, if the doubtful condemnations were extensive, an ordnance officer might be directed to proceed to the station to examine and report on the condemned articles.

Col. S. Chamier, B.A., Offg. Dy.
Insp.-Genl., O. & M., Madras.

There is no unnecessary expenditure in such condemnation in this presidency.

Major-General W. S. Hatch,
Inspector-General of Ordnance and
Magazines, Bombay.

I do not think that, as a rule, stores are unnecessarily condemned by regiments; but I am of opinion that some battery commanders are much inclined to condemn stores, especially harness (both on receipt and after being in use), for insufficient reasons. The orders issued in this presidency in accordance with paragraphs 447, 448, and 449 of the report of the Special Ordnance Commission has checked the undue condemnation of stores to a considerable extent. I do not think that any rules could be issued which would entirely stop this tendency. The only course is to impress on the minds of officers, and specially of commissaries, that they are acting as umpires for Government, and are bound to see that no stores are condemned unless thoroughly unserviceable.

21. Are you acquainted with the procedure adopted in England in the survey of military equipments of regiments embarking for, and returning from, India? What is your opinion of it; and can you suggest any system more economical to India?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

In appendix of the regulations for the equipment of the army, 1876, will be found a detailed account of the procedure adopted in England in the survey of military equipments of regiments embarking for, or returning from, India.

I consider that system is a good and efficient one, and can suggest no improvement on it by which any further economy could be effected.

Col. S. Chamier, B.A., Offg. Dy.
Insp.-Genl., O. & M., Madras.

There is no record in this office of the procedure referred to.

Major-General W. S. Hatch,
Insp.-Genl., O. & M., Bombay.

I am not acquainted with the procedure in this matter.

22. On field service in Afghanistan it was necessary for a general officer commanding a force to countersign indents on the ordnance departments, even for authorized stores: is this not an unnecessary form; and is it not opposed to the spirit of the recommendations of the Ordnance Commission of 1874-75 as approved by Government?

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

Yes; on field service in Afghanistan such was the practice. It is a most unnecessary one, and is opposed to the letter and spirit of the recommendations of the Ordnance Commission of 1874-75, which were approved and directed to be carried out in 1877, but were not so—why I know not.

As soon as I assumed charge of the ordnance department in Bengal, and learnt that Government had sanctioned the recommendations of the Ordnance Commission on this subject, I at once initiated measures for carrying them out. But to do this required the preparation of corrected tables of equipment, the submission of amended rules for regulating the submission of indents for the approval of His Excellency the Commander-in-Chief, and for the guidance of regimental and ordnance officers;

and this took time, so that not until the 1st April was I able practically to carry out the new system under which indents are now dealt with.

General officers commanding would not now have to countersign indents on the Ordnance Department for authorized stores.

Colonel S. Chamier, B.A., Officiating Deputy Inspector-General of Ordnance and Magazines, Madras.

I think the countersignature of the general officer is quite unnecessary to indents for authorized stores. They cannot be replaced if condemned as unserviceable until the proceedings of the committee have been passed by the inspector-general.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

I think that the procedure mentioned was both unnecessary and in opposition to the spirit of the recommendations of the Ordnance Commission. I think, however, it is probable that the course taken was adopted in consequence of the non-publication in Bengal of the rules recommended by the Special Ordnance Commission until 7th March 1879: *vide* Bengal circular memorandum (new series) No. 389 of that date.

23. Will you be so good as to hand in any reports of the working of the ordnance department on field service, at the same time stating your views in regard to any changes which may appear desirable?

Major General Napier Campbell, Officiating Inspector-General of Ordnance and Magazines, Bengal.

With reference to the working of the ordnance department in the field, I found no difficulty, except that caused by the paucity of officers forming the permanent establishment of the ordnance department.

Even the difficulty in obtaining transport, and the inconvenience caused by the delay which occurred in according sanction for the establishments of the field parks proposed by me, did not result in failure on the part of the ordnance department to meet all demands made on it, always excepting camp equipage and entrenching tools.

Camp equipage might have been provided, had timely notice been given of the probable wants of the army in this direction. Entrenching tools were called for in numbers that no foresight could have anticipated.

* C.

I append copy* of the instructions issued by me very soon after I assumed office for the organization of field parks. They were carried out most efficiently by the officers to whom they were sent.

The great difficulty I had to contend against was that caused by having to instruct officers new to departmental duties in details of duty while they were actually in the field. Some loss and confusion under such circumstances could not be avoided; but, on the whole, the regimental officers whose services were temporarily obtained for duty with the ordnance department worked admirably, though naturally they felt the heavy responsibilities they incurred in assuming duties the details of which were new to them.

An increase to the present establishment of officers to the ordnance department is essential to its efficiency, and some scheme to induce or compel the retirement of warrant officers, and so ensure a flow of promotion, which is now impeded to an extent most injurious to the service.

† D.

I append copy† submitted by one of the smartest of the regimental officers, Major Galloway, who was temporarily attached to the ordnance department, as a good example of what can be done by a zealous and intelligent officer in the working of the ordnance department on field service.

The field park attached to the Kuram Valley Field Force was worked equally well by Captain Colquhoun; and if the ordnance stores which were transported for the use of the Kandahar Force have not been so efficiently cared for as with the other forces in the field, the fault does not rest with the ordnance department.

C

Instructions issued by the Officiating Inspector-General of Ordnance and Magazines to the Ordnance Officers in charge of the several ordnance field parks attached to the Afghan Field Forces, dated 2nd November 1878.

I am aware that it is impossible to lay down strict and definite orders for the guidance of an ordnance officer in the field, and that very much must be left to the judgment and foresight of the individual; but I furnish the following instructions for your general information and guidance in conducting the duties of the ordnance department attached to the _____ force.

2. In order to meet probable demands from the troops dependent on the ordnance establishment under your charge, it will be necessary to obtain from _____ arsenal a reserve of stores, which will have to be retained in ordnance charge under you; and you are therefore requested to submit emergent indents as early as possible to complete proportion according to the following scale.

Accoutrements.—One complete set for fifty men for the respective arms of the services attached to the force.

Arms.—Components for carrying out repairs to rifles, carbines, and pistols, six months' supply; or for every 1,000 arms, half the quantities as laid down in paragraph 480, Indian Appendix to British Musketry Regulations, and paragraph 480, Musketry Regulations for Native Troops (1877). Of components for which no proportion is laid down, 2 per 1,000 arms. Swords and scabbards for artillery and cavalry, 2 per cent. of number in use with the troops.

10. These orders he, and also all despatching officers in other depôts, must carry out strictly and punctually, so as not to interfere with the movements of troops forming the escort.

D

Copy of a letter from MAJOR P. FITZG. GALLWEY, Commissary of Ordnance, late in charge of Ordnance Field Park, Peshawar Valley Field Force.

I have the honor to submit for your information my report on the operations of the ordnance field park, Peshawar Valley Field Force, of which I had charge during the late campaign in Afghanistan.

1. Under instructions from the Deputy Adjutant-General, Royal Artillery in India, I left Umballa on the 10th December 1878, and arrived at Peshawar on the 13th, which I duly reported to you and to the general officers commanding 1st and 2nd divisions, Peshawar Valley Field Force, and asked for orders. Meanwhile I had received your letter of instructions regarding the establishment of the park, the formation of reserves, and various other matters connected with its organization; and on this letter I entirely based my action, and was guided by it throughout the campaign.

2. Having for several days received no orders from the 1st division, whose head-quarters were at Dhaka, I deferred my departure from Peshawar until such time as I should know the wishes of the general officer regarding my taking his orders in person. Meanwhile I proceeded to Jamrud and reported myself to Lieutenant-General Maude, C.B., V.C., Commanding the 2nd Division, and learnt from him that, as his troops had only just reached the frontier, and there seemed no immediate probability of their being pushed forward to any great distance, the question of their reserves might, for the present, stand over, as they could, for a considerable time, depend on the Peshawar arsenal for supplies.

During this interval, the establishment of the field park began to arrive; and I at once commenced detailing their duties, and, as far as my information at the time went, their distribution with a view to future organization.

3. On the 18th December I received telegraphic orders to report myself at Dhaka. I left all necessary instructions with Lieutenant Duff, R.A., who was appointed to this force as my assistant; and I directed him to proceed to Jamrud and form, as soon as possible, the *base station* of the field park, where all stores would be taken over from the arsenal and transmitted to the depôts in front. He has also to establish the field park office as soon as the arrival of the *personnel* would admit.

4. On the 20th December I started for the head-quarters 1st division, taking with me the senior warrant officer attached to the park. On arrival at each station along the line of communication I carefully examined the capabilities of the places for forming depôts, &c., and soon learnt how necessary the immediate formation of the field park on a definite system was. This was apparent from the haphazard way in which ordnance stores were then being forwarded at Jamrud, where there was a considerable amount of ammunition. There was no system whatever, and all seemed in confusion. On my arrival at Dhaka I found that the head-quarters 1st division had advanced; so having devoted a day to examining the accommodation likely to be afforded by the fort, and having seen the wretched huts in which a portion of the battery reserves of the division were stored, in charge of a sergeant of artillery, I pushed on to Jellalabad, which I reached on the 27th December.

5. I lost no time in waiting upon Lieutenant-General Sir Sam Browne, K.C.S.I., C.B., V.C., and taking his orders. It was determined that the reserves for the 1st division were to be at Dhaka, and that I was to again visit the place on my return and arrange with the engineers for the necessary accommodation. This I had already settled in my own mind should be certain buildings about to be appropriated for other purposes; and as they were the only ones in the fort which were available and suited to the wants of the park, I begged they might be handed over to me. The general officer was good enough to order this.

6. The question for reserves of this division took some little time to arrange. As there was a desire to alter the proportions of the projectiles laid down for the 9-pr. batteries in deference to the wishes of the lieutenant-general commanding, I was directed to frame my indents in accordance with this, and subsequently did so; but, as in duty bound, I brought the matter to your notice at the time.

7. I left Jellalabad on the 2nd January 1879 with a clear view of what was required from the field park, and for the purpose of establishing my depôts and sending in the necessary indents. From what I had seen on the march up I became convinced that a regular *etappen* system was required for the safe transmission of stores to regiments and depôts. I had accordingly instructed the officer in charge of the base depôt at Jamrud to distribute the establishment as they arrived, so that a warrant or non-commissioned officer, with a sufficient Native establishment, should be at each station along the line. This I was glad to find partially carried out on my return; but the whole of the Natives had not yet come up, so that the system was not quite in working order till some days after.

I made all arrangements at Dhaka for the necessary improvements to the field park buildings there, and urged the necessity of their immediate completion.

I returned to Jamrud on the 9th January and immediately set to work at the indents for the ammunition and stores necessary for completing the reserves of the 1st division. They were sent to the arsenal about the middle of the month, and I urged as early compliance with them as possible.

8. I found that the ammunition would probably be all supplied in about a month, but that many other stores were difficult to obtain, as there were already large indents due to regiments and batteries. But, as reported to you at the time, I found that the accommodation for perishable stores was so small, and really existed at only one place, *viz.*, the fort at Dhaka, that I advised that corps should at once be directed to indent for a six months' supply, which could be forwarded to them direct through the field park, thus obviating the necessity of having depôts of these stores at places where there was no proper protection for them. This suggestion was carried out in both divisions; and I believe I may say that when the general advance took place, towards the end of March, there were very few indents of any importance uncomplished with.

9. From my return to Jamrud to the 24th of that month, I was solely occupied in completing the organization of the park. All establishments having arrived, as well as a proper supply of

stationery, everything was in full working order; stores were transmitted regularly and without loss (except in a very few cases) to the different stations along the line. The depôt at Dhaka was reported complete and ready to receive its ammunition.

10. On the 24th January the head-quarters 2nd division moved from Jamrud to the Bazar valley, and I accompanied the general officer. This expedition afforded me the means of seeing for myself how the ammunition reserves worked on actual service, and what was likely to be required of the field park, should anything on a large scale be carried out in the Khyber hills. I returned with General Maude to Jamrud on the 4th February to find that the reserves were being rapidly pushed up and all working in order. I devoted a few days at Jamrud to questions of indents and to correspondence with the 1st division. I also gave the arsenal notice of the ammunition reserves likely to be required for the 2nd division in case of an advance; and then proceeded to the Dhaka depôt to await the arrival of His Excellency the Commander-in-Chief.

11. I found everything in excellent order at Dhaka, and my instructions carried out. The buildings had been much improved, and most of the reserves were complete.

His Excellency inspected the field park depôt there on the 25th February, and was pleased to express to me his satisfaction at the state it was in. I accompanied the Commander-in-Chief to Jellalabad, inspecting my depôts as I went along. There being no intimation of any further advance of the force, and no sign of any accommodation for stores at Jellalabad being begun, it was evident that the reserves of the 1st division would remain at Dhaka.

12. The lieutenant-general commanding having proceeded to Peshawar, I was anxious to be present at Dhaka on his return, so that he might see the state of the depôt, and give me any further instructions which his intended interview with the Commander-in-Chief might enable him to do.

I accordingly returned to Dhaka on the 9th March, and met Lieutenant-General Sir Sam Browne there on the 12th. He desired that I should remain with the reserves; and I was informed that an advance of the troops was ordered, and that instructions would be sent to me regarding the field park of the division.

13. I remained at Dhaka according to orders, instead of proceeding to the head-quarters of the 1st division until the 22nd of April, when I was summoned to Lundi Kotal by Lieutenant-General Maude, v.c., c.b., to arrange for the reserves of his division. In the meanwhile a general advance had taken place; and I moved up the base depôt and office establishment under Lieutenant Duff from Jamrud to the head-quarters of the 2nd division at Lundi Kotal. This then became the receiving depôt for all stores from Peshawar, Jamrud and Ali Musjid being merely transmitting stations. At this period the reserves of the 1st division were complete; and a large quantity of ammunition was withdrawn from the field park depôt at Dhaka and forwarded on to Jellalabad. This included 100 rounds of small-arm ammunition for the cavalry and infantry of the division, which were made over to regimental charge; also the 2nd line ammunition for the 9-pounder batteries, which was conveyed in specially constructed camel boxes (the details of which you are already acquainted with), besides a large reserve of common shell for these batteries and for the 40-pounders. The reserve of the Hazara Mountain Battery were also increased. The whole of this ammunition, together with a reserve for the gatling guns, was duly forwarded to the front without any hitch or delay. It was subsequently decided that all was to remain in ordnance charge, except the extra 100 rounds for the infantry, the 2nd line ammunition for the 9-pounders, and the gatling reserve, which were handed over to regimental charge, so that a large increase to the depôt at Jellalabad took place.

14. I had been originally instructed by the general officer commanding 1st division to provide reserves for two horse artillery and two mountain batteries. This was done; and the reserves were complete when the general advance took place. It was then decided that one horse artillery and one mountain battery were to be transferred to the 2nd division. I was thus in possession of half the artillery reserve ammunition for the latter division when its forward movement took place, and the remainder was ordered from Peshawar to Lundi Kotal for the other two batteries.

15. In the early part of May the conditions of the reserves stood as follows. The 1st division had advanced to Safed Sang (near Gandamak), holding the line of communications from Jellalabad to the front. The reserve ammunition already enumerated as being in regimental charge was forwarded to Safed Sang, where the bulk of the division was concentrated. The remainder of the extra ammunition which had been withdrawn from Dhaka was left in ordnance charge at Jellalabad. The balance of the reserve, including stores, was at the former station. I was informed that when accommodation was ready at Jellalabad, all the ammunition of the division would be removed there from Dhaka, other stores remaining behind.

The troops of the 2nd division occupied the line Jamrud to Barikab. A considerable portion of its artillery reserves had already been stored at Dhaka; the remainder, as well as the small-arm reserves and other stores, were on their way from Peshawar, and would have been complete by the middle of May but for the fact that a considerable portion of the carriage of this division had been sent to the front to augment that of the 1st division, which was much in need of transport. This caused a delay which I brought to notice. Happily subsequent events rendered this delay rather an advantage, as the reserves were not required.

I received orders on the 15th May to join the 1st division; and after communicating with its head-quarters, I left Lundi Kotal for Safed Sang on the 20th, arriving there on the 26th. On the 28th a telegram from you ordered the stoppage of all further stores from the rear, which was duly carried out. Soon after instructions for the withdrawal of the troops were issued.

16. Anticipating the delay and difficulties likely to arise in getting back the large quantities of ammunition and stores in ordnance charge, which were scattered all along the line, I at once telegraphed to the base station to have as many of the stores as possible cleared out of Dhaka before the actual retreat of the troops commenced, so that some room might be made for what was in front.

I also directed every depôt to get as much carriage as possible and clear out, as far as practicable, before the actual movement of the troops took place, so that no block should occur. By taking early measures I was enabled to clear nearly all the ordnance stores between Safed Sang and Dhaka, and concentrate them at the latter place in safety, before the troops of the 1st division had got far on the road. Lieutenant Duff had also managed to bring up a considerable amount of stores to Lundi Kotal, so that by the 10th of June, the day on which I arrived at Dhaka, everything belonging to the field park was stored between the three stations of Dhaka, Lundi Kotal, and Jamrud. I remained at the former place till the 15th, on which day I with great difficulty obtained sufficient carriage to remove the whole of the remaining ammunition, leaving behind only other stores to a small amount. I accompanied the convoy, and saw it safely through the pass; and I must say I was greatly relieved of anxiety when I found it safely stored at Lundi Kotal within British territory. The remaining stores arrived next day, the 16th, under a warrant officer, so that the fort of Dhaka, as far as the ordnance department was concerned, was evacuated on the above date. By this time a good deal of the field park reserves had been sent into Peshawar; but there was difficulty in obtaining sufficient transport for the large amount of ammunition now concentrated at Lundi Kotal. However, by great good fortune, a considerable number of carts were made available, and I sent the great bulk of the remaining reserves into Peshawar on the 18th June under charge of Lieutenant Elmslie, R.A. This was a very large convoy, and required considerable care and precautions, as the road through the pass was at the time frequently overrun by hostile Afridis. This convoy reached Peshawar safely on the 20th, and I then felt that there was very little more to do in the way of bringing in stores. I accordingly left Lundi Kotal on that day for Peshawar, leaving instructions with Lieutenant Duff to bring on the field park office and the establishment at Ali Musjid and Jamrud as soon as carriage was obtainable. This I had hoped would have been accomplished by the 24th; but owing to want of transport, the whole of the stores did not reach the arsenal till the 26th. The establishment was all concentrated at Peshawar by that date, and awaited your orders as to their destinations. I reopened the field park office on the 27th, and immediately commenced the final adjustment of the accounts, books, &c.

17. I was very unfortunately and reluctantly compelled to report myself sick on the 21st June, and, with the exception of giving verbal directions, the winding up of the field park from that date devolved upon Lieutenant Duff.

18. I have thus traced the history of the field park from its formation to the time when its labors may have said to have ceased. I would now beg to offer some remarks on its actual working, and on some points which have suggested themselves to me during the experience which I have gained in this campaign.

Having distributed the establishment as I have already explained, and organized an office, my principal anxiety was to complete the ammunition reserves and such ordnance stores as were likely to be required at any moment, *viz.*, artillery stores connected with the actual working of the guns or carriages. I found that reserves of accoutrements, arms, camp equipage, entrenching tools, harness and saddlery, artificers' tools, &c., would have to give way at first, as the arsenal at Peshawar found it difficult to comply with all the indents for those actually submitted by corps; so that until these were completed, the idea of forming a percentage reserve of them would be absurd, even if it could be carried out. Moreover the difficulty of storage for perishable articles was very great, and I determined that all efforts should be made to get existing indents first complied with. The field park, I can confidently assert, did excellent service in transmitting these stores safely to regiments. An enormous amount of camp equipage, entrenching tools, and materials for repairs were forwarded by the park; and, as I before stated, I believe at the time when a forward movement took place there were very few indents of any importance uncomplished with; and before I started to join the head-quarters of the 1st division, the great difficulty of obtaining entrenching tools had been overcome, and a sufficient reserve to meet all requirements was either formed at Lundi Kotal or was on its way from Peshawar. Camp equipage also of the nature then required was amply provided for; and I am quite sure that, had the campaign gone on and the transport been improved, the field park would have had no difficulty in supplying the troops, even as far as Cabul, with all ordnance stores. Of course, as the line became prolonged, an increase to the establishment would be necessary; but it was always my endeavour to carry on the work as far as possible with the means originally placed at my disposal, and which for the first period of the campaign I consider was sufficient, except that an additional officer would have been an advantage.

It would, however, not be proper for me to pass over some of the difficulties with which the field park of this force has had to contend during the past campaign. In the first place, I do not consider that the status of the officer in charge of the park or the nature of the duties he had to perform were properly recognized, at least in one division. From the working of the G. G. O. detailing the staff and troops for the various columns, the fact of the field parks being classified under the head of "artillery" led to the belief that the ordnance department in the field was to be entirely under the control and orders of the officer commanding that arm. This was strengthened also by the fact that in the organization of a British army-corps, as laid down in England, the officer commanding royal artillery had charge of what would correspond to the ordnance ammunition reserves in India, any further reserves and all other stores being under the ordnance store-keeper. But it was completely forgotten that the army detailed for service in Afghanistan was organized, not in any one way on the army-corps principle, but entirely on a different system. Further, that the ordnance department in India was not constituted like the store department at home; and that even if the officer commanding royal artillery in divisions was willing to undertake the responsibility of the general ammunition supply to all arms, he would yet have to leave to the ordnance officer that of providing for the wants of the troops in other respects, such as camp equipage, entrenching tools, and the various other important stores supplied by the field park. Further, in European armies there are regularly organized division and corps ammunition columns, manned and horsed by the artillery, and forming an essential part of the command of that arm. Not so in an Indian army.

This idea was, however, apparently adopted for a time in the 1st division, and gave me much trouble as you are already aware.

The next difficulty was with the proper submission of indents; but after a time this was overcome. I think the orders on the subject are sufficiently clear, and should cause no inconvenience, especially as they have lately been amended.

I found that, probably owing to there being no field park with the force at the commencement of the campaign, many regiments and batteries continued to indent direct on the Peshawar arsenal for stores and ammunition after the park was duly organized. I called the attention of the divisional authorities to this, pointing out that it left me in the dark as to the wants of the troops, and was also confusing in the matter of invoices and receipts, besides causing unnecessary delay. I regret, to say that up to a late period this practice continued in some corps; and I think that in any future campaign strict orders should be issued to prevent it.

The difficulties of carriage I need hardly call attention to, as they were not confined to the field park. Happily the force did not advance very rapidly, so that the inconveniences arising from this source were reduced to a minimum.

There is one other subject I would earnestly draw attention to; and that is the enormous amount of office work thrown upon an ordnance field park on service by the system of auditing accounts, which is carried on in time of war exactly as in a profound peace. It is not easy to convey to any one who has not actually seen the work the great difficulties of carrying on the duties of an office in a tent, often during a fierce dust-storm and with few of the adjuncts which such duties require. The whole time of one warrant officer and two Babus and a considerable portion of the time of one officer was taken up in accounts and correspondence. I would venture to suggest that if the elaborate system of checking must go on, it would be advisable to let the arsenal of supply adjust all accounts with the examiner, and that the field park should only be called upon to give vouchers to the arsenal without keeping up a system of accounts.

19. A more pleasing part now remains for me; and that is to bring to your notice the names of those under my charge, who by their assistance and by the manner in which they performed their duties contributed to the general good results I have described in my report. To Lieutenant Beauchamp Duff, B.A., who was my assistant from the beginning, I cannot give other than the most unqualified praise. He had charge of the base dépôt and office almost the whole period of the campaign, and did excellent service. He was also detached by me on some occasions to visit dépôts along the line, and his energy was always apparent. I trust that, should a vacancy occur in the department, his claims may be considered, as he is anxious to obtain employment. Conductor J. Neal, whom I placed from the commencement of operations in charge of the advanced dépôt, has always given me the utmost satisfaction. I found I could thoroughly depend upon him, as he was sober, upright; and well acquainted with his duties. I beg to recommend him to your favorable consideration; and I really think that the conferring of honorary commissioned rank upon him would not be above his deserts. He had much hard work and exposure.

Sergeant J. Bennett has fully borne out the high character with which he joined the park. There is no man who was under my charge who performed his duties more faithfully. He is steady, sober, and most intelligent. From being in charge of the dépôt at Basawal, one of the hottest and latterly the most unhealthy stations on the line, he suffered much from exposure and also hard work. Still he never complained. So anxious was I to recognize his behaviour, that I recommended him to you for the charge of the new ordnance dépôt at Lundi Kotal.

Sub-Conductors Pickering and Mantz also deserve mention as having worked well. The latter was employed the whole time as head clerk at the base station; and Lieutenant Duff speaks well of him.

Of the Native establishment I cannot speak too highly. They worked admirably, gave no trouble, and had often a very hard time of it. Being chiefly composed of Natives of Lower Bengal, the extreme cold of the winter months was very trying to them; but I am glad to have to report that during the campaign only two of the number died,—one lascar at Jellalabad of small-pox, and one artificer at Peshawar on his return from the front, of cholera.

I would desire to bring to notice Sirdars Shaik Hingan and Sahib Ali. The artificers were most useful. Of those who joined the field park towards the close of the campaign, I would beg to mention Lieutenant Elmslie, B.A. He was only under my orders from the 28th May to the 31st, but during that time he made himself useful, and was very energetic.

I regret having had to bring to your notice the conduct of two of the warrant officers attached to the park. I was anxious at first to give them a further trial; but I have since formed an opinion that it was mistaken kindness on my part, and that they deserved no consideration. They were the only exceptions to the general good conduct of the whole establishment, from first to last.

In conclusion, I have only to hope that my efforts to perform my duties will have met with your approval, and that the assistance I received from all those I have favorably mentioned will obtain for them the expression of your satisfaction.

I much regret having been compelled to relinquish the charge which you were good enough to offer me at Peshawar, as also that I was unable to finally settle the accounts of the field park.

Col. S. Chamier, B.A., Offg. Dy. Insp.-Genl. of O. & M., Madras.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

No reports of this kind have been recently received in this office.

I cannot find any reports of the nature asked for. I have recently directed my attention to the introduction, as far as possible, of piece-work in the arsenals and factories of this presidency; and I think that a great saving will be caused thereby.

L

HORSES.

I. Do you consider it necessary to maintain any reserve of Government horses; and if so, how many?

Lieutenant-General Sir S. Browne,
K.C.B., Commanding Lahore Division.

I consider it necessary to maintain a reserve. For the number of British cavalry regiments and batteries of artillery now in Bengal I am of opinion 1,000 horses should be kept up.

Brigadier-General C. G. Arbuthnot,
C.B., Inspector-General of Royal Artillery for India.

I consider it necessary to maintain a reserve of Government horses—about 1,100—for active service, in addition to the ordinary reserve at present maintained.

Lieutenant-Colonel H. C. Smith,
Superintendent, Reserve Remount Depot, Saharunpur.

I do consider it to be absolutely necessary, as well for the safety of the country and the proper mounting of the army, that Government should maintain a reserve of horses. The number I would recommend being kept up would be 1,000 head all told. And of this number 200 might well be young country-bred horses of between two and four years old.

Colonel J. D. Couper, Director of Army Remount Operations.

As long as India is dependent on foreign sources for remounts, it will be, in my opinion, necessary to maintain a reserve of Government horses; for a supply on an emergency, such as a war, can be obtained in no other way. The number should not be less than 1,000.

Colonel A. Drury, Agent for Remounts, Oosoor.

The maximum reserve maintained at the remount depot, Oosoor, for all the mounted branches of the service in the Madras presidency is limited to 150 horses.

Considering this is the only reserve for the whole of the Madras army, I do not consider it would be advisable to reduce the maximum.

The reserve only comprises fresh horses. No horses are taken back to the depot after they have been allotted to the service.

Major W. A. Roberts, B.A., Remount Agent, Calcutta.

Yes. The number of such reserve I consider should be arranged annually, and should be equal to two-thirds of the number of horses serving in corps and batteries which, on the 31st December of each year, are 14 years of age or over.

Major A. Capel, Officiating Senior Assistant Superintendent, Army Remount Depot, Saharunpore.

Yes. I think that one year's requirements should always be kept in reserve.

My reasons for thinking so are that, if a sudden call was made for remounts, either in the event of a war, or from any unforeseen contingency arising from any cause, such, for instance, as the Loodiana disease, which broke out at Rawal Pindi last year, and which nearly

unhorsed a battery, to supply whose wants 53 remounts were sent in one batch from this depot alone, the Government would find it impossible to meet the demand, unless from a reserve.

Under the present circumstances, the open market of the North-Western Provinces and the Punjab could not supply a demand made upon it with anything more than a few horses suited for European cavalry; and next to none suited for the artillery, both horse and field, would be procurable.

To prove this I give the number of four-year old remounts, country-bred, purchased by the remount agent of the North-West for the last three years and a half:—

							Four-year old remounts.
1876-77	...	...	...	...	...	...	13
1877-78	...	...	...	...	...	...	22
1878-79	...	...	...	...	...	...	28
1879-80	...	...	...	...	...	...	15

That officer has repeatedly told me that he has attended every large horse-fair of the North-Western Provinces and the Punjab; and, though he has purchased every available four-year old horse according to his judgment fit and suitable for army purposes, he has never been able to exceed the small number noted by me above.

Taking into consideration, as one must do, that the remount agent can give higher prices than any one else, and that thus he has virtually the command of the market, it only proves how very few four-year old horses suitable for army purposes are available every year in these great provinces.

I submit therefore that I support my opinion about the advisability of keeping up a reserve, from these two facts:—

That India itself cannot provide us with a supply of remounts, at least not at present, and so in consequence we shall have to look to the colonies, certainly for some time to come, for cavalry remounts, and perhaps always for the class of horse suited for the artillery branch of the service.

A supply of horses obtained from a great distance cannot always be depended upon, and so the necessity of a reserve appears to me obvious.

I am of opinion that 1,000 remounts kept at a reserve depot would be sufficient to meet all requirements.

F. F. Collins, Esq., Principal
Veterinary Surgeon, Bengal Army.

I consider a reserve of Government horses necessary, there being no local resources available in case of emergency, either for British cavalry or for artillery; and the number maintained as a reserve should amount to the requirements of the service for one year, which number will be found, when taking the annual average casualties and castings for many years back, to amount to 10 per cent. of the effective strength. The number required for the reserve will therefore be as follows:—

	Total	Reserve.
Six British cavalry regiments—		
Strength in each 436	2,616	261
Eleven batteries, royal horse artillery—		
Strength in each 178	1,958	195
Twenty-two batteries, field artillery—		
Strength in each 110	2,420	242
	<hr/>	<hr/>
Total	6,994	698

J. H. B. Hallen, Esq., General
Superintendent of Horse-Breeding
Operations.

Yes; I consider it is necessary to maintain a reserve equal to one year's requirements of remounts for British artillery and cavalry, say 880 horses, calculated thus—

The total strength of horses are believed to be as follows:—

Royal horse artillery... ..	1,958
Royal field ,,	2,420
Heavy battery of royal artillery	5
British cavalry	2,730
Body-guard	120
	<hr/>
Total	7,233
	<hr/>
Calculated at 10 per cent. on above	723
Margin for selection for officers' chargers, casting, casualties and emergencies 157	
	<hr/>
Total	880

But perhaps it would be advisable to have, in round numbers, a reserve of 1,000 horses, as at present sanctioned by the Government of India.

G. Evans, Esq., Inspecting Veteri-
nary Surgeon, 2nd Circle.

Yes; but I have no data by which to form an opinion as to the number.

W. Lamb, Esq., Inspecting Veteri-
nary Surgeon, Bombay Army.

I consider a reserve of horses very necessary, because remounts can generally be purchased in the Bombay market only during four or six months in each year, and even then the supply is apt to be uncertain. We have no other reliable market in this presidency to resort to, and as yet do not produce any appreciable number of country-breds suitable for artillery or British cavalry.

With the present established strength and without a reserve, it is impossible to send a battery on service without drawing such a number of horses from one or more other batteries as to render it or them inefficient. This was very apparent when preparing the two batteries for Malta and the two for Afghanistan last year. I think the reserve of horses for this army should be 200.

F. G. Shaw, Esq., Staff Veterinary
Surgeon, Madras Army.

A reserve I consider necessary in the event of emergent requirement for service either of this army, or to assist the armies of Bengal and Bombay. On three occasions within the last twenty years requirements were made from this army for remounts for Bengal and Bombay. A reserve of 100 horses would probably be enough.

J. V. G. Adams, Esq., Veterinary
Surgeon, Remount Depot, Coosoor.

I consider that a reserve of Government horses is necessary to ensure regiments and batteries being kept up to their strength in case of unusual mortality, or to meet any emergent requirement in case of war.

The reserve at this depot has hitherto been limited to 150 horses; this number has been found equal to the requirements of this presidency.

One hundred and fifty is under a percentage of 5 on the total strength of horses, and this, I think, may be taken as the proportion in calculating the strength of the reserve.

2. Please state the grounds on which your numbers for the reserve are calculated.

Lieutenant-General Sir S.
Browne, K.C.B., Commanding
Lahore Division.

To meet castings at 9 per cent., about 700 horses are required yearly; but I think experience has shown that there have been additional special castings yearly, in addition to which casualties have to be provided for.

Brigadier-General C. G. Ar-
buthnot, C.B., Inspector-General
of Royal Artillery for India.

The grounds of my calculation are that there should be a reserve sufficient to complete for active service the British cavalry and horse and field artillery of a force of at least 35,000 of all arms, replacing all horses which from age or other causes are unfit for service in the field, and also sufficient to meet the casualties likely to occur during the first year's campaign.

The number of regiments and batteries for which this reserve should, in my opinion, be maintained is—

Regiments of British cavalry	...	...	...	3
Batteries, horse artillery	...	...	...	5
Batteries, field artillery	...	...	...	10

For the batteries of horse and field artillery, the numbers required to complete present establishments for service in the field are 22 and 20 per battery respectively. I am, however, of opinion that these numbers might be reduced without loss of efficiency, and that in calculation for the reserve 12 may be allowed for a battery of horse artillery instead of 22, and 14 instead of 20 for a field battery, making the active service establishment of the former 190 and of the latter 124.

To replace horses fit for ordinary work in cantonments, but, from age and other causes, unfit for service in the field, at least 10 per cent. are, in my opinion, required for both arms, and to replace casualties during first year's campaign about 15 per cent.

The active service reserve, therefore, which I propose, is as follows:—

	3 regiments of British cavalry.	6 batteries horse artillery.	10 batteries field artillery.	Total.
To replace horses unfit for active service, 10 per cent. ...	132	90	110	332
To complete to active service establishment ...	...	60	140	200
To replace casualties during first year's campaign, 15 per cent. ...	198	143	186	527
Total ...	330	293	436	1,059

This reserve, as I have already stated, I propose to be in addition to the reserves at present maintained at Saharanpur, Hapur and Osoor to meet the ordinary annual requirements.

If it is not feasible to have this reserve kept by private individuals,—and I do not believe it is feasible—it appears to me inexpedient that a certain percentage of horses known to be unfit for active service should be retained in regiments and batteries with a similar number standing idle in the reserve ready to replace them. If, therefore, the reserve has to be maintained at the expense of Government, I would recommend that, in the regiments and batteries for which it is maintained, the percentage of casting be so increased that all horses unfit for active service may be got rid of.

The necessity of keeping duplicates for about 10 per cent. of the horses of these regiments and batteries will then cease, and the reserve I have proposed will be reduced by 332.

Lieutenant-Colonel H. C. Smith,
Superintendent, Reserve Remount
Depôt, Saharanpur.

The sanctioned number of remounts to be supplied annually to the army is 9 per cent., which amounts approximately to about 600 head in all. But as in practice it has been found that even this estimate is somewhat in excess of requirements, it follows that the number fixed upon above, though much under what is now being maintained, would be ample for all purposes.

Colonel J. D. Couper, Director of
Army Remount Operations.

The grounds on which I calculate the number for the reserve are as follows.

There are belonging to the mounted branches of the army—

	Number of horses, peace strength.	Castings and casualties, 21 per cent.	Number of horses required to complete to war strength.	TOTAL.
6 British cavalry regiments, 436 horses, each	2,616	549	...	3,165
11 horse artillery batteries, 178 "	1,958	411	242	2,611
22 field artillery batteries, 110 "	2,420	508	440	3,368
Total ...	6,994	1,468	682	9,144
		2,150		

In calculating the castings and casualties at 21 per cent., I am guided as follows.

Nine per cent. is the rate laid down for castings in time of peace, and 3 per cent. for casualties; but this is to render the regiments and batteries efficient for peace work; and I feel sure that, to make them efficient for hard campaigning work, a further casting of at least 9 per cent. would be necessary.

If I am right in these calculations—and I believe I am—it is apparent that to make the whole army efficient for war it would be necessary, before a shot was fired, to supply 2,150 horses fit for immediate and hard work.

In the Afghan campaign three British regiments of cavalry, six batteries of horse artillery and six batteries of field artillery were employed, or were in reserve at war strength; and supplying the artillery with the necessary horses exhausted the resources of the reserve, so that latterly many of the remounts sent to the artillery were fresh horses landed this year. These were sent to other batteries, and they supplied seasoned horses instead to the batteries at the front; but if large reinforcements had been necessary, the number of inefficient horses that would have been with some batteries might, I think, have proved very inconvenient.

The reserve for the future, as now ordered, will in fact be only 750 horses; for the Government have directed that 150 young stock between the ages of 2½ and 3½ are to be purchased annually and reared in the reserve depôts, and the total of the number of animals kept, including these young stock, is not to exceed 1,000. The purchase each year of 150 young stock at these ages will make 250 animals under age for the service that will have to be kept at the depôt, which will in fact become a reserve and rearing depôt, with 750 efficient horses in the reserve and 250 inefficient horses, on account of being under age, in the rearing department.

Colonel A. Drury, Agent for Remounts, Oosoor.

It is very desirable that, in case of an epidemic or of any sudden demand for field service, some horses be kept in readiness to meet such demand. Moreover, there are always a number of horses which are unfit to go to the service the first year, which form a large item of the reserve.

A reserve is also necessary because the colonial horses are only purchased from November to March, and the Persian and Candahari dealers bring their horses only during the same period, and it would be impossible to purchase any number of horses at any other time if required.

Major W. A. Roberts, R.A., Remount Agent, Calcutta.

Because horses of that age are as a rule the first to knock up and create necessity for remounts when sent on a campaign or put to any heavy work. Horses cast annually for other causes than age should be replaced in addition to the reserve.

Major A. Capel, Officiating Senior Assistant Superintendent, Army Remount Depôt, Saharanpur.

My reason for saying that 1,000 horses kept in reserve would be sufficient is grounded on the fact that the issues of remounts to corps and batteries from the two depôts combined has ranged from 500 to 600 the last few years. If this is correct, as I believe it is, a reserve of 1,000 horses would meet all calls, leaving an ample balance for unforeseen contingencies.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

This question is answered in No. 1.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

The numbers of the reserve are calculated at 10 per cent. required annually on account of casualties and castings. This conclusion was arrived at by the late special stud commissioner, based on a calculation of casualties and deaths occurring among army horses during a period of many years.

G. Evans, Esq., Inspecting Veterinary Surgeon, 2nd Circle.

See answer to question 1.

W. Lamb, Esq., Inspecting Veterinary Surgeon, Bombay Army.

Two hundred is about the average yearly requirement of remounts for this army; and I do not think it good to keep a larger number in reserve, as, unless the depôt is cleared out annually, some horses may be remaining there for years, and so become enormously expensive.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

A reserve of 150 horses was fixed by this Government about the years 1868-70, but practically this number has never been reached. On more than one occasion requisitions from Bengal could not be complied with.

J. V. G. Adams, Esq., Veterinary Surgeon, Remount Depôt, Oosoor.

As stated above, 150 or under 5 per cent. on the total strength of horses has hitherto been found sufficient for this presidency.

3. Should this reserve be attached to corps and batteries, or to one or more depôts?

Lieutenant-General Sir S. Browne, K.C.B., Commanding Lahore Division.

Should be retained in depôts.

Brigadier-General C. G. Arbuthnot, C.B., Inspector-General of Royal Artillery for India.

The number I propose to be maintained to complete batteries to active service establishment, viz., 12 per battery of horse artillery and 14 per field battery, should, in my opinion, be attached to the batteries of the force for which the reserve is maintained. The percentage I propose (15) for the purpose of replacing casualties I would not recommend to be attached to corps and batteries, but to the remount depôts, in excess of the number maintained at those depôts to meet ordinary requirements. They should, however, be included with other remounts in the annual issue.

Lieutenant-Colonel H. C. Smith,
Superintendent, Reserve Remount
Depôt, Saharanpur.

This reserve should certainly not be attached to corps or batteries, which have no means for restoring young horses to health after long confinement and bad feeding on shipboard. What is essential for the newly-landed waler is a run at grass and an alternative diet; and they should be kept first in a depôt, where there would be pasture-lands and the means of raising green fodder crops.

If the reserve is kept down to 1,000 head, there would be no need for more than one depôt. It would, in fact, be preferable, in such a case, for the whole of the reserve to be accommodated in one rather than in two depôts.

Colonel J. D. Couper, Director of
Army Remount Operations.

I have combined these questions because many of the arguments which apply to the point whether the reserve should be attached to corps and batteries, apply also to the point whether remounts should go direct to corps and batteries, and also to whether the reserve horses should be worked.

I believe that the chief argument brought forward to show the necessity for walers being kept, after being landed, for a year in a depôt is that the animals when in Australia are in a natural state. During the voyage they are in a highly unnatural state, and they are in the same state for some time after landing. At the depôt they become again in a natural state, and this fits them for the service.

I do not think that this argument will hold water even theoretically. I grant that the horses are in a natural state in Australia, where they are always loose and can get no food but what they can pick up for themselves; and I grant also that they are in a highly unnatural state when they are landed. Up to this point the argument is tenable; but the horses are certainly not in a natural state in the reserve depôts, considering that they are fed on grain and forage, and that they are groomed and stabled and clothed. This is a kind of intermediate state between nature and work, and the horses thrive very well indeed under the system; but, considered with reference to hard work at the earliest period consistent with health, I do not think it necessary or even expedient.

It must, I submit, be borne in mind that we do not want horses in a natural state, but in a state that will enable them to work well, and I consider that when you want work you must drop nature, and that the sooner after a horse is set and furnished you get him out of nature and into work, the better.

Let twelve horses be taken by chance from any batch of newly-landed walers, send six, also taken by chance, to a reserve depôt, and let me, or any practical man who has some knowledge of conditioning and breaking in walers, take the other six. I should commence working my six as soon as they could stand any work, and I should watch how they worked and how they fed; and I should endeavour so to regulate matters that condition and work and acclimatization should all go on together. I should be surprised and disappointed if the horses were not doing fair work in three or four months, good work in six months, and if they were not fit for any work at the end of twelve months. Horses so treated would, in my opinion, be far more fit to do service work than the six that had been a year idle at the reserve depôt; and I should besides have, as it were, certainly nine months' work in hand; for I should have had six months' work out of my horses at the end of the year, and it would take the reserve horses quite three months, after the year had expired and they had joined the ranks, before they would be fit for anything like hard work. I feel sure, moreover, that animals treated as mine would be much more easily broken in than those that had been allowed to become a year older in idleness.

These arguments, if they are correct, all apply, I think, to sending remounts direct to regiments and batteries, provided the officers concerned can be depended on to have the requisite knowledge with respect to conditioning and breaking in newly-landed walers. This knowledge is, in my opinion, essential to success; for many of these horses when recently landed are very ticklish animals to deal with, and require experience, judgment and knowledge of nursing.

The same arguments may at first sight appear to apply to reserve horses; but I do not think that they do so. The remounts would belong to the regiment or battery, and the regimental establishment would be sufficient for taking care of them, breaking them in, &c., and the men and all concerned would naturally take an interest in the animals as belonging as it were to themselves.

This would not be the case with the reserve horses. They would be in excess of the establishment, and would probably never belong to it; and there would, I believe, be no means for breaking them in, or working them properly and regularly, without which the whole thing would certainly fail.

Moreover, my plan, although I believe it to be the better, is certainly the more expensive, unless of course the horses were wanted for work and so paid their way, which would not be the case in the reserve. Food, attendance (for they would require a syce for each horse), breaking in expenses, contingencies, &c., would be more expensive according to my system than in a reserve depôt, and, taking the whole subject into consideration, I am convinced that, unless the horses are wanted for work, or at any rate unless they can be properly worked, they are far better at a depôt than with regiments or batteries.

Moreover, although this, perhaps, is out of my province, it appears to me that these horses would, in a military point of view, hamper the regiments and batteries to which they are attached; and I think that the system on an emergency might prove disastrous. If a war were to break out and half the mounted branches were employed immediately, the whole of the reserve would be absorbed at once. It would then become necessary to make large purchases as soon as possible; and where could these horses be sent? The necessity for a regularly organized establishment for the purpose of receiving, taking care of, and distributing when in condition, these horses would then, I think, become abundantly apparent.

The point of expense will be referred to in my reply to question 7; but I may state here that the actual keep of a horse at the reserve depôts is very small. What makes it appear expensive is the cost of the establishments which are thrown on the remounts; and but a small portion of these would be got rid of if the reserves were kept with the regiments and batteries. The director, the remount agents, and the establishment in Calcutta would still remain.

In conclusion, with reference to these questions, I beg to express my opinion that, if, as I believe, a reserve is necessary, the present system is the best, the cheapest and the most efficient that can be devised; but if a reserve is not required, I should consider that the remounts should go direct to corps and batteries.

Colonel A. Drury, Agent for Remounts, Oosoor.

Only one reserve is required at the remount depôt, Oosoor; none should be attached to corps or batteries.

Major W. A. Roberts, B.A., Remount Agent, Calcutta.

To corps and batteries. I beg to point out the advantages of a regimental reserve of remounts over the present system of reserve depôts in addition to the saving of the establishments.

1st.—In case of a sudden call to active service, the fresh young horses are present and available for the ranks.

2nd.—The economy in travelling charges. At present, waler remounts are sent from Calcutta to Hapur and Saharunpur by rail (the station for the former place being Ghazeeabad), from which depôts they are drafted to corps and batteries, excepting the batteries at and below Allahabad, which now receive direct from Calcutta.

The difference of railway fares between such stations and Ghazeeabad would thus be saved, amounting in the case of Cawnpore (for Cawnpore, Lucknow and Sitapur) to over Rs. 1,200 per annum, taking only the annual replacement of horses cast (*viz.*, 7 per cent.), besides avoiding the expense and trouble of the march down of these horses from Hapur to their stations.

3rd.—I submit that the time spent by waler remounts at a reserve depôt is practically wasted, and that, so far from contributing to their efficiency, they become shy of Europeans and masterful, owing to their freedom, which I think must be injurious to the legs of a horse who has quite lately been standing for from 40 to 60 days in a confined stall on boardship.

4th.—If the horses went direct to corps and batteries, they could at once be handled by Europeans, and would be better and more easily broken in with less danger to the men. This opinion is based on the experience of the horses as I despatch them from here and my experience of the arrival of a batch from the reserve depôts in the battery in which I served.

Major A. Capel, Officiating Senior Assistant Superintendent, Army Remount Depôt, Saharunpore.

I am of opinion that the actual reserve of remounts should be kept at one depôt.

I do not think it would ever be found to answer to attach them to corps and batteries.

I think, if the latter plan was adopted, it would give rise to great confusion, and would be extremely inconvenient in many ways.

Besides, I doubt much whether the expenditure on reserve horses, say they were attached to corps and batteries, would not far exceed in the aggregate the amount the same number of horses would cost if attached to one reserve depôt.

I refer of course to cost of feed, establishments and contingencies.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

Each cavalry regiment should have its own reserve attached to it, placed, as cavalry remounts are at home, solely under the care of the regimental veterinary surgeon, subject to the commanding officer's control, and under the scholastic management of the riding master, and they should be sent straight to their regiments. As regards artillery reserves, they

should be sent to a depôt for the following reasons:—*Firstly*, the services of a veterinary surgeon for a battery can never be relied upon; *secondly*, a riding master does not exist with each battery; and, *thirdly*, commanding officers are not of themselves, as a rule, equal to the management of a reserve stud, judging by the veterinary knowledge displayed in the two accompanying letters from an officer commanding, which I think will tend to verify the statement. Under commanding officers similar to the one above referred to, and of which there are but too many I fear in the service, it would not be conducive to the best interests of Government to place young unacclimatized horses.

Copy of letter No. —, (Casualties—Horses), dated August 1879, from Officer Commanding—Battery—Brigade, Royal Artillery, to Officer Commanding Royal Artillery, —Division.

With reference to the reports of the deaths of three battery horses, two on the 31st ultimo and one to-day, I have the honor to give the following details of the circumstances, in anticipation of the receipt of the proceedings of the court of enquiry which was held.

The three horses in question were under treatment for prickly heat. I ordered the farrier on the 26th instant to use a dressing of mercurial ointment, and soft soap made into a lather with hot water. The farrier informed me that he was running short of the blue ointment, so I told him to use the biniodide of mercury instead; the biniodide of mercury, however, is kept in its raw state, and not ready prepared like the perchloride. This fact was overlooked, and when the dressing was applied, it acted as a severe blister, causing so much irritation that inflammation set in; and in spite of every effort to reduce it, the horses succumbed.

Copy of letter No. —, (Horses), dated August 1879, from Officer Commanding—Battery—Brigade, Royal Artillery, to Station Staff Officer—.

With reference to letter No 969 from the assistant-adjutant general, Oudh division, dated 4th August 1879, I have the honor to state that during the twelve months that I have commanded this battery I have treated the horses in their various diseases (some of which have terminated fatally) without other assistance than that of the farrier sergeant, and therefore it did not occur to me on this occasion to apply for the services of a veterinary surgeon, either in the first instance, or after the death of the two horses on the 31st July.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

To one depôt. In this depôt Australian remounts should be acclimatized for a period of from six to twelve months according to circumstances. Eastern horses (Persian Gulf, Arab, Cabul and country-bred) might be issued when in condition, or, if bought in good condition, be sent direct to corps and batteries.

As British cavalry corps have each a riding master and veterinary surgeon, so, in reference to question No. 4, Australian remounts might be supplied them direct when deemed necessary, and during the period of acclimatization would be under the professional charge of the veterinary surgeon, as obtains and is found to answer satisfactorily with remounts of cavalry on home service, and when fit be handled and broken in by the riding master.

As there is not a veterinary surgeon and a riding master with each battery of artillery, it is advisable that all artillery remounts be sent to the reserve depôt pending the time when they will become fit and required for allotment.

I take this opportunity of earnestly advocating that the very excellent and economical system obtaining in the Madras Oosoor remount depôt, of treating, handling and training remounts, should be introduced in the Bengal depôt.

I had the opportunity, in December 1878, of judging of the very practical working of the Madras depôt, and would solicit the perusal of a report on this depôt by the inspector-general of artillery in 1876, submitted to the adjutant-general for the consideration of His Excellency the Commander-in-Chief in India.

G. Evans, Esq., Inspecting Veterinary Surgeon, 2nd Circle.

Attached to corps and batteries; because the more they are distributed the more officers will there be responsible for them, and the better chance will there be of securing at least the best average attention, &c., paid to them. When they are all together, they may all be exceedingly well managed and economically, or very badly managed and wastefully, depending upon the character or aptitude for that special duty of the senior officer in charge.

W. Lamb, Esq., Inspecting Veterinary Surgeon, Bombay Army.

I think that the reserve of horses for the Bombay army should be kept in one depôt, centrally situated on a line of railway; and for this purpose Ahmednagar is particularly well adapted. The climate is good; horses do well there; forage is generally cheap, and there is ample and good stabling now unoccupied and ready for use. Also it is very central and accessible, being on the loop line of the Great Indian Peninsula Railway (the Dhond and Manmad Railway).

The objections to attaching reserve horses to corps and batteries are, first, that, being scattered all over the presidency, the reserve could not readily be drawn upon in case of emergency; second, that Gulf horses, having to be castrated and Australians to be acclimatized, require special care during that time. This special care can only be given by those having special knowledge. Officers of corps and batteries, being so constantly changed and often quite new to the peculiarities of this climate and country, cannot be expected to have that special knowledge or experience in the same degree as officers of a permanent establishment constantly occupied with young horses would have. Many young veterinary surgeons recently from England have had little or no practice in castrations, and the farriers still less.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

In this presidency the reserve horses remain at the remount depôt, where the cost of forage and attendants is over one-third less than with a regiment or battery.

J. V. G. Adams, Esq., Veterinary Surgeon, Remount Depôt, Oosoor.

I am of opinion that the horses should be retained at the depôt (one is sufficient for this presidency) to be ready for issue to the service when required.

If to the former, should they be worked or held strictly as a reserve, being merely broken in and exercised?

Lieutenant-General Sir S. Browne, K.C.B., Commanding Lahore Division.

Opinion not required, as reserve depôts are recommended.

Brigadier-General C. G. Arbuthnot, C.B., Inspector-General of Royal Artillery for India.

Those attached to batteries should be merely broken in and exercised until they have been one year in the country and are five years old; after that they should be put to light work, at the discretion of the commanding officer. They should be transferred annually to the battery establishment as vacancies occur.

Lieutenant-Colonel H. C. Smith, Superintendent, Reserve Remount Depôt, Saharunpur.

To break in these horses at a depôt to any good purpose would require a very large establishment. And I consider that no commensurate advantage would be obtained by adoption of this measure.

Remounts should be transferred from the depôt to the service in good health, good condition, and comparatively free from timidity; but the breaking in should be done after they get to their respective corps by the establishments kept for that purpose. This is the rule that has obtained hitherto, and it has worked well.

Colonel A. Drury, Agent for Remounts, Oosoor.

No reserve with corps and batteries.

Major W. A. Roberts, R.A., Remount Agent, Calcutta.

They should not be worked but be held strictly as a reserve, broken in and exercised at the discretion of the officer placed in charge of them.

Major A. Capel, Officiating Senior Assistant Superintendent, Army Remount Depot, Saharanpur.

The best way to cheapen remounts without impairing efficiency is in my opinion as follows:—

Abolish the remount agency as at present constituted in Calcutta, and let the duties of the remount agent be performed by the director of army remount operations, who, during the cold weather, has next

to nothing to do.

Let the remounts purchased there be sent up-country at once, than kept at Calcutta, where feeding is very expensive, and let them be sent up under charge of overseers with a pass, and not under a veterinary surgeon, who draws some 400 rupees travelling allowance for each journey up and down.

Revert to the old station casting committees, and thus save the expense of two committees, each consisting of three officers, travelling all over the country during the cold weather.

Abolish farming operations at the reserve depot, as contracting for gram and fodder is cheaper far, keeping on only a sufficient number of bullocks for lucerne, imphoe and carrot cultivation; this would be absolutely necessary.

I write the above on the supposition that this depot, Saharanpur, is likely to be retained as the reserve remount depot.

For I believe firmly that abolishing farming operations here would be a considerable gain to the Government.

My reason for saying this is that at Saharanpur there are about some 3,000 pukka beegahs of land, the property of the Government, which land is now called the depot farm.

After retaining as much of this land as would be necessary for lucerne, imphoe and carrot cultivation, the remainder of the land, I submit, should be farmed on the following system, known as the half battye, and which was practised at the old Poozah stud depot, and by which our supply of oaten straw was obtained—our standard fodder, which horses always eat greedily, and with benefit to themselves, when other forage, such as green grass, &c., fails during the winter and dry months of the summer.

I here describe what the half battye system is—

Say you have 1,000 beegahs of land; it is allotted out in small portions to Natives, on this agreement, say that a man holds 5 beegahs; 2½ of the 5 he may cultivate with his own crops for his own benefit; the other 2½ binds himself to cultivate for the depot with oats.

The depot provides the assamee with seed; he, on his part, ploughs, sows, cuts and binds the oats in straw, and brings it to the depot stackyard to be weighed on his own carts, without any actual payment from or to the depot further than that he holds his own 2½ beegahs free of rent.

If the assamees here would not consent to these terms, they might be paid at some nominal rate for the oats.

In fact, some arrangement could be made which would be fair for both parties to the transaction.

By this arrangement being adopted, I feel certain that fodder could be got in cheaper than it is now by depot cultivation; and the whole farming establishment of jemadar, malis, one ploughman and bullocks, carts, &c., could be dispensed with.

I know that the present superintendent, Colonel Smith, is opposed to this system, and so I believe is Colonel Couper; but that does not alter my opinion that it would be cheaper to work the farm lands on some plan like this than the way it is managed now.

Amateur farming operations are very interesting; but we all know, at the same time, they are very expensive.

When did a country gentleman ever make his farm pay?

Establish one rearing depot, and purchase young country-bred stock at 7 months old and upwards.

In making a rearing depot, there is no necessity for expensive buildings. Thatched mud huts would answer quite well, with a pucca granary and water troughs.

The stock to be reared on the liberty system; amount of gram to be dependent on nature and quantity of pasturage.

One syce to be kept on every six head of stock up to 2½ years old.

One to three over that age; one jemadar and mate to each stable.

Young stock do not want clothing or grooming, but should be supplied with plenty of beating, which is cheap enough.

They should be allowed to run loose as much as possible; in fact, should never be tied up.

Horses so reared should not cost more than Rs. 700 or Rs. 800 all told by the time they go into the service.

Such a system would ensure a constant supply of remounts able to stand the climate, and the majority of them well suited for cavalry purposes.

I feel assured that, unless such a depot is formed, and young stock purchased from the breeders to be reared there until 4 years old, the Government will always go into the market, with the same deplorable results as those obtained by the remount agent of the North-Western Provinces for the last three years and a half.

At present nearly all the young country-bred stock is bought up by the dealers.

Breeders, as a rule, have not the means to keep their stock up to 4 years old.

Their object is to sell and realize as soon as possible after weaning; and they find no difficulty in doing so.

There are always a certain number whose circumstances compel them to sell; and the dealers, on a look out for a cheap bargain, buy them and take them away into the Native states, where they readily dispose of them.

The cavalry, police and public buy 2 and 3 years old; and if the Government make up their minds to buy nothing under 4, they would of course get very few indeed.

When I say that a remount so reared should only cost Rs. 700 or Rs. 800 by the time he goes into the service, I go upon the facts that the average price of a country-bred yearling, as given me by

the remount agent of the North-West is Rs. 167. His keep, including stable establishment and contingencies for 4 years, should not be more than Rs. 6 a month, or Rs. 72 a year, or Rs. 288 for the 4 years.

His price and keep show therefore a total of Rs. 455, exclusive of the pay of officers, overseers and office establishment.

I do not know whether it would not be possible to make a great reduction in this respect.

At the present moment it must be very heavy, as the director of army remount operations estimates the cost of each horse kept at a reserve depôt as Rs. 330 per annum.

Our average rate of feed for last month, including stable establishment and contingencies, was something below Rs. 9-8, or Rs. 114 a year.

In cheap gram years this of course would be much less.

So the difference in each horse of Rs. 216, or, on a reserve of 1,000 horses of two lakhs and sixteen thousand rupees, shows that very heavy expenses exist elsewhere, over and above the actual cost of feeding remounts, and then stable establishment.

I am of opinion that a rearing depôt properly started, with only its actual legitimate expenses charged thereon, should be able to turn out remounts at 4 years old, from Rs. 700 to Rs. 800 including all expenses.

If such should be the case, Government could not complain of the result on the score of expense.

To conclude, I must submit that the present method of keeping a number of horses over and above the actual requirements of the State is simply ruinous.

The two depôts at Hapur and Saharanpur contain about 1,500 head of stock, which is far over and above what is necessary. This is illustrated forcibly by this concluding fact, that at this depôt alone the following horses have been kept here at a great expense, simply doing nothing but eating their heads off. The question is, should such be the case, can your depôts be cheap on such a system?

I note on the following page the date on which certain horses arrived at this depôt from Calcutta, and have been standing here ever since doing nothing but costing money to keep.

Date of arrival from Calcutta.				No. of horses.	
November 1874	1
October and November 1875	8
" " " 1876	18
" " " 1877	19
" " " 1878	259

The 36 horses that arrived in 1874, 1875, 1876, 1877 must have cost nearly Rs. 20,000 keeping, at Colonel Couper's calculation of rupees 330, the cost of keeping a remount per annum.

If a remedy could be found for this state of things, viz., of keeping more horses in reserve than were actually necessary and wanted, surely it would be the saving of a good deal of money.

F. F. Collins, Esq., Principal
Veterinary Surgeon, Bengal Army.

In the cavalry they should be held strictly as reserve, merely broken in and exercised. The first year of adopting this system double work would be thrown on the riding establishment, but subsequently no extra work would be required, as the reserves would then only have to be broken in.

The artillery reserves should be cared for and broken in similarly to the principles established at the Oosoor stud in the Madras presidency, which system will be no doubt dilated upon by competent authorities.

J. H. B. Hallen, Esq., General
Supt., Horse-Breeding Operations.

Answered in reply No. 3.

G. Evans, Esq., Inspecting
Veterinary Surgeon, 2nd Circle.

Some of them might be put to work soon if the veterinary surgeon in charge certified that their joints were well formed and they were generally in fit condition. I consider that steady work would be good for them as soon as they are thoroughly trained, so long as it is not too severe for their age. Training should always be gradual and slow. It is the rapid movements, the sudden wheeling round, and pulling up, that ruins joints not well seasoned.

W. Lamb, Esq., Inspecting Veter-
inary Surgeon, Bombay Army.

I do not advocate reserve horses being attached to corps and batteries; but if that measure were decided upon, I should advise their being worked.

F. G. Shaw, Esq., Staff Veter-
inary Surgeon, Madras Army.

Nominally the reserve horses at the remount depôt assist on the farm; but their assistance is seldom required, the work being done by special or farm horses, i.e., horses rejected as remounts for defects unfitting them for army use. Every horse at the Oosoor remount depôt is broken in, and is, after a few months' acclimatization, fit to draft into the service.

J. V. G. Adams, Esq., Veterinary
Surgeon, Remount Depôt, Oosoor.

I am of opinion that horses of the reserve should be retained at the depôt and treated in all respects as other remounts, being simply broken in and exercised; that they may go to the service fresh horses, and not half worn-out, as many doubtless would be if attached to regiments or batteries for work.

The horses of the reserve would be issued annually, or as they may be required, and replaced by fresh horses.

5. Would any, and what, extra establishment be necessary for this purpose?

Lieut.-Genl. Sir S. Browne, K.C.B.,
Commanding Lahore Division.

Opinion not required, as reserve depôts are recommended.

Brigr.-Genl. C. G. Arbuthnot, C.B.,
Inspector-General of R. A. for India.

Grass-cutters as for other horses, and one syce for every two horses.

Lieut.-Col. H. C. Smith, Supdt.,
Reserve Remount Depôt, Saharunpur.

Answered in No. 4.

Colonel J. D. Couper, Director of
Army Remount Operations.

Extra establishment would, I suppose, be necessary; but I do not possess sufficient knowledge of the interior working of corps and batteries to enable me to answer this question satisfactorily.

Colonel A. Drury, Agent for Remounts, Oosoor.

No extra establishments are necessary.

Major W. A. Roberts, B.A., Remount Agent, Calcutta.

Only the syces and grass-cutters, with a jemadar if the number is large. The reserve horses could be placed in charge of the riding master or adjutant of cavalry regiments and the captain of a battery, or some officer that would take interest in such a charge if the captain is not available. A few "kutchas" loose boxes, for the horses to be left loose in at first, could be run up at a very trifling cost, similar to those in use at the landing depôt here.

Major A. Capel, Officiating Senior Assistant Superintendent, Army Remount Depôt, Saharunpur.

In my opinion this could never be found to answer.

It would be preferable to attach them to corps and batteries, but I do not recommend either course.

I think, even if you found the men to take charge of remounts under these conditions, which is most doubtful, then the objections that could be urged against such an arrangement would be found far to outweigh whatever could be said in its favor.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

In the cavalry one senior sergeant of the regiment would under the regimental veterinary surgeon be in charge, and the only extra establishment required would be a syce to every two horses.

As regards the artillery reserves, the system adopted in the Oosoor stud already referred to should be carried out.

J. H. B. Hallen, Esq., General Superintendent, Horse-Breeding Operations.

The extra establishment required for remounts, if attached to cavalry, should be limited to one extra syce to every two horses.

A senior and selected sergeant of the corps should be detailed to have charge of the remounts under the veterinary surgeon.

G. Evans, Esq., Inspecting Veterinary Surgeon, 2nd Circle.

I do not think that any extra regimental establishment would be necessary, except the syces, with a good sergeant and some steady troopers or drivers to look after them.

None, except a few syces.

W. Lamb, Esq., Inspecting Veterinary Surgeon, Bombay Army.

No special establishment is entertained for reserve horses at the remount depôt; they are handled and broken by the sowars of the fixed establishment. In fact, beyond their absolute cost for keep, no special expense is incurred.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

J. V. G. Adams, Esq., Veterinary Surgeon, Remount Depôt, Oosoor.

At this depôt there is no special establishment for horses of the reserve; they simply have the syce for every two horses, and are kept in every way as other remounts, being prepared for the ranks.

6. To what particular divisions of the army should they be posted?

Lieutenant-General Sir S. Browne, K.C.B., Commanding Lahore Division.

Opinion not required, as reserve depôts are recommended.

Brigadier-General C. G. Arbuthnot, C.B., Inspector-General of Royal Artillery for India.

To batteries of the divisions for which the reserve is maintained, and which should be those nearest to the north-west frontier.

Lt.-Col. H. C. Smith, Supdt., Reserve Remount Depôt, Saharunpur.

Answered in No. 4.

Colonel A. Drury, Agent for Remounts, Oosoor.

To none.

Major W. A. Roberts, B.A., Remount Agent, Calcutta.

This is a point I recommend should be left to fresh orders annually, depending on the annual relief. For instance, a corps or battery which is to move from a down-country to an up-country station might be supplied with a strong reserve early in the season or towards the close of the previous season, while those coming down-country might, if

their arrival is to be at all late, depute an officer and Native establishment to their new station, in advance, to receive their reserves till the head-quarters arrive. The earlier in the season this could be done the better, as Calcutta expenses on horses are high.

This arrangement would save travelling expenses.

Major A. Capel, Officiating
Senior Assistant Superintendent,
Army Remount Depot, Saharanpur.

The reserve should be kept at two depôts; there should be one rearing depôt and one reserve remount depôt.

As long as walers are purchased—and I believe they will have to be purchased for many years to come, both because no other class of horse will be available, and also because, I think, it will be discovered that horse and field batteries will never be properly horsed unless by the walers, the majority of whom are admirably suited for draught, the country-bred horse lacking the bone, weight and substance so essential for artillery purposes. As long, then, as you import walers, you must have a depôt to send them to.

It would never be found to answer to send them to corps and batteries.

Horses first landed from a long sea voyage require really careful nursing; that is the only word you can use for the first six months certainly, if not longer.

They arrive at this depôt most of them very much out of sorts, very low in condition.

They stand most particularly above all things in want of exercise in large grass paddocks or runs, where there is grazing and exercise combined, and where they can stretch their legs after being cramped on board of ship.

This of course they could not get elsewhere than at a depôt.

Another great point which may appear most *trivial* at first sight, gained by depôt treatment, beyond the general improvement of health is the extraordinary good effect it has upon the tempers of walers.

I remember well, when this class of horse was first imported into this country, how constant were the complaints of their buck jumping, vice, timidity, intractability, &c.

"The brutes! I would rather not have them," you used to hear officers say: "they are such a nuisance to break in. I would rather have stud-breds; they are less trouble."

You scarcely ever hear these complaints about walers now.

Here and there a horse is returned for vice to the depôt; but very seldom does this occur.

What has made the waler to be so favorably looked upon by cavalry and artillery officers, as to the best class of remount that they can get, is due to a great measure to their treatment at the reserve depôt.

Many horses arrive here from Calcutta that no one can approach six months after their arrival; the horses, as a general rule, become perfectly quiet and tractable.

This result, I contend, would not be gained anywhere except at a depôt.

I am firmly of opinion that, as long as walers are imported and purchased as remounts, they should be sent to a reserve depôt.

I have already given my reasons for the opinion that I hold, that there should be a rearing depôt.

F. F. Collins, Esq., Principal
Veterinary Surgeon, Bengal Army.

If I understand this question aright, it is answered in No. 3.

J. K. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

Cavalry remounts should not be attached to any cavalry corps quartered on the frontier, or at stations whence it may be expected the corps may have to move on field service.

G. Evans, Esq., Inspecting
Veterinary Surgeon, 2nd Circle.

Divided between the cavalry and artillery, but not at notoriously unhealthy stations such as Barrackpore. They should be allotted at first to the corps they are most likely to be serviceable in. There would be afterwards a final reallocation, because horses often change much in growing.

W. Lamb, Esq., Inspecting Veteri-
nary Surgeon, Bombay Army.

Ahmednugger in the Poona division is strongly advocated as the most suitable place for a reserve depôt, and no other is considered necessary for this presidency. But if our recent acquisitions and extended influence in the direction of Central Asia should enable us to reach or tap by an overland route the grand supplies of Turkoman horses described by Colonel Valentine Baker and other travellers, it might become advisable to form a supplementary depôt in Sind or in the Pishin valley, for the supply of the troops there.

F. G. Shaw, Esq., Staff Veteri-
nary Surgeon, Madras Army.

I do not think any improvement could be made in existing arrangements either as regards economy or efficiency.

J. V. G. Adams, Esq., Veterinary
Surgeon, Remount Depot, Oosoor.

In my reply to question No. 3 I have stated my opinion that they should be retained at the depôt.

7. Can you suggest any more economical mode of maintaining a reserve?

Lieutenant-General Sir S.
Browne, K.C.B., Commanding
Lahore Division.

For the good of the service, efficiency is the primary and most important consideration, for which reason I am in favor of the depôt system.

Brigr.-Genl. C. G. Arbuthnot, C.B.,
Inspector-Genl. of R. A. for India.

None.

Lieutenant-Colonel H. G. Smith,
Superintendent, Reserve Remount
Depôt, Saharanpur.

Considering the almost famine rates for corn that still prevail, it would be difficult indeed for any horses to be kept for a lower sum than are the reserve in the Government depôts of Saharanpore and Hauppur at the present time; and were those remounts with regiments instead of in the depôts, their feed and attendance would cost at least double what it does now. It is not the legitimate working expenses of the department that are high; what makes it costly is because it is weighted with that which is of no use to it; because it is charged with an outlay for things with which it has but a nominal connection, and because hundreds of foreign horses are purchased and kept by it in excess of the wants of the army.

Yes; there are many ways I could suggest for the exercise of economy in the mode of maintaining the reserve, and ways too that certainly ought to add to the efficiency of the department; but, as such matters need to be treated in detail, I must refer you to the statement* appended for my recommendations under this head.

Colonel J. D. Couper, Director
of Army Remount Operations.

I cannot suggest any more economical mode than the present of maintaining a reserve; but I think I can show how the present mode can be more economically conducted.

A short time ago, on receipt of a letter from Government regarding reducing expenditure in every possible way, I went carefully into the expenditure of my department, when I found that the executive for taking charge of a thousand horses in two depôts is as follows:—

Depôt officers.	Assistants.	Veterinary Surgeons.	Overseers.	Cost.
2	2	2	6	} Rs. 90,001,
	Officers	Total	Overseers.	
	6	6	6	

whereas to take charge of 3,700 horses in four depôts, and 2,000 brood mares in the districts, the executive in 1856 was:—

Depôt officers.	Assistants.	Veterinary Surgeon.	Overseers.	Cost.
4	0	1	12	} Rs. 65,842.
	Officers.	Total	Overseers.	
	5	12	12	

I brought this matter to the notice of Government, with suggestions as to how it could be remedied; but these suggestions were not approved, and I was directed to remedy the matter in some other way.

I have ascertained, by personal inspection and otherwise, that the whole of the thousand horses now kept in the two reserve depôts can be kept in one (Saharanpore), and the adoption of this measure, which will shortly be submitted for the approval of Government, will cause a saving of at least Rs. 55,000 a year.

I am also about to recommend to the Government that the establishment in Calcutta should only be kept up for six months, instead of, as at present, for the whole year; and this measure, if sanctioned, will cause an annual saving of Rs. 10,000.

The horses are now railed up from Calcutta under the charge of an overseer, instead of being kept until the veterinary surgeon could accompany them. By this means the cost of the keep of the horses in Calcutta is saved, and also the cost of the veterinary surgeon's travelling expenses, which in one year amounted to upwards of Rs. 4,000.

I have no doubt that the department will be cheap, and will be by far the most economical and efficient way in which the reserve can be kept, provided the department's own expenses only are thrown upon it.

Colonel A. Drury, Agent for
Remounts, Oossour.

The present system of keeping a reserve at one depôt is the most economical. The permanent establishment must be kept up throughout the year. The only additional cost per horse is Rs. 13 per month, including all expenses for attendance, forage and veterinary charges.

Major W. A. Roberts, R.A., Re-
ment Agent, Calcutta.

I cannot.

Major A. Capel, Officiating Senior
Assistant Superintendent, Army
Remount Depôt, Saharanpur.

Depends on age. Six months' proper care and attention will generally make newly landed walers fit for work, but if 3 or 3½ year-old horses are purchased, they require to be kept a longer time, in order to develop themselves and become fit for the not very light work of a troop or battery horse.

F. F. Collins, Esq., Principal
Veterinary Surgeon, Bengal Army.

In India I question if any more economical and efficient method of maintaining a reserve can be found than that suggested.

J. H. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

This subject has been under my consideration for many years past, and I am of opinion that there is no more economical mode of maintaining a reserve than that indicated previously by me.

G. Evans, Esq., Inspecting Veteri-
nary Surgeon, 2nd Circle.

No.

W. Lamb, Esq., Inspecting Veteri-
nary Surgeon, Bombay Army.

I cannot.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

Answered in No. 6.

J. V. G. Adams, Esq., Veterinary Surgeon, Remount Depot, Oosoor.

I can suggest no more economical or efficient mode of maintaining a reserve than that existing at this depôt. The reserve is, as I have stated, limited to 150, and the horses are treated in every way as other remounts preparing for the service, and I am confident that in no other department could they be kept at less cost.

8. Would it be feasible to allow this reserve to be kept by private individuals at large stations, to be maintained at their expense and used by them, but subject to periodical inspection and immediate recall in time of war?

Lieutenant-General Sir S. Browne, K.C.B., Commanding Lahore Division.

I think the issue and loan to private individuals would be an unsatisfactory system. Officers only would take an interest and pride in properly looking after Government horses; they cannot afford more than what is actually necessary; and they could not be deprived of them at the moment they were required when ordered on service. Moreover, all riding masters find it much quicker and simpler work to break in fresh horses than to instruct animals which have been used for other purposes.

Brigadier-General C. G. Arbuthnot, C. B., Inspector-General of Royal Artillery for India.

In my opinion it would not be feasible; but the experiment might be tried at once on a small scale.

Lieutenant-Colonel H. C. Smith, Superintendent, Reserve Remount Depot, Sabarunpur.

No; it would be utterly impossible to maintain a reserve in this way. There are no private individuals so circumstanced in this country as to enable them to keep any large body of horses at all, far less to keep them as the army reserve ought to be kept.

Colonel J. D. Couper, Director of Army Remount Operations.

Such an arrangement would be found impracticable in every respect according to my judgment. The reserve now is formed from the last purchased horses which are inefficient on joining the reserve, but become efficient before they are sent to the service. Private individuals would never consent to receive inefficient horses; and if any other plan were adopted, the result would be that the private individuals would have the efficient seasoned horses, and the inefficient unseasoned horses would be sent to the service.

Colonel A. Drury, Agent for Remounts, Oosoor.

Utterly impracticable as regards efficiency; and no private individual could keep a horse for the same money.

Major W. A. Roberts, M. A., Remount Agent, Calcutta.

I do not. I doubt if they would meet with proper treatment, even if private individuals could be found who would accept horses on such terms.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

In Europe this system is probably favorable; but in India the scope for selecting fit persons to undertake the charge of reserve horses is too limited, and the system therefore I do not consider feasible.

J. H. B. Hallen, Esq., General Superintendent, Horse-Breeding Operations.

This system does, I believe, obtain in countries in Europe; but it does not appear feasible in India, as the field for selecting private individuals fit and ready to undertake the charge of army reserve horses under the terms noted is too limited.

A trial of this system, where found practicable, may be made; but I doubt it proving in the end so satisfactory or economical as a reserve depôt on the Oosoor lines.

G. Evans, Esq., Inspecting Veterinary Surgeon, 2nd Circle.

I think not.

W. Lamb, Esq., Inspecting Veterinary Surgeon, Bombay Army.

I do not think any scheme of this kind will be found practicable. Europeans, officers and others, are too liable to sudden and frequent moves from one station to another; and Natives are, as a rule, such bad horse masters that entrusting valuable animals to them would, in my opinion, lead to greater losses than the keep of horses unemployed by Government would come to. An arrangement of this kind seems to me possible only with some large establishments, such as the tramway company in Bombay; but I should be very sceptical as to its success, the wear and tear of horses being so great in that kind of work.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

To a certain extent it would be feasible to give the use of pair and single, also saddle, horses to approved persons in consideration for their keep. For the most part, the single or saddle horses would be made use of by infantry officers as chargers, &c.; but the occasion calling for their surrendering the horse would be when perhaps the officer would be called away on service, and when he would most require a horse and unable to suit himself in the market. A similar system once prevailed

in this presidency of hiring out commissariat mules to private persons for the cost of their keep and attendant: the supply was not equal to the demand. Though I admit the "feasibility," I very much deprecate the practice. Contracts and conditions would have to be entered into between Government and their servants, and endless disputes would arise.

J. V. G. Adams, Esq., Veterinary Surgeon, Remount Depot, Coosoor.

I do not consider it would be feasible or economical, as, in spite of any periodical inspection, it would be impossible to prevent a maximum of work being exacted from these horses; and I am of opinion that horses of the reserve should go to the service with all their work before them, as other remounts, and not as half worn-out horses.

9. Should remounts purchased in the open market go direct to corps and batteries for work, or be gradually acclimatized in the reserve, attached to corps or depôts?

Lieutenant-General Sir S. Browne, K.C.B., Commanding Lahore Division.

Remounts should be purchased in the open market, and if of mature age and otherwise fit, may be transferred to batteries and regiments close at hand requiring remounts. This would be applicable more specially to country-bred horses. Colonials generally arrive in such miserable condition; many with seeds of disease in their constitutions that great attention, nursing and runs in paddocks are essential, and this can only be afforded at depôts.

Brigadier-General C. G. Arbuthnot, C.B., Inspector-General of Royal Artillery for India.

All Australian remounts should be acclimatized in the reserve and sent thence to corps and batteries for work.

Other remounts purchased in the open market should, if under five years old, be sent to the reserve to mature.

If over five, they might go direct to corps and batteries.

If there are reserves attached to corps and batteries, those reserves should be the first to be sent to work, and their places should be filled up from the depôts.

Lieutenant-Colonel H. C. Smith, Superintendent, Reserve Remount Depot, Saharnpore.

No; remounts should never be transferred direct to corps and batteries, but should first be sent to the depôt and there kept till their sanitary state was assured. This applies to all, but more especially to walers, as experience has proved how much the Australian horse has risen in favor since the depôt system has been in vogue. Before this walers were still purchased in large numbers, to supplement the outturn of the Government studs, which was quite insufficient for the wants of the army; but they then had a reputation for bad constitutions and being difficult to manage, and were decidedly unpopular. And no wonder; for the poor creatures had then no chance of recovering their health, or getting back the full use of their legs after their long sea-voyage.

Colonel A. Drury, Agent for Remounts, Coosoor.

The Australian horses are generally purchased at Madras about a week after landing, when they are quite unfit to undergo a long journey. They reach this depôt (which is above the ghats and a good climate) within 36 hours, where they are generally put into loose boxes, and turned out to graze in the paddocks for several hours every day, and

gradually put to work as they regain their strength.

If sent direct to corps, they would often have to undergo long journeys before they reached the corps or battery to which they are allotted. They would take longer to recover, and the expense connected with their keep while they are doing nothing would be much greater than at a depôt, occupying the time of men who have other duties of importance.

All horses at the depôt are broken to saddle, and many to harness, before they are sent to the service.

The Arab, Persian and northern horses all undergo castration at the depôt before they are sent to the service. The following will show the result for the past six years:—

Years.	Number of horses castrated.	Casualty.
1873-74	266	None.
1874-75	37	None.
1875-76	83	2
1876-77	243	None.
1877-78	203	1
1878-79	196	3
Total in six years	1,023	6

Major W. A. Roberts, R.A., Remount Agent, Calcutta.

I am not quite sure as to what class of remounts are here referred to. If Persians and country-breds, they would not require the same time to acclimatize as a waler does; nor would a waler bought up-country, if he was not a fresh landed one. Posting them to regiments and batteries and leaving the point to the discretion of the officers commanding would, I think, be a safe plan.

F. F. Collins, Esq., Principal
Veterinary Surgeon, Bengal Army.

J. H. B. Hallen, Esq., General
Supdt., Horse-Breeding Operations.

G. Erans, Esq., Inspecting Vete-
rinary Surgeon, 2nd Circle.

W. Lamb, Esq., Inspecting Vete-
rinary Surgeon, Bombay Army.

F. G. Shaw, Esq., Staff Vete-
rinary Surgeon, Madras Army.

As stated in answer No. 3, cavalry remounts should be sent straight to their regiments when not on service; but when on service, they should be sent to a reserve depôt near the base of operations. Artillery remounts should be sent to the reserve depôt.

horses, they are then castrated under special and skilled management; the mortality for many years past has not reached one per cent. The climate of Oosoor possesses special advantages for the colonia horse: it is situated on the Mysore plateau, 3,000 feet above sea-level, with abundant grazing (a *sine quâ non* to the freshly imported colonial), and to these facts, *i. e.*, abundant grass and its climate, is due the rapid recovery from the sea voyage, and speedy acclimatization. The contrast between horses of the same shipment, *i. e.*, those that remain at Madras or go to other stations and those sent to Oosoor, is most marked.

I feel quite certain that Government gain considerably by having a depôt at Oosoor, and that the horses of this army do better service than they would otherwise do were they sent direct to regiments immediately after purchase. I give this opinion boldly, after a long and studied experience extending over 33 years' Indian residence (since 1846), and a knowledge of India from Peshawar to Cape Comorin, the last 23 years of which have been in the Madras presidency.

J. V. G. Adams, Esq., Veterinary
Surgeon, Remount Depôt, Oosoor.

Australian remounts are certainly unfit to be sent direct to corps or batteries for work, as they are often landed in a wretched condition, and take a long time to recover and to become acclimatized.

I am of opinion that, were they sent direct to corps and batteries, there would be great mortality *en route* to join; and the hot season at hot stations, such as Kamptee, Secunderabad or Bellary, would kill many that had not recovered from the effects of the voyage and journey up-country.

I therefore think it indispensably necessary to send these horses after purchase at the port of landing to the depôt, where they can gradually be got into condition, acclimatized, partially broken, and prepared for the service.

10. If the latter, what interval is necessary before they should be passed into the ranks?

Lieut.-Genl. Sir S. Browné, K.C.B.,
Comdg. Lahore Division.

They should have a year's acclimatization at the depôts.

Brigadier-General C. G. Arbuth-
not, C.B., Inspector-General of Royal

Australians should be one year in the country to acclimatize. Other remounts should not be passed into the ranks until they are five years old.

Lieut.-Colonel C. Smith,
Superintendent, Reserve Remount
Depôt, Saharanpore.

The time for remounts to be kept in depôt should, in my opinion, be for walers one hot season and for country-breds three months. After this interval, they should, provided they are four years old, be available for transfer to the service.

Colonel A. Drury, Agent for
Remounts, Oosoor.

Horses are purchased in the months of November, December, January, February and March; they are ready to go to the service in September. Some are ready sooner, and some few take longer to recover: it depends upon the condition in which they are landed; and that again on the nature of the voyage, and whether they have been too closely packed on boardship.

Should the horses be in condition to go to the service before September, it would not be advisable to move them (even by rail) in the hot season, unless required on emergency.

From six to eight months may therefore be taken as the interval necessary before they be passed into the ranks.

Major W. A. Roberts, R.A., Re-
mount Agent, Calcutta.

As above, only with a strict regulation that no waler is put to any work during his first hot weather in the country.

F. F. Collins, Esq., Principal
Veterinary Surgeon, Bengal Army.

From six to nine months after purchase. The season for transporting artillery remounts should be considered.

J. H. B. Hallen, Esq., General Superintendent, Horse-Breeding Operations.

As above stated in reply No. 3, eastern horses, if in good condition and not less than four years of age, may be sent, as purchased, direct to corps and batteries; if not in good condition, should be sent to the reserve depôt.

Australian remounts should undergo in the reserve depôt, or if attached to cavalry corps, from six to twelve months' period of acclimatization, at the same time training and breaking, before being passed into the ranks.

G. Evans, Esq., Inspecting Veterinary Surgeon, 2nd Circle.

I would make no strict rule; for it depends entirely upon the condition and age of the animal at first. It should be left to the veterinary surgeon in charge to certify when each horse was fit. *Every horse in good health ought to be put to some sort of training as soon as possible, very gently at first.* Many walers are so timid that they could bear only handling for some weeks, which should be systematically done to gain their confidence. Much harm is done by keeping them idle, and then pass them through a course of training lessons rapidly.

W. Lamb, Esq., Inspecting Veterinary Surgeon, Bombay Army.

Remounts vary very much in condition, age, constitution, and so on; and a good deal would depend on the climate and other circumstances of the place they would have to join at. But horses having only to undergo castration should be allowed from three to six months to recover (many not being in a fit state to be operated on at once), and Australians require from six to twelve months to become thoroughly acclimatized.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

The interval depends more or less on the condition the horses are landed in, and the amount of green forage procurable. I have known batches of horses fit for work in three months; on the other hand, and under disadvantages, such as bad voyage and short grass, it has taken seven, eight and nine months. Individual cases never pick up or acclimatize; but these are rare.

J. V. G. Adams, Esq., Veterinary Surgeon, Remount Depôt, Oosoor.

The time after landing that the horses are fit for issue to the service depends on circumstances:—

First, the condition in which they are received; secondly, the time of year they are received; and thirdly, on the season.

Our experience at this depôt shows that fresh walers landed in ill-condition only improve slowly, and often do not pick up at all till they can get a full ration of good succulent forage. Horses purchased in the beginning of the year, and issued after the assembly of the annual committee in September, at that time are in good condition and fit for work. I would therefore say that from six to nine months is sufficient to prepare them for the ranks.

11. Do you recommend any change in the present grain ration for horses, in summer or in winter?

Lieutenant-General Sir S. Browne, K.C.B., Commanding Lahore Division.

I do not think one general rule is applicable to all India or to all breeds of horses. The same diet and the same quantity does not suit all horses. Some horses are as fastidious as human beings. Condition requires to be studied, and the description and quantity of rations should be at the discretion of the commanding officer and veterinary surgeon, and their recommendations adopted according to the season and condition of the horses.

Brigadier-General C. G. Arbutnot, C.B., Inspector-General of Royal Artillery for India.

None; provided the commanding officer is allowed to give the horse forage and bran, instead of a portion of the grain (as is done in the hot season) or at any time that the change may be desirable.

Lieutenant-Colonel H. C. Smith, Supdt., Reserve Remount Depôt, Saharunpore.

This question must have reference to regimental systems only. In the remount department rates of feed vary according to time of year and condition of stock.

Colonel A. Drury, Agent for Remounts, Oosoor.

Grain rations must depend upon the nature of the forage. From 6lbs. to 9lbs. of cooltie daily is the allowance for each horse at the depôt. When good forage is not obtainable, more grain must be given; but for the colonial horse the quantity and quality of the forage is of more consequence than any amount of grain.

I do not recommend any change in the ration.

Major W. A. Roberts, B.A., Remount Agent, Calcutta.

Five seers I consider too much for the hot weather, or even in winter, unless the horses are getting hard work. I think this is a question for officers commanding and veterinary surgeons to decide for their own horses.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

A troop horse should receive on an average throughout the year five seers of grain daily. The summer ration in time of peace should consist of four seers of grain only; but during the drill season, or during active service, they should receive six seers.

J. H. B. Hallen, Esq., General
Supt., Horse-Breeding Operations.

In time of peace, I think it would be better to give less grain ration to horses in the summer, and more in the winter, especially during the hard Indian drill times, *e. g.*—

In summer, per horse, per day,—
seven lbs. grain,
one lb. bran.

In the winter and during drill season,—
ten lbs. grain,
two lbs. bran.

On the line of march, field and active service,—
ten lbs. grain,
two lbs. bran, if procurable, and when the latter is not procurable, and horses are

undergoing hard work, then twelve lbs. of grain may be allowed.

In the summer the green grass ration may be advantageously increased; and if dry grass or hay be at the time a part of the grass ration, it should be proportionately decreased in quantity.

G. Evans, Esq., Inspecting Veterinary Surgeon, 2nd Circle.

The present allowance of gram is too much for horses out of work in summer. Half as much would do better, or less in many cases. Extra bran should be given instead, with as much grass as the horses will eat. Extra bran would not be always necessary if the grass were good. As a rule, if ten parts of grain are required for horses in the drill season in winter, five parts would be ample for them when they do no work hardly in summer. For, if the nitrogenous elements of food are not consumed by muscular exertion, they are either not digested and absorbed into the circulation or else they are quickly excreted by the kidneys, or else they cause plethora and disease. They cannot be stored up on in the system like the carbonaceous or fat-forming elements. Gram, like beans, have too large a proportion of the nitrogenous elements. No good horseman in England would feed his horses on beans if he did not give them as much work as they could do; gram has about twice as large a percentage of nitrogen as English oats have.

For all waters during the first year or two grass should be given abundantly, and grain very sparingly given; it should be very gradually increased. My opinion is that waters on coming to India suffer as much by the change of diet as the change of climate.

In special cases, when extra grain is required for horses in the drill season, the present gram ration should never be increased; it should be reduced, and an extra quantity of some less nitrogenous grain, such as maize or oats added.

I would recommend two seers of gram, two of maize or of oats, and one of country bran to be given as a standard ration instead of the four seers of gram and one of bran given now. The country bran is more mealy than the Cawnpore or machine bran. Maize should be preferred to oats, because the latter are very inferior in India. When extra grain is required, it should be the maize and not the gram. Grain of all kinds should be crushed before it is given to the horses.

I would further strongly recommend that the allowance of salt given with the feed be increased from two to at least six drams.

W. Lamb, Esq., Inspecting Veterinary Surgeon, Bombay Army.

No. In this army horses are fed on whatever grain is found to be cheapest, and at the same time suitable at the station they may be at— as, for instance, gram, coolty, barley or maize. Often in the hot and idle months the grain ration is found to be excessive; but, instead of laying down any hard-and-fast rule reducing it, I think it better to leave them to the discretion of commanding officers and veterinary surgeons.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

The Madras army regulations already provide for a reduction of 2 lbs. of grain during the hot or non-drill season. As a matter of fact, drill is not stopped in this army, and the months when the horses are placed on reduced grain ration is the time when grass fails, and they really require more grain to compensate for the loss of grass. The grain used in Madras, "kolti," is at best a poor food, soft and innutritious.



The present grain ration, which is, I believe, 10lbs. for Australians and 8lbs. for country horses, could certainly not be reduced in the drill season, and only in the off season with the greatest caution, as the time of the non-drill season is the hot weather, when the grass contains a minimum of nutrition, and if any of the grain ration were reduced, the horses would fall away and be unfit for work when the drill season again came on.

In some favored stations, where good forage is procurable, the grain ration might possibly with advantage be reduced 2lbs. per horse in the non-drill season, and a proportion of bran substituted; but this is only practicable in a few stations, and should be left to the discretion of the commanding officer and the veterinary surgeon. I do not therefore think that the present grain ration can be reduced throughout the service without endangering the welfare of the horses.

12. Have you any suggestions to offer regarding the establishment of grass-cutters, and the present mode of supplying grass in cantonments, on the march and on service?

Lieutenant-General Sir S. Browne,
K.C.B., Commanding Lahore Division.

I do not consider or am aware of any plan that would be more suitable than the present system.

Brigadier-General C. G. Arbuthnot, C.B., Inspector-General of Royal Artillery for India.

In my opinion, grass-cutters should be abolished, and with them the present mode of supplying grass in cantonments, on the march and on service.

Grass should, in my opinion, be supplied by the commissariat under all circumstances. With proper arrangements it could be done by that department as cheaply as by grass-cutters. On active service, grass-cutters can seldom collect grass; and to obtain it in cantonments and on the line of march they must frequently trespass and cut grass on private property. The system is not suited to the present state of the country. The lines are unnecessarily crowded by the grass-cutters, their families and ponies, and the latter are occasionally a source of infection.

Lieut.-Col H. C. Smith, Supdt. Reserve Remount Depot, Saharunpore.

This also must refer to regiments.

Colonel A. Drury, Agent for Remounts, Oossour.

I have had little or no experience in feeding troop horses in cantonments, on the march or on service, but I consider the system which is in force at the depot is the best suited and most economical for the locality.

No grass-cutters are kept, but contractors are employed to provide a certain proportion of green grass daily. The present rate is five annas per bundle of 160 lbs., which gives 40 lbs. of green grass to each horse at a cost of one anna three pies per diem. This is supplemented by hay grown in the depot paddocks at an average cost of Rs. 35 per ton, and by lucerne grown in the depot farm and issued at a cost of 160 lbs. per rupee.

In addition to the amount of hay realized from about 200 acres of grass land, the horses have the advantage of being turned loose to graze in the paddocks on first arrival and when the paddocks are not under cultivation for hay.

Major W. A. Roberts, B.A., Remount Agent, Calcutta.

I have not. I regard grass-cutters as a necessary evil, as they are under present circumstances indispensable on the march and on service.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

In cantonments grass should be purchased in the open market by regimental arrangements, but by indent on the commissariat department when first arriving in the country.

On the march the same arrangements should hold good. And on service in the way found most satisfactory, but as a rule by purchase is so obtainable, if not, by the usual method of appropriation.

The system of purchasing grass in the open market has of late, when tried, been most successful; the supply has been abundant and the quality good, and the system, when once established and fully developed, the feelings of the agriculturists will be satisfied, and it will prevent the unseemly exhibitions with grass-cutters which are constantly coming to light.

Should the above system for the supply of grass be adopted, it will at once dispel the chief channel through which contagious diseases are conveyed to troop horses, namely, the grass-cutters' ponies. And this in itself, when we take into consideration the annual loss to Government from the above causes, is of no small consideration.

J. H. B. Hallen, Esq., General Superintendent, Horse-Breeding Operations.

The time appears to have arrived, especially in the more settled districts, for grass-cutters to be discontinued, and grass, both dry and green, to be purchased in the open market by contract or other method deemed suitable according to circumstances.

The commissariat department should, as a rule, supply grain and forage in cantonments, and, when deemed expedient, sanction should be accorded for the commanding officers of cavalry corps and batteries of artillery to make arrangements for the supply.

The rukhs allotted at many stations for the providing of grass are often too remote to allow of the grass-cutters going daily for the supply: consequently they steal grass from the fields of zemindars near the cantonment, and are frequently brought into court for trespass and robbery.

I am aware it is believed that grass-cutters are indispensable on field service in an enemy's country; but I would, with deference, submit that with money wherever it is obtainable; and if not obtainable, I would ask, of what use are they under such circumstances? Again, by buying grass, at a fair price, in an enemy's country, effected towards pacifying the local inhabitants. Indeed, I would earnestly submit that grass-cutters are impedimenta in field operations; for, as a rule, they require guards when out stealing the grass that would be, on political grounds, better paid for, and the money required for purchasing the grass and satisfying the inhabitants would be easily kept under the usual treasury guards, and would save much harassing of the rank and file by providing the additional parties required for the protection of grass-cutters when collecting forage.

G. Evans, Esq., Inspecting Veterinary Surgeon, 2nd Circle.

As all the good land near cantonments is farmed out to villagers, our grass-cutters seldom get good grass unless they steal it; and the farmers very rightly object to letting the grass be taken for Government horses when they pay rent for it and want it for their own cattle. Our grass-cutters are, therefore, driven to cut the grass from the poorest soil,

which is deficient in nourishment, and often they cannot get enough of that. But if the villagers were encouraged by fair prices and constant demand, they would always bring in as much as we want of good grass. They would bring much more than required in the grass-growing season, at low rates. Extra grass should be got and dried and stacked then for use in the scarce season. The villagers would bring it in for much less than the bazar rates. I have known that plan adopted most successfully in a battery when the establishment of grass-cutters could not bring in half the required quantity, at the best season, and the villagers brought in more than was wanted every day for less than half the bazar rates.

The villagers would also bring good grass to camp on the march and on service as readily as the supply anything else for which they are fairly paid.

There ought to be good land reserved at every station to cultivate green oats, lucerne, &c., for tick horses and the remounts.

W. Lamb, Esq., Inspecting Veterinary Surgeon, Bombay Army.

I have long been advocating doing away with grass-cutters altogether. At our large stations it is impossible for them to obtain good grass in sufficient quantities; for there is no ground reserved for them; nearly all the land is under cultivation; and if they go into the fields, the owners charge them with trespass, and quarrels and rows never cease.

Bad grass is injurious to horses; and even the good, when they get any, is too often rendered unwholesome by being washed in foul water, or by being allowed to heap in bundles after being washed even in clean water. They are thus a constant source of trouble to the officers and of danger to the horse. I have traced innumerable cases of abdominal diseases to the stuff they bring in; and half the money spent on them would generally suffice to supply the horses in cantonments with lucerne or other green grass, carrots, and so on. On the march they are nearly as bad, and on field service they are a serious encumbrance and generally useless; and if there is any grass to be found, the syces can gather it. I see no advantage in retaining grass-cutters, and a great many in disestablishing them. I think our present mode of supplying dry grass is satisfactory; only I would allow commanding officers and veterinary surgeons more power of selection, and hold them more distinctly responsible that none but the very best procurable is ever given to the horses.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

The establishment of grass-cutters for this army is already reduced 10 per cent. when in cantonment, to admit of a commissariat supply of dry fodder as bedding and hay. The great want of this army is regimental "ramnas." Waste lands abound in the vicinity of every cantonment, which could be enclosed at very little cost and made over to corps and batteries. Station or regimental ramnas, under proper management should be capable of supplying the whole forage for a regiment or battery in cantonment. On woman grass-cutter could with ease cut grass enough for two horses, besides leaving some on the ground to be converted into hay; but the forage under these circumstances should be carted into cantonment, and the women allowed to live at, or near, the ramnas. I think, if this plan could be properly worked out, a saving of 50 per cent. would be effected. On the line of march and on service the full complement of grass-cutters should be made up.

J. V. G. Adams, Esq., Veterinary Surgeon, Remount Depot, Coosoor.

I can suggest no thorough change in the system of grass-cutters. In cantonment the system of grass contractors might be substituted for the present system of grass-cutters kept up as an establishment. This would ensure the horses being supplied with a due amount of the best grass procurable. This system would of course be impracticable on the march or on service, and, unless the commissariat department could supply forage, I can suggest no general alteration from the present system.

13. Should the grass-cutters be single or double?

Lieut.-Genl. Sir S. Browne, K.C.B.,
Comdg. Lahore Division.

Grass-cutters should be double.

Additional remarks.

In conclusion, I would add, the Government are taking measures to improve the breed; but the expense and trouble now lavished on horse breeding will, in my opinion, be thrown away, unless measures are taken to ensure good country-bred remounts entering the ranks, which, however, will not be unless they are pure young stock. Experience has shown, and the fact is patent year by year, that excellent and most promising yearlings and two-year olds. After that age they deteriorate and show signs of head malformation, caused by the Native custom of hobbling and tying them up and feeding them with stinking and fattening food. They do this not only as a custom handed down to them, but because they also they have not the means of allowing them liberty, and their aversion to castration.

Remount agents never will be able to purchase country-breds of a mature age suitable for the service, in consequence of their being stunted, malformed and diseased from the want of liberty essential to the development of bone action and soundness.

It only remains, therefore, to purchase young stock, keep them in runs, with an inexpensive establishment, from which, as four-year olds, they would be drafted for issue to the army.

Since the above was penned, an article under "Horse-Breeding and Horse Fairs" has appeared in the *Civil and Military Gazette* of the 23rd instant. As it bears much on the points advocated by me I have no hesitation in attaching it.

"HORSE-BREEDING AND HORSE FAIRS."

[From a Correspondent.]

Your article on horse-breeding and horse fairs induces me to make a few remarks, which, although materially differing from the views you have formed, may possibly assist you in discovering the true cause of failures noticed, or, if not, may invite discussion on a subject of much interest to many of your readers. There is no doubt that, if the Native breeders could be persuaded to rear their young stock on the liberty system, we should find less unsoundness and better action in the country breeds; but is it possible for breeders to adopt such a course? There are not forest or waste lands attached to all

villages where stock could run loose and find sufficient grazing. But, allowing that land could be spared for the purpose, would that ensure the desired liberty system, or the proper management and feeding of stock? Never; for, on returning at night to their owners' huts, the unfortunate animals would be tied up or hobbled in a small courtyard, most likely alongside of bullocks, where they would have to remain till morning. When wanted for sale, they would be kept in a dark place, be well clothed to assist in producing a glossy coat, and be fed on oil-cake mesallahs and other unwholesome food. All the advice in the world will not change a Native's ideas. Regarding the poor show of geldings, it is easily explained. Insufficiency of inducements held out to encourage them to castrate their stock has nothing whatever to say to the failure, which was to be expected. Natives have strong prejudices against such a custom, and no encouragement you may offer will induce them to consent to their colts being operated on, which ought now to be apparent enough. Prizes have been offered, salootries have been provided to perform the operation gratis, and yet the result of all is utter failure. The poor show of geldings, you may rest assured, is attributable to prejudice, and not to any want of encouragement. The remedy you suggest, namely, a tax on entires, would not only do no good, but positive harm, by forcing many to drop breeding altogether; and I hope Government will not dream of levying such a tax. Prizes are a mistake. It is a different matter in England and other countries where breeders have the means and intelligence to see that, if they wish to compete successfully, they must put their shoulder to the wheel. Has it not been a difficult matter to find animals meriting rewards? Have not thousands of rupees been given away to encourage the Natives to breed better stock, and what has happened? Natives will be Natives, and as long as they get a foal with four legs and lucky marks, they are content and are often greatly astonished that their screamers are not appreciated by committees. Hindustani bits will never give way to English ones. Natives frequenting fairs and shows to compete for prizes may use the latter whilst the sahibs are present, to please and make them believe that their advice has been followed; but the moment they are out of sight the bridles will be changed. But why are all these innovations required? In former years there were no prizes given. No inducements were held out to castrate colts. Runs were not dreamt of. Native bits were used, and yet there were better horses, and more of them, procurable at about half the present ruling rates. The true and only remedy is for Government to purchase young stock as formerly and rear them at depôts with runs attached. The last thing would be to return to the old stud system, which was a perfect farce; but bad as it was, it was infinitely superior to the present one, which the Government made to believe was perfection, and which has in reality done a vast amount of harm. Nothing short of purchasing young stock will do any good. Hundreds will be forthcoming when breeders find there is a certain market for their produce. It is true the Government have every reason to fear establishing rearing depôts, as they have had a little experience of the way the money flies at remount depôts; but there is no reason why rearing depôts should be expensive. The first step to be taken is to appoint an experienced hand to make purchases of stock. The prizes to be paid should be regulated according to age and quality. If this course is adopted, it will be found the more economical; but Government must insist on the liberty system being carried out, and not allow that a rearing depôt must necessarily prove expensive. They have an officer in the remount department eminently well fitted to organize such a depôt, purchase young stock and rear them properly; but he must have *carte blanche* to do as he thinks best, and not be tied down by nonsensical rules, framed probably by some *subjanta-wallah* whose qualifications for such a task consist in his being a good badminton player. The whole responsibility should be thrown on one man—a master of his trade; and depend upon it, cheap and good remounts would be forthcoming. The officer I allude to is Mr. George Kettlewell; and, although he may object to his name being paraded in print, I think it is but right the Government should know that he is not only a skilful veterinary surgeon, but a good judge of stock and a thoroughly practical horse-breeder—a man whose opinion may be safely accepted on all matters connected with horses.

"The report on the Rawal Pindi horse fair is, I see, the usual style of thing that has been going on for years—an annual marked improvement. This time it is the quality that is so marked, and the other little trifles, such as a great falling off in numbers and a wretched show of geldings, are most satisfactorily explained; but allow me to remark that an important omission is apparent in the committee's report. No rules for the guidance of breeders of mules have been framed; and, as it is impossible to breed a mule successfully without being told how to manage it, I supplement the report with the following:—

"Some people may laugh and call me a fool
 For chalking down rules for breeding a mule;
 But never mind that; the matter may pass:
 You can't breed a mule without a jack ass.
 The dam to select's an old unsound mare,
 Readily found at the Rawal Pindi Fair.
 And when you've paired them nicely together,
 I know you'll say I'm awfully clever,—
 As the foal when dropped will prove, I'll be bound,
 A mule made to order, perfectly sound."

Brigadier-General C. G. Arbuthnot, C.B., Inspector-General of Royal Artillery for India.

Lieut.-Col. H. C. Smith, Supdt., Reserve Remount Depôt, Saharanpore.

Colonel A. Drury, Agent for Remounts, Oosoor.

Major W. A. Roberts, R.A., Remount Agent, Calcutta.

They should be nearly all double; single are at many stations, on account of the distance they have to go for grass, very useless.

This also must refer to regiments.

No grass-cutters.

I consider single grass-cutters preferable to double, except on the march.

F. F. Collins, Esq., Principal
Veterinary Surgeon, Bengal Army.

If grass-cutters are to be continued, they should be double: the ponies could then be utilized for baggage purposes in case of emergency; but they should be kept strictly under veterinary sanitary supervision. Single grass-cutters are useless for service, as they consist generally of women or half-grown lads, who are, as a rule, physically unfit for regimental requirements.

Additional remarks.

In compliance with the last paragraph of your letter No. 193A., dated 13th instant, soliciting suggestions upon matters connected with the efficiency and economy of the army, I would humbly beg to be allowed to refer to the office of remount agent, as on the efficiency of the officer holding that appointment rests the feasibility of carrying out some of the suggestions contained in the foregoing answers.

A remount agent should, as a *sine quâ non*, possess a natural intuitive taste of the knowledge of the various classes of the horse, and he should also have had sufficient practical experience to have perfected that knowledge: he could then, with much greater efficiency to the service and economy to Government, combine the duties of remount agent and director of army remount operations in one. The drafting of remounts to the various branches of the service to which they were best suited could then be carried out immediately after purchase, and would save the frequent and heavy expense of assembling allotting committees; and rejected remounts sold for being unsuited to any branch of the service should then be a thing of the past.

To assist in furthering the interests of Government during the time of purchase, a thoroughly practical veterinary surgeon is required, as numbers of horses presented for purchase are both wild and intractable, defying all attempts at manipulation. An effective examination under the above conditions requires a professional man who has had long practical experience to detect many of the serious causes for exclusion, otherwise remounts will be purchased totally unfitted for the requirements of the service.

J. H. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

As stated in reply No. 12, I believe grass-cutters are not required; but if any are maintained, they should be double, *i. e.*, each grass-cutter should provide a pony with a view of bringing two loads of grass; and these ponies may become useful, during field operations, for baggage purposes.

One serious objection always exists to having grass-cutters' ponies in the neighbourhood of artillery and cavalry horse lines, *viz.*, the chance of their becoming infected with glanders and farcy, or anthrax, or other contagious diseases, and causing the spread of any one of the diseases amongst the troop horses.

A grass-cutter's pony is seldom in good condition, indeed, generally in a state, more or less, of debility; and from this cause, and being taken by his owner, when attending to his vocation, amongst other debilitated and probably diseased animals, is very liable to become affected with contagious maladies.

G. Evans, Esq., Inspecting Veteri-
nary Surgeon, 2nd Circle.

See answer to question 12. No grass-cutters recommended.
The grass-cutters' ponies are the most common carriers of glanders, &c., to the Government horses.

Additional Remarks.

Purchasing horses.—With further reference to reserve or remount horses, I would submit that the greatest care should be exercised in the purchasing of them. A large proportion of the loss connected with the reserve, and with early castings, arises from want of judgment in purchasing. At the last allotment committee of which I was member, we passed many horses into the service which we all agreed ought never to have been bought; but as they were already the property of Government, we thought it better to "give them a chance" than to sell them at once at great loss.

The veterinary surgeon who advises the purchasing officer ought always to be a senior officer (I mean high on the list of first class veterinary surgeons) and of considerable experience in a cavalry regiment, because the cavalry offers better opportunities of seeing how young horses are bred out the battery of artillery.

It is not always required to detect present unsoundness so much as to judge by the knowledge of the veterinary surgeon and experience what defects in conformation are likely to render the horse unfit for the service, as well as what degree of unsoundness may exist with the smallest risk of its ever interfering with the usefulness of the animal. Horses are purchased for the army for work and not with any view to sell. Therefore the work required of them should be always more prominent in the mind of the veterinary surgeon who passes them in than what technically constitutes unsoundness.

It may happen sometimes that a horse is not strictly or legally sound, but the veterinary surgeon believes that the unsoundness will never tell against the usefulness of the horse, and the animal is in every other respect exceptionally good and suitable. In such a case, the horse may be taken; but the veterinary surgeon should record his observation of the unsoundness and his opinion respecting it, which should go with the horse whenever he is posted, or else it will be assumed that the defect was not noticed at the time of purchase. In answer to my enquiries at the last allotment committee, I was informed that no such record was made under the present system. In other cases, the horse may be strictly sound, but with defects of conformation, such as small and ill-shaped hocks, &c., which from the veterinary surgeon's professional knowledge and experience he believes will not stand the work of the service. Such a horse should be rejected; but if the purchasing officer takes upon himself the responsibility of the risk, it ought to be ruled that the veterinary surgeon should record his opinion of the defect as he would in a case of unsoundness.

No horse should be passed with any prominent defect in conformation or unsoundness that is commonly objected to by practical men without a memorandum to show that it had been taken into consi-

deration by the purchasing officer. The best men are apt to err in judgment; but those who are responsible to Government for passing horses into the reserve should not err in observation.

W. Lamb, Esq., Inspecting Veterinary Surgeon, Bombay Army.

I would have neither.

Additional Remarks.

Reduction of number of horses in regiments of British cavalry.

From the number of men on guard and other dismounted duties, men in hospital, and absentees, I believe it is never possible to put a man on the back of each of the 440 horses allowed to a British cavalry regiment in India, nor even upon those of them that are not sick, the number of which does not, as a rule, exceed 20.

Practically 30 or more horses remain unbroken. These—horses that are not worked—add very greatly to the lists of casualties, meeting with accidents caused by their uncontrollable freshness and contracting diseases of the digestive system from want of the opportunity to work off the liberal diet they receive. Given a reserve to fall back upon in case of emergency, the number of horses in these regiments may with advantage be reduced by at least 10 per troop or 60 per regiment, and the horses would be kept cheaper, because on a lower ration, at a depôt, and being allowed liberty also, they would take sufficient exercise to prevent that excessive exuberance of spirits which causes accidents and casualties.

The same as regards silladar cavalry.

The above applies with nearly equal force to Native cavalry regiments; only that in them advantage is generally taken of the superfluous number of horses allowed to buy colts too young for use. By this means the price of the horses appears to be kept low; but it is really an expensive way of providing remounts: For instance, a colt bought at two years of age—as I know many are—cannot be of any use till he is three, nor of much till he is four. Nevertheless; he draws Rs. 20 per mensem, and by the time he is fit to carry a man in a campaign, he will have cost five or six hundred rupees, thus :—

						Rs.
Original price, say	...	...	...	...	...	200
2 to 3 years, 12 months of unearned keep at Rs. 20	...	...	...	...	...	240
3 to 4 years, 12 months of half-earned keep at Rs. 10	...	...	...	...	...	120
						<hr/> 560

What grand five-year old remounts Native cavalry might buy at that price?

The regiment is able to buy and keep in the ranks such very young colts only because it is known that a certain number of horses in the regiment must always remain unmounted. And then it is Government that pays! Let this wasteful expenditure be saved and some of the saving be given to the regiment, and both it and Government will benefit. If the strength of a silladar corps were fixed at 500 men and 400 horses, I believe it would be fully as efficient as it is now, provided no horse was allowed in the ranks under four or over twenty years old, and there would be a saving of Rs. 24,000 per annum, or the difference between the pay (Rs. 20 each) of 100 silladar and 100 bargeers (100 x 20 x 12 = Rs. 24,000); and if Government gave a quarter of this saving to the horse-purchasing fund, that fund would be better off than at present; for Rs. 2 being the usual monthly contribution of each silladar to the Chunda fund, it would lose—

100 x 2 x 12 =	...	...	...	...	...	Rs.
receiving instead	...	...	...	...	...	2,400
						<hr/> 6,000

and so gaining

per annum, which, with fewer horses to buy and fewer casualties and fewer mature-horses would be bought, would enable them to give handsome prices.



Purchase of remounts for the Royal artillery and British cavalry.

I cannot lose this opportunity of pointing out again, as I have often done before, the very objectionable method or haphazard, no-method way we have of buying remounts, viz., by committee or single officers selected for the duty as circumstances may dictate, but never two seasons together the same committees or officer. So that the importers of horses (especially of Gulf horses), not knowing with whom they may have to deal, have no confidence in the market, nor any means of suiting their mares to the requirements, because the latter vary from year to year as judgment or taste or fancy varies as regards horses with every purchaser. This is the circumstance which of all others has done most to ruin and check the import of Persian horses into Bombay; and the only way to re-establish it on its old scale is, first, to ensure a regular demand, and second, a demand for the same class and kind of horse, which can only be done by the same officers purchasing always. That means a permanent remount agent instead of a casual committee or fluctuating field officer. If a remount reserve depôt is to be formed, let one officer have permanent charge of it and of the purchasing. Then there will be no division of responsibility. He can be judged by results; and if he succeeds and gains the confidence of the Arab and Persian dealers, he will in a very few years be able to mount the whole Bombay army, and more too if required, on that best and cheapest, because the most enduring, of all remounts for India, the Persian and Gulf Arab.

F. G. Shaw, Esq., Staff Veterinary Surgeon, Madras Army.

Few or no double grass-cutters exist in this army; the introduction of double grass-cutters (which I presume means a man with a pony) would be a move in the right direction.

ADDENDA.

Memorandum on matters regarding the Remount Department, by Staff Veterinary Surgeon F. G. SHAW, Madras Army,—dated 25th August 1879.

With reference to paragraph 4 of your letter inviting suggestions for economy, I beg to offer the following. Having served in the remount department for seventeen-and-a-half years, part of which time I officiated as remount agent, I feel I am competent to offer an opinion on matters regarding it.

The office establishment of the remount depôt is unnecessarily large, and could be efficiently conducted by the manager and at most two writers.

The establishment of peons might be reduced from six to two. Their duties are purely personal—to attend on the agent and the office: the office is situated only fifty yards from the agent's quarters.

The establishment of conicopolies is no longer required since the introduction of the contract system. They are a relic of the commissariat department to which the depôt was at one time attached.

The extension of the depôt area to grow grass and hay instead of purchasing grass (as now exists) would save a lot of money. The existing farm establishment with occasional extra labor,

when required, is quite capable of working double the area as grass meadows, which when once planted cost little money to care for and keep up. Three cuttings are got yearly, and the average yield per acre is about 1½ tons, at a money or feeding value of from Rs. 60 to Rs. 70 per acre.

There are three sets of horse lines, situated half a mile apart. To each line is a European conductor and Native staff of chowdries and duffadars, &c. Supervision could be better conducted if the horses were more concentrated.

The duties of remount agent are not heavy. During the seventeen-and-a-half years I am veterinary surgeon to the depôt, I officiated and conducted the duties of agent and veterinary surgeon for a period on and off for over four-and-a-half

years in the aggregate. The present incumbent remount agent completes his service in January 1881, and I see no reason why the veterinary surgeon attached to the depôt could not conduct the joint duties.

The expense of keeping up the field battery at Thayetmyo is too well known to the president of the army reorganization commission for me to dwell upon. If it is necessary for strategical purposes to keep a field battery, then I would suggest

the trial of mules. The death-rate yearly of horses at Thayetmyo is about 50, which, at Rs. 800 each landed there, represents Rs. 40,000 loss every year.

With reference to the Native infantry branch of the army, I have a scheme for a reserve force, but time will not admit of working it out. My idea is a short, say five or six years', regimental service,

after which a similar term in police. At the end of, say, twelve years they could be drafted in the civil department for employment as collectors' peons, taluk peons, &c. The reserve could be called out once or twice a year for drill at certain centres, say half the force at a time. The police and civil departments would be employed to several thousand efficient trained men, who would be capable of emergency or doing garrison duty, as may be.

If I understand the question aright, if it is necessary to have a grass-cutter for each horse, or one for every two horses, I would say that there should be a grass-cutter for each horse or within a small percentage, as I am confident no grass-cutter could be made to bring in grass sufficient for two Australian horses.

II.

DEPARTMENTAL PROCEDURE.

1. Give a list showing the subjects dealt with in your department.

Colonel J. I. Willee, Commissary-General, Bengal.

The following is an outline of the subjects dealt with in this department:—

Cattle.—That the complement of each kind and for each purpose is kept within or up to scale; purchases of elephants, bullocks, mules, &c., to replace deficiencies are authorized, and arrangements made for the provision of hired camels; also for the provision of all necessary supplies in food

equipments for all Government cattle. All suggestions relating to the feed and care of cattle are considered and disposed of either on his own judgment or, where expense is involved, in consultation with the Controller of Military Accounts or Government.

Kheddas.—The proposals of the superintendent of kheddas, Dacca and Assam, as to the localities in which each season's field operations should be carried on are considered and submitted for the approval of Government. At the close of each season a report is submitted to Government on the result of the operations. All suggestions relating to the working of the kheddas are considered and dealt with.

Hissar farm.—The working of the farm is supervised and commented on in his annual administration report.

Moveable column establishment.—All orders of Government, increasing or decreasing the strength of columns, are given effect to departmentally, by the cattle and establishment authorized for them being proportionately increased or reduced. The proper employment of the establishment during the summer and the marching season with troops is seen to; also that they are, as far as possible, complete and up to scale. All suggestions for the better control, &c., are considered and dealt with.

Contracts.—All tenders received for the provision of supplies of all kinds required by the department, whether as rations, bedding, barrack miscellaneous articles for effective men, diet articles, clothing, bedding, necessaries, table requisites, &c., for sick, rations for cattle of all kinds, are examined, considered, and decided on. These tenders are invited and received by divisional executive commissariat officers at stated periods, and, after being tabulated in form prescribed, submitted by them to the deputy commissary-general, and by the latter, through the examiner of commissariat accounts, to the commissary-general, each officer recording in the form his opinion on the rates offered. With the variety and extent of the supplies required, these tenders are very numerous. For the more important contracts, *vis.*, rum, country malt liquor, tea, and sugar, the previous orders of Government are obtained before tenders are invited; and these tenders are either submitted to Government or accepted, subject to approval by Government. On the failure of accepted tenderers or of contractors to act up to their tenders or contracts, the mode in which the continued supply of articles should be effected is considered and orders issued. The attempts of contractors to evade the performance of their contracts have to be checked; and the misunderstandings or differences between contractors and the department have to be settled in cases where legal points are involved in consultation with the solicitor to Government. After tenders have been accepted and deeds been executed, lists of contracts, showing the rate of each article for which a tender has been accepted, the period of the contract, &c., have to be furnished to the account department for its guidance in the audit of the accounts.

Provisioning of European troops.—In this duty is included the supply of bread and meat by departmental agency; the quality of both of which is watched, and the cost at which they are provided scrutinized. Monthly reports are received from each executive officer showing the number of ration of each article issued during the month at each station having European troops, and also showing any rejections by troops of such ration, the ground of rejection, the explanation of the department with respect thereto, and the result of any appeal made by the department. Calls are made for explanation from executive commissariat officers on any remarks in sanitary or other reports by medical or military officers to army head-quarters of the quality of rations. For the control of the expense in the supply of bread and meat monthly statements are received from the deputy commissaries-general showing the cost at which each article has been provided at each station, and noting the causes of any fluctuations in cost between current and past month. As connected with the food-supply of the troops, the appearance of epidemic or other sickness among cattle and sheep in stock is watched, and such orders issued as may appear necessary. Points which may be raised regimentally or departmentally connected with the supply of provisions are considered and disposed of either independently or, where necessary, by reference to Government or His Excellency the Commander-in-Chief. Reports are made to Government when called for on points affecting this subject.

Provisioning Native troops.—Where this duty has been entrusted to this department, arrangements are made through contracts or departmental agency for effecting the supply. Complaints by commanding officers relating to the supply are enquired into, the explanation considered, and the cases disposed of as may appear advisable.

Buildings.—In view to the proper supply of bread and meat by departmental agency, applications are made for the provision by the department public works to the extent of the year to year be available of bakeries and slaughter-houses; also for the provision of other buildings, *i.e.*, godowns, purveyors' store-rooms, quarters for warrant and non-commissioned officers, as may be required. A statement showing all buildings required, arranged in the order of urgency, is furnished yearly to the inspector-general of military works. Separate applications are made for buildings not included in this statement but which are found to be urgently required. Requisitions by the department on the department public works for such minor buildings or alterations in existing buildings required by them, the cost of which can be met from out the sums placed for this purpose at the disposal of the commissary-general, are considered and sanctioned, or otherwise.

Machinery.—The supply of bread by agency has led to the erection of flour mills at some stations. The working of these mills is seen to, and arrangements made for the replacement by indent on England or by purchase of parts requiring renewal; also for the provision of stores for them.

Shelter: march.—Requisitions on the ordnance department for tents to be used as bakeries or for the protection of stores with European troops marching, or for the accommodation of European subordinates with the troops, are examined, countersigned, and forwarded to the inspector-general of ordnance and magazines for sanction to compliance.

Accounts.—A budget-estimate comprising 33 detailed statements in forms laid down by the account department, showing the probable monetary requirements of the department for each kind of service, whether *personnel* (pay of commission, warrant, and non-commissioned officers, of office establishments, subordinate establishments) or *material* (supply of provisions to men or cattle or connected with such supply) during the ensuing year is submitted to the controller of military accounts by the middle of November in each year. In the middle of February of each year assignments to executive commissariat officers are obtained from the account department on the several treasuries on which

they will need to draw cheques for their expenses. On the assignment to an executive for any month falling short of its requirements, application is made for a supplementary assignment or credit for the month. All questions as to accounting of expenditure, forms in which accounts are rendered, vouchers by which charges should be supported, for the proper and punctual submission of accounts, for the construction of Government orders and rulings on expenditure, are considered and settled in communication with the controller of military accounts and Government.

Stores.—The retention in the godowns of the department at the several stations occupied by European troops of sufficient stocks of victualling and hospital stores, such as groceries for men in health, of kerosine oil, disinfectants, animal charcoal for use in barracks, and of dieting articles, clothing, bedding, and comforts for sick men, of equipments for use with troops marching, &c., &c., has to be watched. For the retention of these stores scales have been fixed, and a monthly return of them is received from each executive officer. For such as are not procurable in this country, or which it is considered desirable or advisable to obtain from England, indents, in prescribed forms and with full explanations of the necessity for each requirement and the scale on which it is calculated, have to be submitted on certain fixed dates through the controller of military accounts. The stores hitherto obtained from England are malt liquor, blankets, duck cloth, and sheeting for use in barracks and hospitals, burners, chimneys, and wicks for use with kerosine lamps in barracks and hospitals, disinfectants (carbolic acid and McDougall's powder), animal charcoal for use in filters; also such other miscellaneous articles as are found necessary for the flour mills and ice-machines in charge of the department.

Losses of stores.—Losses by dryage, wastage, accidents, theft, and fraud, and condemnation of rum and malt liquor, and all stores of which stocks are kept, whether occurring in godown or in conveyance from one station to another, have to be scrutinized. Statements of all such losses are submitted either periodically or as they occur for sanction to deputy commissary-general or commissary-general; and half-yearly statements of all such sanctioned losses are submitted to Government, and in them the losses during the half-year are contrasted with those in the corresponding period of the previous half-year, and explanations given of any variations.

Medical department.—The requirements of the medical department for the supply to hospitals of all sanctioned articles have to be provided for, and explanations called for and considered, or any reports by medical officers of defective arrangements by the commissariat department. Matters affecting the relations of the medical and commissariat department have also to be settled in consultation with the surgeons-general, British and Indian services.

Barrack department.—So also provision is made for the supply of the several articles authorized for use in barracks; and points affecting such supply are settled with the quarter-master-general.

Personnel of the department.—All vacancies in the establishment of commissioned officers are brought to notice of Government in view to their being filled up. Promotion schedules are submitted to Government for filling vacancies in the warrant establishment, and applications are made to the adjutant-general for men to fill vacancies in the non-commissioned officers' establishment. The training of officers appointed on probation is seen to, and the disposition of all these classes to stations or duties has to be supervised. Applications from these classes for furlough have to be considered and submitted for sanction. Questions affecting departmental pay are settled in communication with the controller of military accounts, or by reference to Government.

Office establishment.—The working of office establishment is supervised, and steps taken for reorganizing such establishments as are found to require increase or to be susceptible of reduction, or which can be strengthened or improved by transfers from one office to another. Applications for temporary assistance when such is found necessary from any pressure are considered, and either sanctioned or submitted for sanction.

Subordinate establishment.—The strength of the extensive subordinate establishment of agents and others maintained for the various duties which devolve on the department is regulated, and all matters affecting them are settled.

Miscellaneous.—A great variety of miscellaneous work, viz., preparation of periodical returns and correspondence, is also done, besides the routine work of the office, such as record-keeping, &c.

Demi-official. This is conducted entirely by the commissary-general or the officer attached to his office as the principal C. S. ; and the correspondence embraces for the most part communications on all the points above mentioned.

The subjects dealt with in the ordnance office may be classified under the following heads :—

CLASS HEADINGS.	SUBJECT HEADINGS.		
	Major.	Minor.	Sub-minor.
Accounts	Arsenal and depôts	Ledgers.	
Accidents	Explosions	Laboratories	Agra depôt.
Agencies and factories	Fort ... ..	.....
Armaments	Fort William	Gwalior	Shot and shell.
Arsenals and depôts		Timber-yard.	
Buildings	Departmental	{ Arsenal	} Warrant officers.
		{ Quarters	
		{ Depôt	
Ditto	Military	Regimental magazines.	
Contracts ... ..	.....	.....

CLASS HEADINGS.	SUBJECT HEADINGS.		
	Major.	Minor.	Sub-minor.
Equipments	Artillery	Ordnance	Gun-carriages.
Ditto	Do.	Personal	Small arms.
Ditto	Do.	Horse	Harness and saddlery.
Ditto	Cavalry, British..	Personal	Accoutrements.
Ditto	Ditto	Horse	Saddlery.
Ditto	Cavalry, Native..	Do.	Do.
Ditto	Infantry, British	Personal	Small arms.
Ditto	Infantry, Native	Do.	Do.
Ditto	Engineers	Do.	Tools.
Ditto	Departmental	Do.	Accoutrements.
Ditto	General	Camp equipage.	
Ditto	Police	Personal	Small arms.
Ditto	Volunteer corps	Do.	Arms.
Ditto	British troops	General.	
Ditto	Native troops	Do.	
Establishments	European	{ Commissioned officers.	{ Appointments. Promotions. Transfers. Leave. Pay. Pensions. Uniform. Deaths.
Ditto	European	{ Warrant officers Non-commissioned officers. Armourers Engineers and mechanics.	{ Appointments.
Ditto	Native	Extra	Do.
Ditto	General	European and Native.	Family pensions.
Ditto	Office	{ Ordnance Agencies and factories. Arsenals Depôts	{ Appointments.
Estimates	{ Establishments Stores Budget Do.	Ordnance department. Do.	No. 1.
Experiments	Preservation of stores.	Departments	Fuze and powder.
Expenditure	Monthly	Ordnance department.	William.
Field operations	Captures	Arms	William. Anistan.
Forms and stationery	.....	.....
Furniture	Barrack Office	Trestles and planks Ordnance.	
Instruments	{ Arsenals. Agencies and factories. Depôts. Departments.		
Ditto	Europe stores.		
Inspections	Departmental	{ Periodical Special	{ Fort William.
Losses	{ Coal and coke, Demurrage. Thefts.		
Machinery	{ Agencies and factories. Arsenal and depôts. General	Fire-engines.	

CLASS HEADINGS.	SUBJECT HEADINGS.		
	Major.	Minor.	Sub-minor.
Musters	Agencies and Factories.	Cawnpore	Washers, leather, for, plug shell, Armstrong gun.
Miscellaneous.		Issues.	
Native States		Advances.	
Official correspondence	Postage	Work.	
	Monthly		
	Powder.		
	Proof.		
Reports	Examination	Gunpowder.	
	Special	Conversion.	
	Annual	Friction tubes.	
	Stock.		
	Bi-monthly	Europe stores.	
	Half-yearly	Warrant and non-commissioned officers.	
	Do.	Powder.	
	Monthly	Balance.	
	Quarterly	Camp-equipage.	
	Do.	Harness and saddlery.	
Returns	Half-yearly	Ordnance and carriages.	
	Monthly	Surveys.	
	Half-yearly	Ordnance and arms, Bombay.	
	Monthly	Powder	Fulta.
	Stores for transfer.		
	Annual	Cast-iron.	
	Do.	Ordnance.	
		Gunpowder	Fulta.
			Native establishments.
		Descriptive	Non-commissioned officers.
	Annual	Warrant and non-commissioned officers.	Gunpowder factory.
Rolls	Monthly	Casualty	Native establishments.
	Annual	Muster.	
		Non-commissioned officers.	
Sales	Auction	Barrack dept.	Condemned stores.
Stores	Europe supply.		
	Country supply	Coal and coke.	
	Departmental manufacture.	Gunpowder.	
	Land	Railway.	
	Water	Punjab flotilla.	

The subjects dealt with by the ordnance department comprise all matters both as regards *personnel* and *matériel* relating to, and connected with, the provision, expenditure, custody, and renewal of ordnance stores of all descriptions required for armaments of forts, siege trains, and engineer parks; also of the equipment of the regular army in all its branches, of volunteer corps, and the marine and civil departments (including police) in the Bengal presidency. A list of the subjects dealt with would include, among other items, the whole of the ordnance vocabulary of stores.

Medical.

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

Administration.

Discipline.

Finance and economy.

Hospital supplies, equipment, and establishments.

Medical officers—Appointments, postings, leave, transfer, relief, &c.

Subordinate medical department—Ditto ditto.

Purveyors' department.

Invaliding—Officers and men.

Insanes—Ditto.

Field service arrangements.

Returns and reports.

Sanitary.

General sanitation and hygiene—
 Stations and corps.
 Cantonments and on the march.
 Field service.
 Hill depôts and convalescents.
 Infectious diseases.
 Cholera and enteric fever.
 Small-pox and vaccination.
 Venereal disease and lock-hospitals.
 Inspections.
 Returns and reports.

Statistical.

Annual, monthly, weekly, and daily returns and reports of the British army in Bengal command to the authorities in India and England.

Supply, issue, printing of blank forms, books, &c., to the army.

No. 635B., dated Camp Lahore, 22nd January 1879.

From—The Surgeon-General, Her Majesty's British Forces in India,
 To—The Secretary to the Government of India, Military Department.

In compliance with your letter, "Establishments—Departmental," No. 756S. of the 22nd October last, requesting to be furnished with information as to the character of the work done by the surgeon-general as head of the British medical department, I have the honor to submit the following general statement.

(1) It is the duty of the surgeon-general to advise the Government of India, the Commander-in-Chief, and the various departments concerned on all matters of a medical, sanitary, and hygienic nature affecting the British troops, their quarters and surroundings, in times of peace and war, and to propose such measures as may seem desirable, as well as to furnish the prescribed periodical returns and reports on the health of the troops—annual, quarterly, monthly, and weekly,—and such special medical and statistical returns and reports as circumstances may render necessary or the authorities require. He is also required to furnish information, and state his opinions on points of discipline and finance affecting officers of the British medical department.

(2) The surgeon-general is also required to keep his immediate departmental superior, the director-general, army medical department at the War Office, duly informed on all important occurrences bearing on the subjects above referred to, as well as on matters directly connected with the officers of the department under his supervision; and submits medical, sanitary, and statistical returns and reports, periodical and special, in accordance with regulations.

(3) Departmentally, the surgeon-general supervises the professional, sanitary, and statistical duties of his subordinates, with a view to the due carrying out of existing orders and regulations; and controls all arrangements for the distribution and allotment of medical officers and subordinates attached to the British army to the various duties, regimental, station, &c., appertaining to the department.

(4) Finally, with the view of satisfying himself as to the sanitary condition and requirements of the troops that these are duly attended to, and that the duties devolving on officers of the department are conducted in a proper manner, as also to acquaint himself as to the personal conduct and qualifications of his departmental subordinates, the surgeon-general annually undertakes a tour of inspection, the results of which are reported in due course to the Commander-in-Chief and the director-general, army medical department. Special inspections, of particular corps and stations are also made when particular circumstances render such necessary.

Surgeon-General J. F. Beaton,
 Indian Medical Service, Bengal.

The administration of the Bengal medical service; the supply maintenance, and control of all the establishment superior and subordinate; the equipment of hospitals; the medicines; supervision of medical depôts; recommendations, appointments, especially those of the army, and during special qualifications; the responsible control of medical schools, where there exists a class of military hospital pupils; the review of all qualifying examinations in all grades, from commissions surgeons to surgeon-majors down to hospital assistants' knowledge of English; special control over the army medical administrative service, Indian branch; the adjustment of subordinate hospital establishments under the several provincial civil governments by transfer of men for the military branch; the economic distribution of surgical instruments and drugs; the responsible adviser of the Indian service as regards its medical fitness and usefulness on a campaign; and an adviser to the Imperial Government on each and every subject appertaining to the medical profession which merits a more than local interest and expenditure.

Dr. J. M. Cunningham, Sanitary
 Commissioner with the Government
 of India.

All matters connected with the health of troops, both European and Native, prisoners, and the general population. In addition, many medical questions of a civil nature are referred for opinion by the Government of India in the Home, Revenue and Agricultural Department.

Colonel T. B. Harrison, Controller
 of Military Accounts, Bengal.

- (a) The control of army and marine expenditure.
- (b) The preparation of the annual military budgets and cash requirement estimates for Bengal, and the marine estimates.
- (c) The annual statements.
- (d) All matters relating to military and marine accounts.
- (e) Reports on the revision of army and marine establishments.

- (f) Reports on questions bearing on finance in connection with the commissariat, remount, clothing, ordnance, medical, and marine departments.
- (g) Reports on and disposal of all claims to military and marine pension.
- (h) Reports on questions relating to pay, and interpretation of the pay rules, &c.
- (i) Disposal of all questions referred by the several audit and pay offices.
- (j) Carrying out all orders relating to pay and audit.
- (k) Audit of pay, pension, prize, and savings bank accounts.
- (l) Audit of all commissariat expenditure, including transport, and of remount charges.
- (m) Audit of medical accounts.
- (n) *Audit of ordnance and clothing accounts.
- (o) Audit of fund accounts.
- (p) Payment of pay and pensions.

Major O. R. Newmarch, Accountant-General, Military Department.

All the subjects dealt with in the Military Department, which are as follows:—

Appointments.	Disturbances.	Intelligence.	Returns.
Army List.	Defences.	Indents.	Rewards.
Account department.	Discipline.	Judicial.	Regimental institutions.
Accounts.	Distribution of army.	Leave.	Recruiting.
Ardnanees.	Drill and instruction.	Marine.	Reports.
Agricultural.	Discharges.	Military department.	Rewards, Native army.
Armaments.	Estimates.	Medical.	Service.
Arms.	Educational.	Military buildings.	Staff corps.
Artillery.	Engineers.	Maps.	Savings bank.
Appointments (Native army).	Ecclesiastical.	Medals.	Special.
Asylums.	Equipment.	Miscellaneous.	Sanitary.
Barrack department.	Establishments.	Native languages.	Staff college.
Books.	Exhibitions.	Organization.	Schools.
Casualties.	Enquiries.	Ordnance.	Survey department.
Commands.	Estates (Native army).	Promotions.	Survey parties.
Camps.	Furlough.	Pay and allowances.	Salutes.
Cantonments.	Field operations.	Pay code for India.	Stores.
Complaints.	Funds.	Prize.	Transport.
Commissariat.	Guards.	Prisoners.	Unattached list.
Clothing.	Honorary distinctions.	Pensions.	Veterinary department.
Correspondence.	Horses.	Quarters.	Volunteer corps.
	Inspections.	Retirements.	Warrant officers.
	Working parties.	Women and children.	

Also all correspondence with the controllers of the three presidencies and the comptroller-general on the subject of accounts, and the preparation of the military and marine budget and cash requirement estimate—keeping the pay code corrected to date ready for revised edition. Also the consolidated accounts current with London and connected correspondence.

Colonel B. Walton, Superintendent and Agent, Army Clothing, Bengal.

The manufacture of clothing for the army in the presidency of Bengal in all its branches, under which the following may be noted:—

- I.—Indents for clothing stores on England.
- II.—Indents for necessaries on England.
- III.—The conversion of the clothing stores into made garments, or
- IV.—The issue of materials to corps.
- V.—The issue of ready-made items (as received from England) to corps, such as spurs, gloves, boots, sashes, woollen socks, and jerseys for gymnasia, &c., &c.
- VI.—The issue of necessaries.
- VII.—The issue of ready-made clothing and materials on payment.
- VIII.—The issue of hospital clothing to the commissariat.
- IX.—The issue of stores locally, such as packing materials and other miscellaneous items.
- X.—The issue of stores purchased cheaper than imported articles, the latter only when imported articles will short, or for local issues.
- XI.—The issue and despatching of military stores, the property of regiments—late the duty of the military storekeeper.

Colonel J. K. Cowper, Director of Army Remount Operations.

Purchase of remounts in Calcutta and the districts; transfer of remounts to the depôts; care of remounts whilst at the depôts; transfer of remounts to regiments and batteries.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

The following are the subjects dealt with in this department:—

- (a) The inspecting and branding of approved mares, with the sanction of their owners, for breeding purposes in the North-Western Provinces and Punjab; also the inspection of stock in Rajputana.
- (b) The allotting of branded mares to be served by the classes of stallions best suited for them.
- (c) The supply of Government stallions sufficient in number to meet the requirements of the breeding districts.
- (d) The weeding of stallions considered unfit from old age or other causes, and obtaining, either by importation from England or purchase in India, of the number and classes required to make up the sanctioned complement, *viz.*, 300.
- (e) Branding with the letter D pony mares, or mares considered unfit for horse-breeding, for the breeding of mules.

(f) Purchasing of donkey stallions from Arabia, Bokhara, Punjab, &c., in sufficient numbers to serve mares for mule-breeding; also the providing of some donkey sires for the Madras presidency.

(g) Receiving of monthly accounts of stallions in districts from each officer or other person in charge of Government stallions.

(h) Submitting monthly accounts to the comptroller general, treasury accounts branch, Calcutta, in abstract and detailed forms.

(i) Attending the several metropolitan horse-fairs and district horse-shows in the North-Western Provinces, Punjab, and Rajputana to judge of the quality of stock produced by Government stallions as exhibited.

(j) Instructing Natives at the veterinary schools at Hapur, as salubrities and castrators, and supplying the several breeding districts with this class of qualified men, in order to afford the opportunity to owners of colts to get their stock castrated and treated gratis.

(k) Reporting on stud documents received by the Government of India from the Bombay presidency.

(l) Reporting on subjects in connection with the prevalence and prevention of glanders, farcy, anthrax, cattle-diseases, &c., &c., and advising sanitary measures connected therewith.

(m) Inspection of bulls and rams of the Hissar cattle farm distributed in districts for improving the breed of cattle.

(n) Inspection of horses of the Punjab Frontier Force with regard to fitness, condition, sanitary arrangements, &c.

Major-General Sir P. S. Lumsden, K.C.B., C.S.I., Adjutant-General in India.

The following are the subjects dealt with in this department :—
DEPUTY ADJUTANT-GENERAL.

No. 1 Branch.—Distribution list of work, 1st January 1878.

Army List.

(Correcting sheets received from Military Department.)

Adjutant-General's Department.

(Officers.)—Includes divisional appointments.

(Establishment.)—Every question connected with the office.

Arrival reports.

(Officers only.)

Camp of exercise.

Cantonment and cantonment magistrates.

(Matters referred by quarter-master-general or other authority, acting appointments of cantonment magistrates, and general questions.)

Claims (against officers).

(Includes claims for taxes forwarded through the home authorities; such as involve questions of discipline will be recorded under "Claims—Discipline.")

Claims by warrant officers and soldiers will be recorded under the direct heading, and be treated by proper branch.)

Colonel's allowances.

(Questions of promotion are sometimes involved in this heading.)

Commands.

Brigade.

District.

Divisional.

Forts.

Station.

(Regimental, to be recorded under "Regimental Appointments.")

Commissions.

(European and Native.)

Confidential reports, Officers.

(Annual, from regiments of Native cavalry and infantry.)

Annual, on all staff officers of the Indian army, from divisions, district

Courts, Civil.

(General questions.)

Courts of requests.

(General questions. Claims against officers to be recorded as per heading "Claims.")

Discipline, officers (European).

Courts of inquiry.

Courts-martial.

(Introduction of yearly articles of war, and issue of warrants for holding courts-martial.)

Field operations.

(All questions.)

Forts.

Frontier raids and expeditions.

Honorary distinctions.

(Including Orders of the Bath and Star of India; applications from regiments to adopt mottoes, &c.)

Judge Advocate-General's department.

Appointments. Examinations for the department. Organization.

Leave and furlough.

(Officers only.)

Legal.

(General questions.)

- Officers (European).
 - Doing duty.
 - Enquiries.
 - Pension. (Includes family pension.)
 - Promotion.
 - Residence.
 - Service.
 - Unemployed.
 - (Memorials and appeals to go under subject headings.)
- Order of British India.
 - (Including death reports of, members of the Order.)
- Order of Merit.
- Rank and precedence.
 - (Officers only.)
- Records of officers.
 - (Including preparation of statements of service of all Indian army officers.)
- Regimental appointments.
 - (Includes the command of Native corps, and all appointments in both European and Native regiments.)
- Retirement and retirement bonus.
 - (European officers.)
- Staff corps.
 - All questions, including exchange of officers from staff corps to British regiments and vice versa.
- Staff officers.
 - Aides-de-camp (including "Examinations.")
 - Assistant adjutant-generals.
 - Brigade-majors.
 - Garrison instruction.
 - Miscellaneous. (This provides for wants of civil departments.)
 - Station staff.

Special work in No. I Branch not shown by distribution list.

- Half-yearly returns of unemployed officers of the Bengal staff corps and local service in India.
- Half-yearly distribution returns of all officers of staff corps and local service.
 - (The above four returns are compiled for Government and Secretary of State; copies are also sent to the military secretaries to the Viceroy and Commander-in-Chief.)
- Annual confidential reports on staff officers of the Indian army. Compiled for Government and Secretary of State.
- Nominal Indexes to G. O. C. C., *Gazette of India*, and the Local Government *Gazettes*, regarding officers only.
- Officers' book.—In this are entered notes of cases of "Discipline" affecting an officer's conduct. Schedules of applications for staff appointments, general, divisional, brigade, and regimental.
- Schedule of staff corps probationers.
- Arrival and departure report book, entries in—when reports are made by letters.
- Register of all retirement applications.

1ST ASSISTANT ADJUTANT-GENERAL.

No. II Branch.—Distribution list of work, 1st January 1878.

- Abkaree.
 - (Sale of liquor in cantonments.)
- Bands and uniforms.
 - (General arrangements.)
- Cholera.
 - (The supply and necessaries of Native soldiers.)
- Compensation.
 - Dearness of provisions. (Claims for compensation on any other account [except losses] are to be dealt with under their direct headings by the branch concerned.)
 - Losses. (All matters relating to compensation for losses to be treated under this head.)
- Correspondence.
 - (Mode of conducting official correspondence.)
- Discipline, Native—(Officers and soldiers).
 - Courts of inquiry.
 - Courts-martial
 - Courts-martial returns.
 - Deserters.
 - Discharge and dismissal.
- Ecclesiastical.
 - (Requests for chaplains of all persuasions, establishments, pay, &c.)
 - Reference about burials and cemeteries—(Qr. Mr. Genl.)
- Finance.
 - Advances.
 - Batta.
 - Funds.
 - Income or license tax.

- Pay and allowances of officers.
- Prize money.
- Remittances.
- Retrenchments.
- Travelling expenses.
- Working pay.
- Wound pensions and gratuities.
- Forage and fodder.
- Horses—(British cavalry).
- Hospitals.
- Hutting—(Q. M. G.)
- Insanes, Native.
- Inspections, Native.*
(Annual confidential reports on Native cavalry and infantry).
- Invalid and invaliding, Native.
- Line gear.
- Medals.
 - Humane Society.
 - Victoria Cross.
 - War.
(Good conduct medals are to be dealt with under "good-conduct rewards.")
- Medical Department—Officers.
(Including appointment and posting, &c. Confidential reports on British officers.)
- Medical Department—Subordinate.
Discipline, leave, pay, records, &c.
- Native army.
 - Augmentation.
 - Direct commissions.
 - Disbandment.
 - Furlough.
 - Native adjutants.
 - Organization.
 - Promotion.
 - Recruiting—(General. Individual. Recruiting parties).
 - Reduction.
 - Rewards.
 - Standing orders.
 - Resignation of Native officers.
- Native languages.
- Orderlies.
- Pensions, Native.
(This includes family pensions.)
- Petitions, Native.
(If the petition is on any subject for which there is a direct heading, it is to be recorded accordingly, and be treated by the branch concerned).
- Postal Department.
(Franking, postage, &c.)
- Records.
(Of Native soldiers, Native regiments, and staff offices generally.)
- Re-enrolment.
(Native soldiers.)
- Saddlery and harness.
- Salutes.
- Sanitary—(Q. M. G.)
- Special.
(Papers on matters of a miscellaneous nature, for which there is no other heading.)
- Syces and grass-cutters.
- Transfers, Native.
- Working parties.
- Uncovenanted service.
- Veterinary department.
(General questions.)
Veterinary surgeons.
Farriers and shoeing-smiths.
Farrier's forges.

Special work in No. II Branch not shown by distribution list.

- Yearly return of officers who have passed the honor or high proficiency tests in Arabic and Persian, forwarded to Government on the 1st September.
- Yearly return showing the number of remounts required to complete British cavalry regiments on 1st October—forwarded to director of army remount operations.
- Yearly revision of orders connected with relief of troops.

* NOTE.—Abstracts and remarks on all confidential reports are to be submitted to the adjutant-general through the deputy adjutant-general. When questions arise out of confidential reports on subjects dealt with in other branches, extracts are to be transferred to the branches concerned for action.

DEPUTY ASSISTANT ADJUTANT-GENERAL.

No. III Branch.—Distribution list of work, 1st January 1878.

Baggage—(Q. M. G.)

Books.

(Supply of all regulation and drill books, religious books, and army lists.)

Camp equipage—(Q. M. G.)

Canteens. Carriage—(Q. M. G.)

Cattle.

Convalescent depôts.

(Includes command and staff appointments, inspection reports, and all other matters relating to such depôts.)

Cooks and cooking.

(European and Native).

Courts of inquest.

Death reports.

Discharges, European.

Drafts and detachments.

Effects and credits.

(Including committees of adjustment.)

Enquiries, soldiers.

Establishments.

Field parks.

British regiments.

Native, *i.e.*, Native establishments of European and Native regiments—(Q. M. G.)

Forms.

Good-conduct pay (European and Native).

Good-conduct rewards.

(Annuities and gratuities, and good-conduct medals.)

Guards and escorts (European and Native).

Inspections, European.

Annual confidential reports on British infantry (one-half), and all general questions (European).

NOTE.—Abstracts and remarks on all confidential reports are to be submitted to the adjutant-general through the deputy adjutant-general. When questions arise out of confidential reports on subjects dealt with in other branches abstracts are to be transferred to the branch concerned for disposal.

Invalids and invaliding, European.

Leave, soldiers (European).

Libraries.

(Supply of books and maps and all other matters connected with Government libraries.)

Names. (Changes of names.)

Non-commissioned officers (British regiments.)

Orders.

Home orders. (Questions arising out of these orders having direct headings are taken by branches when the orders are circulated.)

Passage and transport—(Q. M. G.)

(Individual and exceptional cases only are treated in this office.)

Pay, soldiers (European).

Pension and pensioners (European soldiers).

Records.

British regiments.

European soldiers.

Reliefs and movements.

Remands, soldiers.

(European and Native, from staff employ.)

Royal engineers.

except leave and promotion.)

Sappers and miners (European).

Signalling and telegraphy.

Soldier clerks.

Staff soldiers.

Telegraph department—(Q. M. G.)

Torpedo defences.

Treasure chests.

Unattached list.

(Including volunteering and promotion.)

Volunteer corps.

(All questions except musketry instruction.)

Warrant officers.

(This heading includes the discipline, leave, pay, records, &c., of all warrant officers, except those of the medical department.)

Women and children.

(Including subsistence allowance.)

Special work in No. III Branch not shown by distribution list.

I. General unattached list register.

II. Index to ditto.

- III. Unattached list by departments (departmental rolls filed and kept up to date by pencil notes).
- IV. Unattached list by regiments (regimental rolls filed and kept up to date by notes).
- V. Unattached list casualty book.
- VI. Service rolls of warrant officers (G. O. 360 of 1875).
- VII. Register of non-commissioned officers who are applicants for appointments at hill depôts, garrisons, and other staff situations.
- VIII. Register of the old European army.
- IX. Register of British soldiers discharged.

Periodical returns furnished to departments.

Annual return of 2nd class warrant officers requiring passage to England. To quarter-master-general on 1st June.

Annual nominal roll of men on the unattached list on 1st April, for adjustment of clothing compensation. To examiner of clothing accounts.

Periodical returns furnished to Government.

Monthly casualty return of the unattached list.

Ditto Indian pensioners.

Ditto non-commissioned officers other than royal engineers attached to sappers and miners.

Ditto invalid battalion.

Half-yearly return of British soldiers who have purchased their discharge.

Annual descriptive roll of non-commissioned officers and men on the unattached list.

Annual descriptive roll of invalids and pensioners formerly belonging to the unattached list or Honorable East India Company's service.

Annual descriptive long roll of European non-commissioned officers other than royal engineers attached to sappers and miners.

Annual descriptive roll of the European invalid battalion.

Annual casualty return of European non-commissioned officers other than royal engineers attached to sappers and miners.

Annual casualty return, pensioners.

Annual casualty return, invalid battalion.

ASSISTANT ADJUTANT-GENERAL.

No. IV Branch.—Distribution list of work, 1st January 1878.

Bands and messes.

European regiments. (Includes all questions of donations or subscriptions, bandmasters and bandmaster sergeants.)

Bedding.

(Including compensation for.)

Barracks and buildings.

(Includes furniture, tatties, fuel, lighting)—(Q. M. G.)

Colleges.

(Staff College. Roorkee College.)

Clothing.

(European regiments. Compensation for clothing included.)

Colors, standards and flags.

(Supply questions only.)

Commissariat.

(Comprising rations, and all questions of supplies from the commissariat not provided for under direct headings.)

Depôts.

(Embarkation and regimental depôts.)

Discipline, European soldiers.

Courts-martial.

Courts, civil.

Courts of enquiry.

Deserters.

Discharge—incorrigible bad character—ignominy.

Penal servitude and discharge of men sentenced thereto.

Prisoners.

Warrants for the removal of prisoners.

Extension of service (British soldiers).

Fines for drunkenness.

Dress, European and Native.

(Under this heading comes the dress of all European and Native officers, warrant officers, and soldiers.)

Drill and instruction.

Equipment.

(Includes sulcetahs, field-forges, and all stores not provided for by direct headings.)

Exchanges.

(Officers of British regiments and battalions.)

Exhibitions.

Gymnastics.

(Includes gymnasia, instructors, fencing, lance practice, assaults of arms, &c.)

Insanes, British.
 Inspections, European.
 (Annual confidential reports on British cavalry, and one-half of the European infantry.)
 Master tailors.
 Military instruction.
 (Of officers and soldiers, including examination of officers for promotion.)
 Necessaries.
 (Regimental necessaries of British troops.)
 Ordnance stores.
 Postings of officers.
 (To battalions of British regiments.)
 Prisons.
 (Military prisons, regimental and station cells, and visitors of military prisons.)
 Quarters and house rent—(Q. M. G.)
 Recruiting and bounty (European).
 Re-engagement.
 Regimental institutions.
 (Including coffee-shops, recreation-rooms, gardens, theatres, and other institutions for which no direct heading exists.)
 Savings' banks.
 Schools.
 (British and Native, including moonshees and magic lanterns.)
 Sea kits.
 Soldier servants.
 Transfers.
 (British officers and soldiers.)
 Volunteering.
 (British soldiers, except those of unattached list.)
 Workshops.

Special work in No. IV Branch not shown by distribution list.

Register of penal servitude and other prisoners for discharge.
 Annual workshops' report for Government.
 Annual exhibition report for Government.
 Annual military prisons' report.
 Annual return of officers and soldiers made over to civil power for trial—for Government.
 Quarterly return of men permitted to extend their army service—for Horse Guards.
 Annual return of officers for depôt duty—for Horse Guards.
 Annual return of men volunteering to regiments remaining in India—for Government and Horse Guards.
 Register of officers who have passed various examinations.
 Annual return showing quantities of hill and English beer consumed by the troops—for Government.

DEPUTY ASSISTANT ADJUTANT-GENERAL.

Return Branch.—List of returns prepared.

Description of returns.	Number of copies.	For what department.	
General Monthly. Form 761	1	A. G., Horse Guards.	
Abstract return	1	M. S. to C.-in-Chief.	
Return of European and Native troops, including civil corps.	1	M. S. to Viceroy.	
Return of officers of royal engineers	1	S. of S. for India through M. D.	
Return of deaths among officers and warrant officers	1	Secy. to Govt., Mily. Dept.	
Abstract courts martial return	1	C.-in-Chief direct.	
Arrival and departure reports of officers, Her Majesty's British service.	1	A. G., Horse Guards.	
Arrival and departure of new line regiment	1	Secy. to Govt., Mily. Dept.	
Punishment and sanitary, British troops, Bengal	1	C.-in-Chief direct.	
Received and transferred.	1	M. S. to Comr.-in-Chief.	
			Ditto do. do. Madras
			Ditto do. do. Bombay
Ditto do. Native troops, Bengal	1	Secy., Bengal Mily. Fund.	
		C.-in-Chief direct.	

Description of returns.	Number of copies.	For what department.
Statement of alterations on the staff in India ...	1	U. Secy. of State for War.
List of officers in command ...	{ 1	M. S. to Viceroy.
Casualties in the Order of British India ...	{ 1	M. S. to C.-in-Chief.
Return of officers doing general duty at the several stations in Bengal.	1	For No. I Branch.
	1	Ditto.
<i>Annual.</i>		
Caste return of Native troops, Bengal ...	{ 1	Secy. to Govt., Mily. Dept.
Return of total abstainers and amount of liquor consumed in canteen, &c.	{ 1	C.-in-Chief direct.
Return of time-expired men, invalids, and others who will be sent home during ensuing trooping season.	1	Secy. to Govt., Mily. Dept.
Return of deaths among officers of British and Indian army.	1	A. G., Horse Guards.
Return of deaths among officers of British army ...	1	Sanitary Commissioner.
Return showing average strength of European officers, British army.	1	Surgn.-Genl., British troops.
Return of guards, orderlies, and escorts furnished by the Native troops.	1	Ditto.
Return of married and unmarried non-commissioned officers and men in the three presidencies.	1	Secy. to Govt., Mily. Dept.
Return of time-expired men and invalids ...	1	Ditto.
	1	A. G., Horse Guards.

Note.—Also special returns which are called for frequently.

ASSISTANT ADJUTANT-GENERAL, FOR MUSKETRY.

No. 7 (or Musketry) Branch.—Distribution list of work.

Accoutrements.
Ammunition.
(Small arms.)
Annual course.
Annual returns.
Appliances.
Armors.
Armors' shops.
Arm racks.
Arms' reports.
Books.
(Minor heading only.)
Drill and instruction.
(Minor heading only.)
Examinations.
(Of officers and non-commissioned officers of both British and Native troops.)
Exemptions.
(From annual course.)
Experiments.
(With small arms and ammunition.)
Forages and tools.
(Armors, British and Native troops.)
Forms.
(Musketry forms only.)
Good shooting and judging-distance rewards.
Inspections.
(Circle and special reports on.)
Magazines.
(Small arms—Regimental.)
Matches—Rifle.
Miscellaneous.
Ordnance stores.
(Attached to the musketry branch.)
Practice between annual courses.
Ranges.
Reports—Circle.
Returns.
(Army and regimental.)
Staff, departmental.
(Appointments on the army musketry staff.)

- Staff, regimental.
(Appointments on regimental musketry staff.)
- Staff, non-commissioned officers.
(Appointments on regimental musketry staff.)
- Travelling expenses.
(Out-station or detention allowances.)
- Volunteer corps.
(Arms, ranges, and musketry appliances only.)

Special work in No. V (or Musketry) Branch not shown by distribution list of work.

1. The preparation of quarterly reports, showing action taken on all musketry subjects during the quarter, for submission to the Commander-in-Chief in India, and the inspector-general of musketry, Hythe.
2. The examination of, and report on, the annual proceedings of regimental boards of survey on the arms, armorers, their shops and fittings, as well as the forges and tools in possession of the British cavalry, artillery, infantry, and native infantry and cavalry.
3. The examination of, and report on, claims for good shooting and judging-distance rewards of Native cavalry and infantry regiments.
4. The examination of monthly reports on the magazines and ammunition in possession of the British cavalry and infantry, and of Native cavalry and infantry, and the remedying of all defects discovered.
5. Checking the calculations contained in the annual returns of the practice made by the several regiments of British cavalry and infantry, and of Native cavalry and infantry.
6. Preparation of statistical returns showing, in detail, the musketry practice of the troops.
7. Preparation of the annual musketry practice returns for publication in general orders.
8. Preparation of the monthly musketry practice returns for submission to His Excellency the Commander-in-Chief in India.

Colonel C. C. Johnson, Officiating Quarter-Master General in India.

Bazars.	Barrack Department.
Buildings, auxiliary.	Bedding. (Palliasces, coir, straw, supply of.)
" barrack.	Buildings, hutting.
" cells and prisons.	" lighting.
" ecclesiastical.	" mess-houses.
" gymnasia.	" Native troops.
" hospital.	" quarters.
	" regimental institution.
	Buildings, sanitaria.
Burial-grounds.	Fortifications.
Camp-grounds and encampments.	Fuel.
Camps, Commander-in-Chief.	Furniture.
" Viceroy.	Gardens.
Camp equipage.	Guards and escorts.
Camps of exercise.	(Provisions of troops for.)
Cantonments.	Gymnasia.
(Sites, &c., cantonment regulations other than military.)	Inspections.
Cantonment funds.	Intelligence.
" lock-hospitals.	Library office.
Complaints and petitions.	Miscellaneous.
Coking, sale of utensils, carriage of, &c.)	Meteorological.
" cantonment.	(Observations at Simla, instruments for, &c.)
Distribution of army.	Movements, casual.
Ecclesiastical.	" relief.
(Furniture, establishments, and allowances for churches, &c.)	" sanitaria.
Epidemics.	Ordnance stores.
Equipment.	Petty supplies.
(Intrenching tools, kajawabs, suleetahs, &c.)	Pontoon.
Establishments, general.	Ranges, artillery.
" punkah and tattie.	" musketry.
" thermantidote.	Reports and returns.
Famine (transport officers and camps, &c.)	Returns, embarkation.
Field operations.	" disembarkation.
Finance advances.	Routes and roads.
" estimates.	Sanitary questions.
" miscellaneous.	Signalling and telegraphy.
" recoveries.	Surveys and reconnaissances.
Fires.	Topography.
Forge.	Transport, inland.
	" moveable.
	" sea.
	" sick carriage.
	Working parties.

B

Memorandum by the Deputy Adjutant-General, Royal Artillery in India, stating the subjects dealt with in the Artillery Branch of the Adjutant-General's Office, with reference to the Government of India letter No. 5801 ^{Appointments} Adjutant-General's Office, dated 10th April 1876.

All questions connected with the following subjects and referring to the royal artillery in India are dealt with in the artillery branch, *viz.*—Promotions, appointments; postings, transfers, exchange, leave and furlough of officers, enlistment, re-engagement, and discharge of soldiers and their transfer from one battery or brigade to another, disposal of men volunteering to remain in India and of drafts from England. Armaments, equipment, stores, ammunition, interior economy, dress, drill (including gun drill of cavalry and infantry practice), and all questions connected with artillery horses.

Questions relating to armaments were transferred from the quarter-master-general's department in 1864, where it was stated they had previously been dealt with through inadvertence; and questions relating to artillery horses, and applications for leave from artillery officers, were transferred to the deputy adjutant-general in 1868.

The other subjects above mentioned have been dealt with in the artillery branch since its formation, in 1862.

Of the three subjects since taken over and still dealt with in this branch, that of armaments has increased, and will to a still greater extent increase, the work of the office. It is, however, a purely artillery question, and should always have been dealt with in this office.

Applications for leave from artillery officers are, I think, best dealt with in this branch, as the deputy adjutant-general, royal artillery, from confidential reports and other sources, is fully acquainted with the state of the batteries. The transfer of these applications entailed no extra work, as, prior to their transfer, the deputy adjutant-general had in all cases to record his opinion whether the applicants could be spared or not.

The questions connected with artillery horses, which were handed over in 1868, were the distribution of remounts, transfer and casting returns. Remounts are now distributed under the orders of the director of army remount operations, having first been allotted to the several mounted branches by committees assembled under His Excellency's orders. Transfer and casting returns are still dealt with in the artillery branch, and I think advantageously so.

The deputy adjutant-general has generally been for many years a mounted officer, and knows the requirements of the mounted branches of his arm. It therefore appears desirable that questions connected with artillery horses should be dealt with in his branch.

One more subject was taken over in the beginning of 1874. Finding that I was frequently referred to on questions relating to cavalry horses, similar to those which I had to deal with for the artillery, and that as the veterinary department consists so largely of officers belonging to the artillery, and that all questions relating to line-gear applied equally to cavalry and artillery, I thought it most desirable, for the sake of uniformity of action, that all these subjects should be dealt with by one officer for cavalry as well as for artillery; and knowing that by taking them over I should add but little to my work, I offered to do so, and my offer was accepted.

These, I submit, are the only duties I have performed which have no special application to the artillery, and they have now been retransferred to the adjutant-general's office.

In paragraph 3 of the Government of India letter referred to it is stated that, in course of the correspondence which has taken place on this subject, the practice which obtains at the Horse Guards has been cited in support of the system of having what is tantamount to a separate department of royal artillery, but that there are material points of difference between the two cases into which it is not necessary to enter, but which render the comparison nugatory.

It certainly was stated that the duties of the deputy adjutant-general of artillery required such a thorough knowledge of the *personnel* as well as of the *matériel* of the army, that no one but an artillery officer can afford him real assistance, and that it is no doubt to the regimental and technical nature of these duties that the artillery branches, both at the Horse Guards and in India, owe their existence.

With regard to the *personnel* of the regiment, I submit that, so long as the present organization exists, the command of that portion of the regiment serving in India must, to a great extent, be virtually exercised at head-quarters, and must consequently be dealt with in the office of the deputy adjutant-general, royal artillery in India, just as the command of the whole regiment is exercised at the Horse Guards, and dealt with by the office of the deputy adjutant-general, royal artillery. In this, I submit, there can be no material points of difference; and if purely regimental questions, dealt with in the royal artillery office at the Horse Guards, and referred from that office to the commander-in-chief in India, are not dealt with in my office here, difficulties will arise, and the object for which the office was no doubt established, *viz.*, to ensure similarity of system at home and in India, will be defeated.

General questions, however, in no way peculiar to the artillery but common to the whole of the army are not dealt with for the artillery in my branch. Important questions of discipline, for instance, are dealt with by the adjutant-general for the artillery as for the rest of the army; also questions of clothing.

The propriety of dealing in my branch with all matters connected with artillery *matériel* is, I presume, not questioned by the Government of India.

One subject I have omitted—"schools."

Questions relating to artillery schools have generally been dealt with in the artillery branch.

The large numbers of detached battery schools, and the constant necessity of employing artillery non-commissioned officers as acting schoolmasters, render it, in my opinion, advisable that they should be dealt with by me.

The reports, however, of the superintendent of army schools have, until lately, not been sent to me, and therefore I have not been in possession of full information regarding the schools.

In conclusion I submit, now that cavalry horses and line-gear cases and the veterinary department have been transferred to the adjutant-general, that there is nothing dealt with in my branch that should not be dealt with, and that any further transfer of work to the adjutant-general would defeat the object with which the artillery branch was established.

Remarks by His Excellency the Commander-in-Chief in India.

I concur in the above. There is no branch of work now retained in the royal artillery branch which could be properly transacted elsewhere. I regret that the whole question of remounts is not retained in the deputy adjutant-general, royal artillery branch, as it must still be dealt with there as regards remounts for batteries. The separation of cavalry from royal artillery appears to me to be inconvenient.

Z

Memorandum by the Deputy Adjutant-General, Royal Artillery.

It is not possible to give in actual details the increase of work in the royal artillery branch due to the reorganization, and consequent abolition, of brigade head-quarters in India, necessitating many questions which formerly were disposed of at head-quarters of brigades being referred to army head-quarters for settlement; for they are of every kind and description. But the following may be mentioned, and may be considered to prove that the work has unavoidably and necessarily increased.

(1) By the abolition of the seven brigade instructors in gunnery, the practice reports of 48 batteries at 300 rounds per battery have to be carefully checked by an officer in the royal artillery office; and, now that shooting prizes will probably be introduced, this becomes more than ever necessary.

(2) By the abolition of brigade head-quarters, under instructions from the Horse Guards, War Office, the promotions of all non-commissioned officers above the rank of corporal and of all artificers have to be made in the deputy adjutant-general's office. This necessitates the checking of the qualification returns, and the keeping up of promotion rolls for 48 batteries; which must be under the supervision of an officer, and cannot be done at the head-quarters of the royal artillery divisions, as it has been found necessary to group the artillery of several divisions and districts together for the purpose of ensuring an equality in promotion.

(3) The records of service of officers of the late Indian artillery, formerly kept up by the head-quarters of brigades, have now to be maintained in the office of the deputy adjutant-general, royal artillery.

(4) The records of royal artillery men on the unattached list, which were formerly retained at head-quarters of brigades, have now to be kept up in the deputy adjutant-general's office.

(5) Transfers from one battery to another.

(6) Postings of drafts on arrival from England, and disposal of their records (which, as far as brigades were concerned, were, under the old system, carried out by officers commanding brigades).

(7) Enquiries regarding, and claims of, officers and men, which in many instances were formerly sent to and disposed of by brigades, have now of necessity to be settled by the deputy adjutant-general.

(8) By the old system, 7 monthly returns and 7 casualty returns were received monthly from head-quarters of brigades; by the new system, 11 monthly returns, 11 casualty returns, 11 qualification returns, are received from the 11 divisions and districts in Bengal. This of itself increases the work of returns in the deputy adjutant-general's office by considerably more than one-half.

(9) All applications regarding marriages of soldiers in all India, which hitherto were regulated by brigades, are now controlled by the deputy adjutant-general, as the percentage of married men is calculated upon the total artillery strength in India.

(10) Much extra work has also ensued from the many questions, some of considerable magnitude, regarding armament of forts and equipment generally, and constant changes in, and introduction of, new articles of *matériel* which are likely to occupy the attention of the Government of India for some time to come.

(11) It may also be mentioned that the introduction of interpresidential reliefs of royal artillery will cause an addition to the work of the department; for the transfer of batteries from one presidency to another necessitates the opening of fresh books, the preparation of nominal rolls of all men so transferred, and continual references and arrangements regarding exchange of stores and equipment of every description.

N.B.—These three last paragraphs do not refer directly to the reorganization of the artillery, but nevertheless show plainly sources from which work of the artillery office has considerably increased of late years.

Colonel J. Young, Judge Advocate-General, Bengal.

Registry, review, and submission, with reports, to the Commander-in-Chief of general courts-martial, both European and Native; also of such district courts-martial, European and Native, as are reserved for disposal by His Excellency.

Registry and review generally of district courts-martial, European and Native, with reports on such as for any irregularity have to be brought under the notice of the Commander-in-Chief.

Registry and review, with reports to Adjutant-General, of Native summary courts-martial involving dismissal with ignominy. Reports on any other courts-martial as to which appeals have been received.

Reports on applications for trial by general or district courts-martial of officers, warrant officers, and medical subordinates for any offence, and of all persons for non-military offences.

Cases and questions of various kinds referred by offices at army head-quarters, general officers commanding divisions and districts, and the deputies of this department.

Occasional references from the judge advocates-general of the other presidencies.

Review of registers of Native courts-martial, regimental and summary, received monthly for each circle from the deputies of this department.

Eventual despatch of general and district courts-martial (European) for record in office of judge advocate-general, London, with regular monthly lists of the same.

Preparation of all warrants requiring the signature of the Commander-in-Chief, empowering his subordinate officers to convene general and district courts-martial, and for the removal of prisoners to England.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army. Monthly sanitary returns from batteries and regiments of British cavalry, upper circle.
Consolidated annual report from monthly returns sent to adjutant-general.
Annual returns embodying similar information [from the lower circle.
Commentary on the above forwarded to adjutant-general.
Half-yearly indents for bazaar veterinary medicines, upper circle.
To commissariat department.
Annual medical indents for Europe medicines and instruments from all cavalry regiments and batteries, upper circle.
To medical department.
Annual veterinary reports of statistics, &c., from each veterinary surgeon in both circles.
Annual indents on principal veterinary surgeon for forms required for batteries and regiments, upper circle.
Emergent indents for Europe medicines.
To medical department.
Emergent indents on the commissariat department.
To commissariat department and controller of military accounts.
Reports of transfer of veterinary surgeons, both circles.
Special reports upon epizootic diseases in both circles.
Commentary thereon for adjutant-general.
Reports of departmental committees upon forage, medicines, instruments, &c, in upper circle.
Reports to the departments concerned.
Arrival and departure reports of veterinary surgeons, both circles.
Reports upon remounts passed into the service.
Quarterly returns of the veterinary surgeons serving in Bengal.
The allotment to the three presidencies of veterinary surgeons as they arrive from England.
Casualty reports from regiments and batteries.
Circular instructions from principal veterinary surgeon in England.
Annual reports of inspection of British and Native cavalry regiments and batteries of artillery to adjutant-general.
Commentary upon similar reports from lower circle.
Annual confidential report to the principal veterinary surgeon in England about the qualifications of veterinary surgeons in Bengal.
Copy to military secretary to His Excellency the Commander-in-Chief.
Distribution list of veterinary surgeons in Madras and Bombay.
Report from standing barrack committees upon questions of sanitation connected with the department for report.
Casting committee proceedings for report.
Departmental reports from the various head-quarter departments.
Annual departmental estimate of expenses of the veterinary department for controller, military accounts.
Quarterly departmental arrangement of the army list.
Departmental transfer returns for adjustment.
Departmental sanction for leave and arrangements for carrying on the duty.
Veterinary surgeon's periodical inspection reports upon horses of out-stations for report.

Major A. S. Hunter, Director of Garrison Instruction in India. All matters in any way connected with the instruction and examination of officers desirous of completing the requisite qualifications for—
(a) appointment on the regimental personal or general staff of the army.
(b) promotion to the several grades up to field officer, such as—
(1) selection and recommendation of garrison instructors and examiners.
(2) review of papers of questions and drawings submitted for approval by the examiners.
(3) printing and periodical issue of papers of questions and drawings for the various examinations.
(4) formation of classes, withdrawal and remand of officers attending classes.
(5) introduction of new tests of qualification, or of new additions of the several text-books.
(6) reporting the results of the examinations for publication in orders, and for the information of garrison instructors.

Major H. J. Hallows, Inspector of Gymnasias in India. (a) Apparatus.
(b) Buildings.
(c) Clothing.
(d) Drill instruction.
(e) Instructors.
(f) Miscellaneous.
(g) Returns.
(h) Staff.
(i) Stores.
(j) Books and forms.

(a) Apparatus—embraces checking and passing estimates of; preparing plans of; suggesting alterations to; &c.

(b) Buildings—embraces alterations to barrack rooms to suit apparatus; alterations and repairs to existing buildings; approving estimates of alterations to; fencing floors for cavalry and infantry gymnasia; coir fibre for interior of gymnasia.

(c) Clothing—embraces passing indents for, &c., used in gymnasia.

(d) Drill, &c.—embraces annual course for officers and men to qualify for certificates; the working of the usual classes in regiments, &c.

(e) Instructors—embrace the confirmation of all appointments in regiments, and the keeping regimental staff up to authorized number.

(f) Miscellaneous—includes subjects not embraced in foregoing; also "inspections," which comprises the annual report on the working of gymnasia and reports to general officers on the regiments in their command.

(g) Returns—embraces checking all returns received, also calculations in class reports of men; compiling quarterly returns for His Excellency the Commander-in-Chief and the Horse Guards; checking prizes for competition in swordsmanship of cavalry regiments, &c.

(h) Staff—embraces appointments to superintend gymnasia, and the non-commissioned officers attached to each 1st class gymnasium; and questions connected with office, pay, &c.

(i) Stores—embraces passing and checking indents for fencing and gymnastic stores for each regiment and gymnasium; annual estimates of requirements, &c.

(j) Books and forms—embraces the supply of drill books and forms to each regiment.

Major F. W. Duna, Superintendent, British Army Schools.

The subjects dealt with in my department are the following:—

(a) The appointments, transfers, &c., of schoolmasters, schoolmistresses and assistant teachers attached to British army schools in this presidency.

(b) The recommendation of non-commissioned officers and soldiers of the British army in this presidency for certificates of education.

(c) The receipt and record of monthly reports from the various schools, about 75 in number.

(d) The provision of materials (books, stationery and working materials), involving check of indents, record of receipts and preparation of annual requisitions.

(e) Correspondence with the adjutant-general in India and the director-general of military education, relative to regulations and orders and the system of education to be adopted.

(f) The receipt and transmission of reports by the sub-inspectors of their annual examinations and inspections. This is an important portion of the present work of this office, as all defects brought to notice by the sub-inspectors have to be considered and referred to officers commanding, or reported on when necessary.

(g) The preparation of the annual estimates of the department, and the furnishing of an annual report to the director-general of military education.

(h) A general supervision of the schools.

Major F. H. Marsh, Superintendent Native Army Schools, Umballa.

EXECUTIVE OUTDOOR WORK.

(a) Inspection of sixty-eight regimental schools under His Excellency the Commander-in-Chief (so far as the travelling allowance permits).

(b) Superintendence and training of the soldier-students of the Native army normal school, Umballa, for the teacherships of their respective regiments.

(c) Visiting civil colleges for cavalry head-masters; district schools for infantry head-masters; normal schools and higher vernacular schools for vernacular masters, in co-operation with educational officers.

(d) Visiting Government book depôts; Native salesmen of copyrights to arrange that portions of books suitable to the wants of our schools be published; and Native bookshops to fix the lowest prices for our books and material noted in the Native army schools code.

(e) Visiting retired Native educational officers, and leading Natives interested in schools to explain the career open to our schoolmasters and induce them to encourage candidates to enter the service.

OFFICE WORK.

Extract report on Native army schools, 1873—75. Adjutant-General's No. 1558D., dated 1st May 1876, page 1.

The work consists of—

(a) correspondence, reports, returns, &c., for army head-quarters and other departments;

(b) ditto with 68 commanding officers of regiments;

(c) ditto with nearly every head-master of Government and aided colleges and schools where Oordoo is taught, and with inspectors of schools and large numbers of applicants regarding schoolmasterships of regiments; also with curators of book depôts, proprietors of shops and copyrights of private books;

(d) the examination of school attendance registers and schoolmasters' reports received quarterly and annually from all the regiments of infantry and cavalry in Bengal, including the normal school;

(e) correspondence with regiments of the Punjab Frontier Force, and of corps under Government anxious to maintain schools.

The necessity for this work arises from the fact of the schoolmasters being of castes and classes prejudiced against entering as enlisted army schoolmasters, and the competition which arises between other departments, officers and professions anxious to employ the educated youths of their provinces.

Colonel R. A. Moore, Acting Commissary-General, Madras.

1. Victualling Europeans.

2. Victualling families,

3. Victualling rest-houses.

4. Victualling Natives on foreign service.

5. Victualling Europeans on boardship.
6. Victualling Natives on boardship.
7. Supply of doolie-bearers.
8. Supply of hired bearers.
9. Supply, care and maintenance of elephants.
10. Supply, care and maintenance of camels.
11. Supply, care and maintenance of artillery draught-bullocks.
12. Supply, care and maintenance of sick cart-bullocks.
13. Supply, care and maintenance of mules.
14. Supply, care and maintenance of pack-bullocks.
15. Supply of malt liquor.
16. Supply of rum.
17. Supply of hired carriage.
18. Freight of stores from port to port in India.
19. Inland boat and river steamers freight.
20. In Burmah payment of one-third freight of stores from England.
21. Payment of all railway bills for troops and stores.
22. Despatch by rail of all ordnance, clothing and medical stores.
23. Carriage of ordnance, clothing and medical stores.
24. Feed of horses.
25. Veterinary supplies.
26. Diet of sick horses.
27. Supply of line gear.
28. Supply of puccallies and bheesties on certain occasions.
29. Supply of camp contingencies.
30. Supply of hay in lieu of grass-cutters.
31. Supply of barrack furniture and repair of do.
32. Supply of school furniture.
33. Supply of veterinary furniture.
34. Supply of oil and lamps to barracks.
35. Supply of filters.
36. Supply of bedding.
37. Supply of cooking utensils.
38. Supply of furniture to reading-rooms and recreation-rooms.
39. Supply of carts for filling plunge-baths and furniture.
40. Furniture to barrack-masters.
41. Furniture for regimental workshops.
42. Supply of seeds to soldiers' gardens.
43. Supply of fringes and ropes to punkhas.
44. Supply of khus-khus tatties.
45. Entering into contracts for punkah coolies.
46. Supply of disinfectants.
47. Lighting libraries and recreation-rooms.
48. Lighting night schools.
49. Supplies to armourers' shops.
50. Supplies for browning arms.
51. Supplies of barrack miscellanies.
52. Supplies of wine and beer to hospitals.
53. Supplies of furniture to hospitals.
54. Supplies of clothing to hospitals.
55. Supplies of bedding to hospitals.
56. Supply of diets to hospitals.
57. Supply of medical comforts.
58. Supply of bazar medicines.
59. Supply of hospital miscellanies.
60. Supply of diet and table requisites.
61. Supplies to Native hospitals.
62. Supplies to lock hospitals.
63. Payment of all charges for carts and boats, &c., for medical stores.
64. Entering into contracts for medical store department.

Colonel S. H. E. Chamier, in charge Ordnance Department, Madras.

The supply of warlike stores and camp equipage.
 The manufacture locally of gunpowder, fuzes, friction tubes, &c.
 The manufacture locally of gun-carriages, carts, &c.
 Preparation of annual budgets for *matériel* and *personnel*; estimates of cost of Europe stores.
 Annual indent for ordnance stores from Europe.

Orders for disposal of unserviceable and redundant stores.
 Supervision and administrative control of arsenals, factories and depôts, with periodical inspections thereof.
 Replies to references from Government on the subject of warlike stores and other matters.
 General correspondence with regiments, batteries and departments regarding alterations and additions to equipment, and general questions thereon.
 Checking and passing indents for stores.
 Promotions, postings, removals, &c., of officers, warrant and non-commissioned officers and Native establishment of the department, including all out-stations.
 Checking and passing of bills for articles of ordnance supply purchased locally, including repairs to camp equipage.
 Checking and approving contracts and tenders for local supplies (including purchase of timber, for gun-carriage factory) at head-quarters and out-arsenals.
 Administration of the saddle contract funds for regiments of Native cavalry.
 Checking annual demands from arsenals, factories and depôts for articles of stationery of Europe and country manufacture.
 Correspondence regarding the training in the local arsenals of armourer sergeants and armourers for British and Native regiments.

Surgeon-General C. A. Gordon, M.D., C.S., Principal Medical Officer British Forces, Madras.

The subjects dealt with in this department comprehend all matters connected with the full superintendence—medical, sanitary and economic—of all British regimental and other hospitals under the Madras Government, and of all professional duties connected with British troops

in the Madras command.

The following returns and reports are forwarded to the director-general, army medical department, London :—

1. General annual return of sick and wounded (W. O. F. 298, in which twelve minor returns are embodied).
2. Annual report of medical transactions to accompany the above.
3. General annual return of casualties.
4. Arrival and departure of medical officers.
5. Monthly return of sick.
6. Monthly return of medical officers.
7. Return showing the distribution of British troops during the quarter.

The following are submitted to the Madras Government, *viz.*—

1. Stational return of mortality among British troops in the command.
2. Report on health of British troops, with twelve tables.
3. Administration report of the British troops, compiled for the official year.

The following are transmitted to the adjutant-general, *viz.*—

1. General annual sanitary report and returns (W. O. F. 516) for submission to the Secretary of State for War through His Excellency the Commander-in-Chief.

The following is transmitted to the surgeon-general, Indian medical department, Fort St. George:—

1. Numerical return of British troops in the Madras command.

The following returns are checked in this office and forwarded to the sanitary commissioner with the Government of India:—

Weekly return of sick from each corps in the command (W. O. F. 294A).

Annual returns from each corps (W. O. F. 197 and W. O. F. 298).

The budget estimates of medical officers are also checked by this department, and a general estimate prepared and furnished to the controller of military accounts and the commissary-general.

Dr. H. B. Oswald, M.D., Acting
Surgeon-General Indian Medical
Service, Madras.

The whole range of medical administration, namely, the maintenance of the necessary staff of medical officers and subordinates, the regulation of the postings and promotion of the entire medical staff, and of the education of subordinates, the health and sanitation of the Native army, and the medical and economic arrangements of Native military hospitals, lock hospitals, military and civil, lunatic asylums, special and other civil hospitals at the presidency, leper hospitals, jail hospitals, police hospitals and civil dispensaries.

The tabulation of statistics and preparation and printing of annual reports connected with the sickness and mortality in the Native army and working of lock-hospitals, lunatic asylums, civil hospital and dispensaries. Also general and miscellaneous interdepartmental correspondence in connection with the medical administration of the Madras presidency.

The administration of the medical store depôt, including the preparation of indents for supplies on Her Majesty's Secretary of State, and the checking and passing of all indents for medicines, &c., required by hospitals, &c., military and civil. The preparation of the medical budget estimates, civil and military, and the checking of all local fund board budgets in so far as they concern civil dispensaries.

Dr. W. H. W. Cornish, F.R.C.S.,
Sanitary Commissioner for Madras.

The sanitary commissioner is the adviser and referee of Government in all public health matters. He inspects periodically and reports on progress in municipal affairs and towns and villages in the presidency as well as military cantonments, bazars, &c., within the Madras command; (2) he is also the registrar-general of vital statistics, and compiles in his office returns of birth and death registration throughout the presidency; (3) he has also the direction and control of vaccination throughout the presidency; and (4) is the official adviser of local fund circles and municipality regarding all matters relating to local expenditure for drainage, water-supply, conservancy and vaccination.

Colonel J. W. Rideout, Controller
of Military Accounts, Madras.

The department consists of eight distinct offices, with establishments under the general control and supervision of the controller of military accounts. The subjects dealt with, and mode of procedure, in each of the subordinate offices are fully stated in the appendices attached and marked—

- A.—Pay examiner.
- B.—Examiner of commissariat clothing and stud accounts.
- C.—Examiner of ordnance accounts.
- D.—Examiner of medical accounts.
- E.—Examiner of fund accounts.
- F.—Accounts branch of the controller's office.
- G.—Presidency pay office, in which also are disposed of the several questions to which answers are required by the Commission.

This report will, therefore, be confined to replies on the several queries so far only as they affect the controller's office proper, and the duties connected with it.

The controller's office is divided into three branches—

- 1st.—The general department, in which are disposed of references of every kind on financial questions, affecting military expenditure, whether from Government or from other offices. It is a standing order of the local Government that no question involving expenditure of any description shall be submitted to Government, except through the office of the controller of military accounts, whose report on the proposed measure is required to accompany the correspondence.

The duties are of a general nature appertaining to all branches of the military department in connection with military expenditure.

- 2nd.—The budget department is that employed exclusively in the preparation of the annual budget estimates, and all tables of a statistical nature.

3rd.—The pension department in which are examined and verified all applications for pensions paid in the military department.

Examiner of Commissariat, Clothing and Stud Accounts, Madras.

Audit and compilation of—
commissariat,
clothing,
stud and railway accounts.

Examiner of Ordnance Accounts,
Madras.

Auditing ordnance store, regimental, barrack and station accounts.
Compiling cash and store transactions.

Examiner of Medical Accounts,
Madras.

A general control is exercised over medical expenditure, and over the accounts and returns of executive medical officers.

All charges disbursed by the commissariat and pay departments on account of European and Native military hospitals are audited and compiled.

The receipts and issues of medical stores to military, civil, public works department and other Governments are audited and compiled.

The charges incurred on account of the civil hospitals in the presidency town are audited and compiled.

All charges which are not duly authorized, or not properly supported by vouchers, are objected to, and, if necessary, retrenched.

The examiner reports to the controller for the information of Government on all medical subjects and proposals involving expenditure, giving his professional opinion when such is required.

Examiner Medical Fund Ac-
counts, Madras.

The names of all the subscribers and their families are registered with the pensions secured for their families. The authorized deductions to be made from their pay are notified to the various disbursing officers. Actuarial calculations are made as to the value of contingent pensions secured for wives and families.

Accounts of subscribers are regularly audited and balanced.

All subscriptions received are posted in the subscription book. All promotions, retirements and casualties are noted. All information regarding subscribers in England is furnished to the director of military funds.

Examiner Military Fund Ac-
counts, Madras.

A nominal roll of all subscribers to the fund is kept in the office, containing a record of their families, dates of admission to the fund, promotion, marriages, births, &c., together with pensionary benefits secured to their children. The accounts of the subscribers are kept. Subscriptions and donations debited. Loans are issued and recovered. The amount to be deducted from each officer's pay being duly notified to the various disbursing officials.

All information regarding subscribers in England being regularly furnished to the director of military funds at the India Office.

Military Account Department,
Accounts Branch, Madras.

The preparation of military books, inter-departmental and inter-presidential and home accounts; to watch adjustment of advances issued by civil treasuries and circle paymasters, &c.; to regulate cash assignments in favor of disbursing officers (pay, commissariat, remount clothing), British regiments, infantry and cavalry and brigades and batteries, and Native corps in Burmah, and officers, civil and military, in charge of pensions; to examine and adjust transactions shown in the inter-departmental and inter-presidential and home accounts.

The checking of recoveries and payments appearing in the military accounts connected with the service funds, Indian service family pension and apothecaries' fund, and Government savings bank.

To watch the recoveries of stamp duties, on commissions of officers of the Indian army, and fees due by warrant and Native commissioned officers, &c. Of recoveries of miscellaneous claims against officers, &c.

To keep accounts in connection with effects of officers in cases of death, deserters and insanes on service.

To check invoices of military stores, regimental necessaries, with freight and tonnage account.

Presidency Pay Office, Madras.

This includes pay abstracts of regiments, departments and individuals; also contingent bills, which comprise postage, binding, telegrams, travelling expenses, &c.

Lieutenant-Colonel A. Searle,
Superintendent and Agent, Army
Clothing, Madras.

The subjects dealt with in this department pertain to army clothing and accounts therewith connected, including the budget estimate.

Brigadier-General F. W. Jebb,
Adjutant-General, Madras.

Deputy Adjutant-General.

Army Regulations.

Courts-martial.

Compensation for losses.

Promotions, retirements, furlough, &c., of officers.

Statement of officers' services.

Memorials.

Staff corps.

Veterinary surgeons.

Garrison instruction.

Examination papers of British officers for pro-
motion.

Horse Guards and War Office correspondence.

Volunteering—discharge.

Transfer, &c., British troops.

Warrant officers' promotions, pensions, records,
estates.

Non-commissioned staff of corps and depart-
ments.

Clothing—British troops.

Schools—British and Native.

Postings of officers to Native regiments.

Gymnasias—telegraphy.

Army list.

General orders, extracts, proofs, indices.

Confirmation orders.

Medical department—postings and removals.

Examining and despatching correspondence.

Native languages.

Assistant Adjutant-General.

Mess and band subscriptions.
 Dress.
 Native army.
 Promotions—Native officers.
 Order of British India.
 Recruiting—transfers, discharge, Native army.
 Clothing—Native army.
 Petitions not provided for.
 Rifle and musketry.
 Arms—accoutrements.
 Remount department.
 Officers' chargers.
 Casting committees.
 Claims of heirs to pension.
 Register of heirs.
 Pension—invaliding.

Lord Clive's Fund.
 Officers' and soldiers' widows.
 Petitions for pension.
 Native non-commissioned officers.
 Rank and file.
 Bibles—prayer-books.
 Rations—canteens.
 Medals—prize claims, and petitions relating thereto.
 Indents generally.
 Inspection reports.
 Confidential reports.
 Libraries, records, &c.
 Returns generally.
 Arrivals and departures.
 Casualties.

Major John Ewing, Officiating
 Quarter-Master-General, Madras.

1, disposition of troops; 2, reliefs and movements of troops by sea, land and railway; 3, barrack and hospital accommodation; 4, military buildings; 5, public works budget; 6, barrack supplies and attendants; 7, conservancy; 8, sanitary, epidemics; 9, rent of hired buildings; 10, water-supply; 11, transport; 12, passage of officers and troops by sea; 13, cart-hire of families of Native troops; 14, charges for transit conveyance of officers and troops by land; 15, boat-hire; 16, hutting of Native troops; 17, allotment of camp equipage, sick carriage, bearers, cattle, and tent lascars; 18, rations and cooking; 19, lighting; 20, gymnasia; 21, punkahs and tatties; 22, grants of land in cantonments; 23, house boards in cantonments; 24, rest camps; 25, soldiers' gardens; 26, barrack-masters and sergeants; 27, prison and cells; 28, administration of rules for military cantonments and their funds under Madras Act I of 1866; 29, army school requirements; 30, signalling and telegraphy; 31, topographical maps and surveys of military cantonments, roads and communications; 32, routes; 33, ecclesiastical requirements in buildings and furniture.

Colonel G. P. B. Sherard, Judge
 Advocate-General, Madras.

Military law and courts-martial procedure generally, together with all matters connected with the maintenance of discipline in the army incidental thereto, or having any bearing upon the civil and criminal law codes of the country. Every court-martial (district or garrison) held in the Madras army is scrutinized by the Judge Advocate-General in person, and any errors not noticed by his deputy are pointed out by letter.

Lieutenant-Colonel M. W. Wil-
 loughby, Acting Commissary-Gen-
 eral, Bombay.

Subjects coming under the following major heads are dealt with by this department:—

I.—*Personal* (commissariat)—

- (a) Commissioned, warrant, and non-commissioned officers.
- (b) Uncovenanted servants.
- (c) Travelling on duty.
- (d) Doolie-bearers.
- (e) Public cattle, which includes field column carriage.

II.—Victualling Europeans.

III.—Victualling Natives.

IV.—Stores and stock.

V.—Malt liquor.

VI.—Spirits.

VII.—Purchase of live-stock.

VIII.—Transport charges, hired carriage, freight, railway carriage, camp equipage.

IX.—Horses.

X.—Camp contingencies.

XI.—Miscellaneous.

XII.—Incidental charges.

XIII.—Sea kit.

XIV.—Budget, accounts, audit.

XV.—Indents.

XVI.—Advertisements, tenders and contracts.

XVII.—Barrack charges.

XVIII.—Medical charges.

Major-General W. S. Hatch,
 Inspector-General of Ordnance and
 Magazines, Bombay.

Supply of arms, accoutrements, ammunition of all descriptions, in-trenching tools and camp equipage, and sick carriage to troops.
 Supply and repair of carriages of commissariat department.
 Supplies for royal navy, volunteers and local police.
 Arrangements for obtaining supplies from England and from local sources, whether Government factories or contractors.
 Inspection of arsenals and other ordnance establishments.

Deputy Surgeon-General J. M. S.
 Fogo, Officiating Surgeon-General
 British Forces, Bombay.

(a) *Medical*.—Appointment of medical officers to British troops.
 Distribution of medical subordinates attached to British troops.
 Arrangements connected with the equipment and establishment of British hospitals.

(b) *Sanitary*.—Sanitary arrangements.

(c) *Statistical*.—Compilation of statistical, medical and sanitary returns and reports.

Dr. W. G. Hunter, Surgeon-General Indian Medical Department, Bombay.

Finance, military and civil.
 Printing, ditto.
 Establishment, ditto.
 Education, ditto.
 Revenue, civil.
 Stores; &c., military and civil.
 Medical board, ditto.
 Statistical, ditto.
 Sanitation, ditto.
 Political, civil.
 Departmental administration.
 Military medical, ditto.
 Civil, ditto. ditto.
 Miscellaneous, military and civil.

Dr. John Lumsdaine, Sanitary Commissioner for Bombay.

(a) In matters relating to the public health, to keep constant watch upon the sanitary condition of the people, European and Native, and of the districts generally.

(b) To recover the mortality from various causes, and, as the details which make up the sanitary requirements of a district are each and all of them important factors in connection with the death-rate of the area, to note everything which, for good or ill, can affect that death-rate.

(c) To report and advise upon the prevention and mitigation of epidemics, and upon the causes, prevalence and prevention of the more ordinary diseases.

(d) To exercise a general supervision in sanitary matters and sanitary improvements generally, as well in cantonments as in towns and villages; and to obtain information upon such matters as are engaging the attention of local authorities, and of such schemes as are contemplated.

(e) To examine all projects for water-supply of populous towns and camps from all sources, whether for irrigation or for general purposes, and whether undertaken by Government or by others acting independently or under Government.

(f) To examine all drainage schemes, whether for extended areas or for municipalities, towns and cantonments.

(g) To examine all plans of military buildings for the accommodation of troops, all hospitals, lunatic asylums, jails, churches and other public buildings of importance for which standard plans do not exist, and to report on them as regards site, aspect, water-supply, drainage, ventilation and general design.

(h) To advise on all sites for stations, permanent or temporary, for barracks, hospitals and their outbuildings, for bazars and their accessories, for offensive trades, places for the disposal of the dead in, or in the immediate neighbourhood of, civil stations or military cantonments, slaughter-yards, latrines, lay-stalls, and such like, and pilgrim encampments.

(i) As regards conservancy, to advise upon the general arrangements for the collection and disposal of surface refuse and house sewage.

(j) To examine committee proceedings and reports on sanitary matters, and to see projects and plans relative to such matters before action upon them be taken, and before actual work has commenced.

(k) When inspecting a municipal town, to note in detail all sanitary defects in drainage, water-supply, conservancy, &c., to draw up a brief report pointing them out, indicating the dangers peculiar to locality and position, stating what improvements are most urgently required, and how they may best be remedied out.

(l) To report to Government how far suggestions made have been adopted, and the character of the work done.

(m) To tabulate the district returns of rainfall, and sub-soil water level.

(n) To supervise and carry out the administration and executive duties connected with vaccination.

(o) To analyse all samples of water forwarded for examination, and, as far as possible, to conduct local analyses.

(p) To prepare and submit an annual report dealing with the vital statistics of the presidency, showing in prescribed forms the births and the deaths from various causes, more especially from cholera, small-pox, fevers, bowel-complaints and accident or violence; showing also the details of vaccination, and of sanitary works, civil and military, and reviewing the events of the year in their relation to the public health, and to sanitation generally.

Lieutenant-Colonel D. B. Young,
 Officiating Controller of Military
 Accounts, Bombay.
 (Controller's Office.)

Questions and references regarding pay and allowances of the army, staff and departments under the military department.

Ditto pensions and gratuities to the army and civil establishments of military offices and departments.

Ditto funds—military, medical and Indian service family.

Ditto prize-moneys.

Ditto establishments, additions and alterations in questions and references regarding passage and passage-money.

Ditto travelling expenses.

Questions and references regarding commissariat services, stores and supplies.

Ditto ordnance ditto.
 Ditto medical ditto.
 Ditto barrack ditto.
 Ditto clothing ditto.
 Ditto stationery supplies to military officers and departments.
 Ditto all proposals involving increased expenditure of cash or stores.
 Ditto contingent expenses of all descriptions.
 Ditto cantonments, grants-in-aid.

Preparation of the annual budget and the preliminary revised and regular estimates for military services and supplies.

Ditto of the explanatory statement of differences between budget and actuals.

Ditto monthly statement of additions and alterations of establishments.

Ditto all other estimates and statements called for by superior authority connected with military operations, or cost of particular arms of the service, departments, &c., for back periods, &c., &c.

Major W. Perreau, Examiner
 Pay Department, Bombay.

I.—Pay and Indian allowances; British pay; staff and command office and contract allowances; furlough, pay and leave allowances; compensation for losses and rations; donation; batta; prize money; messing contributions; detention; mess; moonshie; outfit; interpreters; witnesses; dismissed officers; and family subsistence allowances authorized for commissioned officers, medical officers, troops, regimental followers, unattached lists and medical subordinates of the European and Native army; army staff and commands; departmental officers; combatant and medical warrant officers; office establishment.

II.—Sea passage and passage-money to commissioned officers from port to port in India, and to commissioned and warrant officers to Europe.

III.—Sea passages to Europe for unattached list non-commissioned officers and individual non-commissioned officers, soldiers and families of British regiments; inland dak, travelling expenses of commissioned officers and warrant officers; mileage to all ranks entitled thereto.

IV.—Colonel's allowances, pensions and gratuities to European commissioned officers of the Indian army; warrant officers; Native troops; enlisted followers, followers of British and Native troops; family pensions; Native troops and followers; pensions to members of office establishments under the uncovenanted service civil pension code rules.

V.—Furlough pay; British pay; arrears of pay and Indian allowances; detention allowance; passage and passage-money; claims of commissioned officers, warrant officers and unattached list non-commissioned officers of the Bengal and Madras presidencies proceeding to Europe *vid* Kurraches and Bombay.

Lieutenant-Colonel D. B. Young,
 Officiating Controller Military
 Accounts, Bombay.
 (Pension Paymaster's Office.)

The three pension pay offices, which are respectively in charge of—
 the assistant presidency paymaster,
 the pension paymaster, Poona circle, and
 the pension paymaster, Southern Konkan,

pay all pensions, military and civil, which are provided for in grants 18 and 20 of the military budget-estimate, and render accounts of their payments to the pay examiner. They also prepare the budget-estimates for their respective circles, and a statistical return of pensions annually, which is required by the accountant-general, military department. The pension paymaster, Poona circle, also furnishes a quarterly return of European pensioners residing and drawing their pensions in this presidency for transmission to the Secretary of State.

Major M. A. Rowlandson, Examiner
 of Commissariat, Clothing and
 Barrack Accounts, Bombay.

(1) Those connected with the audit of accounts of the commissariat department.

(2) Those connected with the audit of accounts of the clothing department.

(3) Those connected with the audit of accounts of the barrack contingencies.

(4) The first embraces charges for provisioning troops; carriage for troops and individuals, European and Native, and stores of all departments, whether military, civil or other, by land, rail and sea; commissariat subordinate establishments and all other miscellaneous supplies by the commissariat department.

(5) The second embraces charges connected with the clothing of the army, European and Native, and necessaries for the former.

(6) The third embraces charges for conservancy establishments for Native troops, and for those cantonments to which grants-in-aid are allowed by the State for punkahs and tatties in barracks and hospitals, &c.

Lieutenant W. R. L. Anderson,
 Examiner of Ordnance Accounts,
 Bombay.

The required list is appended:—

List of subjects dealt with in Office of Examiner of Ordnance Accounts, Poona, as required by question 1 of Army Organization Commission.

The audit of indents of ordnance and military stores and equipments, including the preparation of bills for hire of tents, stores drawn on payment, lost, &c., &c., and their due adjustment.

The examination and disposal of store returns from arsenals, depôts and factories, from corps and army officers, and from barrack-masters, including due adjustment of sums realized by public sales of stores or for stores lost or damaged through carelessness; also adjustments with other departments and Governments.

The examination of reports from arsenals, depôts and factories, of expenditure of materials and labor for manufactures, repairs, &c.

The scrutiny of, and report on, tenders for supplies of stores to arsenals, depôts and factories.

The audit of claims for purchases of stores by arsenals, depôts and factories.

Ditto for extra artificers, &c., employed by arsenals, depôts and factories.

Ditto for repairs effected to stores in use with the army, &c.

Ditto on account of the field practice in the corps of sappers and miners.

The check and completion of estimates of, and indents for, ordnance and military stores and equipments required from England by the inspector-general of ordnance and magazines.

The disposal of packing accounts, invoices, and survey and other reports in connection with stores sent out from England.

The preparation of reports when required, and of periodical review statements and general returns connected with above.

Surgeon-Major P. S. Turnbull,
Examiner of Medical Accounts,
Bombay.

Medical Store Section.

Audit and examination of medical store returns including that of cutler's branch.

Verification and pricing of the annual stock findings of the medical store depôt, Bombay.

Examination and pricing of the annual Home indent of medical stores.

Compilation and pricing of the expenditure of Europe medical stores for annual estimate.

Keeping of a register of receipts, issues and balances of the medical store depôt, Bombay.

Preparation of statements of the average cost of three years' supplies to charitable dispensaries, civil hospitals, &c., for basing their estimates; also annual cost of medical stores supplied to civil charges for financial reports.

Preparation of statements for annual review.

Pricing, classification and compilation of general store accounts.

Audit of the annual instrument returns of military, civil, marine and public works departments:

Recovery of the value of stores supplied to charitable dispensaries, private individuals and Native states.

Preparation of departmental accounts of other than military charges.

Accounts current with other Governments.

Preparation of annual rate schedule.

Audit and examination of tenders and bills for stores purchased locally and manufactured by piece-work.

Examination of packing accounts and invoices of medical stores received from England.

Commissariat Supply Section.

Audit of indents for hospital supplies to military hospitals.

Audit of indents for articles of diet to European military hospitals.

Audit of diet rolls of European military hospitals.

Audit of dead stock returns and monthly wine expenditure returns of Native military hospitals.

Compilation, monthly, of the comparative wine expenditure return of European and Native military hospitals.

Compilation of annual statement showing the cost of dieting patients in the hospitals for European troops.

Lieutenant-Colonel D. B. Young,
Officiating Controller, Military
Accounts (Accounts Branch), Bom-
bay.

Account of the military receipts and expenditure of the presidency.
Accounts current with the Home Government and with the civil and military departments of other presidencies and provinces.
Accounts of the Indian troop transport service.
Invoices of stores from England.
Regimental savings banks.
Family and miscellaneous remittances of officers and soldiers.

Captain H. Cowper, Presidency
Paymaster, Bombay.

The subjects dealt with in this office are the issue of pay and allowances to the Bombay army (with the exception, ordinarily, of payments to British regiments); the recovery of Government and other claims; the final settlement of pay of all officers (Bengal, Madras and Bombay) proceeding home and arriving from England; the issuing of cheques on all authorized treasuries; the rendering of accounts, and the various correspondence consequent on the same.

Colonel J. Thacker, Superintendent
Army Clothing, Bombay.

Obtains from England, on indents, clothing materials, soldiers' necessaries and boots.

Supplies annual clothing to—

the British and Native troops in the Bombay presidency;

the Rajputana irregular corps, five in number;

the subordinate medical department; tent lascars.

Makes supplies on payment, such as great-coats, &c., for Native infantry regiments, and serge or other clothing exceptionally required by British regiments, and occasionally meets demands from volunteer corps.

Supplies helmets to regiments and drafts arriving from England.

Supplies boots to the British troops of this presidency, and, when requisite, to troops of all presidencies newly arrived from England.

Forwards regimental necessaries on their arrival from England to the indenting officers.

Brigadier-General H. F. Brooke,
Adjutant-General, Bombay.

Subjects	Branches to which they appertain.					Subjects	Branches to which they appertain.				
	A.	B.	C.	D.	E.		A.	B.	C.	D.	E.
Accoutrements	British troops	Native	Royal artillery			Field operations					
	British troops					Followers			1	1	
	Royal artillery				1	Forage					1
Ammunition	British troops					Forms				1	1
	Native					Forté					1
Annual reliefs	Royal artillery				1						
Appointments	Staff & regimental				1	Furlough	Indian officers				1
	British troops						European - non-				
	Royal artillery				1		comd. officers			1	
Armourers	British troops						British troops				
	Native				1		Native				
Arms	British troops					Garrison instruction					
	Native				1	Guards and escorts					
	Royal artillery				1	Gun-carriages					1
Army list						Gunners instruction					1
Army signalling					1	Gymnastics					1
Artillery (army questions)					1	Harness and saddlery					1
Assault of arms					1	Honors and rewards			1	1	
Baggage					1	Horses					1
Bands and messes	British troops				1	Insasies	British troops				
	Native				1		Native				
Barrack					1	Inspections	British troops				
Bedding					1		Native				
Boards on arms	British troops						Royal artillery				1
	Native				1	Inspection by Commander-in-Chief					1
	British					Invaliding	British troops				
	Native				1		Native				
Books	Royal artillery				1	Invalid establishment					
Budget estimates					1	Leave				1	1
Camp equipage					1	Languages					1
Canteens					1	Libraries					1
Cantonments					1	Line gear					1
Casualties	Army				1	Lock hospitals					1
	Royal artillery				1	Magazines				1	
Cattle (bullocks and elephants)					1	Medals	British troops				
Cavalry					1		Native				1
Chaplains					1		Royal artillery				1
Cholera					1	Medical	British troops				
Claims					1		Native				1
					1		Royal artillery				1
Clothing	British regiments				1	Medical subordinates					
	Native				1	Movement of officers				1	1
	Royal artillery				1	Movement of troops	British troops				
Coast defences					1		Native				
Colonels' allowances					1		Royal artillery				1
Colours	British troops					Musketry	British troops				
	Native				1		Native				
Commands					1	Orders				1	1
Commissions					1	Orders of Bath				1	1
Compensation					1	Order of British India and Merit				1	1
Confidential reports	Staff officers					Office					1
	British troops				1	Ordnance					1
	Native				1	Pay and allowances				1	1
Courts of inquest					1	Posting of officers				1	1
	Officers				1	Prisons and prisoners.	British troops				1
	British troops				1		Native				1
Courts-martial	Native				1	Prizes, shooting	British troops				
	Royal artillery				1		Native				1
					1		Royal artillery				1
Courts of small causes					1	" swordsmanship					1
Dépôts, Home and Indian					1	Prize-money					1
Deserters	British troops				1	Pensions				1	1
	Native				1	Petitions				1	1
	Royal artillery				1						
Discharges	British troops				1	Promotions	Indian officers				
	Native				1		British				
	British troops						Native				
	Native				1		Unattd. list				
Discipline	Royal artillery				1		Royal artillery				1
Divine Service					1	Rank and precedence					
Dress	British troops				1	Rations	British troops				
	Native				1		Native				1
	Royal artillery				1	Records, departmental					1
Drill	British troops				1	Recruiting	British troops				1
	Native				1		Native				1
	Royal artillery				1		Royal artillery				1
Duty					1	Reports	British troops				
Engineers					1		Native				1
Equipments					1		Royal artillery				1
Establishments					1	Retirements	British troops				
Estates					1		Native				
Exchanges					1		and				
Exhibitions					1		Warrant officers				1
					1	Returns and statistics					1

Subjects.	Branches to which they appertain.					Subjects.	Branches to which they appertain.				
	A.	B.	C.	D.	E.		A.	B.	C.	D.	E.
<i>Salutes</i>				1		<i>Store lascars</i>					1
<i>Sanitaria</i>		1				<i>Transfers</i>		1			
<i>Sanitary</i>		1				{ British troops		1			
<i>Savings' banks</i>		1				{ Native "		1			
<i>Schools</i>		1				{ Royal artillery		1			
{ British troops		1				<i>Transport and pas-</i>		1			1
{ Native "		1				<i>ags.</i>		1			
<i>Service</i>		1				<i>Troopships</i>		1			
{ British troops		1				<i>Unattached list</i>		1			
{ Native "		1				<i>Veterinary</i>		1			
{ Royal artillery		1				<i>Victoria Cross</i>		1			
<i>Soldiers' families</i>		1			1	<i>Volunteer corps</i>		1			
<i>Staff</i>		1				<i>Volunteering</i>		1			
<i>Staff college</i>		1				<i>Warrant officers</i>		1			
<i>Staff corps</i>		1				<i>Workshops</i>		1			1
<i>Stores</i>		1				{ British troops		1			
{ British troops		1				{ Royal artillery		1			
{ Native "		1									
{ Royal artillery		1			1						

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

All subjects connected with the army as regards movements; quartering of troops in cantonments or camps; military buildings; cantonment lands and boundaries; sites for all buildings in cantonments; lock-hospitals; epidemics; sanitary measures and conservancy arrangements for troops and cantonments; military surveys and reconnaissances.

Colonel C. O. Maude, Judge Ad-
vocate-General, Poona.

The subjects dealt with in this department are:—

Courts-martial, courts of inquiry, courts of requests, courts of inquest. Also questions relating to military and civil law, which occasionally arise, and on which a report and opinion is required.

2. Can you make any suggestions towards reducing the amount of clerical labor?

Colonel J. I. Willes, Commissary-
General, Bengal.

Yes. *First*, let the audit department be informed that it is better for Government to lose a few annas than, on principle, to have the money recovered or written off after voluminous correspondence and at a cost in postage, stationery, and labor far in excess of the amount at issue. Let the objection be made by all means; but when it is clear that the outlay in recovery will be out of all proportion to the amount, it were better to admit it at once.

Secondly, I believe a large reduction of work would follow the division of the present unwieldy office of the examiner of commissariat accounts at Calcutta and by having circle examiners,—two or better three. To these offices contractors' bills at least might be sent direct instead of through executive commissariat offices, no primary audit in executive commissariat offices of these being necessary; and it is only a duplication of work to check them in executive offices, and re-check them in the examiners'. The examiner would, after examination, send the contractor a cheque for the amount, just as a paymaster now does for the salary of any individual. With examiners in easy postal communication with the executives submitting accounts, it may be found practicable to arrange that agents' dead-stock accounts shall be sent direct to the examiner instead of through executive commissariat officers. At present the agent's original account is sent after check in the executive office; but one check of such accounts is sufficient for all practicable purposes. In fact, the secret of reduction of work will be found in abolishing systems involving unnecessary duplication of check. At present I could not promise that such relief to executive offices would admit of reducing their office establishment; but it certainly would obviate the present pressing necessity for increasing them.

Thirdly, the course now adopted in dealing with tenders would never be tolerated by a practical man with an extensive business. The tenders, with a comparative statement, are forwarded by executive commissariat officers to deputy commissary-general; by deputy commissary-general to examiner; by examiner to commissary-general. The deputy commissary-general recommends agency or acceptance of one of the tenders (as a rule the lowest); the examiner notes the percentage below or above which the tendered rate bears to current charges or those of previous years or at other stations far distant. The commissary-general then accepts a tender or orders agency. The papers return to the deputy commissary-general, and from him proceed to the executive commissariat officer. Make a rule that the lowest tender is always to be accepted, and let the deputy commissary-general sanction the acceptance, leaving to the commissary-general to deal only with the more important contracts entered into for the requirements of the whole presidency and settled in communication with Government.

Fourthly, let it be known that for the compilation of tables of calculations, or for compilations of general usefulness, or for suggestions which would materially reduce work, a bonus will be given by Government. The amount to be in proportion to the value of the compilation or suggestion. Fifty rupees' reward for a suggestion or compilation which saves even five minutes' work in each of a large number of offices is well laid out, more especially if it induces others to give Government the benefit of their knowledge and experience, which at present is largely thrown away for want of encourage-

ment to turn it to practical use. Under this head it will not be out of place to bring to notice the disadvantages under which the department labors for want of a code and a vocabulary of commissariat supplies. Apart from the inconvenience of being without these works of reference, much time is lost in searching for orders or procedure through notes for what would be found at once in a code.

Fifthly, these are samples of some of the means by which work might be reduced or greater efficiency ensured. To deal with the subject in detail, Government contemplates, as far as the commissariat department is concerned, the appointment of a committee; and doubtless the very best results will follow their recommendations.

Major-General N. Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

I can make none beyond those which the adoption of the system of preparing indents, issue and delivery receipts, estimates, requisitions, &c., proposed by the special committee on ordnance, 1877-78, will ultimately involve. There is no doubt but that, as soon as the printed ledgers and forms which under that system will be brought into use, the amount of clerical labor will decrease; but the introduction of the system will necessarily take time. At present I see no way to lessen the amount of clerical labor. The substitution of some more effective department for the present military department, and the housing the ordnance office under the same roof, would lessen clerical labor to some extent.

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer British
Forces in India.

Great inconvenience is already caused by much of the essential routine work of an office having either to be dispensed with altogether, or carried out only in an imperfect way, owing to an inadequate establishment; as for example, the retention in many cases of short abstracts of important documents leaving the office in original, the correction of the various regulations which cannot be duly carried on, &c., &c.

The inadequacy of the present establishment to cope with the great increase of work in this office during the past few years will be considered in due course, when the reconstitution of the office on the reorganization of the medical services will be taken up.

Surgeon-General J. F. Beafson,
Indian Medical Service, Bengal.

A great deal depends on the individual character of the head of the office. His view of official routine may necessitate extreme care, so that minutiae receive equal pains and time as graver cases, the argument being that at any moment an insignificant memorandum may prove the keystone of a whole despatch. Some will not allow any original to leave their office, but invariably transmit copies. Others are more rapid in their method of transacting business, by passing orders at once and keeping the originals circulated.

It seems strange that copying-presses are not more commonly in use. Every merchant's office is supplied with them; and in the public offices much time, labor, and paper would be economized if only they were confined to their right uses, *viz.*, to retain a record of those documents only which ought to be preserved, but of which probably not one in twenty are ever called up again. Post-cards of an official style ought also to prove economical. It should be remembered that there are interests which would be affected by reducing clerical labor. For some time any changes would be very inconvenient. I have often to draft a letter which has to be copied ten times, one to each deputy surgeon-general.

Dr. J. M. Cuninghame, Sanitary
Commissioner with the Government
of India.

No. The clerical labor is already reduced as far as possible. The general branch of the office consists of only three clerks.

Colonel T. B. Harrison, Control-
ler of Military Accounts, Bengal.

The work of the department has increased very much of late years and I fear there is no possible means of reducing the amount of clerical labor until all the account offices are concentrated in one building, so as to admit of personal communication between them. At present, in consequence of the offices being located in different buildings at considerable distances one from the other, communication in the smallest matters has to be carried on in writing, entailing not only much clerical labor, but delay in the conduct of the work.

Major O. E. Newmarch, Ac-
countant-General, Military Depart-
ment.

This is a point which constantly engages attention in the course of current work, but I have no general suggestions to offer at present.

Colonel B. Walton, Superintend-
ent and Agent Army Clothing,
Bengal.

No, I regret I cannot make any. Where this was possible it has been done already, and to too great an extent. The result is that this department is underhanded.

Colonel J. K. Couper, Director
of Army Remount Operations.

No, I cannot.

J. H. B. Hallen, Esq., General
Superintendent of Horse-Breeding
Operations.

Considering the subjects that have to be dealt with in this department, no reduction in the amount of clerical labor can be suggested. Indeed, requests from the assistant superintendent, horse-breeding operations, Punjab, have been received to recommend that another clerk should be allowed in his office on account of the pressure of work. The aim has been, since the inaugurating of this department, to reduce clerical labor to a minimum.

Major-General Sir P. S. Lumsden,
K.C.S., G.S.I., Adjutant-General in
India.

With our present system of army work, which centralizes everything at head-quarters, I am quite satisfied that any reduction of establishment would seriously impair efficiency. Indeed this has been proved

during the late pressure caused by field operations, when the clerks had to work early and late, before and after regular office hours, often on Sundays, in order to keep pace with the times and prevent arrears accumulating. For the proper performance of the ordinary duties now devolving on it, the adjutant-general's office establishment is at its minimum strength. Reduction of clerical labor can only be effected by exacting more responsibility from divisional commanders (thus lessening references to commander-in-chief) and by amalgamation of head-quarters departments under one roof, by which (apart from any other consideration) much duplication of work would disappear.

Colonel C. C. Johnson, Officiating
Quarter-Master-General in India.

Whenever possible, typographic and lithographic presses are utilized to save labor.

Much clerical labor might be saved if the army head-quarters offices were all under one roof at Simla.

Colonel A. H. Murray, Deputy
Adjutant-General, Royal Artillery
in India.

No, not under the present organization of the three presidential armies and as the work is now carried on.

If decentralization is carried out, and India divided into army-corps circles, then I would hope to see a portion of the details, which now have necessarily to be dealt with in this office, removed.

Assuming that to each army-corps circle a commanding officer of royal artillery with the rank of brigadier-general would be appointed, all the promotions of non-commissioned officers above the rank of corporal, which now have to be carried out in this office, would be carried out in the circle by branches, *viz.*, horse, field and garrison artillery. Minor questions of discipline, clothing, forage, equipment, &c., would likewise be settled, as a rule, in the circle, supposing of course extended power be given to the general officers commanding such circles; but few need be referred to army head-quarters.

On the other hand, the correspondence which now takes place between the deputy adjutant-general royal artillery, Horse Guards, and the commanders-in-chief, Madras and Bombay, would, were the commanders-in-chief of the minor presidencies abolished, necessarily be sent to this office, and which would be the channel of communication between the general officers commanding army-corps circles in India and the Horse Guards on artillery subjects, instead of, as at present, this office for Bengal in addition to all important cases for the other presidencies, and the offices of Madras and Bombay for minor questions connected with those presidencies.

In this case the abolition of the assistant adjutant-generals, royal artillery, of Madras and Bombay, would follow as a matter of course; and I anticipate that my office, which is at present overtaxed, would be somewhat relieved.

Every endeavour by using printed forms of memoranda and letters for communications of a similar nature, &c., has been made to reduce clerical labor to a minimum.

Colonel J. Young, Judge Advocate-General, Bengal.

No; this has been already attended to.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

None; there is an annual tendency to increase, and will tend still more so if the transport and commissariat animals come under departmental supervision.

Major A. S. Hunter, B.A., Dir. of Garrison Instruction in India.

I do not think it is possible to reduce the amount of clerical labor.

Major H. J. Hallows, Inspector of Gymnasias in India.

The clerical labor is not great, but it cannot well be in any way reduced.

Major F. W. Dunn, Superintendent British Army Schools.

I cannot.

Major F. H. Marsh, Superintendent Native Army Schools, Umballa.

That official post-cards be introduced, authorizing post-cards as not less respectful than, and in this sense on a par with, telegrams.

The only information received from regiments is—

One quarterly return with the school-master's explanatory report thereon.

One annual return of the simplest kind, one line of totals abstracted from other registers.

These are made out by the school-masters.

No reduction is possible with regard to efficiency.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The increase of correspondence and clerical labor in all offices arises chiefly from two causes: first, the greater speed, by means of railways and steamers, at which postal communication is now carried on; and, second, the centralization of departments requiring references to be made to head-quarters on subjects of minor importance; and the introduction of offices of control, calling for explanations, statements and returns; and the action of Government itself in taking all power from heads of departments, and requiring trifling matters to be submitted for its decision. As an instance, I append proceedings of Government, No. 1296, dated 27th April 1874, from which it will be seen that the commissary-general of Bengal and the controller of military accounts had neither of them power to pass a petty charge for marking some blankets, but had to obtain the sanction of the Government of India.

Extract from the Proceedings of the Government of Madras in the Military Department, No. 1296, dated 27th April 1874.

Resolves the following:—

No. 834, dated Fort William, 17th April 1874.

From—CAPTAIN O. R. NEWMARCH, Assistant Secy. to the Govt. of India, Milly. Dept.,
To—The Controller of Military Accounts.

In returning the enclosures of your letter No. 152, dated 6th April 1874, reporting that you have issued instructions for the admission of the charge for marking 146 country blankets issued for the use of the men attached to the Landour depôt during the winter of 1872-73, I am directed to acquaint you that the Government of India approve of your action in the matter, and sanction the marking* as proposed of all extra barrack blankets issued for temporary use during exceptionally cold weather.

No. 836.

Copy of the above, and of that to which it is a reply, and of its enclosures, forwarded to the Secretary to Government, Fort Saint George, Military Department, for the information of the Right Hon'ble the Governor in Council.

No. 152, dated Calcutta, 6th April 1874.

From—COLONEL F. D. ATKINSON, Controller of Military Accounts,
To—The Secretary to the Government of India, Military Department.

I have the honor to forward herewith, in original, for the consideration and orders of Government, letter No. 2146, dated the 25th March 1874,* from the commissary-general, representing the necessity for marking new blankets issued as extras to troops, in order to prevent their being exchanged by the men for their old ones, and to state that I think it is very desirable that the blankets should be marked, and there seems to be no objection to mark them in the manner proposed by the commissary-general, viz., to have a broad arrow punched in the corner of the blanket, the edges being sewn up.

2. I beg to report, for the approval of Government, that I have instructed the examiner of commissariat accounts to admit the charge of Rs. 8-12 for marking 146 country blankets, issued for the use of the men attached to the Landour depôt during the winter of 1872-73.

3. The return of the commissary-general's letter and its annexure is requested.

No. 2146, dated Fort William, 25th March 1874.

From—COLONEL J. I. WILLES, Commissary-General,
To—The Controller of Military Accounts.

I have the honor to attach a certificate by the officer commanding Landour depôt that 146 barrack blankets supplied by this department as extra issues were marked to prevent their being exchanged, and that the marking was essentially necessary.

2. The cost of marking the blankets, Rs. 8-12, has been retrenched by the examiner of commissariat accounts in the absence of any authority for the measure.

3. The retrenchment is correct; but to prevent new blankets issued as extras being exchanged by the men for their old ones, the step taken by the executive commissariat officer was advisable, and I trust, under the circumstances, that the expense incurred will be admitted, and to this effect I solicit that intimation be sent to the examiner.

4. I would also propose that Government may be moved to sanction the marking of barrack blankets supplied as extra issues as a general practice, as, doubtless, it would prevent exchanges by the men, which might not otherwise be detected.

5. To make the marking uniform and to prevent imitation, a broad arrow might be punched on the corner of the blanket, the edges being sewn up, should they fray.

Certified that the commissariat department, Landour, supplied one hundred and forty-six country blankets for the use of the men attached to the Landour depôt during the past winter. These blankets were marked by the commissariat to prevent their being exchanged, which was considered essentially necessary.

JOHN ANGELS, Colonel, R. A.,

Commanding Landour Depôt.

The 16th June 1873.

ORDER THEREON by the Government of Madras.

Communicated to the commissary-general and the controller of military accounts.

Col. S. H. E. Chamier, in charge
Ordnance Department, Madras.

No. The establishment of this office has been so much reduced, that it is only by extra attendance of the clerks that the work can be kept any thing like current.

Surgeon-General C. A. Gordon,
M.D., C.B., Principal Medical Officer,
British Forces, Madras.

None; except that administrative medical officers of circles might be made solely responsible for all indents for stores, &c., passed by them. At present such indents require the sanction of the head of the department, and necessarily entail a good deal of work in his office. It is, however, questionable whether the transfer of responsibility above referred to is desirable.

Dr. H. R. Oswald, Acting Surgeon-General, Indian Medical Services, Madras.

There are only three copyists on this establishment, and the introduction of a printing or of a copying machine will not be attended with any financial saving.

Dr. W. H. W. Cornish, F.R.C.S.,
Sanitary Commissioner for Madras.

No.

Colonel J. W. Rideout, Controller of Military Accounts, Madras.

I cannot recommend any reduction. In the controller's office, the quantity of work depends very much on what emanates from other departments. At present the hands have generally to work extra time.

Pay Examiner, Madras.

The clerical work has been reduced to a minimum. I am not able to suggest any further reduction.

Vide proceedings of Government,* No. 2996, dated 12th September 1874.

Examiner of Commissariat, Clothing and Stad Accounts, Madras.

The clerical labor has, it appears to me, been reduced to a minimum, by the introduction of suitable forms. I can suggest no further reduction. On this subject I would refer to letter from the controller of military accounts, dated 13th August 1874, recorded in proceedings of Government* No. 2996 of the 12th September 1874.

Examiner of Ordnance Accounts, Madras.

This subject has been lately considered, it is believed, by the special ordnance committee, and it is not yet known whether their suggestions will increase or otherwise the clerical labors of the office which are at present almost beyond its strength—indeed so much so that long continued periods of working extra hours fail to overtake the work.

Examiner of Medical Accounts, Madras.

I do not consider that any reduction can be made.

Examiner of Medical Fund Accounts, Madras.

I do not consider any reduction possible.

Examiner, Madras Military Funds Accounts, Madras.

I do not consider it possible to make any reduction.

Military Accounts Department, Accounts Branch, Madras.

It is understood that in other presidencies, deposits and withdrawals from the Government savings banks are excluded from the military accounts. If this was done in this presidency, it would afford a slight relief, but not sufficient to warrant an alteration in the present establishment, which is now supplemented by an extra establishment, sanctioned for the purpose of working up arrears of inter-departmental, home, and book adjustments: the first from 1865-66, the second from 1864-65, and the last from 1861-62.

Presidency Pay Office, Madras.

The establishment of clerks was reduced on the 1st April 1879 to the smallest possible number compatible with efficiency.

Lieutenant-Colonel A. Searle,
Superintendent and Agent, Army Clothing, Madras.

Every possible means to reduce the amount of clerical labor have been adopted, and I can make no suggestion towards further reducing it.

Brigadier-General F. W. Jebb,
Adjutant-General, Madras.

No; I am informed that Brigadier-General Stewart when he entered office thought of introducing copying presses similar to those in use at the Horse Guards, but found the practice already obtaining here was the better plan, *viz.*, by simply binding the original draft letters for office record, which show at a glance the initials of the officer who passed the draft and any corrections that were necessary, besides quoting references on the subject of the paper, the fair for despatch being the only copy made.

Major John Ewing, Officiating Quarter-Master-General, Madras.

No; this subject has received attention so recently as in 1878, and clerical labor has been reduced to a minimum.

Colonel G. P. B. Sherrard, Judge Advocate-General, Madras.

Reports on applications for courts-martial and all other papers submitted for the orders or information of the commander-in-chief might occasionally be dispensed with, the papers being submitted and orders received in person and by word of mouth. There is a great deal of correspondence between the army head-quarters departments. This might be reduced if all the departments were located in one building under one nominal head called the head-quarters staff office, when orders could be obtained and interchanged on the spot. It would save time and clerical labor and admit of a reduction in the number of staff officers' assistants and clerks, stationery, &c.

Lieutenant-Colonel M. W. W. Loughby Acting Commissary-General, Bombay.

Vide remarks on commissariat routine by Colonel F. P. Mignon, the commissary-general, Bombay army, now on furlough, and which contain valuable suggestions in regard to reduction and simplification of work.

This subject has had Colonel Mignon's attention for some time past; but the notes have been only recently received, *viz.*, 12th August instant, were indeed forwarded by Colonel Mignon from Aden whilst on his voyage home. The remarks are drawn up for the consideration of the committee ordered to meet at Calcutta in last October, (G. R. G. I. No. 922-S., 27th May 1878) to enquire into the practicability of simplifying the work of the commissariat department in India, the assembly of which was deferred, and which will probably meet this cold season; but the present seems a suitable opportunity of bringing Colonel Mignon's views prominently under notice; as, from his long experience of the department, both in peace and war, his opinions cannot fail to carry weight.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

The introduction of a large number of printed forms has been recommended by the special commission on ordnance, the use of which will, I hope, allow of the reduction of the office establishment; but until the system has been tried for some time, no definite opinion as to the extent of the reduction possible can be given, especially as the forms have not yet reached me.

Deputy Surgeon-General J. M. S. Fogo, Officiating Surgeon-General, British Forces, Bombay.

The establishment of station hospitals would certainly diminish the clerical labor.

Dr. W. G. Hunter, Surgeon-General, Indian Medical Department, Bombay.

The correspondence has to be carried on with, and references answered from, all the departments of the secretariat, from all the heads of departments under Government, from the officers subordinate to the department. In departmental matters no correspondence save what is absolutely necessary is encouraged. With regard to the secretariat and other departments, no suggestions for reduction can be offered.

Dr. John Lumsdaine, Sanitary Commissioner, Bombay.

Nearly all the clerical labor consists in collecting, compiling, and tabulating the various returns which, from time to time, have been ordered by Government; and as long as those returns are required, so long must provision be made to exhibit their results. The forms dealt with are shown in Appendix A; and a cursory examination of them will serve to show that their elaboration demands constant and continuous labor. There is also a great deal of routine correspondence connected with them, and in addition there is the record of promotions, changes of stations, furloughs, abstracts, and revisions for all the subordinate establishments. So far from being able to suggest any reduction in the office work, the difficulty is to keep pace with the increasing increase of returns, reports, and miscellaneous correspondence. In 1870 the inward and outward numbers were respectively 1,013 and 941, and now the annual means are 5,573 and 2,524 (see Appendix B).

APPENDIX A.

Sanitary Department Forms.

Statement of forms in use in the Sanitary Department, Bombay.

- Annual No. I.—Births registered in the districts of the during the year 18
- Annual No. II.—Deaths registered in the districts of the during the year 18
- Annual No. III.—Deaths registered in the districts of the during each month of the year 18
- Annual No. IV.—Deaths registered according to age in the districts of the during the year 18
- Annual No. V.—Deaths registered according to classes in the districts of the during the year 18
- Annual No. VI.—Deaths registered from different causes in the districts and towns of the during the year 18
- Annual No. VII.—Deaths registered from *cholera* in the districts of the during each month of the year 18
- Annual No. VIII.—Deaths registered from *small-pox* in the districts of the during each month of the year 18
- Annual No. IX.—Deaths registered from *fever* in the districts of the during each month of the year 18
- Annual No. X.—Deaths registered from *bowel-complaints* in the districts of the during each month of the year 18
- Monthly No. XI.—Register of births and deaths in the collectorate for the month of 18
- Monthly No. XII.—Return of the deputy sanitary commissioner registration district, of places inspected during the month of 18
- Monthly No. XIII (English).—Return showing the extent of *cholera* in the jail at during 18
- Weekly No. XIV (English).—Cholera report of the collectorate, for the week ending 18
- Monthly No. XV (English).—Rainfall at the undermentioned places in the collectorate for the month of 18

- Annual No. XVI (English).—Statement showing the sanitary improvements carried out in the collectorate during the year 18
- Monthly No. XVII (English).—Statement showing position of sub-soil water at the above hospital for the month of 18
- Monthly No. XVIII (English).—Statement showing the extent of *cholera* in the Bombay Presidency during the month of 18
- Monthly No. XIX.—Register of births and deaths in the Bombay presidency for the month of 18

Vaccination Forms.

- Annual No. I (English).—Statement showing particulars of vaccination in the during the year.
- Annual No. II (English).—Statement showing the cost of the department in the during the year 18
- Annual No. III (English).—Statement showing dispensary vaccination in the during the year.
- Annual No. IV (English).—Comparative statement showing the number of persons primarily vaccinated, and the number of those persons who were successfully vaccinated in each of the under-mentioned official years.
- Annual No. V (English).—Statement showing the monthly particulars of the vaccinations performed in registration district during the year 18
- Annual No. VI (English).—Statement showing results of the year 18, as compared with those of each of the previous five years in the registration district.
- Annual No. VII (English).—Summary of the diaries of the deputy sanitary commissioner and inspector of sanitation and vaccination, registration district, for the year 18
- Annual No. VIII.—Descriptive roll of a candidate recommended for employment in the sanitary department, registration district.
- Monthly No. IX (English).—Return of vaccination by the deputy sanitary commissioner of the registration district for the month of 18 due on the 15th of 18, No. (station) date 18
- No. X.—Return showing the particulars as regards the protection and non-protection in the cases of small-pox; also ages of the persons attacked by small-pox, the number of cases, and deaths in each class.
- Monthly No. XI (English).—Diary showing the inspections of children in villages by the deputy sanitary commissioner registration district, for the month of 18
- Monthly No. XII.—Summary of the diaries of the inspectors of sanitation and vaccination, registration district, for the month of 18
- Annual No. XIII.—Return of establishment of the deputy sanitary commissioner registration district for the year 18
- Monthly No. XIV (English).—Vaccination return for the month of 18, in the collectorate of showing the operations of all vaccinators (Government, local funds, Native states, municipal, and cantonment), and also the vaccine operations at dispensaries.
- Monthly No. XV (English).—Return of persons vaccinated in during the month of 18, (station) dated 18
- No. XXVII (English).—Letter to treasury officers statement showing the extent of cholera in the during the month of 18, dated
- Return showing the extent of cholera in the cantonment of during 18, dated 18

APPENDIX B.

	Year.	Inward No.	Outward No.
Statement showing for nine years the annual number of inward and outward reports and issues in the head-quarters office of the Sanitary Commissioner for the Government of Bombay.	1870	1,013	941
	1871	1,929	2,158
	1872	8,501	2,494
	1873	6,323	2,801
	1874	6,041	2,347
	1875	6,460	2,982
	1876	5,950	3,033
	1877	7,787	2,908
	1878	6,151	3,055
		Means	5,573	2,524

Lieutenant-Colonel D. B. Young,
Officiating Controller of Military
Accounts, Bombay.
(Controller's Office).

The present mode of working leaves no room for any change likely to be attended with a material saving in clerical labor. Every opportunity is taken to reduce it in the performance of the daily work in its several details.

Major W. Perreau, Examiner,
Pay Department, Bombay.

No, neither in the system of audit, forms of account, nor in the inward and outward correspondence.

Lieutenant-Colonel D. B. Young,
Officiating Controller of Military
Accounts, Bombay.
(Pension Paymaster's Office).

This subject was fully gone into when the separate appointment of pension paymaster, presidency circle, was abolished last year, and the office placed under the assistant presidency paymaster. Every feasible

reduction in clerical labor was then made, and the office establishments remodelled, to suit the actual requirements, at a saving of Rs. 10,755 per annum. No suggestions likely to lead to any further material reduction in clerical labor can be made at the present time.

Major M. A. Rowlandson, Examiner of Commissariat, Clothing and Barrack Accounts, Bombay.

(1) Suggestions on this point have already been made for the consideration of the commission appointed by the Government of India (*vide** Government Resolution No. 2785, dated 8th June 1878).

(2) The commission, it is believed, will shortly assemble when the subject no doubt will be thoroughly enquired into. All reductions of clerical labor which are feasible without the sanction of Government are always made as soon as they become possible.

Lieutenant W. E. L. Anderson, Examiner of Ordnance Accounts, Bombay.

I cannot see my way to making any suggestions for saving clerical labor at present. Not long ago Colonel Young, when in charge, went fully into the matter, and made every possible reduction.

Surgeon-Major P. S. Turnbull, M.D., Examiner of Medical Accounts, Bombay.

No reduction in the amount of clerical labor is, I believe, possible. The operations of the Bombay medical store department have been greatly extended of late years, not merely in the number of charges supplied, but in the manufacture of drugs and instruments, thus entailing much increase of work in this office without addition to establishment; and this increase is likely to continue in the future in even a greater degree than in the past.

Lieutenant-Colonel D. B. Young, Officiating Controller of Military Accounts, Bombay. (Accounts Branch).

* Reduction in clerical labor has lately been made as follows:—
Copies of vouchers to accounts current, discontinued.
Copies of memoranda forwarding forms, discontinued.
Indexing cash accounts, accounts current, and other returns, discontinued.

Captain H. Cowper, Presidency Paymaster, Bombay.

The reduction of clerical labor in this office has been so much kept in view of late years that, under the existing system, there is, in my opinion, no unnecessary detail in the work.

Colonel J. Thacker, Superintendent, Army Clothing, Bombay.

No; unnecessary clerical labor is carefully guarded against, and printed forms are used to the utmost practicable extent. This question has been repeatedly considered, and the conviction has been arrived at that no room is left for reduction.

Brigadier-General H. F. Brooks, Adjutant-General, Bombay.

The only way in which clerical labor in staff offices can be reduced is to assign to every officer in command, whether of a regiment, station, brigade, or division, a reasonable degree of discretionary power, and then to require all to perform their own duties, and accept their own responsibilities, and refrain from referring the most trivial matters for the decision of higher authority. A no inconsiderable portion of the clerical labor in Indian staff offices is caused by the requirements of the pay department, which necessitate the most trivial matters being made the subject of reference to army head-quarters. I may instance such things as the confirmation of regimental orders, appointing one officer to carry on temporarily the duties of another. This matter is so clearly defined in the regulations that confirmation seems quite unnecessary, as the available allowances should be passed to the officers doing the duties, on the commanding officer's certificate, provided of course that the authorized amount was not exceeded. The necessity for producing vouchers for every trivial item of expenditure forces officers to seek for station, division, or general orders, and thus increases clerical labor.

Brigadier-General G. Burrows, Quarter-Master-General, Bombay.

It is considered that no improvement can be made in the working of this office.

The clerical work might be slightly reduced by concentrating the offices of army head-quarters in one building as at home, and simplifying the system of correspondence between offices.

Colonel C. O. Maude, Judge-Advocate-General, Poona.

The amount of clerical labor cannot, in my opinion, be reduced.

3. What is the number of officers employed at head-quarters of your department, and the division of duties entrusted to them?

Colonel J. I. Willes, Commissary-General, Bengal.

(1) commissary-general; (1a) assistant to the commissary-general; (2) deputy commissary-general, lower circle; (3) executive commissariat officer, Calcutta executive; (4) executive commissariat officer, store and shipping executive; (5) generally one or two probationers learning their work. Commissary-general has the general super-

vision of the department; deputy commissary-general that of the lower circle (Calcutta to Allahabad and Jubbulpore); and the executive commissariat officers have charge respectively of the Calcutta and store and shipping executives.

Major-General N. Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

By the head-quarters of the ordnance department, I presume, is meant the office with the inspector-general of ordnance wherever he may be. During such time as the Government of India is at Simla, as a rule, the deputy inspector-general of ordnance and the assistant to the inspector-general of ordnance are left at Calcutta. The inspector-general accompanies the Government to Simla. During portion of the season of 1878, and since the beginning of the present season, at which the migration to Simla took place, the assistant to the inspector-general has been allowed to accompany that officer to Simla. This, however, is not, I believe, to be allowed again, as it has been ruled that the work of preparing and checking the annual indents on England has been done very efficiently hitherto, without the aid of the personal assistant, which was accorded on the representation of my predecessor in office, who reported that without such aid he could not get through the work required to be done.

At present the assistant to the inspector-general is the only officer employed at head-quarters. The especial duties of that officer are to examine and check indents, proceedings of committees on stores condemned by regiments and batteries, and to report on the results of annual boards on arms, &c. Equipment tables are prepared and tabulated by the assistant inspector-general before being submitted to the inspector-general. Any questions referring to the details of ordnance, ammunition, and stores which may be required to be drawn up for new armaments, are usually prepared by him, and in general he gives all the aid he can to the inspector-general, occasionally by drafting orders or letters under the inspector-general's instructions, and is the medium of communication between the inspector-general and commissaries of ordnance.

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

Three commissioned and one warrant officer of the subordinate medical department—all at head-quarters, Simla—namely:—

1. The surgeon-general and principal medical officer.
2. The secretary to the surgeon-general.
3. The statistical officer to the surgeon-general whose duties are already indicated by their designations.

4. A warrant officer of the rank of apothecary is permanently attached to the office, with a view to afford the department that aid, in all matters connected with the subordinate medical department and the internal economy of British hospitals, their working, supplies, equipment, establishments, &c., which he is specially qualified to render from a long course of technical training therein.

Surgeon-General J. F. Beaton,
Indian Medical Service, Bengal.

There are only two officers employed at the head-quarters of the Indian medical department, *viz.*, the surgeon-general and his secretary.

The division of duty applicable to the former has already been detailed in answer to question 1. In brief, he is responsible to the Government and to the commander-in-chief that all duties which are laid down for administrative, executive, and subordinate medical officers are properly performed. He is also the president of the standing medical committee.

The secretary is the adjunct of the surgeon-general. He prepares correspondence for final opinion or orders; he supervises the office establishment, and by a cordial demi-official correspondence acquires that intimate personal acquaintance with the entire service which is so valuable in enabling the surgeon-general to administer alike in the public interests and with a fostered individual energy and liking. The secretary is also responsible for the statistics of the Native army, the preparation of its annual report, and all other periodical returns.

Dr. J. M. Cumingham, Sanitary
Commissioner with the Government
of India.

There is only one other officer besides myself, and that is Dr. Bryden, who is in charge of the statistical branch. He receives the returns of sickness and mortality among European troops, Native troops and prisoners throughout the three presidencies, and prepares from them the most complete series of annual statistics which are appended to the annual sanitary reports issued from this office.

Colonel T. B. Harrison, Cont-
roller of Military Accounts, Bengal.

There are twelve gazetted officers employed at the head-quarters of the department, who are employed as follows:—

- (1) The controller.
- (2) The assistant controller.
- (3) Military accountant, in charge accounts branch.
- (4) Examiner, commissariat accounts.
- (5) Examiner, pay accounts.
- (6) Second examiner, pay accounts.
- (7) Examiner, ordnance and clothing accounts.
- (8) Examiner, medical and fund accounts.
- (9) Assistant examiner, fund accounts.
- (10) Examiner, marine accounts.
- (11) Paymaster.
- (12) Deputy paymaster.

Major O. R. Newmarch, Account-
ant-General, Military Department.

Two, namely; accountant-general and assistant accountant-general. No set distribution of duties is possible, the work of this branch depending chiefly on the description and number of cases received.

Col. B. Walton, Supdt. and Agent for Army Clothing, Bengal.

This question has no bearing upon the army clothing department.

Colonel J. K. Comper, Director of Army Remount Operations.

There are no officers at the head-quarters of the department.

J. H. B. Hallen, Esq., General Superintendent, Horse-Breeding Operations.

There are two assistant superintendents in this department,—one stationed at Hapur in the North-Western Provinces, and the other at Abbottabad in the Punjab. The horse-breeding districts of the North-Western Provinces and Rajputana are supervised by the former, and those of the Punjab by the latter.

Application has been recently made to the Government of India for more assistants, as it is found impossible for the two assistants to satisfactorily perform the duties of their offices.

Major-General Sir P. S. Lumsden, K.C.B., C.S.I., Adjutant-General in India.

I have five officers at head-quarters, viz. :—

Deputy adjutant-general.

First assistant adjutant-general.

Assistant adjutant-general.

Deputy assistant adjutant-general, and assistant adjutant-general for musketry.

The lists of subject headings (query and answer-No. 1) show the work entrusted to these officers.

Colonel C. C. Johnson, Officiating Quarter-Master-General in India.

Five, viz., quarter-master-general, one deputy, one assistant, and two deputy assistants.

The quarter-master-general administers and superintends the whole department.

The deputy and one deputy assistant are at present employed on intelligence branch work.

The assistant and the other deputy assistant each conduct the ordinary work of a separate branch of the office.

A separate intelligence branch is about to be established, having been sanctioned by the Secretary of State for India. The staff will consist of—

1 deputy quarter-master-general.

1 assistant quarter-master-general or a survey officer.

1 deputy assistant quarter-master-general.

2 attached officers.

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India.

Two—a deputy adjutant-general, and a deputy assistant adjutant-general. The latter receives all cases, deals with those relating to his department, such as promotions and transfers of non-commissioned officers and men, practice of batteries, returns, and all routine subjects. The remainder are submitted by him to the deputy adjutant-general, royal artillery, for orders, who disposes of them. He also reports upon professional subjects for the information of the deputy adjutant-general before final orders are passed.

Colonel J. Young, Judge Advocate-General, Bengal.

One,—the deputy judge advocate-general, who takes the principal share in reviewing and reporting on European and Native district and summary courts-martial and monthly registers, and in preparing questions for the examination of candidates for the department, besides assisting the judge advocate-general with drafts on reports on such cases as may be made over to him. During the absence of the judge advocate-general with the commander-in-chief, he generally remains at Simla, and replies to references from the Simla branch of the adjutant-general's office.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

The principal veterinary surgeon only, who has the sole working of the office.

Major A. S. Hunter, B.A., Director of Garrison Instruction in India.

I am the only officer employed at the head-quarters of this department.

Major H. J. Hallows, Inspector of Gymnasias in India.

I am the only officer at the head-quarters of my department.

Major F. W. Dunn, Superintendent, British Army Schools.

The number of officers is two,—the superintendent and the assistant superintendent. The superintendent has the duties detailed in answer 1. The assistant superintendent assists in the above (with exception of the general supervision), and while the superintendent is absent on his tours of inspection, takes entire charge of the office, referring to the superintendent such matters as he does not feel himself authorized to deal with himself.

Major F. H. Marsh, Supdt., Native Army Schools, Umballa.

No other officer is associated with me.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

The head-quarters office consists of the commissary-general, the deputy commissary-general, and one assistant. The office is divided into several branches, and each officer takes a certain number under his charge, as may be arranged from time to time by the commissary-general.

Colonel S. H. E. Chamier, in
charge Ordnance Department,
Madras.

Two officers employed at head-quarters, *viz.*, inspector-general and deputy inspector-general of ordnance and magazines.

The inspector-general has general control and supervision of the department; deals personally with all reports and information required by Government, and with all important documents. All reports, letters, &c., pass through the deputy before submission to the inspector-general. The deputy inspector-general exercises especial supervision over the indent section of the office. The number of indents, with letters relating thereto, received in this office last year was 3,532.

Surgeon-General C. A. Gordon,
M.D., O.B., Principal Medical Officer,
British Forces, Madras.

One only, a surgeon-major, who acts as secretary and statistical officer. His duties are as follows, *viz.*—

To conduct the routine-work of the office; to superintend the registry of office papers and records; to supervise the whole office establishment, and to assist the surgeon-general in any way the latter may direct. Under instructions of the surgeon-general he conducts all correspondence with officers or others who are under the jurisdiction of the surgeon-general. He prepares for the surgeon-general such periodical and special statistical returns as may be required by the departments or other authorities entitled to be furnished with such returns from the surgeon-general's office, and is held responsible that the statistical records of the department are complete and in good order. In the absence of the surgeon-general at Ootacamund, or while on inspection or other duty, he holds constant communication with him, and conducts all necessary correspondence with the several departments, under his special instructions.

Dr. H. E. Oswald, Acting Sur-
geon-General, Indian Medical
Service, Madras.

Only one officer, the secretary, who shares the more important duties with the surgeon-general, compiles his share of the annual reports to Government, supervises the preparation of all statistics and returns, attends to the postings and promotion of medical officers and subordinates, keeps a register of applications for appointments and of qualifications of medical officers, and sees that indents are duly checked. The surgeon-general also holds him responsible for the efficient and punctual performance of the entire work of the office.

Dr. W. H. W. Cornish, F.R.C.S.,
Sanitary Commissioner for Madras.

None.

Colonel J. W. Rideout, Contoller
of Military Accounts, Madras.

There are eight officers comprising the department in the Madras Presidency, and their duties are detailed in the reply to query No. 1.

Presidency Pay Office, Madras.

There is only one presidency paymaster, whose duties are always performed at the presidency town. He has no assistants of any kind, either at head-quarters or elsewhere.

Lieutenant-Colonel A. Searle,
Superintendent and Agent, Army
Clothing, Madras.

The duties in this agency are limited to operations within the premises of this department, and the only officer employed is the superintendent and agent.

Brigadier-General F. W. Jebb,
Adjutant-General, Madras.

Three—adjutant-general, deputy adjutant-general, and assistant adjutant-general. The work of the office is divided into two divisions—one taken by the deputy adjutant-general, and the other by the assistant adjutant-general. *Vide* answer to question 1.

Major John Ewing, Officiating
Quarter-Master-General, Madras.

Two—the quarter-master-general and deputy quarter-master-general. The quarter-master-general takes up all subjects that have to be submitted to the commander-in-chief, and exercises a general control over all the work of the office.

The deputy quarter-master-general assists the quarter-master-general in all branches of the office work, but has more specially to do with those that are generally disposed of departmentally, such as Nos. 6, 7, 9, 11, 12, 13, 14, 15, 16, 17, 18, 24, 26, 31 and 32 of the reply to question 1.

Colonel G. P. B. Sherard, Judge
Advocate-General, Madras.

Only a single officer, the judge-advocate-general. His duties and responsibilities are not shared or divided; he is always at head-quarters.

Lieutenant-Colonel M. W.
Willoughby, Acting Commissary-
General, Bombay.

Two officers, *viz.*, the commissary-general and the deputy commissary-general, are employed at the head-quarters of the department.

The commissary-general's duties comprise the disposal of all matters connected with the general administration of the department.

The deputy commissary-general is charged with the general direction of the work performed in the commissary-general's office, and during the absence of the commissary-general on tour he disposes of all references, unless of such importance as to require submission to the commissary-general. The deputy commissary-general is specially entrusted with the duty of scrutinizing results of tenders received for contracts, compiling the budget, watching the expenditure, and, in short, relieves the commissary-general of all details which would interfere with his performance of the general administrative work of the department. The deputy commissary-general also inspects executive officers when specially deputed by the commissary-general.

The arrangement above detailed dates from 1863, and was recommended to Government by Colonel Pottinger, c. b., then commissary-general, extract from whose letter to Government on the subject (No. 916, dated 23rd June 1863) is given below:—"I consider it to be of much importance that my assistant should be the officer next in departmental rank to myself with whom I can freely consult when I might hesitate to seek the opinion of a junior, and that the deputy commissary-general should at all times be perfectly conversant with current departmental business and correspondence."

At the time Colonel Pottinger wrote, a deputy assistant commissary-general was attached to the commissary-general's office to relieve him of detail duties, and the deputy commissary-general held the executive charge at the presidency.

Major-General W. S. Hatch,
Inspector-General of Ordnance and
Magazines, Bombay.

Two—the inspector-general of ordnance and the deputy inspector-general. The former inspects all arsenals, depôts and factories; conducts all correspondence with Government, army head-quarters, and the heads of other departments; gives final orders regarding acceptance of tenders from contractors, and the demands for stores to be made on

the Home Government; examines lists of proposed local purchases, and gives orders regarding them; arranges the distribution of camp-equipage and sick carriage, and exercises a general supervision over the department.

Deputy inspector-general examines all indents, whether from arsenals or troops; examines and reports to inspector-general on tenders for contracts, committee proceedings on condemned stores, demands from arsenals for stores from England and during the inspector-general's absence on duty superintends the routine work of the department.

Deputy Surgeon-General J. M. S.
Fogo, Officiating Surgeon-General,
British Forces, Bombay.

(1) One surgeon-general.
(2) One secretary and statistical officer to the surgeon-general.

(1)—*The surgeon-general*—

(a) He conducts the organization and administration of the British medical service, and sees to the medical and commissariat equipments for the European hospitals.

(b) He has connexion with the Government of Bombay, through the Military Department, in matters affecting the sanitary condition of British troops in cantonments and barracks, &c.

In the correspondence and reports on epidemics and prevailing diseases submitted through the Secretary of State from the army sanitary commission.

In all matters of finance affecting the British medical service, of both *personnel* and *matériel*.

(c) He is under the orders of the commander-in-chief in matters of discipline affecting the medical officers.

He is the referee on medical points connected with the adjutant-general and quarter-master-general's departments.

(d) He is in frequent correspondence with the commissary-general of the army, in matters affecting the food of the troops in barracks and hospitals, equipments, &c., &c.

(e) He has also to correspond with the director-general of the army medical department at home with reference to the medical officers, and to see to the preparation of the periodical reports and returns required by regulation.

(f) And he has the superintendence, with the deputy surgeon-general in Bombay, of the embarkation and disembarkation from the troopships in the season of all troops and invalids arriving in and leaving India.

(2)—*The secretary*—

(a) He has the superintendence of the office establishment of the surgeon-general.

(b) Conducts correspondence.

(c) Examines statistical returns.

(d) Writes the various medical and sanitary reports.

Dr. W. G. Hunter, Surgeon-
General, Indian Medical Depart-
ment, Bombay.

One administrative officer in charge of the presidency division. He inspects and supervises all the hospitals, civil and military, and marine, and dispensaries in the division, and is president of standing medical committee.

Dr. John Lumsdaine, Sanitary
Commissioner, Bombay.

The sanitary commissioner is the only officer at head-quarters, and he has the sole direction of the duties of the department. There is an assistant, not a gazetted officer, who supervises the routine duties of the office. He sends back returns for correction when the sanitary commissioner is on tour, and expedites their transmission and re-transmission, circulates departmental papers, &c., &c. There is also a travelling analyst, an assistant surgeon, who works both at head-quarters and in the districts.

Six officers—

One examiner of pay and pension charges.

One examiner, commissariat and clothing accounts, and barrack contingent charges.

One examiner of ordnance and barrack stores accounts.

One examiner of medical stores accounts and in charge of funds office.

One in charge of accounts branch of controller's office.

One assistant pay examiner.

One commissioned officer, the examiner, pay department, who is responsible for the correct working of the office. There is also a gazetted uncovenanted assistant examiner who supervises the work of audit and correspondence, reports and references in the Native troops branch of the office.

Lieutenant-Colonel D. B. Young,
Officiating Controller of Military
Accounts, Bombay (Controller's
Office.)

Major W. Perron, Examiner,
Pay Department, Bombay.

Captain H. Cowper, Presidency
Pay Master, Bombay.

The presidency paymaster, who makes all military payments to officers other than those serving regimentally, and to staff and departments of this presidency; also to officers, &c., of other presidencies passing through Bombay.

The assistant presidency paymaster who assists the paymaster generally, and in addition pays all pensions in the presidency pension pay-circle provided for in grants 18 and 20 of the military budget.

Colonel J. Thacker, Superintendent,
Army Clothing, Bombay.

The superintendent is the only officer employed in the department, and he superintends the working of all branches.

Brigadier-General H. F. Brooke,
Adjutant-General, Bombay.

Four, *viz.*, adjutant-general, deputy adjutant-general, assistant adjutant-general, assistant adjutant-general royal artillery.

The adjutant-general takes the general supervision of the department, and personally conducts all special correspondence (in addition to the subjects appertaining to "A" branch—*vide* reply to question 1.)

The deputy adjutant-general has charge of the duties of "B" and "E" (Records) branches, in addition to the correspondence connected with army appointments and with the furlough and retirement of officers of the staff corps and local service.

The assistant adjutant-general has charge of "C" and "D" branches.

The assistant adjutant-general, royal artillery, has charge of the royal artillery branch; and he also deals with questions affecting the royal engineers, as well as those of forage, horses, saddlery, and veterinary.

A list of the subjects disposed of by these officers respectively will be found in the reply to question 1.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

One officer, the deputy quarter-master-general. He disposes of routine matters and takes charge of the office in the absence of the quarter-master-general when on tour, or at the presidency with His Excellency the Commander-in-Chief.

Colonel C. O. Maude, Judge Ad-
vocate-General, Poona.

There are no officers employed at head-quarters in this department except the judge advocate-general.

4. What are the duties of the assistants of your department not at head-quarters?

Colonel J. I. Willes, Commissary-
General, Bengal.

In commissariat charge of executives: mostly one at each of the large stations where there are European troops, and exceptionally, where he can be spared, one as assistant to the executive commissariat officer of a large executive. I suppose assistant officers are meant.

Major-General N. Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

The deputy inspector-general is the assistant not at head-quarters; he remains at this time of the year at Calcutta, and this being the period at which the work is heaviest in the department, the deputy inspector-general has to supervise the preparation of the budget estimate and of all estimates, returns, and indents connected with the stock of the department, the checking of tenders and contracts, the expenditure of the budget grants for labor and material in ordnance establishments, audit of annual indents, the preparation of annual statements of stock, proportion of ordnance and ammunition, and to check all bills and estimates.

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

The entire office is established at head-quarters, Simla, and there are no assistants employed elsewhere.

Surgeon-General J. F. Beaton,
Indian Medical Service, Bengal.

There are none elsewhere.

Dr. J. M. Cunningham, Sanitary
Commissioner with the Government
of India.

There is now, properly speaking, only one such assistant,—Surgeon T. R. Lewis. There were two, until the other day, when one of them, Surgeon D. D. Cunningham, was transferred to be professor of physiology in the Calcutta Medical College. As, however, Dr. Lewis was and is still on furlough, Dr. Cunningham carries on the current duties during Dr. Lewis' absence. These duties are of a purely scientific character, consisting of microscopic and other observations on the causes of cholera and other diseases. Much valuable material has already been collected by these observers.

Colonel T. B. Harrison, Control-
ler of Military Accounts, Bengal.

The assistants not at head-quarters are five in number—

Paymasters	...	...	...	Two
Deputy paymasters	...	...	...	Three

The former are entrusted with the duty of making all military payments within the range of their several circles; the latter are chiefly employed paying military pensioners.

Major O. R. Newmarch,
Acct.-Genl., Military Department.

No officers elsewhere than at head-quarters.

Colonel B. Walton, Supdt. and
Agent, Army Clothing, Bengal.

This question will be answered by the replies to No. 9.

Colonel J. K. Conper, Director
of Army Remount Operations.

The superintendent at Saharunpur manages the depôt there, and is also employed as remount agent to purchase remounts in the North-West and Punjab districts.

The superintendent at Hauppur manages the depôt there, and he is also employed to purchase remounts. He is besides a member *ex-officio* of the annual casting committee.

J. H. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

The duties of the assistants of this department when not at their local head-quarters (Hauppur and Abbottabad) are to inspect the Government stallions and stands at which they are located; visit all the horse-breeding districts, inspecting and branding approved mares in each district. A copy of the horse-breeding operations map of this department of the past year is attached for facility of reference, with regard to the area over which the assistants have to travel, supervise the veterinary schools where Natives are educated with a view of becoming qualified salubris, and castrators for the breeding districts and to attend all metropolitan horse-fairs and district horse-shows.

Major-General Sir P. S. Lumsden,
K.C.B., C.S.I., Adjutant-General in
India.

A divisional assistant is the medium of communication between his general and officers commanding brigades and stations, and commissariat and medical administrative officers. He has the examination and preparation of all returns, papers, and correspondence for army head-quarters on subjects appertaining to the adjutant-general's department (*vide* lists of work). He receives applications for courts martial from the deputy judge advocate, and carries out the general's orders thereon. He receives from deputy judge advocate the proceedings of trial and carries out the general's orders thereon. He attends the general on parades and inspections, and is generally entrusted with the observation of matters of drill and discipline (Queen's Regulations, section 5, paragraph 66a).

Colonel C. C. Johnson, Officiating
Quarter-Master-General in India.

They are located at the head-quarters of divisions and districts and belong to the staff of the general officers commanding; they deal with matters connected with, and conduct the correspondence of, the department, and are required to make themselves acquainted with, and report upon, the topography, resources, communications, and military capabilities of their respective districts; to arrange all details of quartering, equipment, and movement of troops, and to inspect and report upon all military buildings and cantonments.

Col. A. H. Murray, Deputy Adjt.-
General, R. A. in India.

There are none.

Colonel J. Young, Judge
Advocate-General, Bengal.

Reporting on all applications for courts-martial of whatever nature for the information of the general officers under whom they serve.

Reviewing and reporting on all courts-martial requiring the confirmation of the said general officers. Keeping registers of all trials held in Native regiments within their circles, and furnishing copies of these monthly to this office for scrutiny. These registers show any remarks made by general officers on the deputy judge advocate's advice.

Examination of monthly returns of courts-martial furnished by British regiments.

Conducting the proceedings of all general courts-martial and of important trials by district courts-martial requiring the aid of officers with legal training; also of especial courts of enquiry.

Reporting to the general officers in cases where their advice is sought.

F. F. Collins, Esq., Principal
Veterinary Surgeon, Bengal Army.

The inspecting veterinary surgeon, 2nd circle, at Mehat has the administrative charge of his circle under the direction of the principal veterinary surgeon.

Major A. S. Hunter, B.A., Director
of Garrison Instruction in India.

The garrison instructors of circles have to—

(a) arrange for the formation of classes at centres;

(b) conduct the instruction, and subsequently assist at the examination, of the officers attending their classes.

Major H. J. Hallowes, Inspector
of Gymnasias in India.

An unpaid superintendent at Umballa and Lucknow to supervise the daily routine of the garrison gymnasium.

Major F. W. Dann, Superintendent,
British Army Schools.

The duties of the three sub-inspectors are—to travel each through his own circle, and once in each year to inspect the various branches of each school, *viz.*, the adult, elder children's and infant departments, to examine individually the elder children (*i.e.*, all boys over eight years, and all boys and girls able to read words of two syllables), to examine candidates for certificates of education in each corps, also any candidates for appointments of schoolmistress, acting and assistant schoolmistress, and pupil-teacher, and to submit a report on each school. During the intervals of his tours, he examines, by means of question-papers prepared by him and sent to the various regiments, the candidates for certificates of education, awarding certificates of the fourth class, and forwarding to the superintendent the papers of candidates for higher classes, with his remarks and recommendations. He also receives and transmits to the superintendent the monthly school reports.

Major F. H. Marsh, Supdt.,
Native Army Schools, Umballa.

Colonel R. A. Moore, Acting
Commissary-General, Madras.

Colonel S. H. E. Chamier, in
charge Ordnance Department,
Madras.

Surgeon-General C. A. Gordon,
M.D., C.B., Principal Medical Officer,
British Forces, Madras.

Dr. H. R. Oswald, Acting Sur-
geon-General, I. M. S., Madras.

Dr. W. H. W. Cornish, F.R.C.S.,
Sanitary Commissioner, Madras.

Colonel J. W. Rideout, Controller
Military Accounts, Madras.
Presidency Pay Office, Madras.

Lieut.-Col. A. Searle, Supdt.
and Agent, Army Clothing, Madras.

Brigadier-General F. W. Jebb,
Adjutant-General, Madras.

Major John Ewing, Officiating
Quarter-Master-General, Madras.

Colonel G. P. B. Sherard, Judge
Advocate-General, Madras.

to supervise all minor courts-martial without exception, to examine evidence, and revise or frame charges for trial by courts-martial inferior to general, to give instructions to prosecutors, &c., to conduct trials by general courts-martial. They prepare and furnish the head-quarters office with a monthly return of courts-martial inferior to general held in their circle; they also report on all courts of inquiry or applications forwarded to army head-quarters for general courts-martial. If the question refers only to unconvicted assistants, there is only one assistant who is always at head-quarters, and is accounted for elsewhere.

Lieutenant-Colonel M. W.
Willoughby, Acting Commissary-
General, Bombay.

At the presidency, Poona and Mhow, in consequence of the extent of the executive duties, assistants to the executive officers are allowed as shewn below:

Presidency ...	...	...	...	...	3 officers,
Poona ...	...	...	...	...	1 do.,
Mhow ...	...	...	...	...	1 do.,

and their duties are shewn in reply 4 (b), paper I.

Established complement of commissioned officers of the Bombay commissariat.

1	commissary-general.
1	deputy commissary-general.
2	assistant commissaries-general, 1st class.
2	ditto ditto 2nd class.
3	deputy assistant commissaries-general, 1st class.
3	ditto ditto 2nd class.
6	sub-assistant commissaries-general, 1st class.
3	ditto ditto 2nd class.
3	ditto ditto 3rd class.

I have no assistants. I am allowed Rs. 30 per month office allowance only.

All other commissariat officers have executive charges, and provide for the wants of the troops in their division or circle.

There are no assistants not at head-quarters.

There are, of course, officers in charge of arsenals, factories and depôts at Madras and out-stations.

One clerk assists the surgeon-general at Ootacamund. He forms part of the office establishment sanctioned for the surgeon-general's office at Fort Saint George. His duties at Ootacamund are solely those of a copying clerk.

There are no assistants other than at head-quarters.

There are no assistants in my department; but the inspector of vaccination acts as deputy sanitary commissioner in his tours, reporting results of inspection to me.

Nil. All assistants are at head-quarters.

Vide answer to question 3.

I have no assistants, as explained in answer 3.

No assistants away from head-quarters, unless on tour with commander-in-chief.

The assistants and deputy assistants not at head-quarters carry on all the duties of the department in their divisions and districts under the order of the general officers commanding. Their duties are of the same nature as those of the quarter-master-general at head-quarters as detailed in answer to question 1, except the disposition and relief of troops, which is arranged at army head-quarters.

There are four deputies judge advocate at different stations, *viz.*, Bangalore, Madras, Secundrabad and Rangoon. Their duties are to advise general officers commanding divisions or districts within their circles on all matters connected with military law and courts-martial, to examine evidence, and revise or frame charges for trial by courts-martial inferior to general, to give instructions to prosecutors, &c., to conduct trials by general courts-martial. They prepare and furnish the head-quarters office with a monthly return of courts-martial inferior to general held in their circle; they also report on all courts of inquiry or applications forwarded to army head-quarters for general courts-martial. If the question refers only to unconvicted assistants, there is only one assistant who is always at head-quarters, and is accounted for elsewhere.

The assistants, deputy assistants and sub-assistants are all employed at the executive charges. A tabular statement is attached shewing the distribution of the commissioned, warrant and non-commissioned ranks of the department. It will be observed that two stations—Ahmednagar and Deolali—usually in charge of commissioned officers, are now entrusted to warrant officers; and Colonel Mignon, who has just inspected the executive charge at Aden, reports that a sub-assistant commissary-general is much wanted there in addition to the executive officer.

At the presidency, Poona and Mhow, in consequence of the extent of the executive duties, assistants to the executive officers are allowed as shewn below:

Presidency	3 officers,
Poona	1 do.,
Mhow	1 do.,

and their duties are shewn in reply 4 (b), paper I.

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2	ditto ditto 2nd class.
3	deputy assistant commissaries-general, 1st class.
3	ditto ditto 2nd class.
6	sub-assistant commissaries-general, 1st class.
3	ditto ditto 2nd class.
3	ditto ditto 3rd class.

Administrative duties.
Commissary-general.
Deputy commissary-general.

Distribution of the commissioned executive officers of the Bombay commissariat on the 1st August 1879.

Stations.	Assistant commissaries-general, 1st class.	Assistant commissaries-general, 2nd class.	Deputy assistant commissaries-general, 1st class.	Deputy assistant commissaries-general, 2nd class.	Sub-assistant commissaries-general, 1st class.	Sub-assistant commissaries-general, 2nd class.	Acting officers.	Remarks.
Bombay ...	1	1	1	...	1	Assistant commissary-general ordered to Bombay. <i>En route to Mhow.</i>
Poona ...	1	...	...	...	...	1	...
Mhow ...	...	1	...	...	...	...	1
Field account* ...	...	1	...	...	...	...	...
Kurrachee ...	...	...	1	...	...	...	...
Belgaum ...	...	...	1	...	...	...	...
Aden ...	...	...	1	...	...	...	...
On field service* ...	...	...	...	2	...	...	...
Deesa ...	...	...	...	...	1	...	...
Ahmedabad ...	...	...	...	...	1	...	...
Nusseerabad ...	...	...	...	...	1	...	...
Neemuch ...	...	...	...	...	...	1	...
Hyderabad ...	...	...	...	...	...	...	1
Deolalee ...	...	vacant.	...	...	...	...	...
Ahmednagar ...	...	vacant.	...	...	...	...	...
On furlough* ...	1	1	1	1	...	4 total.
Present ...	2	1	3	1	4	2	2	16 total.
On field duties*	1	...	2	2	5 total.

N.B.—Officers marked with asterisks are not available for executive duty.

Established complement of warrant officers of the Bombay commissariat.

- 1 deputy commissary.
- 1 assistant commissary.
- 1 deputy assistant commissary.
- 9 conductors.
- 10 sub-conductors.

Distribution of warrant officers of the Bombay commissariat on the 1st August 1879.

Stations.	Deputy commissary.	Assistant commissary.	Deputy assistant commissary.	Conductors.	Sub-conductors.	Remarks.
Special duty* ...	1	Sonmiani.
Bombay	1	...	1	2	* One attached to meat supply.
Aden	1	...	1	
Poona	2*	1	
Abu	1	...	
Mhow	1	...	
Deesa	1	...	
Kurrachee	1	1	
Belgaum	1	...	
Deolalee	1	
Assirghur	1	
Nusseerabad	1	
Hyderabad	1	...	
Ahmednagar	1	
Neemuch	1	
Furlough*	1	...	...
Present	1	1	9	10	

N. B.—Officers marked with asterisks are not available for duty; a deputy commissary is usually in charge at Sattara. The station is now in charge of head clerk.

Established complement of non-commissioned officers of the Bombay commissariat.

11 Sergeants.

Distribution of non-commissioned officers of the Bombay Commissariat on the 1st August 1879.

Stations.	Sergeants	Remarks.
Bombay	5	
Bandora	1	
Poona	1	
Aden	1	
Ahmedabad	1	
Belgaum	1	
Kurrachee	1	
Present	11	

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

The only assistants not at head-quarters are the superintendents of factories and commissaries of ordnance, as follows:—
superintendent, gun-carriage factory.
superintendent, gunpowder factory.
superintendent, small-arm ammunition factory.
assistant superintendent of factories (now with gun-carriage factory)—
2 1st class commissaries of ordnance—to be reduced to one.
3 2nd class commissaries of ordnance.
1 3rd class commissary of ordnance—to be increased to two.

Deputy Surgeon-General J. M. S.
Fogo, Officiating Surgeon-General,
British Forces, Bombay.

The surgeon-general is assisted in his superintendence of the department by three deputy surgeons-general, and the command is divided into three medical circles:—

- (a) They have the control over the medical and sanitary arrangements in their respective circles;
- (b) they also have to prepare certain periodical returns; and
- (c) to inspect and report upon hospitals, barracks and medical officers.

Dr. W. G. Hunter, Surgeon-General,
I. M. D., Bombay.

There are no assistants attached to this office.

Dr. John Lumsdaine, Sanitary
Commissioner, Bombay.

They personally inspect the *village* register of births and deaths, and compile and tabulate the *collectorate* returns. Moving from place to place for some 8 months out of the 12, they personally test the work of their vaccinators by examining the children reported as vaccinated. The smallest hamlets and the largest towns are alike visited and inspected with reference to their water-supply, and general conservancy. To show that these duties are not merely nominal, I quote from last year's annual report where it is recorded that, arm for arm, they personally examined 46,843 children, made 386 encampments, and were out for 795 days; they visited and inspected 1,269 villages, and travelled 14,480 miles. The officers charged with the above duties are the deputy sanitary commissioners, and there are five of them—one for the Northern and one for the Southern Deccan, one for the Konkan, one for Eastern Guzerat, and one for Sind. For Western Guzerat there is a superintendent of vaccination, and for the city of Bombay there is another. The former is in *quasi-foreign* territory, and the duties of each are more immediately connected with vaccination.

Major W. Perreau, Examiner, Pay
Department, Bombay.

No assistants away from head-quarters.

Captain H. Cowper, Presidency
Paymaster, Bombay.

No assistants are deputed from this office, except the assistant presidency paymaster, whose duties, when absent, consists of the payment of Native and other pensioners.

Colonel J. Thacker, Superintendent,
Army Clothing, Bombay.

The work of the department is carried on in Bombay only.

Brigadier-General H. F. Brooke,
Adjutant-General, Bombay.

The duties of assistants and of deputy assistants adjutant-general, not at head-quarters, are in all respects analogous to those devolving on the staff officers of the department at head-quarters.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

One assistant is attached to each division or district (except Belgaum) of the army, and performs the following duties under the orders of the officer commanding :—

Movement of troops; quartering of troops; superintending embarkation and disembarkation of troops; all matters regarding cantonments; to be acquainted with the nature of the country, military resources, towns, strongholds, rivers, roads, transport, population, seaports and rivers; tonnage procurable.

Colonel C. O. Manda, Judge Ad-
vocate-General, Poona.

There are but two deputy judge advocates in this presidency, one in the Poona, and one in the Mhow circle. These officers conduct their duties with general officers in command of divisions and districts, on the principle laid down for the judge advocate-general with the commander-in-chief.

They conduct the proceedings of all general courts-martial within their respective circles. They supervise the proceedings of all minor courts-martial, transmitting the proceedings of all district courts, after registry to this office.

They supervise and report upon the monthly returns of punishments; confiscations and decisions in suits of debts passed and inflicted by superintendents of bazars within their respective circles.

They also report on and give their opinion on matters appertaining to civil and military law when called upon to do so.

5. What is the cost of extra allowances to the establishment of your office for being at Simla; and can you suggest any way of reducing this cost?

Colonel J. I. Wiles, Commis-
sary-General, Bengal.

Usually only two clerks accompany the commissary-general to Simla. One-third of his pay is allowed, one clerk drawing more than Rs. 200, and half of his pay to the other who draws less than Rs. 200. They are also allowed dāk conveyance from Umballa to Simla, and second class fare by rail from Calcutta to Umballa for themselves and third class fare for a servant, with 2½ maunds baggage. These allowances are far less liberal than those of Secretariat clerks, and no reduction in the cost is practicable.

Major-General N. Campbell, Offi-
ciating Inspector-General of Or-
dnance and Magazines, Bengal.

The cost of extra allowances to that portion of the ordnance office which is at present at Simla is about Rs. 2,400. The best way to reduce any cost on this account is to put an end to the system under which the inspector-general or any portion of the ordnance office is brought up to Simla annually. Under the present organization of the

department, I am of opinion that, unless the Government of India deem it absolutely necessary that the inspector-general should not accompany the Government to this hill station, it would be to the benefit of the service that that officer should remain always at Calcutta, at which place he would have ready access to all records and documents, and be able without delay to obtain information on the numerous subjects which require to be looked into with the view to a more efficient economy being exercised in the ordnance department than has been practised in the past, but which the present state of the finance in India imperatively calls for.

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

An extra allowance at 10 per cent. on salary is drawn by the clerks and servants of the establishment entertained prior to 1874, when orders were issued prohibiting the grant to future incumbents.

The present cost of such allowance amounts to Rs. 1,2-3 per mensem, drawn by eight clerks and two servants,—a sum however that will, under the operation of the order above referred to, gradually diminish and eventually altogether disappear as a charge against the State.

The head-quarters of the office being at Simla, clerks proceeding on tour to camp, or to Calcutta with the surgeon-general, are entitled to the following allowance :—those on salaries of Rs. 100 and less, at 20 per cent.; Rs. 100 to 200, at 15 per cent.; over Rs. 200, at 10 per cent. They are also entitled to tents, carriage and establishment for the same at the public expense, and when not supplied with camp equipage or public quarters, to hire of accommodation or house-rent. Servants to an additional third of their pay.

Surgeon-General J. F. Beston,
Indian Medical Service, Bengal.

No extra allowances are granted.

Dr. J. M. Cunningham, Sani-
tary Commissioner with the Gov-
ernment of India.

Rs. 1,245. This is the amount of Simla allowances and house-rent granted to two assistants in the general branch. Formerly all the clerks received Simla allowances; but in 1873, when the establishment was revised, only those two were recommended for them who accompany the sanitary commissioner to Calcutta or on tour. If Simla were to be

the acknowledged head-quarters of the Government of India, as it virtually is during seven months of every year—if the main portion of the offices were left here and only camp establishments taken down to Calcutta during the winter,—then confidence would be established, people would build houses either for hire or to live in them themselves, and rents would fall. At present they are very high. I speak not only of rents of houses occupied by officers and clerks, but also of bazaar rents. So long

as they remain as exorbitant as they now are, the price of everything must remain high. It is the feeling of uncertainty that makes Simla so expensive. Give the arrangement permanence as far as possible, and the special Simla allowances to clerks may be very largely reduced.

Colonel T. B. Harrison, Controller of Military Accounts, Bengal.

None. The officers are not directly attached to, nor required to move with, the Government of India.

Major O. R. Newmarch, Accountant-General, Military Department.

The cost in 1878-79 was as follows :—

	Rs.
Maintenance allowances to clerks and inferior servants	7,752
House-rent allowances	2,750
Total	10,502

This is under consideration by a special committee.

Colonel J. K. Couper, Director of Army Remount Operations.

My office establishment does not receive any extra allowance for being at Simla, but, when absent from Simla on tour, the following extra allowance, as sanctioned by the Government of India, Military Department, in letter No. 1, ^{Stud} _{Establishments}, dated 1st February 1877, to the Controller of Military Accounts, is drawn, viz.,—

- 20 per cent. on salaries of Rs. 100 per month or less.
- 15 per cent. on salaries of Rs. 100 to Rs. 200 per month.
- 10 per cent. on salaries of more than Rs. 200 per month.
- Each inferior servant at the rate of 50 per cent. of pay.

The expense on this account for the past year amounted to Rs. 520. I cannot suggest any way of reducing this cost.

I consider the inferior servants are not sufficiently paid by their pay proper. I mean, without this allowance, it is impossible now to obtain the services of any respectable man at Simla on Rs. 5 a month. These rates were settled 25 years ago.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

The establishment of this office get no extra allowances for being at Simla.

Major-General Sir P. S. Lumsden, K.C.B., C.S.I., Adjutant-General in India.

The Simla allowance (10 per cent. on salaries) was abolished by Government in 1874, *vide* Military Department communication following, since which date the allowance has ceased in the case of all new appointments. It is now drawn only by those who joined the office before that date, and is therefore gradually dying out.

Resolution by the Government of India, Military Department, ^{Estimate} _{Statements of Income and Expenditure} dated Fort William, the 1st April 1874.

Read—

Resolution by the Government of India, Financial Department,—No. 1899, dated Fort William, the 21st March 1874.

Read Financial Resolution No. 3846, dated the 17th December 1864, sanctioning an additional allowance of 10 per cent. on their salaries to the clerks of the army head-quarters offices located at Simla.

Read also the following correspondence having reference to a proposal by Simla tour committee for the discontinuance of the above allowance :—

Endorsement from Financial Department, No. 1249, dated the 20th February 1873, and enclosures.

Extract from the Proceedings of the Government of India in the Military Department, No. 319, dated the 10th July 1873, and enclosures.

Office memorandum of the Military Department No 2459, dated the 13th August 1873.

Office memorandum from the Military Department No. 522, dated the 10th February 1874.

RESOLUTION.—The Governor-General in Council is pleased to decide that the extra allowance of 10 per cent. granted at present to the clerks of the army head-quarters offices at Simla shall be discontinued in the case of all future incumbents.

ORDER.—Ordered, that this Resolution be communicated to the Military Department.

(Sd.) D. BARBOUR,
Under-Secy. to the Govt. of India.

No. 50.

Copy of the above forwarded to the Adjutant-General for the information of the Right Hon'ble the Commander-in-Chief, in continuation of No. 523, dated the 10th February 1874.

By order,
(Sd.) B. E. BACON, Col.,
Depty. Secy. to the Govt. of India.

No. 51.—To the Controller of Military Accounts.

Colonel C. C. Johnson, Officiating Quarter-Master-General in India.

To clerks and draftsmen appointed before the 21st March 1874, Rs. 4,560, and to duffries and peons entertained before the 9th January 1868, Rs. 396 per annum.

These charges are already in course of being reduced, as, under the rulings contained in Financial Department Resolution No. 1899 of 21st March 1874, and Military Department letter No. 389 of 9th January 1868, incumbents appointed or entertained after the respective dates named do not receive any extra allowance for being at Simla.

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India.

The only extra allowances granted to my office establishment while absent from Simla is 10 per cent. on salaries above Rs. 200 per mensem, 15 per cent. on salaries above Rs. 100 and not exceeding Rs. 200, and 20 per cent. on salaries of Rs. 100 and less. The Native servants are also allowed one-half their salaries in addition when absent from Simla.

I do not think this allowance could in equity be reduced; more particularly as regards the clerks, for it does not compensate them for the extra expenses entailed upon them by leaving Simla. Indeed, in the case of a married man, who, if he takes his wife and family with him, must pay all their travelling expenses, and if he leaves them behind, must keep a separate establishment for them at Simla, the allowance contributes an item towards compensating him for his additional expense so small as to be scarcely appreciable.

When proceeding with army head-quarters to camp, I invariably endeavour to take only single men with me, knowing the expense necessarily incurred by married clerks; but this is not always practicable, and I think that an allowance should be made to married clerks required to leave Simla on duty towards the support of their families left behind, or that the passages of the latter should be paid by rail to admit of their accompanying the clerks. As they would travel with soldiers' tickets, *i.e.*, second class for third class fare, the cost to Government in the latter case would be but trifling, and a boon would be conferred upon a deserving class of Government servants.

A free passage for their families is already granted by regulations when they proceed on duty of a permanent nature, *i.e.*, extending over six months; but as this rarely or ever happens, although they may frequently be away four and five months, I would recommend that it would be extended to them under all circumstances.

Colonel J. Young, Judge-Advocate-General, Bengal.

The clerks of this office get 10 per cent. on their salaries, whether they are at Simla or elsewhere, amounting in the aggregate to Rs. 1,698 annually, with an addition of 5 and 10 per cent. to those drawing less than Rs. 200 and Rs. 100 respectively when they leave their head-quarters at Simla. I cannot suggest any way of reducing the above.

F. F. Collins, Esq., Principal Vety. Surgeon, Bengal Army.

None.

Major A. S. Hunter, Director of Garrison Instruction in India.

I am not aware that any extra cost is entailed by my office being located at Simla.

Major H. J. Hallows, Inspector of Gymnasias in India.

No extra allowances of any sort are given on account of my office being at Simla.

Major F. W. Dunn, Superintendent, British Army Schools.

None.

Major F. H. Marsh, Supdt., Native Army Schools, Umballa.

There are no extra allowances beyond travelling allowance of the superintendent, Native army schools.

Col. R. A. Moore, Actg. Comsry-General, Madras.

This office does not go to Ootacamund, but remains at Madras all the year round.

Col. S. H. E. Chamier, in charge Ordnance Department, Madras.

No portion of this office proceeds to Ootacamund.

Surgeon-General C. A. Gordon, M.D., C.S., Principal Medical Officer, British Forces, Madras.

The extra allowances incurred by my office establishment at Ootacamund amount to Rs. 18-8-0 per mensem, *viz.*, batta for 1 clerk Rs. 15, ditto for 1 peon Rs. 3-8-0. I can suggest no means of reducing this cost. I consider that, as with some other departmental clerks employed at Ootacamund, he, of the surgeon-general's office, should be allowed house-rent while resident there.

Dr. H. B. Oswald, M.D., Acting Surgeon-General, Indian Medical Service, Madras.

Not applicable to this office, which does not move to Ootacamund, a residence there being incompatible with its onerous and often emergent duties.

Dr. W. H. W. Cornish, F.R.C.S., Sanitary Commissioner for Madras.

None. But the sanitary commissioner being a travelling officer, he proceeds on tours of inspection from time to time. On such occasions a clerk and a peon accompany him, and the expenses are met from the sanctioned amount of Rs. 2,000 allotted in the budget as travelling allowance for himself and establishment.

Col. J. W. Rideout, Controller of Military Accounts, Madras.

The offices remain permanently at the presidency, therefore there are no extra allowances of the kind referred to. The controller has been allowed this year to conduct his duties with a portion of his office establishment at Ootacamund, but entirely at his own expense.

Presidency Pay Office, Madras.

Vide answer to question 3.

Lieut.-Col. A. Searle, Supdt. and Agent, Army Clothing, Madras.

None, for reasons explained in answer 3.

Brigadier-General F. W. Jebb,
Adjutant-General, Madras.

Until the present year, taking the annual tour* to last 6 months, the average extra cost to the establishment has amounted to about Rs. 785 for the period, *i.e.*, at the rate of 50 per cent. batta to clerks, exclusive of railway fare and cart-hire.

This year, instead of the 50 per cent. batta, the travelling clerks have been allowed the same privileges as the clerks of the Government offices; this, when the clerks happen to be married men, may perhaps average double the amount.

Major John Ewing, Officiating
Quarter-Master-General, Madras.

The cost of extra allowance to the establishment of this office has been Rs. 293 for about six months. There is no way of reducing the cost; on the contrary, it was found necessary this year to have an extra clerk up at Ootacamund.

Col. J. P. B. Sherard, Judge-
Advocate-General, Madras.

Rs. 253 a month, or Rs. 1,513 for six months. It may be reduced by providing the establishment with public quarters for dwelling instead of allowing house-rent.

Lieutenant-Colonel M. W. Wil-
loughby, Acting Commissary-
General, Bombay.

The office of the commissary-general is permanently located at Bombay, and is not removed during the year to Poona or elsewhere. On occasions of the commissary-general's going on tour he takes with him a single clerk, whose actual travelling expenses are paid, and there does not appear to be any room for reduction of cost of this arrangement.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

No extra allowances granted on this account.

Dy. Surgn.-Genl. J. M. S. Fogo,
Olig. Surgn.-Genl., British Forces,
Bombay.

The extra allowance granted to the establishment in Poona is only for five months in the year, and amounts to Rs. 182, being batta allowed to one clerk and one peon. Reduction in this item is not possible.

Dr. W. J. Hunter, Surgn.-Genl.,
Indian Medical Service, Bombay.

The surgeon-general's office does not go to Poona; hence there are no extra allowances.

Dr. John Lumsdaine, Sanitary
Commissioner, Bombay.

There are no extra allowances for being at Poona.

Major W. Perreau, Examiner,
Pay Department, Bombay.

The establishment receive no extra allowances. Salaries are fixed irrespective of station at which the office is located.

Captain H. Cowper, Presidency
Paymaster, Bombay.

The extra charge for the office being in Bombay is that of presidency house-rent to myself, Rs. 75, and Rs. 40 to the assistant paymaster per mensem, the reduction of which I am not in a position to suggest.

Col. J. Thacker, Supdt., Army
Clothing, Bombay.

There are no extra allowances entailed by my establishment being in Bombay.

Brigadier-General H. F. Brooks,
Adjutant-General, Bombay.

The head-quarters of the army being permanently located at Poona, there are no extra allowances paid to the establishment. It is only when head-quarters move to Bombay or to the hills or on inspection tours that the following allowances are authorized:—

Tents for the European and Native clerks; or (when not so provided) house-rent in lieu thereof.

Batta to the clerks and writers in the form of a percentage on the following salaries, *viz.*,—

Rs. 100 and under	...	...	20 per cent.
above Rs. 100 to 200	...	...	15 "
" Rs. 200 and upwards	...	...	10 "

Batta to the extent of Re. 0-1-6 per diem to the havildar, and Re. 0-1-0 per diem to each of the other peons.

* The above allowances are drawn during the whole period of absence from Poona.

These are the only allowances admissible to the clerks and servants of this office; and no reduction appears practicable.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

None.

Colonel C. O. Maude, Judge-
Advocate-General, Poona.

There is no extra allowance to the establishment of this office for being at Poona.

6. What is the amount paid for rent of offices required by your department at all places, and can the cost be reduced in any way?

Colonel J. I. Willis, Commissary-
General, Bengal.

Office-rent is sanctioned on the following scale:—

	Per month. Rs.
1st class executives (Peshawar, Rawal Pindi, Lahore, Kasauli, Lucknow, Meerut, Gwalior, Bareilly, and Allahabad)	60
2nd class executives (Umballa, Jullundur, Cawnpore, Agra, Ranikhet, Dinapore, Benares, and Jubbulpore)	50
3rd class executive (Darjeeling)	40

* Ootacamund.

The offices of the department at Calcutta, *viz.*, of commissary-general, deputy commissary-general, lower circle, executive commissariat office, Calcutta, and executive commissariat office, store and shipping, are provided with accommodation in a building rented at Rs. 650 per month. The scale of house-rent cannot be reduced, but permanent continuous expense on this account may be saved by the erection at stations which are not likely to be given up of permanent quarters which could be in one building in a central spot, for all staff offices at the station.

Major-General N. Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

The amount paid for rent of offices is as follows:—

		Per annum. Rs.
For the ordnance office at	{ Calcutta, including municipal	
	taxes	4,900
Simla .. .. .	.. .. .	600
	Total	5,500
For the office of the gun-carriage factory at Fatehgarh	.. .. .	480
	Total	5,980

If any portion of the ordnance office is not brought up to Simla, the amount of Rs. 5,980 set forth can be reduced by Rs. 600 per annum, or to Rs. 5,380.

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

The rent paid at present for the office at Simla is Rs. 1,400, and 10 per cent. thereon, municipal taxes—total Rs. 1,540.

Two rooms are reserved at Calcutta in the building occupied by the surgeon-general's office, India medical department, for the use of this department when the surgeon-general accompanies the Government of India to the presidency. They are however utilised, at other times,

by the Indian medical department.

The accommodation in the office at Simla is already found to be inadequate for its requirements, and an application was submitted in February 1879 for an increased allowance for house-rent, which was however refused on the ground that the question of Government quarters for offices was under consideration.

Surgeon-General J. F. Beatson,
Indian Medical Service, Bengal.

The Indian medical department office is now located in a hired private house, No. 5, Little Russell Street, the rent of which is Rs. 300 a month. It is comparatively a small house, and the rooms are all very much crowded when the clerks are at work. Two of the best rooms and verandah are given to the office establishment of the Bengal local medical department, but no share of the above rent is defrayed by it.

With regard to reduction of cost, it is not supposed that any material reduction of the office-rent could be made as regards a hired building. No smaller house could be taken; for every room and passage is overflowing. The whole cost could be saved if quarters could be found in the fort, or if a share of any other public office became available; but this, although often suggested, has never yet been found practicable.

Dr. J. M. Cunningham, Sanitary
Commr. with the Govt. of India.

Rs. 100 per mensem, or Rs. 1,200 for the year. It cannot be reduced.

Colonel T. B. Harrison, Contr-
oller of Military Accounts,
Bengal.

Rs. 1,130 a month. The only way to reduce the cost would be to erect a suitable building to contain the several offices. The above sum, added to the rent at which the Government buildings now occupied by the department are assessed, would more than cover the interest on the money expended in erecting a proper and suitable building to accommodate under one roof all the offices.

Major O. E. Newmarch,
Accountant-General, Military
Department.

The amount paid as rent per annum is—

	Rs. 3,000 in Calcutta exclusive of rates and taxes.
	„ 1,200 in Simla.
Total	„ 4,200

No reduction is possible at present.

Colonel B. Walton, Superin-
tendent and Agent Army Cloth-
ing, Bengal.

The department and its different offices occupy Government build-
ings at Alipore near Calcutta.

Colonel J. K. Couper, Direct-
or of Army Remount Operations.

Rs. 600 per annum is allowed for rent of my office at all places, and the amount is hardly sufficient for a suitable place for the six months at Simla only. The office at the Hapur depôt is a Government building, and the Department Public Works charge Rs. 192 per annum as rent. The office at Saharunpur is also a Government building, but no rent is charged.

J. H. B. Hallen, Esq., General
Superintendent, Horse-Breeding
Operations.

	Rs.
Rs. 1,280 annually, as follows:—	
General superintendent's office	800
Assistant superintendent's office at Rs 240 each	480
Total	1,280

and cannot be reduced in any way.

Major-General Sir P. S. Lumsden, K.C.B., C.S.I., Adjutant-General in India.

Rent is paid only at Simla, Rs. 3,500 plus local taxes (this year 10 per cent.).

When at the presidency, office accommodation is found in Fort William.

The obvious and indeed the only way to reduce charges on this head is the construction by Government of buildings wherein all public offices may be concentrated.

Colonel C. C. Johnson, Officiating Quarter-Master-General in India.

At Simla the main office has been recently purchased by Government, and the interest and repairs represent the rent. The present intelligence branch occupies a small house next-door for which Rs. 1,320 rent is paid; this will not be large enough for the new branch.

An office should be built for the whole of the army departments at Simla.

At the head-quarters of ten divisions and districts Rs. 240 each annually.

The above amounts barely meet the requirements. The only mode of reducing expenditure on this head that can be suggested is the allotment, or construction, at the head-quarters of each command of a suitable building to accommodate the military staff offices there located.

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India.

Rs. 1,200 per annum is paid for the Simla office. When at Calcutta, the office is in a Government building in Fort William, and when elsewhere it is in tents.

I do not consider the cost can possibly be reduced. Every corner in the house now used at Simla is occupied; some of the rooms are overcrowded already, and I do not think a cheaper building is procurable anywhere. The situation, moreover, is convenient, being next to the adjutant-general's office.

Colonel J. Young, Judge-Advocate-General, Bengal.

Office-rent at Simla has been Rs. 900, is now Rs. 700, and might rise again. Rent for divisional offices is included in the office allowance drawn by deputies.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

In Simla the annual rent for two large rooms for offices amounts to Rs. 600, at Meerut about Rs. 300; and I do not see from the amount of room required in what way the expense can be curtailed.

Major A. S. Hunter, Director of Garrison Instruction in India.

The net rent paid for lecture halls at five centres of garrison instruction has been on an average from Rs. 350 to Rs. 450 a month. This expenditure has been kept down to a minimum by letting spare accommodation in the houses rented to garrison instructors or to officers attending the classes.

At the remaining three centres, Government buildings have been allotted for purposes of garrison instruction.

The cost can be reduced by using Government buildings when available.

Major H. J. Hallowes, Inspector of Gymnasias in India.

Office-rent of Rs. 30 per month is allowed to me, and it could not be reduced. No rent is paid for any office except my own at Simla.

Major F. W. Dunn, Superintendent, British Army Schools.

The only rent allowed is Rs. 30 per mensem for the office of the superintendent. It cannot, I consider, be reduced.

Major F. H. Marsh, Superintendent, Native Army Schools, Umballa.

No office-rent is allowed. An old guard-room (of former lines, levelled since the mutiny) was converted into the school and office, Umballa.

Colonel R. A. Moore, Acting Commissary-General, Madras.

Public offices are provided at all stations except at Rangoon, Thayetmyo, and Bellary.

At Rangoon the office allowance is Rs. 70, at Thayetmyo Rs. 60, at Bellary Rs. 40.

These rates are not in excess of what would have to be paid as rent for suitable office accommodation.

Col. S. H. E. Chamier, in charge Ordnance Department, Madras.

No buildings are rented for offices for this department.

Surgeon-General C. A. Gordon, M.D., C.B., Principal Medical Officer, British Forces, Madras.

The surgeon-general's office at Fort Saint George being a Government building, no rent is paid for it. At Ootacamund the surgeon-general conducts his duties in his private house, the rental of which is defrayed by himself. The administrative officers of circles draw an office allowance of Rs. 75 per mensem, out of which they provide their own clerks and stationery and such offices as they may require. In most instances, if not in all, their offices form part of their private residences.

No reduction can be made under this heading.

Dr. H. R. Oswald, M.D., Acting Surgeon-General, Indian Medical Service, Madras.

No rent paid. The offices are held in public buildings.

Dr. W. H. W. Cornish, F.R.C.S., Sanitary Commissioner for Madras.

Rs. 80 a month, or Rs. 960 annually, at Madras only. This is the minimum sanctioned budget allotment, and cannot be reduced in any way. Was reduced from Rs. 100 to Rs. 80 monthly by present incumbent of office nine years ago.

Colonel J. W. Rideout, Controller of Military Accounts, Madras.

Presidency Pay Office, Madras.

Lieut.-Col. A. Searle, Supdt. and Agent Army Clothing, Madras.

Brigadier-General F. W. Jebb, Adjutant-General, Madras.

Major John Ewing, Officiating Quarter-Master-General, Madras.

All offices are Government buildings in Fort St. George. There is therefore no rent paid.

The offices occupied by the paymaster are the property of Government and are free of rent of any description.

The premises occupied by this department are Government property, and no cost for rent is incurred.

At Madras the office is located in a public Government building. When at Ootacamund, a building has to be rented for the office of the adjutant-general and assistant adjutant-general, royal artillery. It has not been found practicable to get a house at a less rent than Rs. 90 per mensem for the combined offices. This cost cannot be reduced.

At head-quarters office.—Rs. 210 for six months, or Rs. 35 per month at Ootacamund. In Fort Saint George, the office is accommodated in a public building. No reduction can be made in the rent paid at Ootacamund, as the rents of houses there are high. No public buildings are available at Ootacamund.

Monthly office allowance in divisional offices :—

	Rs.	
Kamptee ...	160	} These sums provide for the cost of clerks, office-rent and stationery.
Secunderabad ...	170	
Bellary ...	118	
Rangoon ...	170	
Cannanore ...	110	
Madras ...	115	} Office is provided in a public building; other charges as above.
Bangalore ...	100	

Colonel J. P. B. Sherard, Judge Advocate General, Madras.

A public building in the fort is occupied while with army head-quarters at Ootacamund. The cost is Rs. 40 a month, or Rs. 240 for six months. This may be reduced by locating several or all the army head-quarters offices in one building large enough for the whole.

Lieutenant-Colonel W. W. Willoughby, Acting Commissary-General, Bombay.

The actual expenditure under the head office-rent for the year 1878-79 is given below :—

	Rs.	A.	P.
Aden ...	640	0	0
Ahmedabad ...	370	0	0
Ahmednagar ...	240	0	0
Belgaum ...	283	7	0
Baroda ...	123	4	0
Deesa ...	240	0	0
Hyderabad ...	190	4	0
Kurrachee ...	360	0	0
Mhow ...	360	0	0
Nusseerabad ...	199	14	0
Neemuch ...	160	0	0
Poona ...	1,200	0	0
Total ...	4,371	13	0

At Poona the office is accommodated in a hired building. The erection of a Government building has been sanctioned, but deferred for want of funds. At Aden a special amount* has been granted for office-rent. At the other stations the office is accommodated in the house of the executive officer, who draws from Government one-third of the sum paid by him as house-rent.

* Rs. 70.

At Ahmednagar and Baroda, for some months past, owing to reduction of establishment, the offices have been located in the commissariat stores, and nothing is at present charged for office-rent.

I see no way of reducing the above charges unless Government choose to build commissariat offices, which would be desirable at all stations. Even the interest on money expended on the buildings would probably exceed the sum now paid.

At Bombay the offices of the commissary-general and the executive officer at the presidency are accommodated in a Government building, the old four barracks.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

All the offices of the department are located in Government buildings.

Deputy Surgeon-General J. M. S. Fogo, Officiating Surgeon-General, British Forces, Bombay.

The rooms occupied by the surgeon-general's office in Bombay are in a public building, for which no rent is paid.

While in Poona, for the five months the office is administered in the surgeon-general's residence, for which no rent is charged to the State.

Dr. W. G. Hunter, Surgeon-General, Indian Medical Department, Bombay.

The offices are situated in the Town Hall (Government building), and no rent is paid for them.

Dr. John Lumsdaine, Sanitary Commissioner, Bombay.

The central office, that of the sanitary commissioner, is in the secretariat, and there is no charge for rent. Each deputy sanitary commissioner draws an office allowance of Rs. 20 per month, and the superintendent of vaccination in Western Guzerat draws the same.

Lieutenant-Colonel D. B. Young, Officiating Controller of Military Accounts, Bombay. (Controller's office.)

Major W. Perrean, Examiner, Pay Department, Bombay.

Lieut.-Col. D. B. Young, Offg. Contr. of Mily. Accts., Bombay. (Pension Paymaster's office.)

Lieut.-Col. D. B. Young, Offg. Contr. of Mily. Accts, Bombay (Accounts Branch).

Captain H. Cowper, Presidency Paymaster, Bombay.

Colonel J. Thacker, Superintendent, Army Clothing, Bombay.

Brigdr.-Genl. H. F. Brooke, Adjutant-General, Bombay.

Brigadier-General G. Burrows, Quarter-Master-General, Bombay.

Colonel C. O. Maude, Judge Advocate-General, Poona.

All the offices of the military account department in this presidency being accommodated in Government buildings, no charge for rent is incurred.

There is no expenditure for rent, as the office is located in a Government building.

All three offices are accommodated in public buildings.

The office is located in a Government building; no rent is paid.

The office is located in a Government building for which no rent is charged.

The clothing agency premises in Bombay are Government property. The buildings, with improvements to adapt them to the wants of the agency, cost Government Rs. 56,355, exclusive of the cost of the land, viz., Rs. 16,808. Their occupation by this department is economical and suitable.

At Poona Rs. 165 per mensem.

At the hills Rs. 233 for the season (2 months).*

House-rent is very high in Poona, and no house which would accommodate the office could be obtained at a lower rent. The house at present occupied is most unsuitable, and provides very inferior accommodation.

At Poona a Government building is occupied; at Bombay tents are used; at the hills (three months) the quarter-master-general receives one-third of the house-rent paid by him for the season to accommodate his office (about Rs. 250). No reduction is feasible.

At Poona the judge-advocate-general's office is in the same building as the finance office, and no rent is paid for it; when in Bombay a Government tent has always been used for the office at Mahabeshwar, the average rent for office is from Rs. 250 to Rs. 300 per annum; this latter charge could not well be reduced.

7. What is the annual cost in your department of—

- | | | |
|-----------------|---|--|
| (a) Stationery, | (d) Telegraph charges, | |
| (b) Printing, | (e) Travelling expenses, | |
| (c) Postage, | (f) Miscellaneous and contingent charges, | |

and can they be reduced?

Colonel J. I. Willes, Commissary-General, Bengal.

(a) Rs. 28,145-9-3 during 1878-79, as intimated in letter No. 2984, dated 17th September 1879, by the superintendent of stationery.

(b) Rs. 4,655 during 1878-79, as intimated in letter No. 629A., dated 6th October 1879, by the superintendent of Government printing.

(c), (d), (e), and (f). Vide letter No. 7493, dated 9th September 1879, and statement attached, from the controller of military accounts, annexed below.

No reduction can be suggested.

Copy of a letter No. 7493, dated 9th September 1879, from the Controller of Military Accounts, to the Commissary-General.

In compliance with the request contained in your letter No. 5463, dated 28th August 1879, I have the honor to forward a statement showing the expenditure incurred during the past three years in the supervising and executive commissariat offices on account of postage, travelling expenses, and miscellaneous and contingent expenses.

2. Telegraph charges were not separately compiled.

CHARGES.	Supervising and executive establishment.	Supervising establishment.		Executive establishment.		REMARKS.
	1876-77.	1877-78.	1878-79.	1877-78.	1878-79.	
Postage ...	13,376	1,971	2,700	12,226	13,639	Telegraph charges were not separately compiled.
Travelling expenses ...	24,988	5,624	5,825	25,330	25,178	
Telegraph charges ...	64,779	5,259	18,410	59,598	70,613	
Miscellaneous and contingent charges.						

* Rate for the past two seasons.

Major-General N. Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

The annual cost is of—				Rs.
(a)	Stationery	...	...	5,603
(b)	Printing	...	...	2,486
(c)	Postage	...	...	4,421
(d)	Telegraph charges	...	...	1,458
(e)	Travelling expenses	...	...	8,097
(f)	Miscellaneous and contingent charges	...	...	10,614

No reduction can be suggested.

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

The following are approximate average expenses under the above heads:—

				Rs.
(a) Stationery.				
	About	...	...	300
(b) Printing.				
1.	Office work proper	...	...	500
2.	Books and forms for issue to corps in the command	...	...	2,500
	Total	...	...	3,000
(c) Postage.				
1.	Office despatches	...	...	600
2.	Supplies of books, forms, &c., to corps in the command	...	...	1,400
	Total	...	...	2,000
(d) Telegraph charges.				
Ordinarily about	...	...	...	500
(e) Travelling expenses.				

The officers and such small establishment as may be taken for a camp office (has hitherto never exceeded 8 clerks and 3 peons), travel under passage warrants furnished by the quarter-master-general's department.

About Rs. 600 annually, including cost of uniform, warm clothing and blankets for the servants, and fuel for office use.

Can they be reduced?

A slight reduction under printing charges will, it is believed, be effected by the discontinuance of the quarterly sheets of circulars and their embodiment in the corrections to the Bengal Medical Regulations about to be issued quarterly instead of half-yearly, under the sanction of Government, and also by the reduction and amalgamation of a few of the War Office and local forms recently carried out.

Under existing circumstances, no reduction under the other heads appears practicable. Every endeavour is already made to keep the expenditure as low as possible.

An item of expenditure connected with the printing of books and forms for issue to corps does not appear in the charges above enumerated, namely, packing and transit charges on the packages forwarded to Simla by the superintendents of Government printing and stationery, Calcutta.

Precise information on the subject has not yet been received from the superintendent, Government printing, but the charges in question may be roughly estimated at about Rs. 1,000 per annum [37 tin-lined and iron-bound packages, weighing 112 maunds, were received from November 1878 to October 1879], exclusive of any extra expense that may be entailed on the Simla post office by the despatch of the large number of packets and parcels containing the annual supplies to corps, which takes place during the winter months when the postal department works with a reduced establishment. This expenditure might, with great advantage and convenience to all concerned, be avoided if all supplies of forms and books were despatched direct from the office of the superintendent of Government printing, Calcutta, to the several hospitals in the command, instead of being, as at present, forwarded in bulk to this office for re-despatch and distribution to corps.

It is therefore proposed that, while the clerical work connected with the matter, such as the checking of indents and correspondence relating thereto, is conducted in this department as heretofore, the duty of making up the parcels and complying with the requisitions be transferred to the Government Central Press, Calcutta, where an establishment and every convenience for such work already exists.

Surgeon-General J. F. Beaton,
Indian Medical Service, Bengal.

The annual cost of all these items has undergone a marked decrease since the separation of the Bengal civil duties from the medical administration of the army and civil services elsewhere; but as the separation only took effect from the commencement of 1878, it is too early to form any precise knowledge of the savings effected. Although in a general way it may be said that the civil medical duties are completely divorced from this office for Bengal proper, and to a very large extent for the North-Western Provinces,—that the necessary arrangements for doing it in the Punjab are almost ready, and that the complement of civil hospital subordinates for Burma, Assam, Hyderabad, Central Provinces, Rajputana, and Central India are to hand, and merely await formal orders for their transfer in a few instances, yet the entire correspondence, involving expense of clerks, telegraph charges, postage, and stationery, have devolved on this office during the last two years, so that the expenses are by no means reduced in a corresponding degree. The actual official work has in fact solidly increased in consequence. And it may further be added that the many intricate questions connected with sending so many hospital subordinates from Bengal for duty in Madras during the famine has not yet ceased to be a serious tax on the current clerical labor. It is now nearly ended; but realizing arrears of their pay and travelling allowances, and recovering advances, have formed a very large percentage of this office work during the past two years.

Subject to this explanation, the actual figures are—

					Rs. A. P.
(a) Stationery	...	...	...	...	187 7 0

This is an approximate sum. Prior to the transfer of the Bengal civil medical duties, the stationery for the whole province was included in that of the Calcutta office; and hence it is impossible to determine exactly the amount due for that portion only which was expended here.

					Rs. A. P.
Stationery, 1877-78	...	...	...	...	468 5 8
" 1878-79	...	...	...	...	148 5 4

(b) Printing—

1876-77	...	...	...	...	5,032 0 9
1877-78	...	...	...	...	2,770 3 0
1878-79	...	...	...	...	2,388 15 9

furnished by the superintendent of Government printing at Calcutta.

(c) Postage—

					Rs. A. P.
1876-77	...	...	...	...	1,336 11 6
1877-78	...	...	...	...	987 5 0
1878-79	...	...	...	...	689 14 6

Note.—It is probable the reduction in this item is to a great extent due to reduced charges and facilities of the Postal Department.

(d) Telegraph charges—

					Rs. A. P.
1876-77	...	...	...	...	435 0 0
1877-78	...	...	...	...	435 0 0
1878-79	...	...	...	...	1,050 0 0

The increase is directly due to war charges, especially to this office having to defray cost of messages received (as well as despatched) from principal medical officers of the field forces. No great reduction should be anticipated in this branch. As a rule, the civil medical administration gives infrequent occasion for telegraphic messages, or, if sent, they are privately paid.

(e) Travelling expenses

... Nil.

(f) Miscellaneous and contingent charges—

					Rs. A. P.
1876-77	...	...	...	...	1,034 12 4
1877-78	...	...	...	...	786 11 9
1878-79	...	...	...	...	658 5 9

The reduction herein is not altogether to be relied on. It depends to a great extent on recurrent expenses, such as matting furniture, and occasional press of messages.

In reply to the last portion of the question, I think it is apparent from the figures that this office is not insensible to the necessity of reducing expenditure; that a great deal has already been done, and that every exertion is being made throughout to exercise judicious economy.

Dr. J. M. Cunningham, Sanitary Commissioner with the Government of India.

The actuals of 1878-79 were—

(a) Not known under this head, as the indents were not priced.

(b) About Rs. 3,500. Nearly the whole of this is for the annual report.

(c) Rs. 272-9.

(d) Rs. 48-8.

(e) Rs. 2,934-9-6, including travelling to Calcutta and back.

(f) Rs. 1,436-13-6. The most of this is due to books, apparatus and other articles required by the special assistants in their investigations.

I have always endeavoured to study economy in the management of the office. The allowance for travelling to and from Calcutta might be reduced as far as families of officers are concerned; but the saving to be derived in this office from this change would be but small, as the statistical officer remains permanently at Simla.

Colonel Harrison, Controller of Military Accounts, Bengal.

Stationery.—In continuation of my letter No. 8298 of the 26th September 1879, I have the honor to state that the total charges incurred for stationery supplied to the military account department during the year-1878-79 amount to Rs. 4,862-2-6.

Printing, Rs. 3,450.

Postage, Rs. 7,250 per annum.

Telegraph charges, Rs. 1,360.

Travelling expenses, Rs. 13,100.

Miscellaneous and contingent charges, Rs. 17,460.

The expenditure under this head is hardly susceptible of reduction, though it is necessarily a fluctuating charge.

The cost is as follows:—

(a) Supplied by the stationery department.

(b) Rs. 2,690, includes budget } Average of the years 1875,
(c) " 342 " " } 1876 and 1877.
(d) " 250 " " }

(e) Rs. 10,662 in 1878-79 for both officers and clerks.

(f) Rs. 2,400 including conveyance of office records to and from Simla and other minor expenses.

I see no room for any material reduction, as every care is taken to render these services as economical as possible.

Major O. R. Newmarch, Accountant-General, Military Department.

	Rs.
Colonel B. Walton, Superintendent and Agent Army Clothing, Bengal.	(a) Stationery 780 annually.
	(b) Printing 800 "
	(c) Postage 2,000 "
	(d) Telegraph 50 "
	(e) Travelling expenses Nil.
	(f) Miscellaneous and contingent charges ... 2,800 "
	They cannot be reduced.
Colonel J. K. Cooper, Director of Army Remount Operations.	(b) Printing ... Rs. 15-0-0. As given by the superintendent, Government printing.
	(c) Postage ... Rs. 295-0-0.
	(d) Telegraph charges ... Rs. 518-0-0.
	(e) Travelling expenses ... Rs. 5,889-0-0. This includes Rs. 3,081 for the veterinary surgeon who travelled in charge of remounts from Calcutta to the North-West depôts. The horses are now sent with overseers, so nearly the whole of this amount will be saved.
	(f) Miscellaneous and contingent charges. Rs. 1,220-0-0. With the exception of the travelling expenses shown above, they cannot be reduced.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

The average annual cost in this department on account of the charges detailed are as follows:—

- (a) Stationery—Is supplied by the superintendent of stationery, Calcutta, who will be able to give the valuation of the stationery supplied to this department.
- (b) Printing—Is executed by the Government presses at Calcutta and Allahabad, whence the required information as to cost may be obtained.
- (c) Postage, Rs. 394.
- (d) Telegraph charges, Rs. 33.
- (e) Travelling expenses, Rs. 6,201.
- (f) Miscellaneous, &c., Rs. 1,237.

The above charges are subject to fluctuations, depending upon circumstances. The amounts shown are the averages of the last three years, taking into consideration the probable outlay in future compared with those in former years. No reduction in expenditure under the above heads can be suggested.

Major-General Sir P. S. Lumsden, K.C.B., C.S.I., Adjutant-General in India.

- (a) Stationery is obtained from the Government stores on annual indent, according to regulated scale and strength of establishment. I am unable to give the cost.
- (b) Printing.—This is done by the army head-quarters press attached to my office; the annual cost of which at present is between Rs. 15,000 to 16,000 including special extra allowances not given to men newly appointed.
- (c) Postage, Rs. 3,600, actuals from August 1878 to July 1879.
- (d) Telegraph charges, Rs. 10,780, actuals from August 1878 to July 1879.
- (e) Travelling expenses, Rs. 5,000, budget 1879-80.
- (f) Miscellaneous and contingent charges, Rs. 3,300 (August 1878 to July 1879). Exclusive of house-rent and press contingencies given under their own heads above.

I cannot suggest any means of reduction. Stationery is used only according to office wants, and the press is on a minimum scale, heavily worked and indispensable for the printing work of army head-quarters.

The other four heads cover fluctuating charges incurred only on the *bande vide* requirements of the service.

Colonel C. C. Johnson, Officiating Quarter-Master-General in India.

In ordinary years the cost is—

- (a) Stationery for army head-quarters office, Rs. 1,125.
for 11 divisional offices, Rs. 1,710.
- (b) Printing, Rs. 4,279.
- (c) Postage for army head-quarters office, Rs. 1,670.
for divisional offices, Rs. 2,736.
- (d) Telegraph charges for army head-quarters office, Rs. 4,925.
for divisional offices, Rs. 5,244.
- (e) Travelling expenses.

This department is unable to furnish the required information on the above subject, which is only available in the offices of the examiners, pay and commissariat accounts.

- (f) Miscellaneous and contingent charges for army head-quarters office, Rs. 1,838.
for divisional offices, Rs. 1,825.

No reduction is feasible under the above heads.

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India, Bengal.

Approximately I may say—
 (a) Rs. 860.
 (b) Printing is done in the adjutant-general's press.
 (c) Rs. 1,110.
 (d) Rs. 900; but during the last year, owing to the Cabul War, this item has increased to about Rs. 9,000.
 (e) Rs. 1,000.
 (f) Rs. 680.
 All these items are strictly scrutinized and kept at the lowest possible minimum, and cannot, in my opinion, be reduced.

Colonel J. Young, Judge Advocate-General.

(a) Stationery is supplied by the stationery office, and the cost not known.
 (b) Printing is all done in the adjutant-general's printing office, and no charge is made to this department.

(c) Postage—						Rs.
At head-quarters	...	...	...	...	...	95
Divisional	...	...	...	...	...	480
				Total	...	<u>575</u>
(d) Telegraphic charges—						
At head-quarters	...	...	...	...	...	90
Divisional	...	...	...	...	...	125
				Total	...	<u>215</u>
(e) Travelling expenses.—When moving from Simla the officers and clerks get warrants for their conveyance from Kalka to their destination, together with sums varying from Rs. 25 to Rs. 30 for their conveyance between Simla and Kalka. Divisional officers when travelling on court-martial duty get warrants also; but I have no means of ascertaining particulars as to the cost.						
(f) Miscellaneous, &c.—						Rs.
At head-quarters	...	...	...	...	...	355
The office allowance of 4 divisional officers at Rs. 70 per mensem and 1 at Rs. 45	...	...	...	...	...	3,900
				Total	...	<u>4,255</u>

These charges cannot be reduced; but the budget provision under heads (c) and (d) might be reduced from Rs. 1,000 and Rs. 400 to Rs. 600 and Rs. 300 respectively.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

(a) Stationery. } Rs. 120 paid by principal veterinary surgeon.
 (b) Printing. }

- (c) Postage—Rs. 200.
 (d) Telegraph, included in contingent.
 (e) Travelling expenses for both circles—Rs. 2,800.
 (f) Miscellaneous and contingent charges—Rs. 200.

The travelling expenses have increased since the principal veterinary surgeon and inspecting veterinary surgeon have had to attend the annual casting committee and allotting committee, and I do not see in what way it is possible to reduce the above expenses.

Major A. S. Hunter, Director of Garrison Instruction in India.

(a) I am unable to state, even approximately, the cost of stationery, *i.e.*, drawing materials, for the eight centres of garrison instruction in India, and there is not time now to obtain the necessary data from the superintendent of Government stationery; the amount supplied is, however, not in excess of actual requirements.

(b) The printing of examination papers, &c., is executed by the printing press of the adjutant-general's office; the reproduction of plans and drawings, by the surveyor-general's department. The requisitions for the above are limited to the number of copies required for each examination.

(c) About Rs. 400 per annum suffices for the official correspondence of the officers of the department.

(d) It is difficult to form an estimate of the expenditure under this head. But certainly Rs. 500 covers the entire cost: of course officers of the department only resort to telegrams when the matter referred does not admit of delay.

(e) From Rs. 2,000 to Rs. 3,000. The travelling of the director of garrison instruction is limited to what is actually requisite for the inspection and examination of the classes under instruction.

(f) About Rs. 2,000. This expenditure is confined to the amount necessary for the purchase of petty stores by the garrison instructor, supply of new editions of the text-books, and purchase of books of reference for this office.

None of the foregoing charges are in my opinion capable of reduction.

Major H. J. Hollowes, Inspector of Gymnasias in India.

(a) For office at Simla and the gymnasia at Umballa and Lucknow about Rs. 360 annually.

(b) Rs. 30.

(c) Rs. 40.

(d) Rs. 10.

(e) From Rs. 3,500 to Rs. 4,000.

(f) Almost nil.

The above charges cannot well be reduced, being actual requirements.

Major F. W. Dunn, Superintendent British Army Schools.

The cost of—

(a) Stationery is not known to me, all the supplies being issued from the stationery office on indent.

(b) Printing is also unknown to me, the charges (which are for forms only) being adjusted in the office of the superintendent, Government printing.

(c) Postage, about Rs. 225 per annum in the office of the superintendent, about Rs. 75 in the office of each sub-inspector, or say for the whole about Rs. 450.

(d) Telegrams from Rs. 45 to 50 per annum.

(e) Travelling. This differs very much according to the district travelled over in the case of the superintendent, whose duties extend over the entire presidency. In 1877-78 the charges for travelling and deputation of superintendent, Rs. 1,902-12-0. In 1878-79 the charges were much less, owing to the illness and subsequent absence on sick leave of the assistant superintendent, which confined the superintendent to the office at Kasauli during nearly all the year.

The sub-inspectors travel by warrant, and the actual cost cannot therefore be determined. Their deputation allowance amounts to about Rs. 2,500 for the three.

(f) Miscellaneous and contingent charges. These are inconsiderable, amounting to less than Rs. 50 per annum.

I do not consider that any of the above charges can be reduced.

The above are the charges incidental to the administration of the British army school department. Those connected with the schools themselves, exclusive of the pay of the teachers, are—

1. Supply of stationery. The charges under this head are adjusted by the superintendent of stationery.

2. Supply of books, &c., heretofore obtained from England, but in future to be supplied by local agents. The estimated amount for the year 1878-79 was £349-4-9 (or say roundly in Indian currency Rs. 4,000).

3. Hindustani books. Charges adjusted in the office of the secretary to the board of Native languages.

4. Forms. Charges adjusted by the superintendent of Government printing.

5. Grant for materials for sewing schools, at the rate of Rs. 1-12 per annum per child attending. Actual for 1878-79 Rs. 3,592-1-5. The charges under this head are gradually diminishing.

6. Grant for prizes, Rs. 4,820 per annum.

The only one of these charges which I think may be reduced without absolute detriment to the schools is the last. The allowance at present is—

Rupees 100 for each regiment.

” 20 for each battery.

” 40 for European invalid battalion, Chunar.

” 20 for head-quarters, sappers and miners.

The amount drawn is in each case to be apportioned by the officer commanding to the adults and children, the latter being especially considered. I do not think that prizes are now essential as an incentive to the non-commissioned officers and privates to study, the advantages to be derived from the possession of certificates being fully understood and forming a sufficient inducement. Assuming, then, that one-fourth of the whole amount drawn has been distributed as prizes to the adults, I think that this proportion may be withheld. There would then remain Rs. 3,615 for distribution amongst the children. There were on the roll during the year 1878 an average of nearly 3,600 children (1,706 elder, 1,873 infant), so that the three-fourths grant amounted to about Re. 1 per annum per child. Or, if each child in the masters' schools were allowed for at the rate of Re. 1-8 per annum, and each infant at 8 annas, the amount drawn would have been Rs. 3,495, which approximates the three-fourths of the total charge referred to. It appears to me that the allowance for prizes might be passed in future at the rate of Re. 1-8 for each child attending the masters' schools, and 8 annas for each child attending the infant school, on the average, monthly throughout the year, in each corps for which a fixed sum for prizes is now allowed.

Major F. H. Marsh, Superintendent Native Army Schools, Umballa.

Stationery and printing are defrayed from the office allowance (with the clerk's pay also).

Postage has been allowed at Rs. 80 per annum in the budget.

Telegraph charges are very rare, say Rs. 3 or 4 per annum.

Travelling expenses. Rs. 1,500 is entered in the budget annually.

Miscellaneous and contingent charges. No allowance is granted under these heads.

These charges could not be reduced without sacrificing efficiency.

Colonel E. A. Moore, Acting Commissary-General, Madras.

(a) The cost of stationery supplied to this department

annually is Rs. 4,000

(b) Of printing ” 1,554

(c) Of postage ” 2,196

All these items depend on the amount of business and correspondence carried on, and due economy is exercised.

(d) Telegraph charges Rs. 3,254-2.

(e) Travelling expenses. The expenditure under this head is Rs. 702 only. With the exception of the deputy commissary-general, who is required to proceed on an annual tour, commissariat officers are seldom sent on inspection duty.

(f) Miscellaneous and contingent charges Rs. 1,244-4-3.

This includes charges on account of binding books, almanacs and army lists, khushkhus tatties, punkah-pulling (Vizagapatam alone), peons' belts, and petty articles; office-rent and family allowance are excluded.

(a) Stationery Rs. 2,878-1.

(b) Printing Rs. 768 annually.

(c) Postage, ordnance office Rs. 390; arsenals, factories and depôts Rs. 737.

(d) Telegraph charges (included in miscellaneous and contingent).

	Ordnance Office.	Arsenals, Factories and Depôts.
	Rs.	Rs.

(e) Travelling expenses 304 3,170

(f) Miscellaneous and contingencies ... 1,073 13,570

The expenses under the above heads have already been reduced to the lowest working limits. The travelling expenses under arsenals, factories and depôts are solely such as are incurred by chief civil master armourers on their tours of inspection.

(a) Stationery, Rs. 725. This includes cost of all stationery for use in surgeon-general's office, also cost of blank books issued to medical officers, also cost of paper supplied for printing the various statistical returns used by medical officers.

(b) Printing, not known.

(c) Postage, Rs. 455.

(d) Telegraph charges, Rs. 288.

(e) Travelling expenses. The surgeon-general seldom travels on duty, and does not make annual inspections. The expenses from 1st January 1879 to present date on this account have been Rs. 212-12-0.

(f) Miscellaneous and contingent charges, Rs. 148-6-2. No reduction is practicable.

Surgeon-General C. A. Gordon,
M.D., C.B., Principal Medical Officer
British Forces, Madras.

The annual cost of this department is of—

Dr. H. R. Oswald, M.D., Acting
Surgeon-General, Indian Medical
Service, Madras.

Stationery	...	...	...	Rs.	537
Printing	...	...	...	"	2,054
Postage	...	...	...	"	365
Telegraph charges	...	...	...	"	285
Travelling expenses	...	...	...	"	Nil.
Miscellaneous and contingent charges	...	...	...	"	272

The small cost of stationery is sufficiently indicative of a minimum supply only being indented for by this office. Much of the cost of printing is on account of the forms of returns of medical and sanitary statistics, to print which is more economical than to use manuscript forms, when the numbers used are so large. I am unable to suggest any reduction in the cost of postage, which aggregates exactly one rupee per diem. The telegraph is employed only when the ordinary post cannot subserve the interests of the State.

The surgeon-general not being an inspecting officer, there is no charge incurred on account of travelling expenses. Under the head of miscellaneous and contingent charges is included advertisements inviting tenders for the supply of diets, &c., to the civil hospitals at the presidency, amounting to Rs. 52, a profitable outlay as ensuring brisker competition and consequent increased advantage to Government. The wages of punkah-pullers included under this head amount to Rs. 155, and a brass stamp for enfacing documents has cost Rs. 25. Eliminating these three necessary items, the annual expenditure under miscellaneous and contingent charges amounts to Rs. 40, or a little more than Rs. 3 per mensem.

Dr. W. H. W. Cornish, F.R.C.S.,
Sanitary Commissioner for Madras.

(a) Stationery is supplied to my department annually from the stationery office on indent, the average cost of which for three years was Rs. 275.

(b) All the printing work of my department is done in the Government printing press, the actual cost of which I am unable to give; but I may state that it is done with the least expense possible, nothing but what is actually necessary to be printed being sent to the press, such as my annual report, monthly proceedings, blank forms of returns and sanitary reports for distribution, docket slips, and blank forms of covers.

(c) Rupees 300, includes payment for postage on insufficiently-stamped and unstamped covers also, of which a great number is received in my department from municipalities, &c.

(d) Rupees 20.

(e) Rupees 2,000 for sanitary commissioner and establishment.

(f) Rupees 100.

(c), (d), (e), and (f) are the minimum sanctioned budget allotments, and cannot be reduced in any way. The average annual expenditure for three years was (c) Rs. 285, (d) Rs. 20, (e) Rs. 1,800, and (f) Rs. 87.

Colonel J. W. Rideout, Controller, Military Accounts, Madras.

- (a) Stationery is obtained on annual general indent on the superintendent of stationery: there is no cash transaction, nor intimation given of the value of quantity indented for.
 (b) Printing is done at the Government printing office. There is no debit against the department for the value of work executed.
 (c) Postage according to past actuals averages Rs. 180.
 (d) Telegraph charges average Rs. 140.
 (e) Travelling expenses. There are none, except of an exceptional nature, when an officer is transferred from one presidency to another.
 (f) Miscellaneous and contingent charges average Rs. 90.
 No unnecessary expenditure is incurred.

Pay Examiner, Madras.

- (a) Stationery. This is supplied by the superintendent of stationery, and there are consequently no cash transactions.
 (b) Printing work done at the *Fort Saint George Gazette Press*. No cash transactions.
 (c) Postage—Rs. 2,835.
 (d) Telegraph charges—Rs. 223-8-0.
 (e) Travelling expenses—None.
 (f) Miscellaneous and contingent charges—Rs. 1,110.

These charges cannot be reduced. They represent in the items of stationery, printing and postage, not only what is required by this office for its own use but also much that is required by the army generally in connection with forms, books, &c., supplied gratis according to regulation.

Examiner of Commissariat, Clothing and Stud Accounts, Madras.

As regards (a) and (b), information not available from this office records.

Cost for the past year.

(c)	Rs. 219 11 0
(d)	„ 19 0 0
(e)	„ Nil.
(f)	„ 213 14 10

No reduction appears to me possible.

Examiner of Ordnance Accounts, Madras.

- (a) Stationery Rs. 253. The supply is received from the Government stationery office.
 (b) Printing Rs. 209-11-0. The forms required by the office are printed at the Government Gazette Press, and a small portion from the press attached to the office of the inspector-general of ordnance and magazines.
 (c) Postage, Rs. 98-11-6.
 (d) Telegraph charges, Rs. 4.
 (e) Travelling expenses, nil.
 (f) Miscellaneous and contingent charges, Rs. 63-3-4, actual of 1878-79.

But Rs. 200 are budgetted for this purpose, and this sum is absolutely necessary to meet cost of repair of furniture, renewal of cloth covers, &c.

Examiner of Medical Accounts, Madras.

- (a) *Stationery*, obtained from Government; cost unknown.
 (b) *Printing*, performed at Government press; cost not known.
 (c) *Postage*, Rs. 60 per annum.
 (d) *Telegraph charges*, Rs. 3 per annum.
 (f) *Miscellaneous and contingent charges*, Rs. 164 per annum.
 These charges cannot be reduced.

Examiner of Medical Fund Accounts, Madras.

- (a) Stationery is obtained from the Government stationery office—cost not known.
 (b) Printing done at the Government press office—cost not known.
 (c) Postage, Rs. 14-12 per annum.
 (d) and (e) Nil.
 (f) Miscellaneous and contingent charges, Rs. 25-13 per annum.
 I do not think any reduction can be made in these charges.

Examiner of Madras Military Funds Accounts, Madras.

- (a) Stationery is supplied from the stationery office; cost not known.
 (b) Printing is executed at the Government press; cost not known.
 (c) Postage, Rs. 70 per annum.
 (d) Nil.
 (e) Nil.
 (f) Miscellaneous and contingent expenses, Rs. 90 per annum.
 These charges cannot be reduced.

Military Accounts Department (Accounts Branch), Madras.

- (a) Stationery, Rs. 970.
 (b) Printing, „ 684.
 (c) Postage, „ 300.
 (d) Telegraph charges, Rs. 285.
 (e) Travelling expenses.—None.
 (f) Miscellaneous and contingent charges, Rs. 340.

These are actuals of the past year. No reductions appear feasible in the above items.

Telegraph charges usually average less. The Cabul Expedition has increased them this year.

Presidency Pay Office, Madras.

- (a) This is included in one general annual indent for the whole of the military accounts department, submitted by the controller.
 (b) This is all executed at the Government printing press.
 (c) The expenditure for postage averages Rs. 50 per mensem.
 (d) Fifty rupees will cover the annual expenditure under this head.
 (e) No travelling expenses are incurred on account of this office.
 (f) Miscellaneous and contingent charges. Rs. 10 per mensem (with an additional annual outlay of rupees eighty for binding the records of this office) would suffice to cover these. It does not appear possible to be able to reduce the sums mentioned above.

Lieutenant-Colonel A. Searle,
 Superintendent and Agent, Army
 Clothing, Madras.

The annual cost is as follows, and cannot be reduced:—

				Rs.	A.	P.
(a)	...	...	...	416	13	5
(b)	...	...	...	190	0	0
(c)	...	...	...	648	0	0
(d)	...	...	...	40	0	0
(e)	...	...	...			None.
(f)	...	...	...	382	0	0

The above are not capable of being reduced.

Brigadier-General F. W. Jebb,
 Adjutant-General, Madras.

Stationery.—Unknown: stationery indented for on the stationery office without payment.

(b) Printing.—Unknown: most of the printing done at the Government Gazette Press, the rest at the Lawrence Asylum Press. Bills adjusted by the pay examiner.

- (c) Postage.—For the last official year the postal account amounted to Rs. 1,360.
 (d) Telegraph.—For the last official year the telegraph charges amounted to Rs. 1,374-9.
 (e) Travelling expenses.—No travelling expenses other than those incurred for the annual tour of inspection.

(f) Miscellaneous and contingent charges for the last official year amounted to Rs. 215-3-9 over (e) and (d); are dependent on the requirements of the service. No reduction can be foreseen.

A possible reduction of Rs. 50 might be looked for, but this depends on the number of bearing covers received and unexpected charges. Bearing covers were received from Malta and Cyprus.

Major John Ewing, Officiating
 Quarter-Master-General, Madras.

The cost annually of—

				Rs.	A.	P.
(a)	Stationery	...	...	500	0	0
(b)	Printing	...	...	1,176	0	0
(c)	Postage	...	...	509	0	0
(d)	Telegraph charges	...	...	2,192	5	0
(e)	Travelling expenses	...	...	738	8	5
(f)	Miscellaneous and contingent charges	...	...	535	11	5

No reduction can possibly be effected in the above charges.

For divisional offices, see replies to question 6.

Colonel J. P. B. Sherard, Judge
 Advocate-General, Madras.

				Rs.
(a)	Stationery	...	...	125
(b)	Printing	...	...	...
(c)	Postage	...	...	120
(d)	Telegraph charges	...	...	20
(e)	Travelling expenses	...	...	1,000
(f)	Miscellaneous and contingent charges	...	...	150

They cannot be reduced to any appreciable extent.

Lieutenant-Colonel M. W.
 Willoughby, Acting Commissary,
 General, Bombay.

The cost in 1878-79 is given below:—

			Rs.	A.	P.
(a)	Stationery—At twenty executive stations and agencies	...	4,803	5	3
"	Presidency Commissariat Office, for Malta Expedition, Afghan operations...	...	1,296	14	4
"	For hospitals at 18 executive stations and agencies	...	2,375	6	2
	Total	...	8,475	9	9

(b)	Printing	...	...	...	12,910	0	0
(c)	Postage	...	...	...	4,073	0	0
(d)	Telegrams	...	...	...	6,730	0	0
(e)	Travelling	...	...	...	1,845	0	0
(f)	Miscellaneous and contingent charges including stationery	...	...	...	6,095	0	0

And I do not see how the charges on account of above heads can be reduced. A personal allowance of rupees ninety per mensem is allowed to the commissary-general to pay for the stationery, book-binding and petty contingencies of his office, and it is doubtful whether any appreciable saving would result by withdrawing this allowance, and supplying him with stationery, allowing him to charge for book-binding and other contingencies.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

The following is the average of the past three years for the whole department in the presidency:—

	Rs.	A.	P.
(a)	2,624	4	4
(b)	5,110	10	8
(c)	2,268	9	4
(d)	197	8	0
(e)	4,243	0	0
(f)	2,495	4	0

I do not see any probability of reducing these.

Deputy Surgeon-General J. M. S. Fogo, Officiating Surgeon-General, British Forces, Bombay.

(a) Stationery.—The average annual cost for the past five years is Rs. 155-6-2.

(b) Printing.—The average annual cost for the last three years is Rs. 2,257.

(c) Postage.—Annual cost Rs. 250.

(d) Telegraph charges.—Annual cost Rs. 100.

(e) Travelling expenses.—Travelling expenses of the surgeon-general's tour of inspection Rs. 500.

(f) Miscellaneous and contingent charges.

	Rs.	
Binding records	80	} Rs. 307
Punkha coolie	117	
Repairs to office furniture	50	
Petty expenses	60	

Surgeon-General W. G. Hunter, Indian Medical Department, Bombay.

Stationery is supplied by Government through the superintendent of stationery on indent. The cost is not known to this office.

Printing for civil branch of this office is executed at the Government central press with previous sanction of Government; for the military branch, at Education Society's Press.

Postage costs Rs. 300 per annum (calculated on three years).

Telegraph charges, Rs. 66 per annum (calculated on three years).

Travelling expenses are not incurred by this office.

Miscellaneous and contingent charges cost Rs. 155 (calculated on three years).

These charges are at the lowest possible minimum. The strictest economy is exercised with regard to them, and no reduction is possible.

Dr. John Lumsdaine, Sanitary Commissioner, Bombay.

(a) The mean of three years for the sanitary commissioner's office is Rs. 227, and a two years' mean for the district offices collectively is Rs. 970. For the entire department it may be taken as about Rs. 1,300 a year.

(b) The mean for five years is Rs. 2,743.

(c) The mean for three years is Rs. 2,139.

(d) These are included in postage.

(e) The sanitary commissioner has a budget travelling allowance for the year of Rs. 3,600, but the unexpended balance lapses. Actual expenses incurred are only charged for. Each deputy sanitary commissioner has a personal travelling allowance of Rs. 1,800 a year when moving by rail. The fare is charged, but the personal allowance for the day is deducted. The subordinates draw marching batta and actual railway fares when moving by rail. The entire cost is about Rs. 15,000 per annum.

(f) The mean for three years is Rs. 2,019.

I cannot see how the charges could be reduced without impairing efficiency.

Lieutenant-Colonel D. B. Young, Officiating Controller of Military Accounts, Bombay. (Controller's Office.)

	Rs.
Stationery	485
Printing	6,170
Postage	250
Telegraph charges	300
Travelling expenses	156
Miscellaneous and contingent charges	270

The amount of printing includes work done for the accounts branch of this office, on which devolves the supply of all printed forms of pay lists and general states for the army, and of pay abstracts, bills, remittance rolls, transfer receipts, cheques, &c., &c., used in the military pay department, as well as the forms required for its own use.

No reduction is practicable, the expenditure under all the above heads being already carefully controlled with a view to economy.

Major W. Farnes, Examiner Pay Department, Bombay.

The annual cost of—

	Rs.
(a) Stationery is	400
(b) Printing	697
(c) Postage	673
(d) Telegraph charges	71
(e) Travelling expenses	Nil.
(f) Miscellaneous and contingent charges	1,462

and are not susceptible of reduction.

Lieutenant-Colonel D. B. Young,
Officiating Controller of Military
Accounts, Bombay. (Pension Pay-
master's Office).

	Presidency circle. Rs.	Poona circle. Rs.	Konkan circle. Rs.
Stationery	138	100	72
Printing	50	...	59
Postage	81	111	47
Telegraph charges	10	10	...
Travelling expenses	900	1,460	1,707
Miscellaneous and contingent charges	819	75	112

No reduction in these items of expenditure appears practicable. They are all subjected to a rigid examination in the audit office.

Major M. A. Rowlandson, Exa-
miner of Commissariat, Clothing
and Barrack Accounts, Bombay.

(a) The average annual cost of stationery supplied by the stationery department is Rs. 257.

(b) The annual cost of printing is Rs. 834.

(c) The annual cost of postage is Rs. 587.

(d) The annual cost of telegraph charges is Rs. 46.

(e) There are no travelling expenses incurred by this office.

(f) The annual cost of miscellaneous and contingent charges is Rs. 505. This amount does not include charges for peons' clothing, which are incurred biennially, and amount to about Rs. 41-1-4, exclusive of the value of broadcloth, which is obtained from the superintendent, army clothing; nor for office furniture, which is purchased when actually necessary to replace articles worn out.

The charges under the above heads are the lowest it is possible to incur, and cannot, I believe, be reduced.

Lieutenant W. R. L. Anderson,
in charge Ordnance Examiner's
Office, Bombay.

The annual cost in my department is as below shown, for—

	Rs.
(a) Stationery	481
(b) Printing	585
(c) Postage	400
(d) Telegraph charges	7
(e) Travelling expenses	Nil.
(f) Miscellaneous and contingent charges	445

All these charges are carefully kept down to a minimum, and no reduction is feasible.

Surgeon-Major P. S. Turnbull,
M.D., Examiner of Medical Accounts,
Bombay.

	Rs.
Stationery	52
Printing	97
Postage	175
Contingent charges	160

No; the amounts given here are based on the average of the past three years' expenditure incurred, notwithstanding the exercise of the utmost possible economy.

Lieutenant-Colonel D. B. Young,
Officiating Controller of Military
Accounts, Bombay (Accounts
Branch).

	Rs.
Stationery (obtained from the superintendent of stationery)	252
Printing	22-8
Postage	1,290
Telegraph charges	120
Travelling expenses	Nil.
Miscellaneous and contingent charges	1,200

No reduction can be made.

The miscellaneous contingent charges, which appear high, include cost of new and repairs to old office furniture, also charges for binding records.

Captain H. Cowper, Presidency
Paymaster, Bombay.

	Rs.
(a) Stationery	320
(b) Printing (about)	460
(c) Postage	2,250
(d) Telegraph charges	125
(e) Travelling expenses	Nil.
(f) Miscellaneous and contingent charges	950

These several items cannot be reduced.

Colonel J. Thacker, Superintend-
ent Army Clothing, Bombay.

- (a) Stationery, Rs. 255-11-9.
- (b) Printing, Rs. 779.
- (c) Postage, Rs. 815-2-6.
- (d) Telegraph charges, Rs. 54.
- (e) Travelling expenses, *nil*.
- (f) Office contingencies, Rs. 108-6-6; miscellaneous, *nil*.

The above charges are the actuals for 1878-79. They do not seem susceptible of reduction. The printing charges may appear heavy, but numerous forms, in daily use in the factory, as also ledgers and returns, are printed off, and more than their equivalent is saved by the curtailment of clerical labour.

Brigadier-General H. F. Brooks,
Adjutant-General, Bombay.

Cost of stationery—Rs. 513-0-3.
Cost of printing—Rs. 15,554-0-5.
Cost of postage—Rs. 1,797-12-0.
Cost of telegraph charges—Rs. 9,044-14-0.
Travelling expenses—Rs. 1,374-3-0.
Miscellaneous and contingent charges—Rs. 533-15-11.

The charges given above were those actually incurred in 1873-79.

It is considered that if any reduction be practicable, it will be due rather to the actual requirements of the public service from time to time, than to the effect of departmental control, however vigilantly exercised. These requirements are too variable to admit of uniform economy, but, as a general rule, no outlay is permitted unless absolutely warranted by the circumstances.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

(a) Stationery.—Received from Government, annual cost about Rs. 1,400.

Drawing material.—Received from Government, annual cost about Rs. 1,100. This includes the supply to all divisional offices in the Bombay command.

(b) Printing.—Done at the Education Society's Press under contract with Government, annual cost about Rs. 5,130. This includes for the whole department.

	Rs.
(c) Postage.—Last year	800
(d) Telegraph.—	2,800
(e) Travelling.—	590
(f) Contingent.—	560

The expenditure on these accounts was exceptionally heavy last year, consequent on the Malta expedition and Afghan war. No reductions can be made. The expenditure of paper is kept down by drafting replies on the reverse of inward letters, and by enclosing all documents sent to one office on the same day in one cover. This also keeps down the postal charges.

Under printing charges is included all railway warrant forms required throughout the presidency, embarkation and other returns in connection with the trooping service, budget forms, all forms for the barrack department, and sanitary reports.

Colonel C. O. Maude, Judge
Advocate-General, Poona.

The annual cost of—

	Rs.
(a) Stationery	70
(b) Printing	None.
(c) Postage	60
(d) Telegraph charges	48
(e) Travelling expenses	600 to 700
Miscellaneous expenses and contingent charges	246

	WRITERS AT								TOTAL OF WRITERS.		TREASURERS.		MOONSHERS.			OFFICE SERVANTS.									
									No.	Cost.	No.	Cost.	Rs.	Rs.	Total	SHUTAR SOWARS.			DUPTENS AT						
	Rs. 85	Rs. 30	Rs. 25	Rs. 20	Rs. 15	Rs. ...	Rs. ...	Rs. ...								Rs.	Rs.	Rs.	Total	Rs.	Rs.	Rs.	Total	Rs.	Rs.
<i>Supervising Offices.</i>																									
Commissary-General's Office ...	...	...	...	...	...	...	...	...	17	2,018	...	...	1	...	45	...	...	...	...	...	...	10
Depy. Comy.-Genl., Lower Circle ...	1	...	...	1	1	...	...	...	8	370	...	...	...	...	...	...	...	...	...	...	...	8
Ditto Central Circle ...	1	...	3	1	1	1	...	...	12	450	...	...	...	1	35	...	...	...	...	...	...	8
Ditto Upper Circle ...	2	...	...	...	...	...	...	...	8	450	...	...	...	1	35	...	...	...	...	...	...	8
									45	3,286															
<i>Executive Offices.</i>																									
Presidency Exe. Comst. Office ...	...	3	1	1	...	...	...	...	18	628	1	50	...	...	...	...	...	...	...	...	...	8
Presidency Store and Shipping Office ...	1	1	1	...	1	...	...	...	12	595	...	...	...	...	...	...	...	...	...	...	...	8
Darjeeling ...	...	2	...	...	...	...	...	...	5	295	...	...	...	...	...	...	...	...	...	...	...	8
Dinapore ...	1	2	...	1	...	...	...	...	9	385	...	...	...	2	...	...	...	...	...	...	...	8
Banares ...	...	1	2	...	...	...	...	...	8	370	...	...	...	...	...	...	...	...	...	...	...	8
Allahabad ...	1	...	1	...	...	...	...	...	10	580	...	...	...	2	...	...	...	...	...	...	...	8
Jubbulpore ...	...	1	1	2	...	...	...	...	10	480	...	...	...	...	...	...	...	...	...	...	...	8
Cawnpore ...	2	...	1	1	...	...	...	...	12	565	...	...	...	...	...	...	...	...	...	...	...	8
Lucknow ...	...	3	...	...	...	...	...	...	15	865	...	...	...	...	...	...	...	...	...	...	...	8
Agra ...	1	...	...	1	...	...	...	...	10	490	...	...	...	...	...	...	...	...	...	...	...	8
Meerut ...	2	2	...	...	...	...	...	...	15	708	...	...	...	...	...	...	...	...	...	...	...	8
Gwalior ...	...	...	...	...	...	...	...	...	10	655	...	...	...	...	...	...	...	...	...	...	...	8
Bareilly ...	1	1	...	...	1	...	...	...	12	555	...	...	...	...	...	...	...	...	...	...	...	8
Ranikhet ...	...	...	...	1	...	...	...	...	11	620	...	...	...	...	...	...	...	...	...	...	...	8
Umballa ...	1	1	1	1	...	...	...	...	12	595	...	...	...	...	...	...	...	...	...	...	...	8
Kasauli ...	...	1	...	...	...	...	...	...	9	495	...	...	...	...	...	...	...	...	...	...	...	8
Jullundur ...	1	2	1	...	...	...	...	...	9	875	...	...	...	...	...	...	...	...	...	...	...	8
Ferozepore ...	...	...	1	...	...	...	...	...	7	320	...	...	...	...	...	...	...	...	...	...	...	8
Lahore ...	2	...	1	...	...	...	...	...	14	790	...	...	...	...	...	...	4	4	24	...	...	8
Mooltan ...	...	2	...	1	...	...	...	...	9	405	...	...	...	...	...	...	...	...	...	...	...	8
Sialkote ...	...	2	...	...	...	...	...	...	7	360	...	...	...	...	...	...	...	...	...	...	...	8
Rawal Pindi ...	1	...	2	1	...	...	...	...	14	690	...	...	...	...	...	...	2	2	12	...	...	8
Peshawar ...	...	...	...	...	...	...	...	...	14	830	...	...	...	...	...	...	...	...	...	...	...	8
									247	12,681															
Governor General's camp ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Commander-in-Chief's camp ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Extra temporary establishment ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL NUMBERS ...	18	28	16	13	4	1	292	...	1	...	1	2	8	4	...	19	23	...	10	16	1	27	
TOTAL COST PER MENSEM ...	630	780	400	260	60	10	15,967	...	50	...	45	70	115	60	...	114	...	174	...	100	128	4	234

(1281)

[Appendix IV.

* Sanctioned in Military Department No. 762, dated 18th January 1877.

	OFFICE SERVANTS.																				REMARKS.			
	JEMADARS AND PRONS AT						FURRASHES.				SWEEPERS.				CHOWKIDARS AT							Total of office ser- vants.	TOTAL PER MEN- SEM OF ENTIRE ESTABLISHMENT.	TOTAL PER AN- NUM.
	Rs.	Rs.	Rs.	Rs.	Rs.	Total	No.	Cost.	No.	Cost.	No.	Cost.	No.	Cost.	Rs.	Rs.	Rs.	Rs.	Rs.	Total				
	8	7-8	7	6	5	No.	Cost.	No.	Cost.	No.	Cost.	7	6	5	4	No.	Cost.							
<i>Supervising Offices.</i>																								
Commissionary-General's Office	1			4		5	32	1	5	1	5			1		6	58	2,819	33,823	Head assistants ... 82,500 Same as last year.				
Depy. Comy. Genl., Lower Circle	1			1		2	14										22	642	7,704	Writers ... 1,91,604				
Ditto Central Circle	1					2	3							2		2	10	96	821	9,852	Treasurer ... 600 Same as last year.			
Ditto Upper Circle	1					2	3								2	2	8	34	769	9,223	Moonshees ... 1,380 Office servants ... 13,152			
<i>Executive Offices.</i>																								
Presidency Exe. Comst. Office			3	3	3	9	54	1	5	1	5			1		6	78	1,006	12,072	Total ... 2,89,236				
Presidency Store and Shipping Office			1	3		4	25									33	318	9,816						
Darjeeling		2				2	15						2			14	39	484	5,808	Extra writers for the commissariat office of the Governor-General's camp ... 2,000				
Dinapore					3	3	15								2	2	8	59	594	7,128				
Bouares					4	4	20							2	2	10	58	558	6,696					
Allahabad					2	2	10							2	2	8	31	761	9,132	Extra writers for the commissariat office of the Commander-in-Chief's camp ... 1,000				
Jubbulpore					3	3	15							2	2	8	40	805	9,660	Extra temporary establish- ment ... 6,000				
Cawnpore					2	2	10							2	2	8	62	1,327	15,924					
Lucknow					4	4	20							2	2	8	38	428	9,936					
Agra					2	2	10							2	2	8	52	1,120	13,440					
Ameerut					4	4	20							2	2	10	32	1,045	12,540					
Gwalior					2	2	10							2	2	8	40	939	11,268					
Bareilly					2	2	10							2	2	8	34	829	9,948					
Hanikhot				2		2	12						2		2	12	34	812	9,744					
Umballa			2		2	4	24							2	2	10	43	829	9,948					
Kasauli					2	2	10							2	2	10	30	775	9,300					
Jullunder					2	2	10							2	2	10	28	578	6,936					
Ferozepore					2	2	10							2	2	10	28	498	5,976					
Lahore					2	2	10							2	2	10	52	1,242	14,904					
Mooltan					2	2	10							2	2	10	28	633	7,596					
Sealkote					2	2	10							2	2	10	28	638	7,656					
Rawal Pindi					2	2	10							2	2	10	40	930	11,160					
Peshawar					2	2	10						1	2	3	16	34	1,164	13,968					
																					946	2,29,824		
Governor-General's camp																				2,000				
Commander-in-Chief's camp																				1,000				
Extra temporary establishment																				6,000				
TOTAL NUMBERS	4	2	6	13	53	78		2		2			2	5	24	18	49		181					
TOTAL COST PER MENSEM	32	15	42	78	265		432		10		10		14	30	120	72		234	1,096	2,98,236				

Major-General N. Campbell, Officiating Inspector-General of Ordnance and Magazines, Bengal.

The number, description and pay of the servants attached to the ordnance office are as follows:—

No.	Description.	Rate of pay.		Total.	Remarks.
		Rs.	Rs.		
2	duftries {	1 ...	10	10	
		1 ...	8	8	
1	jemadar of peons	...	10	10	
2	peons ...	...	7	14	
3	" ...	...	6	18	
1	furrash	...	6	6	
1	durwan	...	6	6	
1	sweeper	...	5	5	
11	Total monthly cost	...	...	77	
13	punka coolies	...	4	72	For six months only.

Surgeon-General J. H. Ker Innes, British Medical Department, and Principal Medical Officer, British Forces in India.

		Rs.	A.	P.	
3	duftries @ 8 each	...	24	0	0 per mensem.
1	peon @ 8	...	8	0	0 "
1	" @ 7	...	7	0	0 "
3	" @ 6	...	18	0	0 "
1	office coolie	...	5	8	0 "
1	furrash	...	6	0	0 "
1	chowkidar	...	5	0	0 "
1	bhistee	...	5	0	0 "
1	sweeper	...	5	0	0 "
13	servants costing	Total	83	8	0

Surgeon-General J. F. Beaton, Indian Medical Service, Bengal.

		Rs.	
1st	duftrey at	...	8 per mensem.
2nd	" at	...	7 "
head	peon at	...	7 "
2	peons at Rs. 6	...	12 "
1	durwan at	...	6 "
1	furrash at	...	6 "
	Total	...	46

Dr. J. M. Cunningham, Sanitary Commissioner with the Government of India.

		Rs.	
1	duftrey at	...	12 per mensem.
1	" for statistical branch at	...	10 "
4	peons (viz., 2 for head office, 1 for statistical branch and 1 for special assistant's office) at	...	8 "
1	laboratory attendant for special assistant	...	8 "

Colonel T. B. Harrison, Controller of Military Accounts, Bengal.

		Rs.	
1	record-supplier	...	16 per mensem.
1	do.	...	14 "
2	record-suppliers, at Rs. 10 each	...	20 "
1	duftrey	...	10 "
1	do.	...	8 "
1	peon	...	10 "
2	peons, at Rs. 7 each	...	14 "
3	do. at " 6 "	...	18 "
1	durwan	...	7 "
1	bearer	...	6 "
1	bhistie	...	6 "
1	sweeper	...	6 "
1	do.	...	5 "
	Total	...	140

Accounts Branch.

	Rs.
2 record-suppliers, at Rs. 10 each	... 20 per mensem.
1 record-supplier	... 9 "
1 book-binder	... 10 "
1 duftry	... 9 "
1 do.	... 6 "
2 peons, at Rs. 7 each	... 14 "
3 do. at " 6 "	... 18 "
1 furrash	... 6 "
2 furrashes, at Rs. 4 each	... 8 "
1 sweeper	... 5 "
Total	... 195

Major O. R. Newmarch, Accountant-General, Military Department.

They are as follows:—

	Rs.
1 duftry	... 10 per mensem.
1 "	... 9 "
1 jemadar of peons	... 10 "
5 peons at Rs. 7 each	... 35 "
4 temporary peons engaged while at Simla and Calcutta respectively at Rs. 6	... 24 "
1 furrash (Calcutta)	... 6 "
1 sweeper "	... 6 "
1 durwan "	... 6 "
Total	... 106

Temporary for Simla—

1 chowkidar for 5 months during the winter when the office is at Calcutta	... 6 per mensem.
1 sweeper for 7 months	... 5 "

Colonel B. Walton, Superintendent and Agent, Army Clothing, Bengal.

This question is answered by No. 10. The whole establishment shown in that statement.

Colonel J. K. Couper, Director of Army Remount Operations.

	Rs.
1 duftry or book-binder	... 12 per month.
3 chapprasees, each	... 5 "
1 furrash	... 5 "
1 sweeper	... 5 "
1 chowkidar	... 4 "

J. H. B. Hallen, Esq., General Superintendent, Horse-Breeding Operations.

	Rs.
1 head clerk	... 250 per mensem.
1 second clerk	... 120 "
1 third clerk and moonshee	... 80 "
1 fourth clerk	... 50 "
1 duftry	... 12 "
1 furrash	... 5 "
3 peons, at Rs. 5 each	... 15 "
1 chowkidar	... 4 "
1 sweeper	... 5 "

Total ... 541

Major-General Sir P. S. Lumsden, K.C.B., C.S.I., Adjutant-General in India.

9 duftries	...	1 on Rs. 12	
		1 " " 10	
		1 " " 9	
		2 " " 8 each.	
		3 " " 7 "	
3 book-binders	...	1 " " 6 "	
		1 " " 10	
		1 " " 9	
1 jemadar peon	...	1 " " 7	
25 peons	...	3 " " 10	
		22 " " 7 each.	
1 chowkidar	...	3 " " 6 "	
8 bhisties	...	22 " " 7 "	
8 sweepers	...	" " 6 each.	
		" " 6 "	

Colonel C. C. Johnson, Officiating Quarter-Master-General in India.

	Rs.
1 pressman, at	30 per mensem.
1 duffry	10 "
2 duffries, at each	8 "
2 do. at "	6 "
16 peons, at "	6 "
4 press coolies, at each	6 "
1 chowkidar, at	6 "
1 bhistie, at	5 "
2 sweepers, at	5 "
Total cost per annum, Rs. 2,508	

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India.

	Rs.
2 duffries, at	8 per mensem.
4 peons, at	5 "
(with usual clothing).	
1 bhistie, at	5 "
1 sweeper, at	4 "

I would here remark that I am not allowed a chowkidar.

Colonel J. Young, Judge Advocate-General, Bengal.

	Rs.
1 duffry Rs. 8, and travelling allowance under old rules, Rs. 4	12 per mensem.
1 ditto ditto	8 "
3 peons at Rs. 6	18 "
1 farash	5 "
1 chowkidar	5 "
1 sweeper	5 "

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

A head clerk on Rs. 60 rising to Rs. 90 per mensem paid by Government.

An assistant, when required from press of work, Rs. 15 per mensem, paid by the principal veterinary surgeon; one chuprassee Rs. 8 per mensem paid by the principal veterinary surgeon.

There are none receiving Government pay.

Major A. S. Hunter, Director of Garrison Instruction in India.

Major H. J. Hallows, Inspector of Gymnasia in India.

One clerk on a monthly pay of Rs. 50; one chaprassie at Rs. 7; one sweeper at Rs. 6.

Major F. W. Dunn, Superintendent, British Army Schools.

None. I have recently made application for a peon, as at present I am compelled to maintain at my own cost a servant to do the work of a Government peon.

Major F. H. Marsh, Superintendent, Native Army Schools, Umballa.

No servants are allowed for this office.

Colonel R. A. Moore, Acting Commissary-General, Madras.

There are one head peon and six peons attached to the commissary-general's office. Their duty is to go with messages, and carry drafts and letters from the clerks to the officers and from the officers to the clerks; also to deliver letters. For cleaning the office and also the office of the executive commissariat officer and storekeeper-general, which are all in the same building, one sweeper and two toties are employed.

Colonel S. H. E. Chamier, in charge Ordnance Department, Madras.

1 mochie	at Rs. 10 per mensem.
1 "	8 "
1 peon	9 "
5 peons	7 "
2 "	6 "
2 "	5 "
1 totie	5 "

Surgeon-General C. A. Gordon, M.D., C.S., Principal Medical Officer British Forces, Madras.

1 manager	at Rs. 120 per mensem.
1 head clerk	70 "
1 clerk	50 "
1 do.	45 "
1 do.	30 "
1 do.	25 "
2 do.	20 "
4 do.	15 "
1 mochie binder	10 "
4 peons	7 "
1 waterman	3½ "
1 totie	5 "

Total Rs. 486-8

Of the above 1 clerk and 1 peon are employed with the surgeon-general at Ootacamund during his stay there. The pay of the office establishment above enumerated admits of no reduction. The pay of clerks on Rs. 15 per mensem is so small that immediately they acquire the routine of office work and become useful they are anxious to be off elsewhere to

better themselves. If forced to remain, they are discontented; if allowed to depart, the office suffers. No reduction can be made in numbers, which are already too small. Many of the clerks perform work at home after office hours, and not a few of them break down from over-work.

Dr. H. R. Oswald, M.D., Acting Surgeon-General, Indian Medical Service, Madras.

	Rs.	A.
5 peons at Rs. 7
1 sweeper and water-woman
1 totie

Dr. W. H. W. Cornish, Sanitary Commissioner for Madras.

	Rs.
1 manager	120
1 clerk	50
1 do.	50
1 do.	35
1 do.	30
1 do.	30
1 do.	25
1 do.	25
1 mochie	10
8 peons, at Rs. 7	21
1 sweeper	3

Colonel J. W. Rideout, Controller of Military Accounts, Madras.

Four peons at Rs. 7 per mensem each—Rs. 28. Peons, mochie and menial servants are attached to what is called the general department under the pay examiner, and are used in common by the controller and pay examiner.

Pay Examiner, Madras.

	Pay per mensem.
	Rs. A.
1 head mochie	15 0
5 mochie at Rs. 11 each	55 0
1 head peon	8 0
8 peons at Rs. 7 each	56 0
1 sweeper	3 8
1 methar	5 0
17	
Total per mensem	142 8
Total per annum	1,710 0

These have been reduced to a minimum, and no further reduction could be effected without detriment to the public service.

Examiner of Commissariat, Clothing and Stud Accounts, Madras.

3 mochie (2 at Rs. 12) (1 at Rs. 10.)
2 peons at Rs. 8-12.
3 do. at Rs. 7.
1 totie at Rs. 3.
2 sweepers at Rs. 2.
8 punkah-pullers at Rs. 4.*
2 tattie water-men at Rs. 3-8.*

Examiner of Ordnance Accounts, Madras.

	Rs.
1 head mochie	10
1 assistant mochie	8
1 head peon	9
5 peons at Rs. 7 each	35
1 water-woman	4

Examiner of Medical Accounts, Madras.

The servants are four in number, viz. :—

1 mochie	Rs. 12 0	per month.
1 peon	7 0	"
1 sweeper	1 8	"
1 totie	1 8	"
Total	22 0	"

Examiner of Medical Funds Accounts, Madras.

One peon on Rs. 8 per mensem.

Examiner, Madras Military Funds Accounts, Madras.

	Rs.
1 mochie and book-binder	11
2 peons (each)	8
2 peons (each)	7
1 sweeper and totie	4

* To be allowed for 4 months only in future years.

Military Account Department
(Accounts Branch), Madras.

Eight servants as follows:—	Rs.
Two mochies at	10
Three peons at	7
One peon at	6
One sweeper at	8½
One totie at	5

Presidency Pay Office, Madras.

These number in all eleven, with an aggregate pay of Rs. 76-4.	Rs. A.
1 record-keeper	15 0
4 peons at Rs. 7 per mensem each	28 0
2 night peons at ditto	14 0
1 sweeper	8 8
1 totie	1 12
2 mochies at Rs. 7 each	14 0
	<u>76 4</u>

Lieutenant-Colonel A. Searle,
Superintendent Army Clothing,
Madras.

The servants attached to the office are as follows:—	Monthly pay.
	Rs. A.
1 duffadar (peon)	10 8
4 peons at Rs. 7	28 0
1 mochie	10 8
1 do.	7 0
1 waterman	8 8
1 totie	8 8

Brigadier-General F. W. Jebb,
Adjutant-General, Madras.

There are two mochies, one on Rs. 16, and the other Rs. 10½ per mensem. Two attendants, or peons, on Rs. 10 each. One totie, Rs. 5. One waterman, or sweeper, Rs. 4.

Three officers' punkah-pullers throughout the year, except when officers are on tour. Four office punkah-pullers for four months in the year.

Major John Ewing, Officiating
Quarter-Master-General, Madras.

There are one totie and one sweeper whose pay per annum is Rs. 108. There are besides one tindal and ten lascars of the camp equipage department employed in this office as messengers in the place of peons. Their total pay per annum is Rs. 844, which is drawn on abstracts of the camp equipage depôt.

Colonel G. P. B. Sherard,
Judge Advocate-General, Madras.

	Rs. A. P.
1 mochie	10 0 0
1 peon	7 0 0
1 sweeper	8 8 0

Lieutenant-Colonel M. W.
Willoughby, Acting Commissary-
General, Bombay.

The information required as above is given in reply to question 4 (b), paper I, under the head Commissary-General's Office.

Major-General W. S. Hatch,
Inspector-General of Ordnance
and Magazines, Bombay.

In the ordnance office—
1 havildar at Rs. 8,
4 peons at Rs. 7 each,
all employed as messengers. Up to the date of my joining the office, three lascars from the Poona arsenal were employed as orderlies, but they have been sent back to duty in the arsenal.

In Bombay arsenal there are five peons. None of them can be dispensed with.

There are none elsewhere in arsenals.
Gun-carriage factory has 2 peons.
Gun-powder factory has 5 peons.
Small-arm ammunition factory has 2 peons.

Deputy Surgeon-General J. M.
S. Fogo, Officiating Surgeon-
General, British Forces, Bombay.

Number of office servants and their pay are, eight clerks and two peons—

	Annually.
	Rs.
Head clerk	1,800
2nd do.	960
3rd do.	960
4th do.	960
5th do.	600
6th do.	480
7th do.	480
8th do.	480
Two peons	168 (exclu- sive of grain compensation).

Dr. W. G. Hunter, M.D.,
Surgeon-General, Indian Medical
Department, Bombay.

Four peons, at Rs. 7 per mensem.
Two peons, at Rs. 4 per mensem.
One punkha-puller paid by day (atmā's 6 per diem).

The number of sepoy is inadequate, and they are poorly paid, on which account intelligent and smart sepoy cannot be had. In other Government offices, such as the secretariats (general, revenue, &c., &c.) and in the sanitary commissioner's office, they are paid from Rs. 9 to 10 per mensem.

Dr. J. Lamsdaine, Sanitary Commissioner for Bombay.

As follows:—

	Rs.
1 havildar	10 monthly.
3 peons each	9 "
3 " "	8 "
Monthly cost	61 "
Annual	732 "

A certain number of these men accompany the sanitary commissioner through the districts; in fact, when he is on tour, one or two only are left at the office for ordinary office work.

Lieutenant-Colonel D. B. Young, Officiating Controller of Military Accounts, Bombay (Controller's Office).

Servants of the office—

	Rs.
1 Naik	8
3 Peons	7 each.
1 Ferrash	7

* Controller of Military Accounts.
Inspector-General of Ordnance and Magazines.
Judge Advocate-General of the Army.
Examiner, Pay Department.
Examiner, Commissariat and Clothing Accounts.
Examiner of Ordnance Accounts.
Examiner of Medical Accounts.
Accounts Branch of Controller's Office.
Funds Office.
Pension Pay Office, Poona Circle.

Besides these there are the following for the whole building and offices* accommodated therein:—

	Rs.
1 Conservancy havildar	12
1 Usher	9
2 Sweepers	7 each.
1 Halalcore	13
1 Halalcore puckallie	5
1 Bhistie to supply water for cleaning latrines	2
1 Naik of police-guard	8
7 Police watchmen	7 each.

Major M. Perrau, Examiner Pay Department, Bombay.

Five servants attached to this office, viz.—

	Rs.
1 havildar	8
2 peons each	7
2 ditto	6

all of whom, in addition to their pay, receive grain compensation for dearth of provisions as unenlisted followers at an average of Re. 1-13 per mensem.

Lieut.-Colonel D. B. Young, Officiating Controller of Military Accounts, Bombay (Pension Pay Master's Office.)

Presidency circle	2 peons at Rs. 7 each.
Poona	2 " at " 7 "
Southern Konkan circle	2 " at " 6 "

Major F. A. Rowlandson, Examiner of Commissariat, Clothing and Book Accounts, Bombay.

There are five servants only attached to this office, viz.—

1 naik of peons.
4 peons.

The pay of the first is Rs. 8 per mensem, and of the others Rs. 7 each. In addition to their pay they receive compensation for dearth of grain, and a suit of clothes every other year.

Attached to my office there are three servants, as below—

Chuprasees { 2 on Rs. 7 each monthly.
1 on Rs. 6 monthly.

Two peons at Rs. 7 each per mensem.

Lieutenant W. L. R. Anderson, in charge Ordnance Examiner's Office, Bombay.

1 naik Rs. 8.
4 peons Rs. 7 each, with grain compensation in addition.

Surgeon-Major P. S. Turnbull, M. D., Examiner of Medical Accounts, Bombay.

Lieut.-Colonel D. B. Young, Offg. Controller of Military Accounts, Bombay, Accounts Branch.

Captain H. Cowper, Presidency Paymaster, Bombay.

The servants attached to this office are one havildar at Rs. 10, one naik at Rs. 8, and six peons at Rs. 7 each per month; also four punkha-pullers engaged, when necessary, at from four to six annas per diem, and one police ramosie at Rs. 11 per mensem.

Colonel J. Thacker, Superintendent Army Clothing, Bombay.

As follows—

1 havildar of peons, on Rs. 10 and compensation for dearth of grain.

- 2 peons on Rs. 7 each and compensation for dearth of provisions.
- 1 mucedum of hamals on Rs. 11 ditto.
- 4 hamals on Rs. 8 each ditto (factory and stores).
- 4 hamals on Rs. 10 each (factory and stores).
- 1 fire-engine lascar on Rs. 10.
- 1 day and 2 night watchmen on Rs. 11 each.
- 1 halalcore on Rs. 13.

Brigadier-General H. F. Brooke, Adjutant-General, Bombay.

- 10 peons.
- 1 bhistie.
- 1 sweeper.
- 1 havildar Rs. 9
- 2 peons " 8 each.
- 2 do. " 7 each.
- 1 bhistie " 3
- 1 sweeper " 2

Brigadier-General G. Burrows, Quarter-Master-General, Bombay.

- 1 havildar of peons 9
- 2 peons 8
- 7 do. 7 } per month.
- 1 pressman 12
- 1 sweeper 2

No bhisties, water being laid on the premises. Monthly rate paid by Government to irrigation department, Rs. 7-13-0.

Colonel C. O. Maude, Judge Advocate-General, Poona.

Four peons at Rs. 7 each per mensem, or Rs. 336 per annum.

9. Detail briefly the office procedure, and trace the course of a letter received in your office, in its passage through the office, and of the letter or memorandum replying to the first mentioned letter until your departmental reply issued.

Colonel J. I. Willes, Commissary-General, Bengal.

A letter on receipt is docketted and registered; the previous letters quoted in it are put up, after which it is given to the clerk to whose section it belongs. If the case is one which can be dealt with by the clerk with the aid of regulations, precedents, &c., he drafts a reply which is submitted for approval of the commissary-general. If the case requires an opinion or orders from the commissary-general, the clerk submits it with any other papers which have bearing on the case. On opinion being recorded or orders being passed, the case is again given to the clerk of the section, who drafts the minute; the draft is submitted for approval. On its being approved it is fair-copied and issued. The procedure is the same with any other letter replying to the first.

Major-General N. Campbell, R.A., Officiating Inspector-General of Ordnance and Magazines, Bengal.

Letters on receipt are opened at Calcutta by the deputy inspector-general of ordnance and at Simla by the assistant to the inspector-general of ordnance.

At Calcutta, a letter received is initialled and dated by the deputy inspector-general of ordnance, who records his orders on it briefly and sends it out to the registrar, who, after noting the name of the clerk whose business it is to deal with it, sends it to the record-keeper.

The record-keeper, after entering it in his consecutive diary and giving it a subject heading, hands it over to the assistant of the class to which it belongs, who enters an abstract of the subject in his diary, puts up the previous correspondence on the same subject (if there be any) and returns it to the record-keeper, who now numbers it, looks through the papers, and, if need be, submits it to the clerk to whom it is assigned by the registrar.

The clerk deals with the letter according to the rules of the office and the previous papers, and sends it, with a memorandum of the proposed action on it to the registrar, who initials it and submits it to the deputy inspector-general of ordnance for approval. After approval by the deputy inspector-general a draft reply is framed and submitted for approval, and after approval it is fair-copied, signed, and despatched.

The letter and the rough draft reply, after the letter has been dated by the despatcher, are sent to the record department, where the draft is entered in the diary, after which both are put up and recorded with other papers on the subject, if there be any.

Generally, all papers are dealt with as above in succession as they are received, but priority is of course given to subjects of importance requiring immediate attention.

At Simla, the assistant inspector-general, after opening all the letters received, submits them to the inspector-general of ordnance, pointing out any requiring early attention.

The inspector-general initials and dates them, and, passing his orders briefly on them, sends them out to the office, where they are dealt with in somewhat the same manner as described in the preceding paragraphs, except that in the first instance they are sent to the senior clerk present instead of to the registrar as at Calcutta, and the drafts are approved by the inspector-general.

At Simla, in consequence of insufficiency of the number of clerks, there is no separate record-keeper. The senior clerk performs the duties of the record-keeper in addition to his own.

Matters of mere routine are disposed of at once in the office, both at Calcutta and Simla, under the registrar or the senior clerk. Rough drafts of all letters of importance are submitted to the inspector-general at Simla, and to the deputy inspector-General at Calcutta, for approval before fair copies are prepared.

Surgeon-General J. H. Ker Innes,
British Medical Department, and
Principal Medical Officer, British
Forces in India.

The office is divided into two branches—the *General Branch* under the secretary, where administrative, medical, sanitary and other questions are dealt with; and the *Statistical Branch*, in which the compilation and preparation of the various periodical and other returns and reports relating to British troops, the printing and issue of blank departmental forms and books, the checking of indents, the accounts of books, regulations, &c. (the property of Government) issued to corps and hospitals, and all correspondence in connexion with the above are conducted under the supervision of the statistical officer.

The post letters are opened by the secretary and statistical officer respectively.

General Branch.

The day's receipts are entered in the diary; the previous papers, if any, are countermarked and put up, they are then divided and allotted,—papers relating to internal economy of hospitals and the subordinate medical department to the apothecary attached to the office, those affecting movements of medical officers, applications, &c., to the clerk in charge of the medical officers' roster; the rest being retained by the chief clerk.

In ordinary routine cases, drafts are at once prepared and submitted for approval by the above; in the more important cases, notes, memoranda précis (when the correspondence is voluminous) are put up for orders.

Approved drafts, and drafts sent in by the secretary and surgeon-general are faired and numbered by the copyists, examined, and after signature, are issued by the despatcher.

Indexes or registers of receipts and issues are posted from the diary.

The copyists assist in the putting away of papers in their allotted places.

Statistical Branch.

The day's receipts are distributed by the clerk in charge to the compilers of the various returns—annual, monthly, weekly, &c., to be checked, embodied in the general returns, or returned if incorrect. Correspondence relating to subjects dealt with in this branch and referred to above is taken up by the clerk in charge, who submits drafts for approval or notes for orders. Approved drafts and drafts sent in by the statistical officer and surgeon-general are copied and numbered, and issued after signature by the despatcher.

Correspondence with the officers of the department are conducted by the statistical officer direct "by order;" but all correspondence with heads of departments and the authorities are recorded and registered in the head office or general branch, under the signature of the surgeon-general.

Returns are compiled, fair-copied, &c., by the clerks respectively allotted for the several returns, and the statistical and sanitary reports drawn up by the surgeon-general, secretary and statistical officer are also prepared for issue in this branch.

Surgeon-General J. F. Beaton,
M.D., Indian Medical Service, Bengal.

The post is opened by the secretary on reaching office. That portion of it which requires no further procedure is docketted and filed at once. The remainder is worked in this way. The secretary sends the letter down to the head assistant, who glances at it to recognize the contents, and passes it to the indexer. When he has entered it in the books, it is next transferred to the record-keeper, whose duty it is to attach it to its proper file in its proper place; and, after careful perusal, to add them to all references quoted or precedents bearing on the subject—in short, to prepare it for orders. It is then resubmitted to the head assistant, who is responsible for its accuracy and comprehensiveness, and who is at liberty to add any suggestions regarding its disposal which may appear appropriate. It is then sent up to the secretary, who examines it in detail, and if complete, passes it to the surgeon-general, who generally writes his orders promptly on the back of it. This is then returned to the office, and a draft memorandum or copy prepared, which is again submitted for approval by the secretary; and finally, the fair copy is made and put up to be signed.

The fair copy is lastly given to the despatcher, who has to read it carefully and to see that all instructions contained in it are obeyed, such as attaching original or copies, returning reports, &c., before the envelope is closed. The record file, with the draft memorandum and any other documents which belong to the case and have been retained by the office, is meanwhile restored to its place in the rack.

Dr. J. M. Cunningham, Sanitary
Commissioner with the Government
of India.

The letters are all opened by me. They then go into the office to be docketted and have previous papers and references put up. On return I either draft the reply, if any is required, or write orders on which the reply is drafted. It then issues. Occasionally, it is advisable to consult the statistical officer or the special assistant. This is done semi-officially, and involves no delay, except the time which it takes, as regards the latter, for a letter to go to Calcutta and back. Great part of the office work, however, consists of unofficial references from the Government in the Home and Military Departments. The files are sent for opinion, and a note written and the file returned.

Colonel T. B. Harrison, Controller
of Military Accounts, Bengal.

On receipt a letter is—

- (1) Opened and read by the head of the office.
- (2) Registered.
- (3) Docketted.

- (4) Indexed.
- (5) Completed (*i.e.*, all previous correspondence connected with the matter of which it treats is put up with it).

(6) The packet is then made over to the assistant to the controller, who marks it off for disposal to the sub-division of the office to which the subject pertains.

(7) If the matter can be disposed of without reference to any other office of the department, the clerk whose duty it is to draft the reply takes orders regarding it, if necessary, or disposes of it without, and submits the draft through the assistant to the controller for the controller's approval.

(8) If not, it is sent for report to the office concerned, and further action suspended awaiting such report.

(9) When the draft is approved, it is sent to the copying section, and the fair copy, after being signed, is made over to the despatcher, who, after noting the number and date of the disposal in the register, enters the address in the letter despatch book and sends it off.

Major O. R. Newmarch, Accountant-General, Military Department.

Letters and cases received in the office are registered, docketed and submitted through the chief accountant to the assistant accountant-general and accountant-general for information in the first instance. They are then returned to the chief accountant who marks and distributes them to the assistants concerned. These assistants with the help of the reference department complete the cases with p. p., precedents, rules, regulations, &c., and submit them with or without notes as required through the chief accountant to the officers of the department for disposal or orders.

All cases which are disposed of by notes by the officers are issued on return to the chief accountant after copy is taken of the notes. As regards the others, the cases on return with orders from the accountant-general and assistant accountant-general are again dealt out by the chief accountant to the assistants concerned who draft the requisite orders, which are then submitted for approval through the same channel, and after approval are sent to the issue section of the office to be copied, examined, entered in the issue register, and despatched after signature.

Colonel B. Walton, Superintendent and Agent, Army Clothing, Bengal.

The army clothing department is both a factory and an office. The department therefore performs double duty of executive and superintendence. The class of work therefore which passes through the office is consequently of a double kind—not only that contained in letters. This work is detailed below.

I.—Every document of easy kind on its receipt is registered in the office. It is then distributed to each clerk whose duty it is to attend to it for action on it. *Vide* schedule No. 10.

II.—If an indent, it is examined by the indent examiner. If it is correct, it is passed for compliance; if not, it is returned for correction. The same course is followed on its again being received in the office.

III.—If passed for compliance, it is made over to the master-tailor's department, who prepares a requisition on fixed scale on the store department of the agency for the cloth and materials to complete the said indent by manufactured clothing, or for the despatch of cloth and materials to corps where the indent is passed for materials in bulk.

If it is a letter or any other document affecting either the office, the master-tailor's, the stores, or packing department, it is sent by the office head clerk to any one of the employes mentioned in schedule No. 10; and if work peculiar to the manufacturing or stores department, where the required information is elicited, it is put into shape in the office, and reply to letter sent accordingly.

If the letter or document is solely office work, the clerk who receives it finds his facts from published regulations or Government letter in the military department, and prepares reply or frames documents accordingly. *Vide* details of duties as per schedule No. 10.

SCHEDULE 10.

List of the sanctioned establishment of the Army Clothing Department, showing the details of the duties each employe has to perform.

Designation.	SALARY.			Duties.
	Minimum.	Maximum.	Present.	
Head assistant	Rs. A. P. 220 0 0	Rs. A. P. 300 0 6	300 0 0	1st—Distributes and superintends the work of the office general received, and examines every paper sent out of the office. 2nd—Performs the following duties personally in addition: Checks all indents for payment supplies; drafts all orders connected therewith. Drafts all general correspondence not peculiar to the office indents for clothing or great-coats, and prepares all reports and statements on clothing, objected to, or proposed new supplies for the army. 3rd—Attends to all correspondence regarding non-receipt of clothing; enquires into each case, and prepares replies accordingly.
Examiner of indents and clothing returns.	150 0 0	200 0 0	300 0 0	1st—Examines all indents from all branches of the army, the medical department for officers of departments, &c., and drafts all correspondence connected therewith. 2nd—Examines all committee reports on and checks and passes indents for great-coats and cloaks, and drafts all correspondence connected therewith.
Fraser of Europe indents and budget estimates, Accountant	100 0 0	140 0 0	140 0 0	3rd—Prepares progress reports on clothing manufactured, &c., &c. Prepares budget estimates, estimates for Europe clothing, stores and necessaries; Europe indents for clothing, stores and necessaries; certificates for Europe stores received, &c., &c.
Assistant	80 0 0	100 0 0	100 0 0	Prepares cash account statement of garments sewn by basters; checks and passes vouchers; pays bills; transport bills; bills for payment; issues; checks and passes tailors' bills; lodgers the same up; checks bills for local supplies, &c., &c. Prepares certificates of clothing supplied or not supplied, notes to the storekeeper and transfers documents to the different departments of the agency; gets all clothing and great-coat returns filed; supplies receipts to the head assistant and indent examiner; has a number of letters to draft; assists head assistant in preparing returns, &c., &c.
Ledger-keeper	80 0 0	100 0 0	100 0 0	Keeps stock ledgers (now 6 in number) and necessary accounts; ready-made and cut and trimmed clothing; (number); regimental packing account books, and daily register book of garments received into store from the master-tailor on each requisition.
Diarist	60 0 0	80 0 0	80 0 0	Keeps diaries of letters received and sent; furnishes references; keeps stationery account; drafts letters and orders; and assists generally in the work of other assistants.
Cashier	60 0 0	80 0 0	80 0 0	Keeps the daily cash-book.
Assistant cashier	25 0 0	35 0 0	25 0 0	Assists the cashier in his duties; pays tailors; and pays the establishment engaged, hearing the tailors; assists in copying office letters when not so engaged.

List of the sanctioned establishment of the Army Clothing Department, &c.—(continued).

Designation.	SALARY.			Duties.
	Minimum.	Maximum.	Present.	
	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Despatcher ...	25 0 0	35 0 0	35 0 0	Copies current letters and statements; keeps postal accounts; numbers and despatches letters.
Current writer ...	25 0 0	35 0 0	35 0 0	Copies letters, principal indents and statements; assists in preparing indents and estimates, &c.; copies storekeeper's day-book.
Record supplier ...	.....	.....	10 0 0	Supplies records and files all letters.
Dutty ...	.....	.....	8 0 0	Rules all books, statements, &c.; prepares envelopes.
4 peons at Rs. 6 each ...	.....	.....	24 0 0	Convey town letters and attend to the office assistants in carrying instructions to several departments of the agency.
Master-tailor ...	300 0 0	400 0 0	400 0 0	Cuts patterns; superintends the cutting and trimming; regulates the general work; checks all papers, bills and books of his department; trains men for master-tailors; teaches the lads to work the sewing-machines; superintends repair of all machines in the agency; sends requisitions on the stores for cloth and materials to manufacture clothing, or for materials in bulk.
Assistant master-tailor	180 0 0	250 0 0	210 0 0	Superintends the work done by the machines and tailors; distributes the work to section superintendents; teaches practical cutting to men of training class; superintends the work done by bastors; cuts patterns.
Requisition framer ...	40 0 0	60 0 0	60 0 0	Prepares requisitions on account of indents for the master-tailor's store and packing departments; copies the duplicate, furnishes references; writes up progress report book.
Assistant to master-tailor	35 0 0	45 0 0	45 0 0	Keeps the master-tailor's cutting, requisition and delivery books; the attendance of Native establishment, register book of indents, register book of made garments; copies size rolls, &c.; makes memoranda of garments for tailor's shop, monthly cutting statements, &c.
Receiver of stores ...	25 0 0	35 0 0	35 0 0	Receives cloth and materials from the storekeeper and distributes them to the cutters and trimmers; keeps cloth account book, surplus book, charm book; writes scales of new patterns, &c., &c.
Superintendent of trimmers.	25 0 0	35 0 0	35 0 0	Copies size rolls in the cutter's book; writes size tickets of garments daily out; examines size roll book; keeps an account of garments daily cut.
Superintendent of issuers	60 0 0	80 0 0	80 0 0	Receives all made garments from the section superintendents; has the garments sorted and pressed and sent to the stores; has about 40 issuers under him, whose names he registers daily and returns them in the tailors' shops; keeps three books, a regimental ledger, issuers' register book, and a receipt book; selects garments for sealed patterns; supplies references.
Superintendent of sewing-machines.	60 0 0	80 0 0	60 0 0	Keeps attendance of machinists, bastors and tappers, and prepares their pay bills; examines bills of section superintendents and prepares the contractors' bills. Enters the master-tailor's memoranda of issues and makes over finished garments to the superintendent of issuers; writes in the daily work of the bastors; notes in the master-tailor's memoranda the sections to which work issued, and whether completed entirely by tailors or partly by machines.
1st section superintendent.	40 0 0	60 0 0	40 0 0	Issues garments to and receives them back from the tailors; makes the tailors' bills.
2nd section superintendent.	40 0 0	60 0 0	60 0 0	Ditto ditto ditto.
3rd section superintendent.	40 0 0	60 0 0	44 0 0	Ditto ditto ditto.
Examiner ...	.....	.....	20 0 0	Examines the work of the tailors.
Ditto ...	.....	.....	20 0 0	Ditto ditto.
Ditto ...	.....	.....	20 0 0	Ditto ditto.
Blacksmith ...	.....	.....	20 0 0	Keeps the sewing-machines in proper repair, and repairs all agency plant and appliances.
Trimmer ...	.....	.....	12 0 0	Distributes the trimmings of garments.
2 durwans at Rs. 7 each ...	.....	.....	14 0 0	Supply hot-iron for pressing ditto.
2 durwans at Rs. 6 ..	.....	.....	12 0 0	Watchmen.
6 coolies at Rs. 8 ..	.....	.....	36 0 0	For all the carrying work of establishment.
1 packal bhidias ..	.....	.....	15 0 0	Brings drinking water for the European and Native tailors of the agency.
Storekeeper (staff pay)	.....	.....	100 0 0	Supervises the working of the store and packing departments; writes the day-book of receipts and issues of stores; keeps the register of requisitions received from the master-tailor for issue of materials on made-up clothing.
Assistant storekeeper (Military pay)	.....	.....	80 0 0	Takes into store all boots and shoes received from England and sees them stocked; receives from the master-tailor all ready-made clothing; issues all ready-made clothing to the packing department; boots also; keeps a register of sizes of clothing returned by regiments with a view to the resissue of the same.
Native assistant to the storekeeper and 1st issuer of stores.	60 0 0	80 0 0	80 0 0	Issues stores to the packing and master-tailor's departments.
Assistant issuer of stores	20 0 0	30 0 0	24 0 0	Examines and compares the stores received from England; stocks the stores in their respective places in different piles for each year's importation.
Despatching sizar ...	.....	.....	20 0 0	Assists the 1st issuer of stores in issuing the materials to the master-tailor's and packing departments.
Sizar ...	.....	.....	16 0 0	Despatches all clothing stores to regiments and brings in stores returned by regiments, &c., from the railways and bullock-train offices.
Ditto ...	.....	.....	16 0 0	Assists in the issuing of stores.
Carpenter ...	.....	.....	16 0 0	Ditto ditto ditto.
4 andar ...	.....	.....	8 0 0	Does the packing and other carpenter's work of the agency.
100 lbs at Rs. 7 each ...	.....	.....	14 0 0	Supervises the work of the coolies.
100 lbs at Rs. 6 ..	.....	.....	60 0 0	Carry cloth and materials from store to the master-tailor's and packing departments, &c.
100 lbs at Rs. 5 ..	.....	.....	10 0 0	Sweep and keep the office clean, &c.
100 lbs at Rs. 4 ..	.....	.....	35 0 0	Water the compound, &c.
100 lbs at Rs. 4 ..	.....	.....	8 0 0	Has general superintendence of the packing and despatching departments personally; sees all packages marked and sent off; compares all invoices with the day-book of the issue department and compares and signs all packing memoranda, with the invoices of stores issued; examines all indents, marking off dates of despatch; checks all receipts, bills, bills of lading, credit notes, service and bearing orders connected with despatch of stores by the railway and other companies, and drafts all correspondence relating to the same; personally keeps up the packing book of stores issued to different regiments, and answers all queries or references made to the packing department respecting the despatch or loss of stores.
Assistant to the agent.	.....	.....	100 0 0	daily receives over all articles from stores or issue department, and grants receipts to same; sorts them out for their different packages; sees that all packages are properly marked, and keeps up a book of their contents.
Despatching clerk	.....	.....	0 0 0	weighs and measuring of all packages despatched; makes out all credit notes, &c., and keeps up a list of stations and moves of regiments.
Invoice writer	.....	.....	0 0 0	day-book; writes invoices and packing memoranda; writes despatch book; account of packing materials received and expended; account of cuttings and shavings; postage account; account of tinman's work; account of letters sent to all packages despatched.
Markman	.....	.....	.....	packing man, inside.
Ball-maker	.....	.....	.....	ditto, outside.
Head packer	.....	.....	.....	sales.
4 packers at Rs. 7 each	.....	.....	.....	Store-keeper's Establishment.
Ditto " 6 ..	.....	.....	.....	account book, book of regimental necessities; makes credit notes and bullock bills; has letters to draft; makes custom-house passes for band instruments or regimental stores; keeps ledger for tobacco, drill, &c., &c.
Ditto " 5 ..	.....	.....	.....	of all books received and sent, and despatches them to regiments, &c., and regimental necessities.
1st assistant	.....	.....	.....
2nd assistant	.....	.....	.....
Library clerk	.....	.....	.....
Sizar	.....	.....	.....
Dutty	.....	.....	.....
Total	0,905 0 0	2,595 0 0	3,692 0 0	

ARMY CLOTHING DEPARTMENT;
 Aitpore, the 29th August 1879.

B. WALTON, Colonel,
 Supdt. and Agent, Army Clothing.

Colonel J. K. Couper, Director of Army Remount Operations.

On receipt of a letter, I read it and pass it on to the office for registry, and for previous references, if any, to be put up. The documents are then returned to me, and I draft a reply or issue the necessary orders. The reply is then written and copied in the book, and if the matter is of importance, a separate bundle is made of the papers connected with it, and all references are noted on the documents showing how the subject was disposed of.

The above refer to matters of importance. In common cases the replies are drafted in the office.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

The head clerk attends daily at or about 10 A.M. at the office of the general superintendent, when all letters received are opened by the general superintendent and made over to the head clerk, with notes as to the subject of the replies to be sent. The letters are then docketed by the 2nd clerk, and passed over to the 4th clerk to be registered.

After being registered and numbered with the receipt or register number, they are brought back to the 2nd clerk, who chains them, by references in number, to former correspondence, after which they are sent to the head clerk, who, in accordance with notes received, makes out drafts of the replies, which are sent to the general superintendent for approval. On the return of the drafts, duly initialed by the general superintendent, they are copied out fairly and presented for general superintendent's signature. After being signed, they are numbered with the issue number, entered in the register of despatch, put up in covers franked by the head clerk, and posted. The approved draft of each letter is retained for office copy; and after the post has been despatched, they are also docketed and chained to the respective letters and filed in bundles. There are two files or bundles (one for "receipts," and the other for "issues") for each of the following:—

- (1) Government of India, military department.
- (2) Government of the North-Western Provinces and Oudh.
- (3) Government of the Punjab, military department.
- (4) Governor-general's agent, Rajputana.
- (5) Director of army remount operations.
- (6) Assistant superintendent, horse-breeding operations, North-Western Provinces and Rajputana.
- (7) Assistant superintendent, horse-breeding operations, Punjab.
- (8) Miscellaneous, embracing correspondence with comptroller-general, controller of military accounts, accountant-generals of the North-Western Provinces and Punjab, civil officers of all the districts of North-Western Provinces, Rajputana and Punjab, officers commanding all the Native cavalry corps, &c.

Major-General Sir P. S. Lumsden, K.C.S., C.S.I., Adjutant-General in India.

We will take a letter from Government asking for Commander-in-Chief's opinion on some question. On receipt the letter is sent by the chief clerk (who opens the dâk) to the head clerk of the branch to whom the subject may appertain (*vide* lists of work headings). If it refers to previous correspondence, the branch head clerk makes the

letter over to his record-keeper and diarist (one man), who gets out necessary previous papers and returns the letter with previous papers to head clerk. The latter then scrutinizes the papers, and finding them complete, makes them over to one of his clerks, who brings the contents of the letter on the précis docket of the case, stitches up the letter at end of compilation, and then hands the papers to diarist. The diarist enters the letter under its subject heading in diary, noting as a catch at bottom of entry, the diary number of previous entry in same case, to maintain check links. He also enters a day nominal index sheet, kept with the diary, the names of officers or men referred to in letter. He writes on précis of letter the diary number he has given it. The case completed, he hands to the clerk.

The head clerk reads up the case and notes clearly on précis how it stands, quoted precedents, and suggesting action for its disposal. He then sends it to the officer of branch, who notes his remarks and opinion on précis, and submits the case to adjutant-general.

The adjutant-general reads the précis docket (which in all cases a copy-general is matter from the beginning down to the letter we are following) and refers to the history of the necessary. He finds on consideration that the subject is one he can well dispose of himself, so he notes his views on précis, and orders it into schedule, *i.e.*, for submission to Commander-in-Chief. All papers from adjutant-general are delivered to the chief clerk for distribution, &c., and thus the chief clerk has received the particular case in which the order we are following is marked for schedule. He sends it to the branch officer that he may see the orders passed by adjutant-general. It then goes to branch head clerk; he hands it to the diarist, who writes "schedule" opposite diary entry of case, and sends it again to chief clerk.

The case is now briefly entered with others by chief clerk in a printed form of register schedule, and submitted by adjutant-general to the Commander-in-Chief. His Excellency (like every one else) writes his orders on the précis, and the case comes back again from the adjutant-general to chief clerk, to branch officer, who submits to adjutant-general for approval. Adjutant-general amends or approves, and sends papers again find their way to the branch, where the draft is fair-copied, examined, and sent to letter goes to branch, who initials it in pencil and forwards to adjutant-general for signature. This draft is dated and despatched to Government.

The draft is then circulated for perusal by drafts of the day (every branch does this daily) to branches and officers, so that all may see (we do not make book copies of our letters).

After circulation the draft is stitched up, *i.e.*, "pending" or "deposit," and hands it to The head clerk then notes on précis "P"

diarist, who makes in diary column a brief abstract of the reply given to Government (our diaries are indexes of receipts and issues, we do not keep separate indexes.) He notes therein also "P" or "D" and puts away in the pending of deposit almirah of current year, the case containing the Government letter we have followed.

(NOTE.—The foregoing follows a letter requiring His Excellency's personal orders. But of course quite two-thirds of our receipts are disposed of by order of the adjutant-general under regulation. Important and special matters only being submitted to His Excellency.

Nevertheless, in hundreds of cases the procedure described is lengthened and work increased when circular reference is made to departmental, general or commanding officers, for opinion before final orders are passed.)

Colonel C. C. Johnson, Officiating
Quarter-Master-General in India.

Office procedure—

The quarter-master-general, as a rule, approves and signs the following papers:—

- (a) All correspondence with the Government of India.
- (b) All action on schedule cases.
- (c) All draft general orders and circulars.
- (d) All correspondence with Horse Guards (letters for Horse Guards are signed by His Excellency the Commander-in-Chief).
- (e) All correspondence with their Excellencies the Commanders-in-Chief, and the quarter-master-generals of the Madras and Bombay presidencies.

Officers in charge of branches dispose of all routine cases clearly provided for under the regulations, or by precedent; important cases, and cases about which there is any doubt, are prepared and submitted for the orders of the quarter-master-general.

The chief clerk performs the following duties—

(a) He is responsible to the quarter-master-general for the discipline, system, and arrangements of the office generally.

(b) The contingent expenses of the office, stationery, issue of salaries, &c., &c., are supervised by him.

(c) He is the custodian for the quarter-master-general of all confidential papers.

(d) As personal assistant to the quarter-master-general, he receives all current cases for him, and distributes the same to branches after orders have been passed thereon.

(e) He receives and opens all official letters, and franks the dak for despatch by post.

(f) He is the ordinary channel of communication between the office establishment and the officers in regard to all personal applications, leave, &c.

The following is a brief outline of the office routine—

(a) The chief clerk opens the dak and sends it to the officers for perusal.

(b) On return of the dak the chief clerk makes over the portions relating to branches to the respective head clerks who have the papers entered in their diaries.

(c) After entry and completion with previous papers, head clerks of branches have the cases prepared for their respective officers.

(d) Current cases, drafts for approval, and papers for signature, are ordinarily submitted once each day, and are placed on the officers' tables so as to be ready for attention early next morning.

Telegrams and urgent work, however, receive immediate attention.

(e) All documents for the quarter-master-general are ordinarily sent to the chief clerk for submission in due course; but when necessary officers verbally receive the quarter-master-general's orders in cases.

(f) Cases relating to subjects of two branches are entered in the diaries of both branches and when necessary submitted to the officers in respective charge before any action thereon emanates from office.

(g) Head clerks of branches are responsible that all action is taken on papers previous to their being finally deposited in the record-room.

(h) Drafts of each day after being indexed are circulated for the perusal of the officers, the chief clerk, and head clerks of branches.

Should any impediment occur in the practical working of the foregoing arrangements, head clerks of branches propose, if possible, a remedy and if unable to do so, represent the matter to the chief clerk.

When there may be a sudden and special pressure in one branch and in another a temporary slackness of work, such instances are reported to the chief clerk, who is empowered to call upon any clerk to perform work additional to that which lies within his province under the branch system.

The course of a letter in its passage through the office and of its reply is as follows:—

It is opened and stamped by the chief clerk and sent by him with the rest of the delivery to all the officers for perusal and return. It is then passed on to the head clerk of the branch to which it properly belongs; by him it is sent to the diarist, who enters it in his diary, puts up previous papers, if any, and returns it to the head clerk of the branch. The latter causes a précis-docket to be prepared,

writes an explanatory note thereon, if necessary, and submits it to the officer of his branch through the chief clerk, who scrutinizes it before passing it on.

The officer of the branch writes his remarks or orders on the précis-docket, and returns the case to the chief clerk to submit to the quarter-master-general for final orders, or pass on to the head clerk of the branch for action, as the case may demand.

On receiving back the case the head clerk of the branch arranges for the preparation of a draft of the action ordered, which he submits through the chief clerk for the approval of the officer of his branch, who returns it to the chief clerk for final approval by the quarter-master-general, if necessary, or to pass on to the head clerk of the branch.

The latter, on a receipt of the approved draft, sends it to the head Native clerk by whom it is given to a copyist; the fair copy is carefully compared with the draft by the two European clerks, whose

weekly duty it may be to examine the copyists' work, and is then sent by the head clerk of the Branch, through the chief clerk, for signature. After signature the chief clerk sends it to the despatching clerk who gives a number and dates it, marks the action taken on the letter to which it is a reply on the précis-docket and upon any previous drafts there may be in the case, weighs and affixes postage labels to the cover, and sends it to the chief clerk for frank, when this has been done the despatcher sends it to the post office for delivery, sends the case to the record-room for deposit, and the draft action to the indexer for entry in the index of letters written and filed.

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India.

On receipt of a letter, it is stamped with the date of receipt, entered on a précis docket, entered briefly in the diary, and put up with all former correspondence or orders relating to the subject, and a short report to the deputy assistant adjutant-general, who either passes orders upon it himself, or submits it for the orders of the deputy adjutant-general, royal artillery. The orders are then carried out by a clerk; if a small matter, the reply or whatever action is ordered is prepared for signature; if a large matter the action is submitted in draft, and if of sufficient importance the question is scheduled and submitted for the orders of His Excellency the Commander-in-Chief. The reply after signature is copied, numbered, dated, compared with the original, and despatched in the ordinary manner, and the draft or copy placed in the case.

If no further action is required, the case is deposited; otherwise, it is kept pending a reply, which when received is treated in a similar manner to the foregoing.

Colonel J. Young, Judge Advocate-General, Bengal.

A letter received is first stamped and registered in the office books and submitted, with references or previous communications on the same subject, to me for report or reply. The reply is sent back to office, and after registry is made over for transcription to one of the writers. Both draft and fair copies are then given to the examiner, by whom the fair copy is examined and submitted for signature. The despatcher then despatches it to the addressee.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

When a letter is received in principal veterinary surgeon's office, it is entered in the inward register, also a précis of its contents. The answer is then drafted by the principal veterinary surgeon, twice copied by the clerk, a précis entered in the outward register, the original is then despatched to its destination and a copy retained for filing in the office.

Major A. S. Hunter, Director of Garrison Instruction in India.

A letter received in this office is docketed and registered by a clerk; I then write the reply, which is finally copied and despatched by a clerk.

Major H. J. Hallows, Inspector of Gymnasias in India.

Letters, &c., received are registered by the clerk (only one in office), numbered and connected with previous papers, if any, on the subject. If the subject is one where a precedent exists, the matter is disposed of at once by a reply in accordance, which is duly entered

on record, numbered and despatched, and the case filed among the office records. If the subject is one requiring the sanction of Government, the mode of procedure is as follows:—

For example—“The introduction of jerseys for instructors in place of serge shirts.”
1st.—Letter to quarter-master-general from this office proposing the substitution of jerseys as (entered and despatched by clerk).

2nd.—Reply from quarter-master-general calling for cost of proposed articles as to the register keeper (other documents).

3rd.—Reference to foregoing letter to clothing department, calling for then on the same with cost (entered, noted in the register opposite reply from quarter-master-general, the by clerk).

4th.—Reply from the clothing department (registered by clerk).

5th.—Replies to quarter-master-general's letter and forwards jersey for apps then given).

6th.—Military department sanction received from the quarter-master-general goes directly returned (duly registered and connected with previous papers).

7th.—Jersey returned to clothing department, with intimation of its introduction sanctioned by Government (entered).

8th.—Draft general order introducing the jerseys forwarded to quarter-master-general for final promulgation (entered).

9th.—General order promulgated; number duly entered on case, which is completed and deposited among records.

Major F. W. Dunn, Superintendent, British Army Schools.

The letters come mostly from officers commanding or from the sub-inspectors. They are handed to the office clerk to be entered and docketed, and are then laid before me. The reply or forwarding letter is roughly sketched by me or the assistant superintendent and given to the clerk to work into an office draft, which on approval is fairly written, the office draft remaining for record.

Indents after entry and docket are checked with previous records by the clerk, assistant, or myself and passed by me, being then forwarded either to the adjutant-general for final approval, or to the stationery office for compliance.

The invoices of articles issued on these indents are receipted by commanding officers, sent to this office, checked with the indents, and passed on with the office endorsement to the agents for supply.

Letters referred to the adjutant-general are usually forwarded in original, a précis of the contents being kept as an office record. The replies of the adjutant-general conveying the orders of His Excellency the Commander-in-Chief or decisions of Government on points referred are retained, and the substance thereof communicated to the parties concerned.

Major F. H. Marsh, Superintendent Native Army Schools, Umballa.

If the letter is regarding regimental schools, I refer to the correspondence with the regiment, its returns and the office record books, and answer the letter myself. The clerk copies it into the letter-book and despatches it.

If the communication concerns a normal school pupil, enquiry is made from the head-master, his reply and the vernacular answer of the sepooy is sent me; if not sufficient, I call up the student, and enquire in the presence of the head-master, then draft my reply, and note the date of answer on the original letter received, which is then put away in its regimental file.

Other returns are examined by the 1st class of the normal school with me, to show them how, when they are school-masters, their errors will be detected in their returns.

Examination papers are dealt with in co-operation with the examiner of Government normal schools, Punjab, whose tests show that all normal schools are working up to the standard—the Umballa normal school as well as the civil schools. The results are certificates sent up to head-quarters (adjutant-general) for issue to successful competitors.

Colonel R. A. Moore, Acting Commissary-General, Madras.

The letter on receipt is opened by the deputy commissary-general. He initials it and marks on it the date of receipt. The letter is then carried to the personal assistant who takes it to the diary-keeper to be diaried. It is then sent to the commissary-general, and after perusal

returned to the personal assistant, who delivers it to the head clerk of the branch to which it belongs. The head clerk, with the assistance of the record-keeper, collects all previous orders and letters bearing on the subject, and prepares a draft reply. The letter with the draft reply and all the previous correspondence is then sent to the officer in charge of that branch, who passes the draft, corrects it, or re-writes it, as may be necessary.

The corrected draft with the letter and previous correspondence is finally sent to the commissary-general for his approval. After being passed by the commissary-general, the draft reply is taken to the personal assistant who delivers it to a copying clerk. The fair copy is then sent for signature, and is afterwards handed to the despatching clerk who numbers it and diaries it.

The draft reply is filed in the office as a record, instead of copying the letter into a letter book.

Colonel H. E. Chamier, in charge of Ordnance Department, Madras.

Office hours are from 10-30 A. M. to 1-30 P. M. and 2-30 P. M. to 5 P. M. On arrival at office of the deputy inspector-general, the post is taken to him and opened by him. Important letters are sent on to the inspector-general; other letters sent in to the office.

The manager of the office marks on the letters the section in which they have to be disposed of. They are then taken to a clerk, who enters the subject of each in a register and gives each a registered number. They are then distributed to sections. If they are mere routine papers, the head of the section at once disposes of them in the usual manner. If of importance, he obtains all previous correspondence on the same subject from the record department, and takes the letters and correspondence to the inspector-general or deputy for orders, if such have not been entered on them. On getting such orders, the head of the section drafts a reply, which is first submitted to the manager, sent for approval to the deputy, and afterwards, if necessary, to the inspector-general. On being initialled as approved, a fair copy is prepared in the current department, which after signature is sent to the despatcher for despatch by peon or post.

Each day, telegrams and (e) All documents and cases relating to the office are carefully examined by the secretary and clerks, and the date of the letter is noted. The secretary then writes the draft reply, of which a clerk makes a fair copy and copies it into a book. The letter shows the date, to whom sent, its subject, and the page of the letter book in which it is copied. The letter is then signed by the surgeon-general or secretary and returned to the manager, who sees it entered in the despatch-book. The latter shows the number of the letter, to whom addressed, and date of despatch. If the letter has to be transmitted by post, it is weighed and stamped, and the particulars of weight and postage duly entered in the postage account book.

Dr. H. R. Orwald, M.D., Acting Surgeon-General, Indian Medical Service, Madras.

A letter received in this office is annotated on or disposed of at once by docket by the secretary and sent to be registered. When registered, if necessary, it is passed on to the record department, where the references required for its disposal are supplied, and the correspondence submitted

to the surgeon-general in a complete form. It is then either disposed of by the surgeon-general or returned to the secretary with orders, conformably to which reply is drafted by the secretary or the manager. The draft is laid before the surgeon-general for approval, and passed on to the copyist, who sends the transcript with the draft to the examiner for comparison, and for the number and date being added from a register kept by him. The subject is indexed by him. This done, the transcript is placed before the surgeon-general or secretary for signature, and delivered to the despatching clerk for transmission, who notes the number in the post book or peon's book according as it may be despatched by post or messenger, and the original letter with the draft passed on to the record department for deposit.

Dr. W. H. W. Cornish, F.R.C.S.,
Sanitary Commissioner for Madras.

The manager opens all letters, &c., received in the office and takes them to the sanitary commissioner, who, after perusal, sends them out for registry. They are then registered in a book kept for the purpose, called the receipt register. After registry, the manager takes up such of them requiring disposal (the others being given to the record-keeper to be recorded), sees that references, if any are required, are put up, and sends them to the sanitary commissioner, who passes his orders or instructions, on ordinary and routine letters to be replied to in the office, and keeps back those of importance to be replied to by himself. The draft reply when sent out is fair-copied in the office, numbered, signature obtained, and despatched, after which it is registered in a book kept for the purpose, called the despatch register, and recorded.

The vaccination department being under the control of the sanitary commissioner, all correspondence regarding vaccination is kept and registered separately, headed "vaccine department." Letters received on this subject, if requiring the remarks or report of the inspector of vaccination and deputy sanitary commissioner, are first sent to that officer, and finally disposed of by the sanitary commissioner after his report or remarks are received, the course being the same as that detailed above.

At the end of the month all papers of importance requiring permanent record are printed in a volume called the "Proceedings of the Sanitary Commissioner," copies of which are sent to the Secretary of State, to Government, to the several municipalities and local fund circles, and other departments.

Colonel J. W. Rifeout, Controller
of Military Accounts, Madras.

Letters received by the controller may be grouped into two large classes: one, from individual officers, either preferring claims in the first instance, or appealing against the decisions of departmental examiners; secondly, of letters to Government from heads of departments submitted through this office for report on any financial question involved.

The procedure adopted in the disposal of letters of the first class is to call for (from the examiners concerned) all papers connected with the claim to be adjudicated on by the controller.

With the 2nd class of letters, reference is made to the respective examiners for any precise detailed information required in their disposal, and this data is embodied in a report to Government.

The course of a letter through the office is briefly as follows:—

The cover is opened by the controller of military accounts, initialed (with date), and any remarks that present themselves recorded in pencil thereon. The letter is next sent to the head assistant, who notes any orders of Government, &c., required in its disposal, and sends the papers to the diary-keeper. After diary the letter is carried to the reference picker, who attaches any previous correspondence, and the orders, &c., called for, and returns the papers to the head assistant, who, in cases where the controller does not dispose of the question himself, writes the disposal draft and forwards all papers to the controller for approval. After approval the draft is taken to the head clerk, who causes it to be fair-copied, which he examines. Both draft and fair copy are dated and numbered. The draft is handed to the diary-keeper who notes disposal in his register, and transfers it to the index to be indexed. It then proceeds to the reference picker who notes it in his register and places it in its particular bundle (all papers being filed according to subjects.) The fair copy is taken to the controller, signed, and despatched by the clerks allotted to that duty.

Pay Examiner, Madras.

The method of office procedure is substantially the same as detailed in this office docket No. 1852, dated 20th November 1873. The date of receipt of every letter and other document is stamped thereon by the examiner, and when necessary special directions as to the reply are noted thereon by him, it then passes through the assistant examiner to the register-keeper, who enters its number, date, date of receipt, and purport in the register. He then on the same day delivers it to the clerk whose duty it is to draft the reply. If replied to by the examiner, the draft is at once taken to the correspondence section, where it is fair-copied; the fair copy signed by the examiner and despatched. The number, date, and purport of the reply is entered in a register kept in that section. The draft reply is filed as the office copy. The latter received is then given to the register-keeper and filed. If the draft reply is written by the assistant examiner, it goes direct to the examiner; if by the superintendent, through the assistant examiner; if by the head clerk of a section, through the superintendent and assistant examiner, and is disposed of as stated above.

Statements of objections and disallowances pass in the same manner from the head clerk of the section in which the audit takes place, through the superintendent and assistant examiner to the examiner, and are copied and despatched as above detailed, the rough copy being filed as the office copy.

Examiner of Commissariat,
Clothing and Stud Accounts,
Madras.

The system of audit pursued will be found fully detailed in this office letter, to the Controller of Military Accounts, dated 21st December 1870, No. 2556.

Letters received in the office are opened by the examiner, passed on to the head assistant, who stamps them and passes them on to the current department to be entered in the diary and distributed to the auditors concerned, who draft replies which pass through the manager and the head assistant to the examiner, who sends them, after approval, to the current department to be fair-copied and despatched.

Examiner of Ordnance Accounts,
Madras.

On receipt of a letter in the office, the following procedure is observed:—

I.—It is opened and read by the examiner and then sent to the superintendent.

II.—The superintendent marks on the document in red ink the subdivision to which it relates.

III.—It is then transferred to the registrar who marks the general number and registers it in the book kept for that purpose.

IV.—It is then sent to the section concerned for disposal, and if previous correspondence is required, it is obtained from the record department.

V.—Draft is prepared, and submitted to the examiner, through the superintendent of the office.

VI.—After approval, it is returned to the registrar, receives a despatch number, is fair-copied, signed, entered in the despatch register, and then despatched.

VII.—The draft is then put into the bundle in the subject to which it relates by the record department.

Examiner of Medical Accounts,
Madras.

The letter is first opened by the examiner and then sent down to the office where it is read by the superintendent, who after seeing that it is numbered and registered, passes it on to the clerk in charge of the department to which the contents of the letter relate. This clerk then drafts a reply himself, or furnishes the necessary information to the superintendent, who drafts replies on important subjects.

The draft is then submitted to the examiner who either approves of it, or alters it, or calls for further explanation on the subject. On the draft being finally approved by the examiner, he affixes his initials to it. It is then fair-copied and signed by the examiner.

Examiner of Medical Funds
Accounts, Madras.

The letter is first opened by the examiner and is then sent down to the office, where it is numbered and registered. The manager having then ascertained what information is required or to what subject the letter refers, looks up what is necessary in the office records and drafts a reply, which is then sent up to the examiner for approval or otherwise. If the examiner approves of the draft, he affixes his initials to it, and a fair copy is then made for his signature, and the letter is forwarded to its destination.

Examiner, Madras Military Funds
Accounts, Madras.

The letter is first opened by the examiner and then sent down to the office, where it is examined by the head assistant, who after seeing it numbered and registered obtains from the clerk in charge of the subject to which the letter refers the required information to enable him to draft the reply. The draft, when written, is sent up to the examiner,

who approves of it, calls for explanation, or makes any alteration he may consider necessary. When the draft is finally approved of, a fair copy is made and the letter after being signed by the examiner is forwarded to its destination.

Military Account Department,
Accounts Branch, Madras.

Accounts are received from disbursing officers, presidency pay office commissariat, remount and clothing departments, and compilation statements, from the several examiners. Accounts are also furnished to this office by the several civil accountants-general, examiners of public works accounts, officers in charge of accounts branch, Bengal and Bombay, and Home authorities. These are scrutinized in the office. The final statements of receipts and charges on account of the Military Department is prepared and furnished by this office monthly to the accountant-general, military department, other returns are also prepared and furnished to the several departments and Governments, including Home.

All papers received in the office, accounts, statements, letters, &c., are opened by the officer in charge, who notes on them the dates of receipt of each document and makes any remarks which may be called for regarding its disposal. They are afterwards seen by the head assistant, who marks them for distribution to the sections to which they appertain when necessary, and they are also seen by the next assistant. They are then registered in the diary-books and handed over to the several departments concerned for the necessary action. Drafts are prepared in different departments of the office, passed by the head assistant and the officer in charge. All papers to Government and the accountant-general, military department, and others of special importance to heads of offices, &c., are also passed by the controller of military accounts. They are then copied, examined, numbered, dated, signed and despatched.

Such questions the disposal of which is dependent upon informations from other departments, before a final reply can be given, are referred to the departments concerned. The necessary replies are issued afterwards on receipt of information.

Presidency Pay Office, Madras.

The establishment of the presidency pay office is divided into two sections, *i.e.*, disbursement and account.

The work in the former section consists of the examination and record of the various claims presented for payment, of the preparation of cheques and transfer receipts for signature, cash payments for sums below Rs. 10, and the correct recovery of public demands and retrenchments.

The work in the latter (account) section is mainly the compiling of the cash account current and the subsidiary schedules and statements connected therewith.

The disbursing section keeps up its own check register of commissioned officers, and the claim and mode of payment is invariably entered in the general register of payments, and initiated by the cheque or transfer receipt clerk prior to the documents being submitted for signature.

The entries in the general register of payments are daily compared with the vouchers, and marked off and initialed by the paymaster.

The record of the transactions, so far as it concerns the payment section, having been thus completed, the documents are then made over to the assistant in charge of the account section for entry in the several registers appertaining to his section.

The disbursements are forwarded at intervals of ten days to the pay examiner in the schedules introduced by circular, 15th November 1866, and the cash account current (which includes every item of receipt and payment on account of the public service) is submitted punctually to the controller of military accounts, accounts branch, and register of pensions (warrant, Lord Clive's fund, military and medical and superannuation) in which is duly inserted, in the space provided, the dates on which the bills are passed for payment, the bills being then transferred to the demand clerk for any special deduction. And after the bill has been so reduced it is passed over for the preparation of cheque or transfer receipt, as the case may be, through the assistant in charge, who inserts in figures at the foot of the claim the amount for which it is finally passed. The bill is again returned to the assistant in charge with cheque or transfer receipt appertaining thereto, who having satisfied himself that the mode of payment is that desired by the claimants, forwards the documents to the paymaster for signature.

All covers are invariably opened by the paymaster himself, who notes date of receipt and any instructions regarding their reply. They then pass to the registrar, who, having entered them in the diary of received letters, distributes them for disposal to the sections to which the references appertain.

A letter, if drafted by the paymaster, is sent to the copyist. If penned by the clerks, it is sent through the head assistant to the paymaster for approval. It is then made over to the copyist, and after being duly signed is given to the despatch clerk for entry in his book.

Letters which have been replied to are sent to the diary clerk, who, having entered the mode of their disposal in his register, hands them over to the record-keeper.

Lieutenant-Colonel A. Searle,
Superintendent and Agent, Army
Clothing, Madras.

The office consists of three sections or departments, viz., I. D. or indent department, which disposes of papers pertaining to all indents, either miscellaneous or in reference to annual clothing, as also all clothing bills sent for certification; A. D., or account department, disposes of all papers connected with annual statements, budgets, periodical accounts, or returns, valuation of stores, monetary and general subjects of adjustment, as also invoices and packing accounts; C. D. or current department, which disposes of all papers of a general or miscellaneous character not involving either indents or accounts, and the copying and despatching of all papers. There are two other subsidiary departments called estimate and record departments. The former is responsible for the correctness of the quantities of materials of clothing indented for, and the latter, for assorting disposed of papers and arranging them under their proper heads and subjects, in order to be able to supply or put up correspondence when required at a moment's notice. When a letter is received in the office, the superintendent, after having read it, puts his orders thereon, duly initialing the same. It then goes to the head assistant, who notes on the back of it the date, department and orders. It next goes to the diary-keeper, who gives it a general or consecutive number, enters particulars, such as from whom, date, purport and department, and, when completed, he sends it to the department to which it pertains for disposal.

The department that has to issue the reply does so in draft either on the letter itself, if there is a blank space, or on a separate piece of paper, and sends it to the head assistant for his approval, who initials the same and sends it to the current department to be fair-copied, if an ordinary or routine paper; but if it is one involving an important question, the draft is first sent to the superintendent for approval, who initials and sends it to the current department to be faired. Usually the letters are answered the same day if received by the morning post, the day after if by the evening post.

Letters involving the rendering of accounts, or statements or elaborate explanations, are generally disposed of within the week.

Brigadier-General F. W. Jebb,
Adjutant-General, Madras.

As soon as a letter is received, been opened, and returned to the manager, he prepares it for the diary and hands it over to the diary-keeper for registry. The letter is then sent to the assistant adjutant-general or other officer of the department who had not previously seen it. On return it is taken by the diary-keeper to the clerk whose business it is to dispose of the paper, getting a receipt for the same. The latter looks up any previous correspondence on the subject, and prepares draft for submission to the deputy or assistant adjutant-general, as the case may be, who sees that his orders have been carried out, corrects and initials the draft, marking it for the adjutant-general or Commander-in-Chief. Papers for the Commander-in-Chief are collected by the manager and given over to the adjutant-general twice a week, or more, as may be convenient for the Commander-in-Chief to see him. On the draft being finally passed, either by an officer of the department or the Commander-in-Chief, it is sent on to the manager, who gives it to a copyist for writing fair. It is then numbered and dated, examined by the examiner, and sent to the officer for signature. After return, it is placed in its cover and handed over to the despatching clerk for registry, and by him sent to the post office, or given to a sepoy orderly for delivery to the addressee, the orderly accounting for delivery on return by showing the signature of the party who received the paper duly entered in delivery book.

It sometimes happens that a paper or letter cannot be disposed of off-hand as above. Reference may perhaps be necessary to other departments, or further information required. This of course causes delay, but the above procedure is adopted or repeated in each case until final disposal.

Major John Ewing, Officiating
Quarter-Master-General, Madras.

(1) A letter received in this office is opened by an officer, who marks thereon his orders or distribution; (2) it comes to the manager, who passes it on to the referencer, who notes in the register if it is a reply to a reference, and he docket it if necessary; (3) it is then passed on to be registered in the diary and numbered; (4) it is brought back to the manager, who sends it if necessary for former papers to the record-keeper and referencer; (5) on receipt from the record-keeper it is either

sent to the officer or manager, or clerks, for disposal. The draft,* if from the latter, is sent to the quarter-master-general to be passed. (6) On return it is fair-copied, numbered, signed, and delivered to the despatcher for despatch. (7) The letter thus

* Bearing the diary number of the letter upon which it was written.

disposed of is finally sent to the record-keeper, to be deposited after the disposal has been noted thereon.

Colonel G. P. B. Sherard, Judge Advocate-General, Madras.

All letters are opened by the judge advocate-general and passed on with orders to the uncovenanted assistant at once if received during office hours, or on the following morning if otherwise, who drafts the reply and sends it up again to the judge advocate-general for approval. After approval it is fair-copied, signed, and despatched in the evening. Letters received are, after disposal, entered in the diary.

Lieutenant-Colonel M. W. Wiloughby, Acting Commissary-General, Bombay.

As explained in reply to question 3, the commissary-general and the deputy commissary-general comprise the staff of the head-quarter office. All letters, papers, &c., are in the first instance opened by the deputy commissary-general, who notes his orders on them for disposal. The letters are then perused by the uncovenanted assistant to the commissary-general, registered, and distributed to the head clerks of the branches to which they relate, by whom the replies are drafted and submitted through the uncovenanted assistant to the deputy commissary-general for approval, and if of sufficient importance they go on to the commissary-general, with the papers relating to the correspondence attached, otherwise they are returned by the deputy commissary-general to the office to be copied, after which they are numbered, dated, signed, registered, stamped, and despatched.

The commissary-general signs all letters to Government, heads of departments, and others of special importance. The ordinary letters are signed by the deputy commissary-general.

To exemplify the routine in disposing of references, a letter from the inspector-general of ordnance and magazines enquiring who should be held responsible for certain deficiencies in a consignment of ordnance stores sent through the commissariat department, is taken as an illustrative case. The packet is opened by the deputy commissary-general, who, after endorsing his opinion or instruction, hands it to the uncovenanted assistant to the commissary-general who peruses and sends it to the registering clerk. After registration the letter goes to the head clerk of the office, as it appertains to his branch, who drafts a letter to the executive commissariat officer concerned. The draft, after approval by the uncovenanted assistant, goes to the deputy commissary-general, who revises it if necessary, initials and returns it to the office, where it is copied, compared and handed over to the despatching clerk, who obtains the signature of the deputy commissary-general and then registers, stamps, and despatches it.

The letter, on receipt in the executive commissariat office, is opened, perused, registered, reply drafted, fair-copied, signed, registered, stamped, and despatched as above; and when the reply is received in the commissary-general's office, the same course is observed up to preparation of the draft reply to the inspector-general of ordnance and magazines, which, with all papers attached, goes through the deputy commissary-general to the commissary-general for approval, and the latter officer signs the fair copy.

Major-General W. S. Hatch, Inspector-General of Ordnance and Magazines, Bombay.

All documents received are first opened by myself. On those to which an immediate reply is possible, I at once note the reply to be given. All are then sent to the head clerk, who registers and distributes them to the several branches of the office. Indents, committee proceedings, &c., are then examined and sent to the deputy inspector-general for decision, who, in doubtful cases, consults me before deciding. Those that are passed are then stamped and returned to the persons concerned. Letters or memoranda calling for explanations, or giving the reasons for rejecting committee proceedings, are sent to the persons concerned. With other correspondence files of previous papers on the subject are sent in to the deputy inspector-general or myself. On ordinary subjects, a rough draft of proposed reply by senior clerk of branch concerned. In other cases replies are drafted by deputy inspector-general or myself. Drafts are then sent to the head clerk, registered, and returned for signature.

Deputy Surgeon-General J. M. S. Fogo, Officiating Surgeon-General, British Forces, Bombay.

A letter, when received, is first of all read by the secretary and sent to the head clerk, who gives it to the clerk who keeps the compilations to be registered. It is then given back to the head clerk, who sends it back to the secretary, along with the previous correspondence, when necessary. The letter is then laid by him before the surgeon-general for his instructions, and a draft reply is prepared accordingly and sent to the head clerk, who gives it to a clerk to be copied fair. It is then compared by the head clerk and sent to the secretary for signature. After it is signed it is returned to the head clerk, who delivers it to the compiler, along with the office copy, to be registered, numbered, and dated. After this is done, it is given to the despatching clerk for transmission.

In many instances letters or memoranda have to be referred to the deputy surgeons-general and by them to medical officers for report, explanation, or opinion, and, when returned by them to the office, the same course of procedure as stated in the preceding paragraph is observed.

Dr. W. G. Hunter, Surgeon-General, Indian Medical Department, Bombay.

The office is under the control of a secretary, who is assisted by a chief clerk. A letter on matters of departmental detail, when received by the secretary, is registered, and submitted by him to the surgeon-general for his orders. When these are given, a reply is drafted and handed over to the chief clerk, who issues it to copyist. The fair copy is examined by the chief clerk, registered, and submitted for signature. The draft made is kept as

record copy. The reply is generally despatched on the evening of the day it is received. This is the procedure of an ordinary departmental routine letter, but the mass of the correspondence relates to matters of reference from other departments, and with letters of this nature the procedure is different, as reports and opinions may have to be obtained from departmental officers before they can be answered.

Dr. J. Lumsdaine, Sanitary Commissioner for Bombay.

The post is opened and examined by the assistant to the sanitary commissioner, and all papers are first stamped, receipted, and registered. They are then sorted, and those of a routine nature, such as ordinary returns, are relegated to the clerks in charge of the sections to which they pertain. Thus, if it is a monthly register of births and deaths for a particular district, the clerk for the registration section goes carefully through the figures, and if they are correct, he carries them to the accruing tabular statement for that district. If there are errors—and there are very frequently—they are pointed out in a letter which asks for the necessary corrections and the retransmission of the return. The same course is followed with every ordinary return, such as those of cholera, vaccination, rainfall, sub-soil, water-level, &c. Another clerk has charge of all papers relating to the pay and allowances of the subordinate district establishments, and of applications for leave, transfer, and promotion. There is also the correspondence branch. Here there is great room for improvement, for much of the correspondence is of the most ordinary kind, connected with delay in returns or errors in figures. And yet, for want of a responsible gazetted officer to dispose of it, it all has to go to the sanitary commissioner. He may be in Bombay, but more frequently he will be on tour, and whether he is at Carwar or at Jacobabad, a bulky packet has to be despatched from the central office. There is necessarily great delay in dealing with matters that might be settled off-hand in Bombay. All questions requiring an opinion, and those referred for report, are of course dealt with by the sanitary commissioner alone, but the assistant puts up all the necessary papers, and sees beforehand that the information obtainable from office records is correctly given. Outward letters are registered and despatched either from the central office, or from wherever the sanitary commissioner may happen to be. The assistant is stationary at the central office, and signs some of the more ordinary issues when the sanitary commissioner is on tour.

Lieutenant-Colonel D. B. Young,
Officiating Controller of Mil. Accounts, Bombay (Contr.'s Office).

References and letters, after perusal by controller, are sent to the assistants in charge of branches, who either—

- (1) carry out his orders minuted thereon, or
- (2) if no orders are minuted, they personally see him and receive his orders, or
- (3) prepare a draft of the reply, or application for further information, proposed to be sent out.

In either case the draft of the reply or letter is submitted to the controller for approval.

Replies to references from Government are written in the form of a simple report, and the papers referred are returned with it, a copy of the whole or part, as may seem necessary, being only kept when the subject is of any importance, or the information contained therein is likely to be useful to any of the offices of this department afterwards in dealing with claims, &c.

Replies to references from the officers of this department are given in the form of a memorandum, and to those from commanding officers and paymasters of troops on the reference itself. All unnecessary verbiage and copying are avoided as much as possible.

The orders of Government, which are always printed, and of which a few spare copies are received as a rule, are merely entered in a book under their number and date, and issued to the officers of this department whom each order concerns, who sign and return the book.

References originating in this office are made under the controller's orders, after full consideration of the subject-matter, any correspondence to accompany being as a rule sent in original.

Budget printed forms are sent out to heads of departments and officers in August, by whom they have to be filled in and returned by the 1st of October. On receipt, they are sent to the examiner concerned for review. If necessary, his report is communicated to the budgeting office for consideration. When all the needful materials are ready, the consolidated budget estimate is prepared in this office, giving full explanations of differences as compared with the previous estimate, and it is forwarded to the accountant-general, military department, and the Bombay Government, about the middle of December. Grants 3 "regimental pay and allowances," 11 "ecclesiastical," 12 "sea transports," 14 "miscellaneous services," and grants 16 and 17 under non-effective services are usually prepared in this office, which also assists heads of departments in every way in its power in preparing their estimates.

Materials for the explanatory statement of differences are collected as the expenditure proceeds, the cause of every important difference, more or less, being at once inquired into and noted after the accounts for each month have been made up.

A letter on receipt in the office is first registered and given to the assistant to whose branch it appertains, who refers to the former proceedings in the matter, if any, and the authorities and precedents bearing on the subject, and then submits the case to the controller for orders, or else a draft of the proposed reply, when the case seems to admit of no doubt, or of any reference which may appear to be necessary. Cases submitted to the controller, he either disposes of himself or minutes his orders thereon, which are then carried out in the office.

A fair copy of the reply or reference is then made and despatched to its address, after which the papers are filed up, the number and date of the outward letter and its address being entered in the register against the inward letter which called it forth.

On the receipt of the reply to a reference, the original reference to the controller is disposed of either the substance of the material parts of such reply being embodied in the answer, or when the reply contains all that needs to be said, it is sent in original under a docket, or with a short memorandum intimating the controller's concurrence therein, if this should seem to be necessary.

All references more than a week in the office are entered in a return of unanswered references, which is laid weekly before the controller, with remarks explaining why they could not be disposed of. Should a long delayed answer to a reference from this office be the cause, a reminder is then sent to the officer to whom the reference was made.

Major W. Perrean, Examiner,
Pay Department, Bombay.

On receipt a letter is immediately stamped with the date of receipt, registered (*i. e.*, its number, date, subject, and from whom received, entered in a register for that purpose, called the "register of inward references"), and after perusal by the examiner is sent to the

assistant examiner, from whom it passes to the superintendent, and then on to the auditor of the branch to which it relates.

The auditor drafts a reply—in doubtful or difficult cases, consults the examiner before doing so.

This draft letter or memorandum passes through the branch supervisor to the examiner; and, when approved, is fair-copied in the copyist branch, and after signature by the examiner is handed over to the despatching clerk for transmission by post or peon.

The number given to this reply and the date are then entered against the reference in the "register of inward references," and the procedure is complete.

Lieutenant-Colonel D. B. Young,
Officiating Controller of Military
Accounts, Bombay (Pension Pay
Master's Office).

European and civil pensioners are paid monthly, and pensioners of the Native army quarterly, the pension paymasters visiting certain stations included in their respective circles for the latter purpose. Monthly accounts of their disbursements are rendered to the pay examiner for audit and adjustment.

The course through which a letter passes in their offices is much the same as in the other offices of this department.

Major M. A. Rowlandson, Ex-
aminer, Commissariat, Clothing and
Barrack Accounts, Bombay.

The procedure in regard to the examination of the accounts received in this office is as follows:—

(1) On receipt they are registered by the registry clerk, and made over to the calculating branch, by which all the calculations are tested. They are then made over to the assistant auditors, whose duty it is to check the indents with bills and the contract or bazaar rates charged in the latter. The accounts then undergo audit by the auditors who prepare statements of objectionable items, which are revised first by the head assistant and then by the examiner. They are then classified, and afterwards made over to the compiling branch for the purpose of the necessary information being extracted for the statistics furnished by this office. After compilation, and on receipt of satisfactory reply to objections, they are filed.

(2) A letter received in this office is, after perusal by the examiner, entered in a register kept for the purpose, after which it is made over to the auditors of the branch to which it relates for disposal.

(3) The letter or memorandum replying to a communication is drafted by the auditors concerned, and passed through the head assistant to the examiner. After approval it is taken to the copying branch, where it is fair-copied and then made over for examination to the party who drafted the same, by whom it is made over to the registrar for the purpose of being numbered and despatched.

Lieutenant W. R. L. Anderson,
in charge Ordnance Examiner's
Office, Bombay.

Returns and documents received for disposal are daily registered in the general branch and then made over through the record-keeper to the senior clerk of the office section, with whom the disposal primarily rests. On disposal, the necessary audit statement, or letter, or memorandum, or bill, as the case may be, is passed on by such senior clerk to the general branch for scrutiny by the superintendent before approval by the examiner. On examiner's approval, the audit statement, or letter, or memorandum, or bill is brought back to the general branch to be fair-copied, to have rough and fair copies compared by the clerk or section to which it appertains, and for final despatch of fair copy after registry, and both copies are numbered and dated, and the fair copy is signed. The rough copy is then taken possession of by the record-keeper.

Thus, then, a letter, not on some general subject, when received, and sent into the office by the examiner, would be registered in the general branch, and from it be delivered by the record-keeper to the particular clerk or office section to which it appertains for disposal. The reply, if one were needful, would, coupled with the letter to which it refers, be sent to the general branch to be scrutinized by the superintendent and passed on to the examiner. After examiner's approval it would be conveyed back to the general branch, in which a fair copy would be prepared. Both copies would be compared by the clerk or section to which draft of reply was submitted. This reply would then be registered, and numbered, and finally despatched from the general branch, on examiner's signature being put to fair copy. The rough would be made over to record-keeper.

Letters on general subjects would, after registry, be taken up and disposed of by the superintendent, the replies to such, on examiner's approval, being dealt with thereafter in precisely the same manner as all others.

Surgeon-Major P. S. Turnbull,
M.D., Examiner, Medical Accounts,
Bombay.

The letters, after being opened and perused by the examiner, are stamped and registered, and thereafter distributed by the superintendent of the office to the several assistants. Replies thereto are drafted by these assistants and handed over to the superintendent, who, after examining them, sends them to the examiner for approval, and, after being corrected and initialed by him, are copied, registered, and despatched by the copyist.

Lieutenant-Colonel D. B. Young,
Officiating Controller, Military Ac-
counts, Bombay (Accounts Branch).

All letters and returns received pass through the officer in charge of the branch and the head assistant to the registry clerk, who, after stamping the documents with the date of receipt, and registering the letters, distributes them to the branches to which they belong. In the branches the letters and returns are indexed, the senior clerk disposing of the letters, and the other clerks the returns, verifying, and if necessary compiling them into returns and accounts rendered from the office.

On receipt of a letter it is generally first seen by the officer in charge of the branch, and passed on through the head assistant to the registry clerk, who after registering gives it to the senior clerk

of the branch to which it belongs. The senior clerk has the letter indexed in his branch, drafts the reply, and sends the draft through the head assistant to the officer in charge of the branch. After the draft is passed it is fair-copied. This done, the fair copy is numbered, dated, and sent for signature, after which it is despatched.

Captain H. Cowper, Presidency
Paymaster, Bombay.

The office procedure is as follows:—The post is received by a clerk especially deputed to the duty, who stamps the date of receipt of each document, and then sends them to the paymaster. The post is afterwards distributed to the several divisions concerned for disposal. A letter thus received is replied to by the paymaster, or by the superintending clerk of the division under the orders of the paymaster; according to its importance. The reply when copied and signed is put under cover, registered, stamped, and despatched by the responsible clerk.

Colonel J. Thacker, Superintendent,
Army Clothing, Bombay.

The department is divided into three branches—

- (a) superintendent's office,
- (b) store branch, under the store-keeper,
- (c) factory, under the master-tailor.

All indents for clothing, &c., are received in, and examined by, the superintendent's office. They are then transferred to the factory, which prepares requisitions on the store branch for the requisite materials. Before the requisitions are complied with, they are compared in the superintendent's office with the proportion tables, and when passed the materials are issued from store to the factory—except when materials only are demanded, when they are issued to the packing branch. Garments on completion are delivered by the factory to the store branch for survey by the surveying officer, after which they are packed and despatched, through the commissariat department, to the indenting officers.

A letter received in the office is dealt with in the following manner:—

(a) Placed before the superintendent; registered in the superintendent's office; transferred to the branch to which it appertains. If no reply is requisite, it is filed in the compilation to which it belongs, and a note made in the register that it has been so disposed of. When an answer is necessary, the branch concerned either sends it to the superintendent with a draft reply, or with information which may enable him to reply. When the reply issues, the number and date of such reply are registered by the record-keeper in the inward register opposite the entry of the inward letter to which it relates. The letter is then filed with the office copy of the reply in its proper compilation.

(b) The letter or memorandum replying to the inward letter, after being drafted as above and initialled by the superintendent, is fair-copied, and after the copy and draft have been compared, the former is sent to the superintendent for signature. The reply is then registered in the outward register by the despatching clerk, and is then posted.

Brigadier-General H. F. Brooks,
Adjutant-General, Bombay.

The letter is opened by the chief clerk, and by him sent to the branch to which the subject appertains. It is there registered and examined by the head clerk, who submits it with any remarks that may be necessary to the branch officer who, if the matter is one of routine not requiring reference to the adjutant-general or Commander-in-Chief, records his orders thereon, and returns it to the head clerk for compliance therewith. The head clerk then drafts the reply, and submits it for approval, after which it is fair-copied, registered, and examined by the head clerk, signed by the branch officer, and despatched to the addressee.

Cases which the branch officers are unable to dispose of are submitted for the consideration of the adjutant-general with any remarks they may consider necessary.

In like manner, all cases requiring the decision of the Commander-in-Chief are submitted by the adjutant-general personally,* who, after taking His Excellency's orders thereon, disposes of the papers in the manner prescribed for ordinary correspondence.

Brigadier-General G. Burrows,
Quarter-Master-General, Bombay.

Two general registers are kept—one inward, one outward. The office is worked by branches. Each branch has its own records, which are divided under 24 headings. The papers are filed in compilations as each case is disposed of.

On the post being received in the office, the letters are registered and distributed to the several branches for previous papers or explanations. The post is then sent by the chief clerk to the adjutant-general, who deals with routine cases, passing on important papers to the quarter-master-general, who passes orders on them after being submitted to the Commander-in-Chief in schedule. Replies are drafted and, on approval, fair copies made, examined and registered outward. The papers are sent to the officers in the evening for signature, then handed over to the despatching clerk.

Routine documents, returns, &c., are not registered, it being considered a waste of labor. Branches are responsible that all such documents are despatched or received when due.

The quarter-master-general submits a schedule of papers, as a rule, twice a week to the Commander-in-Chief for orders.

Colonel C. O. Maude, Judge
Advocate-General, Poona.

The letters by post are brought to the judge advocate-general and opened by him. They are then replied to and filed, or submitted to the Commander-in-Chief for orders, as the case may be. All letters received in this office are drafted by the judge advocate-general, there being no deputy or assistant at head-quarters.

Suppose a letter is received forwarding an application for a general court-martial, a report is made on the application for general court-martial, and sent with forwarding letter to the adjutant-general for submission to the Commander-in-Chief.

* Artillery regimental questions are submitted by the assistant adjutant-general, royal artillery.

10. Detail the number of clerks and writers in your department,
 (a) at head-quarters,
 (b) elsewhere,
 and briefly their respective duties.

Colonel J. I. Willes, Commissary-General, Bengal.

The information is given in answer 8; and the following contains the rules for the conduct of the work of executive offices:—

Circular by Commissary-General,—No. 5, dated Fort William, the 22nd January 1877.

Military Department No. 472,
 dated 9th February 1875.
 Military Department No. 1158,
 dated 21st December 1876.

By order of Government, the accompanying rules for the conduct of business in executive offices have been framed for general observance in the department.

2. Government believe that the practical benefit of these rules will be the simplification of work in executive commissariat offices generally, and that a uniform system will afford the means of meeting an excess of work in one direction by reduction in another, with a corresponding transfer of writers from one station to another, and thus make it possible for the existing office establishment of the department to cope with the work, even if no decrease of establishment would be feasible.

3. Government further remark that it is "possible that work may have increased in some directions; but the first and most obvious remedy is to attempt to decrease it in others by simplification and condensation of existing forms, returns, and procedure in the conduct of executive office work"; and Government look to the supervising and executive officers of the department to make the necessary efforts to reduce and simplify work as far as it rests with them to do so. The commissary-general, therefore, now calls on deputies commissary-general and executive commissariat officers to submit suggestions and proposals in accordance with the views of Government.

4. On receipt of the rules now published, executive commissariat officers should at once bring into operation the distribution of work ordered, reporting after six months how the system has worked.

5. On receipt of these reports, deputies commissary-general will furnish a report for the circle, showing what transfers from one office to another they would propose, and what increase, if any, is necessary in the entire executive office establishment of the circle.

6. Executive commissariat officers must bear in mind that Government look for a decrease rather than an increase of office establishment from the system now ordered; and they are enjoined to abstain from recommending increases which are not absolutely necessary, and to be most careful to allot only the number of writers actually required for each section of the work of the office. If existing establishments are proving insufficient because they are clogged with men who are inefficient, executive commissariat officers will be held responsible that, in the interests of the State, such men are brought forward for removal from the department, as the commissary-general cannot apply to Government to increase establishments to avoid disturbing incompetent men in their present positions.

Rules for the distribution of work in executive commissariat offices.

I. Apart from the duties of head assistants, the work of executive commissariat offices should be divided into four sections, as follows:—

1. Cash and disbursements.
2. Cash audit (cash).
3. Stores and stock.
4. Miscellaneous, the sub-divisions of which will be periodicals, contracts, equipment of troops and communications, miscellaneous and copying.

II. To each section clerks should be allotted in proportion to the work to be performed.

III. The duties of head assistants will comprise—

1. General supervision of all work, and on occasions of emergency to detail the assistance to be given by one branch to another.
2. To see to the punctual submission of all accounts and returns.
3. To examine the budget estimates after preparation, and note all changes affecting the expenditure of the department.
4. To see that complements of stores are always kept up, and indents sent to supply deficiencies.
5. To examine, and if necessary revise, replies to examiner's objections, retrenchments, and readmit letters, seeing that the replies are to the point and complete, and bringing specially to the notice of the executive commissariat officer such as may require his particular attention.
6. To revise replies to the pay examiner and examiner of commissariat accounts' objections and retrenchments. The executive officer to supervise and correct replies himself, so as to prevent continued and unnecessary correspondence and delay in settling the points at issue.
7. To investigate carefully novel and doubtful charges, or charges for unauthorized purposes or supplies, which the check-writers are to be warned to bring to his notice.
8. To supervise the check of indents by the sections to which they pertain, and to see that they are correctly complied with, and to check and pass for compliance indents for carriage and establishments required by corps on the march.

9. To see that proper receipts in full and no-demand certificates are taken from contractors and others before giving up the security deposits.

10. To see that tender forms are properly filled in, and contract deeds properly prepared and executed; also to see that tenders are invited on prescribed dates, and to bring to notice any infractions of contract deeds.

11. To test cash and store-ledgers monthly after they are balanced.

12. To see that acquittance rolls of establishments (cattle, moveable column, &c., &c.) are received in the office monthly, duly signed by European subordinates concerned.

13. To examine and check every cheque issued daily.

14. To dispose daily of correspondence received by post, &c., taking orders on each point.

15. The drafts of replies to ordinary letters written by writers of sections to which they pertain are to be corrected by the head assistant, who should, when passing them, not permit any point-requiring explanation to be overlooked.

16. To scrutinize inefficient balances of cash, store, and stock, taking notes of such items as are difficult or likely to take a long time in adjustment, and to bring the same, or any arrears in any section of the office, immediately and prominently to the notice of the executive commissariat officer.

17. To inspect and initial the daily attendance book, and submit the same to executive commissariat officer.

18. To inspect and initial weekly the account of postage-labels.

19. To prepare instructions to gomashtas, agents or peons proceeding on command with troops, cattle or stores.

20. To take care that equipment of troops are made agreeable to regulations, and, when in excess of scale, to take steps to call for the requisite authority.

21. To initial all papers after scrutiny and before submission to the executive commissariat officer for signature.

22. To see that general orders and circular orders are attended to, and that any action necessary on receipt of the orders is taken.

IV. The duties of the four sections among which the work of the office is to be divided will be as follows:—

I.—CASH AND DISBURSEMENT SECTION.

1. To compile the monthly cash account current furnished to the controller of military accounts, account branch, and the examiner of commissariat accounts.

2. To compile the inefficient balance statement furnished to the examiner of commissariat accounts with the cash account current.

3. To prepare disbursement statements to agree with the ledger headings—

Cash,	Advances,
Transfers,	Retrenchments,

for transmission to the examiner of commissariat accounts on the 11th, 21st, and last day of each month, and numbering *seriatim* all the vouchers pertaining thereto, taking care that all the vouchers are originals properly signed and receipted; that they properly support the items of disbursement; and that all erasures or alterations are initialled.

4. To keep the daily cash book, in which all the monetary transactions will be entered daily as they occur.

5. To post daily, from the detail given in the counterfoil of cheque book and the register of cheques, the several ledgers, disbursements, advances, transfers, and from the counterfoil of the military remittance order book all recoveries on account of retrenchments, &c.; compiling daily from the ledgers and several registers of cash transactions the military accountant's ledger.

6. To keep the counterfoil receipt book (Bengal form 181), granting receipts in the form to all parties who pay money into the office, or into the civil treasury for the office, whether on account of miscellaneous receipts and recoveries or deposits (not Government loan paper).

7. To furnish all parties tendering money to the office, whether in payment of recoveries or as deposits, with a treasury receiving order in Bengal form 512, instructing them to pay the money into the civil treasury, and bring back the treasury officer's receipt. On the treasury receipt being received in the office, the receipt in Bengal form 181 is to be delivered to the payer.

8. To keep the register of miscellaneous receipts and recoveries (Bengal form 115) entries in which are to be made daily as soon each transaction is completed, *i.e.*, when the treasury officer's receipt for the money comes to hand.

9. To keep the register of remittances to banks and civil treasuries, Bengal form 118, in which all payments into the civil treasury, whether on account of recoveries or deposits, are to be entered.

NOTE.—Sums recovered in part of outstandings (advances, transfers, or retrenchments), though remitted to the civil treasury, are not revenue; and in making such entries in the remittance register, the amount should not be carried out into the total column, but shown in the body of the register, a note being made against such items, "In reduction of advances," &c., &c., as the case may be.

10. To keep the register of receipts of miscellaneous deposits, Bengal form 116, in which all the deposit transactions (not in Government loan paper) are to be recorded daily as they occur.

11. To keep the index to the register of receipts of miscellaneous deposits, Bengal form 140, in which are to be posted all transactions as they are recorded in the deposit register.

12. To keep the register of repayments of miscellaneous deposits, Bengal form 117, in which all repayments are to be recorded the day on which they are made.

13. To keep the register of Government loan paper deposited as security, form 1, appendix Y, of the bills of exchange rules of 1867. The receipts are to be recorded as soon as the paper comes to hand, and refunds are to be noted immediately that they are made. An extract from this register, showing what Government loan papers have been forwarded to, or received from, the general or local treasury, is to be made on the last day of each month and sent to controller of military accounts, account branch.

14. To prepare the following schedules to be furnished to the controller of military accounts, account branch, and examiner of commissariat accounts with the monthly cash account current.

To controller of military accounts, account branch.

- I.—Schedule of remittances to banks and civil treasuries, Bengal form 153.
- II.—List of cheques drawn, Bengal form 108A.
- III.—Monthly statement of cash in hand, commissariat form 11, accounts.
- IV.—List of cheques cancelled, commissariat form 33, with the cancelled cheques.

To examiner of commissariat accounts.

- I.—Schedule of particulars of miscellaneous receipts and recoveries, Bengal form 142.
- II.—Extract from register of receipts of miscellaneous deposits, Bengal form 147.
- III.—Schedule of particulars of repayments of miscellaneous deposits, Bengal form 151.
- IV.—Copy of schedule of remittances to banks and civil treasuries, Bengal form 153.
15. To prepare annual return of miscellaneous deposit outstandings, Bengal form 139, to be submitted to the examiner of commissariat accounts on 1st April of each year.
16. To keep the register of remittance transfer receipts received in, and issued from, the office.
17. To keep the register of cash debits received and issued, granting all account current receipts, and preparing the cash debit statements, the debits being first checked by the check and audit section.
18. To prepare all cheques in payment of bills, which must be scrutinized to see that they have been countersigned by executive-officers and initialled by head assistant and check writer; also that the vouchers in support are attached. To furnish triplicate checked accounts to agents and contractors.
19. To draw out requisitions on the different treasury officers for remittance transfer receipts required, and, on receipt of the transfer receipt, to forward them to the parties concerned, with transmitting letters, taking care that acknowledgments are received in due course and noted in register.
20. To distribute carefully to parties concerned the sums recovered on account of supplies to regimental and garrison prisons, entering the same in the cash book and pension bill register.
21. To take timely and necessary action for adjustment of all cash outstandings as shown by the inefficient balance sheets.
22. To make prompt recovery from contractors, agents, and subordinates of all fines and retrenchments as recorded in the fine and recovery books.
23. To prepare the following periodical papers, *viz.*,—
 - I.—Quarterly statement of credit and expenditure—to commissary-general.
 - II.—Annual assignment estimates—to commissary-general.
 - III.—Annual budget estimates, with necessary assistance from the other sections.
 - IV.—Monthly statement of security deposits not returned within six months—to deputy commissary-general.
24. To draft all letters connected with the duties of the section for revision, if necessary, by the head assistant, and see that replies are received.
25. To examine all papers connected with the section after being copied in the copying section.
26. To make over to the miscellaneous section in its sub-divisions papers required for the performance of the duties of the sub-division.
27. To grant receipts for security deposits to agents and contractors in counterfoil form, and to receive them back when securities are refunded. This applies to Government loan deposits, as rules 6 and 7 refer to cash deposits only.
28. To forward all loan paper securities to the Bank of Bengal if not returnable within six months, and to civil treasuries if returnable within six months, for safe custody, and to withdraw them when necessary for refund, transfers, &c.
29. To draw the interest on loan paper securities and to pay them to the agents by cheques, crediting them in the register of cash deposits in favor of the parties concerned.
30. To pay by cheques all cash securities and earnest deposits received from tenderers.
31. To check and register account sales.
32. To advise contractors and agents of the receipt of moneys to their credit on account of rations supplied to garrison and regimental prisoners.
33. To prepare relief reports of officers, conjointly with writers of store and stock section.
34. To prepare bills for sale of articles of stores and stock for which cash is received.

II.—CHECK AND AUDIT SECTION.

1. To keep the register of bills received, showing when and how each is disposed of.
2. To compile monthly a register showing in separate columns the rates charged by the different agents for the articles purchased and supplied by them, the price current rates of the month for the articles, and the rates allowed in the previous month by the executive commissariat officer for similar purchases. The executive commissariat officer will then himself fill in the rates to be passed to the agents during the current month.
3. To prepare for the examiner of commissariat accounts the monthly list of rates passed by the executive commissariat officer for supplies.
4. To audit and pass for payment all bills (including railway bills) and accounts received in the office, seeing that the charges are authorized and borne out by the proper vouchers, and, if not furnished, to call for the wanting vouchers and assist, if necessary, the party submitting the bill in procuring them. To see that all erasures or alterations are initialled; and to bring to the notice of the head assistant any remarks on vouchers requiring attention, or any novel, doubtful, or charges for unauthorized purposes or supplies, in view to the orders of the executive commissariat officer being obtained.
5. All checked bills to be initialled by the writer checking them and passed on to the head assistant, who will scrutinize them carefully, put his initials, and then send to commissariat officer for approval and signature, after which return them to the cash section.
6. In checking bills for store and stock, all purchases are to be recorded in the store and stock department; and the auditing clerk is to obtain the initials of the responsible writer of that section to every item purchased, showing that it has been credited in store or stock return of purchasing agents.

7. To check ration certificates of corps, diet rolls of hospitals, and all such vouchers.
8. To bring to notice errors or great discrepancies in prices current or rates charged by different agents.
9. To frame the replies to be made to objections and retrenchments and reaudit letters for revision by head assistant before the re-charge statement is submitted to the executive officer.
10. To prepare extracts from examiner's list of retrenchments for agents and others.
11. To audit and compile the monthly bread, mill and meat charges, scrutinizing them carefully and bringing to notice of the head assistant any that may appear unusual or irregular, in view to the orders of the executive commissariat officer being obtained.
12. To see to the debits and credits of mill, bakery, and slaughter-house accounts, and to prepare cattle-dealers' receipts for slaughter cattle and sheep purchased.
13. To check the slaughter-house register daily with the several victualling sergeants' reports of issue at barrack and hospital ration-stands.
N.B.—The register should be scrutinized and signed daily by executive officers, who alone, from their personal knowledge and supervision of both the slaughter-house and ration-stands, can check them properly.
14. To prepare monthly statement of bakery and slaughter-house contingent charges when such exceed Rs. 50 and require the countersignature of the deputy commissary-general.
15. To see, in connection with the cash department, to the punctual payment by hide, skin, and offal contractors of deliveries made to them, and of realizations in the bread and meat supply.
16. To prepare the monthly statements of particulars of the bread and meat supply furnished to deputy commissary-general.
17. To prepare settlement statements of all carriage and establishments.
18. To prepare final settlement statements of command gomashatas (*vide* circular No. 96 of 18th September 1869).
19. To prepare reports of command accounts adjusted (commissary-general's circular No. 130 of 1870).
20. To draft all letters and half-margin references (for revision, if necessary, by the head assistant) connected with the duties of the section, and see that replies are received.
21. To examine all papers connected with the section after being copied in the copying section.
22. To make over to the miscellaneous section in its sub-divisions such papers as may be required for the performance of the duties of the sub-division.
23. To prepare and submit monthly to the deputy commissary-general a statement of stock of slaughter cattle and sheep on hand, showing condition, &c., and those recommended to be disposed of by sale (circular No. 124 of 1875).
24. To prepare monthly bills for rations, groceries, and firewood supplies for military prisoners.
25. To send monthly to deputy commissioners, collectors, cantonment magistrates, or station staff officers, as the case may be, price current forms, sending the original to the examiner and a copy to the deputy commissary-general.
26. To note all changes affecting the expenditure of the department, and to assist in the preparation of budget estimates.
27. To check and pass to the executive engineer every month the house-rent bills of purveyors.
28. To check all cash estimates.
29. To prepare estimates for feed, &c., of troops and cattle moving on command.
30. To keep the register of all debits for breadstuff and slaughter cattle received and issued, granting receipts and preparing debit statements for them.
31. To prepare monthly certificate of groceries, rations supplied to corps, and bills for rations overdrawn by corps, and for supplies to lock-hospitals.
32. To check estimates of cost of articles made up by agency which are not readily procurable in the bazar, obtaining rates for materials which are not ordinarily entered in the printed prices-current form.
33. To abstract the rates from all vernacular nericknamahs furnished by command gomashatas and others for supplies purchased by them on the march, and to prepare estimates of rates for command purchases, taking care that the quantities and prices of grain, fodder, &c., purchased on road are duly entered in the nericks.
34. To prepare for the deputy commissary-general monthly list of rates prepared by executive commissariat officers for chief articles of supply.
35. To prepare for issue (by cash section) to agents and contractors of sundry articles in triplicate copies of their dustees after filling in them the particulars of check.
36. To check acquittance rolls of thokedars.
37. To prepare review certificate and itlanamahs.
38. To check half-yearly estimates of stock articles.

Special Duties.

- To check steamer bills, bills for supplies for Port Blair for Native troops and for miscellaneous supplies for up-country stations; also bills for supplies to medical depôt, and bills for transport of medical stores other than by railway, as also of magazine and clothing stores sent from Calcutta.
- Presidency store and shipping executive office. To check bills and prepare accounts appertaining to the mill-house.
- Cawnpore executive office.
- To prepare the weekly statements of flour despatched.
 - To register all invoices of flour-bags, &c., despatched and received.
 - To make monthly debits of flour despatched.
 - To prepare quarterly account current of bags with the several executives.
 - To make out railway credit notes for despatch of flour.
 - To keep an account of the quantity of wheat in store issued to the miller and passed the mills, and of daily produce of flour, bran, &c.

To check the bills and prepare the accounts and other documents of the ice-houses. To check, for Lucknow and Morar executive offices. submission to deputy commissary-general, weekly report of ice manufactured and issued.

To issue monthly ice passes to regiments and purchasers.

To check monthly ice-house store and stock accounts.

To check accounts of agents and contractors for supplies to ice-house.

To prepare, for examiner of commissariat accounts, annual account of ice-house, showing receipts and expenditure.

N.B.—As regards railway bills, the check and audit required is described as follows in controller of military accounts' No. 1700, dated 21st May 1875, forwarded to deputies commissary-general with commissary-general's No. 334, dated 3rd June 1875. "It is desirable that executive officers should enter on the credit notes errors or discrepancies, although it is not expected that they should make a very close examination or audit of them. The credit note is equivalent to a cheque on a bank; but no cheque is paid without examination, and it is just such examination that is required of executive officers, who will enter in the credit note any objection they may observe." See also circular No. 142 of 1876.

III.—STORE AND STOCK SECTION.

1. To audit monthly store returns rendered by gomashtas (and purveyors of dieting articles) within the executive range.
2. To note that the certificate of the European subordinate in charge of the godown is attached to the gomashta's store return, showing that the balances in the agent's return agree with the godown books and actual balances in store.
3. To compile from the store returns of gomashtas, and purveyor's store ledgers.
4. To prepare from the office ledger the monthly store return for the examiner of commissariat accounts, taking care that all quantities charged off in this return are borne out by proper and complete vouchers.
5. To compile the monthly store return furnished to the commissary-general and deputy commissary-general.
6. To prepare and submit to the examiner of commissariat accounts, with the monthly store return rendered in April and October of each year, a distribution statement of balances in prescribed form.
7. To audit the monthly stock returns of gomashtas and compile an annual return of dead-stock articles to be submitted to the examiner of commissariat accounts in April of each year. All vouchers furnished in support to be safely kept until furnished to the examiner with the annual return.
8. To compile the annual dead-stock return for inspection of the deputy commissary-general when on tour, all vouchers being attached.
9. To examine monthly the godown account-books for inspection and signature of executive commissariat officer, all discrepancies between agent's accounts and audited balances in executive office being adjusted by surplus being credited or agent required to account for deficiencies.
10. To audit the monthly accounts of clothing, bedding, and miscellaneous articles, cooking utensils, and diet and table requisites furnished by hospital purveyors, and the godown gomashta's reserve stock return of similar articles.
11. To compile from the above a monthly alphabetical return of hospital equipments for submission to the examiner of commissariat accounts.
12. To grant railway credit notes and bullock train requisitions for conveyance of establishments and stores.
13. In auditing the several accounts above referred to, to see that each item of receipt and issue is supported by the proper vouchers, which are to be numbered, calling for the same when wanting, and assisting the agent, when necessary, in procuring the vouchers required; to see that all erasures and alterations are initialled, to bring to the notice of the head assistant any remarks in the vouchers requiring attention, or any novel, doubtful, or charges for unauthorized purposes or supplies, in view to the orders of the executive commissariat officer being obtained; and finally, to issue retrenchments against agents for any deficiencies or overcharges, of which (unless satisfactorily accounted for) the value is to be recovered.
14. To keep registers of railway receipts for stores sent to other executives, and of acknowledgments of the same, as also the register to invoices of stores despatched to other stations.
15. To prepare, before submission to the examiner of commissariat accounts, the half-yearly returns of commissariat supply in possession of corps which are furnished by commanding officers.
16. To prepare the half-yearly return of medicines and instruments submitted to the examiner of medical accounts.
17. To frame replies to the examiner's objections, retrenchments, and re-audit notifications for revision, if necessary, by the head assistant.
18. To prepare extracts from examiner's list of retrenchments, or retrenchment letters for agents and others.
19. To check monthly accounts of gomashtas and purveyors of such stock as is not accounted for in the annual dead-stock returns for deputy commissary-general or examiner of commissariat accounts (see circular No. 72, dated 26th April 1875).
20. To keep the register of store and stock debits received and issued.
21. To grant receipts in prescribed form for all store and stock debits received, after carefully comparing the quantities debited, with vouchers furnished in support thereof, or the receipted invoices, as the case may be, and noting that the articles have been credited.
22. To prepare and issue all store and stock debits against other executives, taking care that they are fully borne out by the vouchers and invoices quoted in support.
23. To keep the registers of (1) invoices and (2) indents received.
24. To check with great care, before passing for compliance, the monthly indents of commanding and medical officers of corps for barrack and hospital supplies, miscellaneous and petty supplies, rum and malt liquor, and also other miscellaneous and periodical indents by corps and agents, &c.

25. To draw out all orders for issue of store and stock articles from godown, and receipt orders to take similar articles into godowns.
 26. To check the monthly empty hogshead accounts with canteens.
 27. To prepare the monthly bills for rum and malt liquor supplied to corps.
 28. To audit gomashtas' monthly sale statements of rum, malt liquor, sugar, tea, &c., issued on payment to warrant and non-commissioned officers and soldiers' families, and after audit to hand them over to the cash section for the recoveries to be credited in the office accounts.
 29. To audit the monthly auction account sales of useless and surplus stock articles, and after audit to hand the account sales over to the cash section for the amounts to be credited in the office accounts and account sales forwarded to the examiner with cash account current.
 30. To audit the half-yearly inspection papers, inspection and committee reports, account sales, and estimates for repairs, after which loss statements and half-marginal references will be made out, and all the papers submitted in one complete batch to the deputy commissary-general.
 31. To prepare the monthly statement showing loss on rum and malt liquor issued to European troops, for submission to the deputy commissary-general; also other miscellaneous loss statements when any losses on other articles occur.
- NOTE.*—When the loss is 5 per cent. per annum, the statement may be in single copy, and when above that percentage, in duplicate. All vouchers in support of the loss statements should be complete and explanation concerning the loss afforded in the loss statements, the particulars of which are to be carefully checked.
32. To compile the annual statement showing receipt and rejections of malt liquor, furnished to the deputy commissary-general.
 33. To prepare the statement showing loss in gauging and filling up rum-vats and casks on 1st April, furnished to the deputy commissary-general.
 34. To prepare annual statement showing probable quantity of ale and porter that will be required by corps in the following year, furnished to the deputy commissary-general.
 35. To prepare the annual statements of requirements of miscellaneous stores from Europe, and furnish information required by the commissary-general for the preparation of such indents as are drawn up by his office.
 36. To see that complements of stores, are always kept up, and to prepare indents on other executives or departments for store and stock articles to complete deficiencies of authorized stock, or for other purposes.
 37. To draft all letters and half-margin references for revision, if necessary, by the head assistant connected with the duties of the section, and see that replies are received.
 38. To examine all papers connected with the section after being copied in the copying section.
 39. To make over to the miscellaneous section in its sub-divisions such papers as may be required for the performance of the duties of the sub-division.
 40. To prepare for deputy commissary-general quarterly report of empty casks supplied to Messrs. Carew & Co.
 41. To prepare for deputy commissary-general, on 24th March, annual statement of extra blankets issued to troops.
 42. To keep registers of issue of rum to pensioners, &c.
 43. To prepare bill for bedding, &c., issued on payment to troops.
 44. To issue notice of intended sales by auction.
 45. To prepare bi-monthly return of barrack blankets rendered to the deputy commissary-general.
 46. To prepare last bedding certificate.
 47. To register all store and stock receipts received.
 48. To assist in the preparation of annual budget estimates.
 49. To check stationery accounts.
 50. To prepare estimate and indent for Europe medicines.
 51. To prepare annual report of consumption of stores and wines in hospital.

Special duties.

To check indents for provisions for Native troops, and to prepare bills for recovery of post. Presidency and Darjeeling executive offices. To keep a register of stores received in England, Presidency store and shipping executive office. and to report their arrival to deputy commissary-general.

To endorse on packing accounts and invoices of stores the condition in which they are received; to grant certificates to agents of vessels, and to note in them any recovery to be made for damage or loss, should there be any, and to give intimation thereof to the shipping department, to enable it to recover the same from the freight bill of vessels. To prepare a monthly shipping account of stores and stock imported and exported for the examiner.

IV.—MISCELLANEOUS SECTION.

Sub-division 7.—Periodicals.

I.—To prepare—

Weekly.

- 1.—Sanitary report, to the brigade major or cantonment magistrate.

Monthly.

1. Memorandum of sums paid for service telegrams, for countersignature of deputy commissary-general.
2. Statement of prices-current for stations and outposts, to deputy commissary-general, and examiner of commissariat accounts.
3. Cattle returns, to commissary-general, deputy commissary-general, and examiner of commissariat accounts.
4. Return of moveable column cattle and establishments, to commissary-general, deputy commissary-general, and examiner of commissariat accounts.
5. Roll of commissioned, warrant, and non-commissioned officers, to deputy commissary-general and examiner, pay department.

6. Muster roll of commissioned, warrant, and non-commissioned officers, and families of non-commissioned officers, to paymaster and pay examiner.
7. Pay bills for office establishment, to paymaster.
8. Pay bills for warrant and non-commissioned officers, to paymaster.
9. Contingent bill, to paymaster.
10. Pay bill of commissioned officers, to paymaster.
11. Abstract of bill and contingent bill, to paymaster.
12. Statement of moveable column establishments employed in pulling punkahs and tattie duties, to pay examiner.
13. Committee report on groceries.
14. Muster-roll of cattle.
15. Return of births and deaths amongst establishments residing in commissariat lines in cantonments, to magistrate and garrison quartermaster.
16. Memorandum of siege-train cattle detached for employment, to executive commissariat officer, Allahabad or Ferozepore.
17. Bill for subsistence allowance to children of non-commissioned officers, to paymaster.
18. Certificate that the station butcher has been effective, to the commanding officer of the corps to which attached.
19. House-rent bills of non-commissioned officers, to the executive engineer.
20. Report of rejections of articles of rations, to the commissary-general and deputy commissary-general.
21. Report of fines, to deputy commissary-general.

Quarterly.

1. Statement of services of executive commissariat officer, to deputy commissary-general.
2. Report of accuracy of scales and weights in use, to deputy commissary-general.
3. Cattle returns for military authorities, to station staff officer.
4. Statement of sums paid on account of octroi and choongee tax, to deputy commissary-general.
5. Roll of subordinates drawing more than Rs. 10 per month discharged, to deputy commissary-general.

Half-yearly.

1. Statement showing deduction of fines and forfeitures from pay-abstracts, to deputy commissary-general.
2. Roll showing character and qualifications of warrant and non-commissioned officers, to deputy commissary-general.
3. Report on the condition of mules and gear, to deputy commissary-general.
4. Roll of clerks recommended as qualified for the post of head assistant, to deputy commissary-general.

Annually.

1. Statement of leave granted to uncovenanted servants drawing more than Rs. 10 per month, to deputy commissary-general.
2. Return of establishments drawing not less than Rs. 10 per month, to deputy commissary-general.
3. Detailed statement of all permanent establishments, showing the salary of each individual, to deputy commissary-general.
4. Return of pensioners drawing compensation pension of more than Rs. 10 per month, to deputy commissary-general (controller of military accounts' circular No. 64 of 1875).
5. Roll of non-commissioned officers and privates withdrawn from regimental duty for employment in the commissariat department, to deputy commissary-general.
6. Register of sanctioned establishments, to examiner, pay department.
7. Statement showing number of bullocks cast by annual committee, to deputy commissary-general.
8. Return of bullocks required for soldiers' gardens, &c., to commissary-general and deputy commissary-general.
9. Detailed roll of elephants, to deputy commissary-general.
10. Statement of horned cattle and sheep slaughtered, to deputy commissary-general.
11. Return of passages required for warrant officers, to deputy commissary-general.
12. Returns of arms and accoutrements, to deputy commissary-general.
13. Indent for stationery, to the superintendent, Government stationery.
14. Indent for blank forms, to deputy commissary-general.
15. Statement of buildings, to deputy commissary-general.

N.B.—The order of urgency in which it is requested the buildings may be erected is to be carefully noted in the statement.

16. Return of uncovenanted servants above 55 years of age, to deputy commissary-general.
17. Clothing indents and clothing compensation bills, to the superintendent and agent for army clothing and examiner of clothing accounts.
18. Roll of non-combatants, to be kept in office and report made to deputy commissary-general.
19. Return of horse-blankets, to deputy commissary-general.
20. Committee report on vegetables, to deputy commissary-general.
21. Memorandum of vegetables, to brigade-major.
22. Report on resources, to deputy commissary-general.
23. Indent for bedding for non-commissioned officers.
24. Alphabetical roll of non-commissioned officers, &c., to deputy commissary-general.
25. Confidential report of warrant and non-commissioned officers and office establishment, to deputy commissary-general.

26. Acknowledgment of permanent advance for divisional paymaster (commissary-general's circular No. 7 of 1874.)

F.—To prepare—

1. All transfer papers of office establishments, warrant and non-commissioned officers.
2. Casualty descriptive roll of elephants and mules, and report on elephants' tusks.
3. Medal rolls of non-commissioned officers.
4. To keep account of receipts and issues of stationery, forms, &c.
5. To comply with indents for stationery and forms after due check.
6. To make out muster-rolls of establishments.
7. To keep departmental character and defaulter books of warrant and non-commissioned officers.
8. To check cattle returns of outposts.
9. To inform commanding officers annually that good potatoes are not procurable in the plains between 15th June and 15th September, and if they take them, they must be prepared to accept such qualities as are procurable.
10. To draft all letters connected with the duties of the sub-division, for revision, if necessary, by the head assistant, and see that replies are received.
11. To examine all papers connected with the sub-division after being copied in the copying sub-division.
12. To make over to the copying sub-division such papers as are required to be copied after compilation.
13. To prepare transfer descriptive roll of elephants when transferred.
14. To keep register of elephants.
15. To prepare pension papers.
16. To prepare reports of epidemic among cattle (cattle form 23).
17. No ration certificate (non-commissioned officers).
18. Cost statement.
19. Certificate of extra coolies.
20. To keep daily report book of moveable column establishments.
21. Acquittance roll of office establishments.
22. Present and proposed state of office establishments.
23. Report of non-commissioned officers and privates—probationers in the department.

Sub-division 2.—Contracts.

To prepare—

1. Advertisements for tenders.
2. Comparative statements.
3. Contract deeds and their schedules of rates.
4. List of contracts concluded.
5. To issue tender forms to tenderer, carefully filling up the blanks, additional clauses, &c.
6. To notify in due form to tenderer acceptance of their tenders.
7. To forward the accepted tenders to the stamp office for impressment, stamp, and recovering the fee from the contractor.
8. To draft all letters connected with the duties of the sub-division, for revision, if necessary, by the head assistant, and see that replies are received.
9. To examine all papers connected with the sub-division after being copied in the copying sub-division.
10. To make over to the copying sub-division such papers as require to be copied after compilation.
11. To see carefully, on receipt of tenders, that they are properly signed; that rates are entered both in figures and words, and that all erasures are duly attested.
12. To send copies of contract deeds to officers commanding corps, and also to officers in charge of outposts.
13. To enquire from commanding officers, after receipt of tender, if they will accept aerated waters and tinning.
14. To call for estimates of wants from commanding and medical officers.

Sub-division 3.—Equipment of troops and commands.

1. To prepare indents for carriage and establishments and equipment; report to be passed by the head assistant.
2. To prepare letters of instructions to commanding officers, agents, &c.
3. To prepare passes for toll-bars, invoices of slaughter cattle and sheep, &c.
4. To draft all letters connected with the duties of the sub-division, for revision, if necessary, by the head assistant, and see that replies are received.
5. To examine all papers connected with the sub-division, after being copied in the copying sub-division.
6. To make over to the copying sub-division such papers as require to be copied after compilation.
7. To prepare a statement of carriage and establishment supplied for movement of troops.

Sub-division 4.—Miscellaneous.

1. To despatch all letters, &c., and to keep the account of postage labels received and expended, and to procure labels as required.
2. To keep the index of commissary-general and deputy commissary-general's circulars and Government general orders and Government orders affecting the commissariat department, and correct Bengal army regulations.

3. To have charge of the office records, and see that the duffry keeps the files, &c., in order.
4. To prepare requisitions for commissariat minor works.

Sub-division 5.—Copying.

1. To copy all letters and papers of the office generally when all that is required is a fair copy for either despatch or record.
2. To keep all letter books.

Major-General Napier Campbell,
Officiating Inspector-General of
Ordnance and Magazines, Bengal.

The number of clerks and writers—

(a) at head-quarters (ordnance office) is 23, of whom 6 are on duty at Simla, and 22 are employed at Calcutta.

(b) elsewhere (that is, in arsenals and factories) 112.

The clerks in the ordnance office are employed as follows :—

(1) Registrar (at Calcutta) is responsible for the discipline of the office, distributes the work, and sees that it is carried out according to the routine prescribed; examines and initials all fair copies of correspondence, and assists in all matters under reference.

Clerks.

1st class.	2nd class.	3rd class.	4th class.	5th class.	Remarks.
1	...	1	2	2	Are employed at <i>Simla</i> under the inspector-general of ordnance. All the important work, such as preparing drafts, giving references and general assistance, keeping records, examining letters and documents, preparing draft general orders, &c., &c., are performed by the 1st and 3rd class clerks; one of the 4th class clerks acts as despatcher and the other as auditor of indents; and the two 5th class ones are employed as copyists.
...	1	1	...	2	Deal with all departmental demands in <i>personnel</i> , <i>matériel</i> , and stores of country supply; prepare budget estimates; check estimates for country supply, &c., &c.
...	...	...	1	3	Are employed as record and diary keepers.
...	...	1	...	1	Are employed in preparation of Europe indents, distribution of stores arriving from England, &c., &c.
...	...	1	...	2	Are employed in correspondence branch.
...	...	...	...	1	Despatcher.
...	1	...	1	4	Are employed as auditors, diary-keepers, copyist, record-keeper, and despatcher in indent branch.
...	...	...	...	1	Draftsman.

The duties of clerks and writers employed elsewhere (that is, in arsenals, depôts, and factories) are to keep ledgers, diaries of receipts and issues, returns of stores made and repaired, expenditure of materials, depôts, check indents, prepare estimates, balance returns, stock reports, muster rolls, pay bills, &c., &c. They are also employed on all work connected with correspondence in respect of supply and demand.

Surgeon-General Ker Innes,
British Department, and
Principal Officer, British
Forces in India.

Fifteen clerks in all are borne on the establishment, five of whom were sanctioned specially for the statistical branch. The entire office is located at head-quarters, Simla.

The following is a detail of the establishment :—

Head clerk, salary	...	...	...	Rs. 300 to 400
2nd do. do.	...	...	...	200 to 300
3rd do. do.	...	...	...	150 to 200
4th do. do.	...	...	...	150 to 200
5th do. do.	...	...	...	100 to 150
6th do. do.	...	...	...	100 to 150
7th do. do.	...	...	...	75 to 100
8th do. do.	...	...	...	75 to 100
9th do. do.	...	...	...	75 to 100
10th do. do.	...	...	...	50 to 75
11th do. do.	...	...	...	50 to 75
12th do. do.	...	...	...	50 to 75
13th do. do.	...	...	...	50 to 75
14th do. do.	...	...	...	35 to 50
15th do. do.	...	...	...	35 to 50

The five clerks sanctioned for the statistical branch, included in the above, are the following :—

1 clerk at	...	...	...	Rs. 150 to 200
2 clerks at	...	...	...	" 75 to 100
2 " "	...	...	...	" 50 to 75
5 clerks.				

Brief statement of duties.

Head clerk.—Supervision and management of general branch, drafting, précis, summaries of confidential, sanitary, and inspection reports, miscellaneous.

*2nd clerk.**—Supervision and management of statistical branch, correspondence relating to returns and reports and supplies of forms, miscellaneous.

3rd clerk.—Medical officer's roster, applications, postings, and correspondence connected therewith, index or register of letters received and charge of office records.

4th clerk.—Index or register of issues; quarterly sheets of circulars; pay bills; general work.

5th clerk.—Diary of daily dāk, countermarking references, despatch, general.

*6th clerk.**—Cholera returns, monthly state of troops for adjutant-general, medical history sheets, and casualty reports, proofs, &c.

*7th clerk.**—General annual statistical and sanitary returns for War Office; also monthly general returns for War Office.

8th clerk.—Copying proceedings of medical boards; assists in the records.

*9th clerk.**—General monthly returns of sick for the War Office.

*10th clerk.**—Weekly sick returns for Commander-in-Chief.

11th clerk.—Copying; assists in the records.

*12th clerk.**—General monthly returns of sick for War Office; also the annual returns.

*13th clerk.**—Monthly returns of women and children, and general assistance in other returns as required.

*14th clerk.**—Copyist.

*15th clerk.**—Supply and issue of blank forms, &c.; copying.

Surgeon-General J. F. Beatson, Indian Medical Service, Bengal.	(a)	1 head assistant	...	...	1st grade.
		1 assistant	...	...	2nd "
		1 assistant	...	...	3rd "
		1 record-keeper	...	...	4th "
		1 assistant ditto	...	...	7th "
		1 special clerk	...	...	4th "
		1 assistant	...	...	5th "
		1 indexer	...	...	5th "
		1 statistical clerk	...	...	5th "
		1 assistant clerk	...	...	7th "
		1 accountant	...	...	5th "
		1 diarist	...	...	6th "
		1 despatcher	...	...	6th "
		3 copyists	...	...	7th "

(b) None.

Their respective duties are briefly as follows.

The head assistant is the channel of communication, and is directly responsible for the daily routine and faithful discharge of duty, for the carrying out of superior orders, and for superintending the work of the whole office, subject to standing orders. He is especially concerned with the concrete presentation of cases before submitting them for orders, having to see that regulations are not overlooked, precedents forgotten, or orders disobeyed. He should personally see that every file is complete, that every return is accurate, that the statistics are reliable, and the records maintained intact. He also drafts most of the current letters and orders.

The second assistant has very important special duties. His duties are principally connected to the hospital assistant class, and have lately been most largely especially the arrears of their pay and the confused accounts of the hospital, which are invariably connected with these and his other duties; he prepares the annual budget of this department, including the grants of each medical circle and garrison and station hospitals, together with the budget estimates of the various medical depôts,—a most serious and responsible duty. He has also to check the monthly bills of the various medical depôts "for local purchases," involving the correct apportioning of large sums of money which can only be expended on the sanction of the surgeon-general; he also prepares all pay bills and indents.

The accountant is practically his *aide* in fulfilling these duties, and also in proving the details connected with service questions of so many hospital assistants who in distant and lapsed periods recur to the memory of provincial accountants as debited with unrecovered balances or questionable allowances.

Examines all gazettes, general orders, and circulars, extracting all which affect the medical department; has the entire charge of the quarterly sheets of circulars, from their manuscripts to the printed proofs; prepares the departmental share of the official army list, and records the various service changes;

assists in the abstracts of all the subordinate medical departmental examinations, *viz.*—
admission of hospital apprentices, 5th April—15th October;
examinations of hospital apprentices, 1st May—1st November;
examinations of warrant officers on the 15th January, 1st May, 15th July, 1st November,

* These are employed under the supervision of the statistical officer.

and tabulates the results for record; examines the fair-copies of all the correspondence, and initials them before they pass to the surgeon-general or secretary for his signature; and he also drafts many of the more serious letters, or takes précis of any lengthy correspondence.

Mr. A. O. Mendies, Rs. 100—150.
Babu Nilmony Roy, Rs. 30—50.

Mr. T. Smith, Rs. 75—100.
Mr. J. Mendies, Rs. 50—75.
Babu Pearymohun Banerjee, Rs. 30—75.

The record-keeper and his assistant are sufficiently indicated by their titles. The records of this office, bound and unbound, extend through a period of nearly one hundred years.

Similarly, the indexer, diarist, and despatcher are clerks whose duties are shown by their names. Since the 1st April there have been received in this office 4,526 communications, and there have been despatched 4,224.

These men were especially retained to complete the verified statement of service of every hospital assistant. The number required will eventually fall very little short of 1,000, and they extend over periods varying from 38 to 2 years. There remain about 400; and as they are completed on an average of about 10 a week, it is confidently hoped that it will be got through by the close of the current financial year, and this portion of the establishment can then be reduced.

Of these men, it is enough to say that not only are they fully employed, but I understand we have had for some time two youths, apprentices, who write a good hand and are learning office work and waiting for a vacancy, and that these youths also are fully employed in addition.

Copyists { Rs. 30 (Khettermohun Ghose.
to { Kallycomul Mookerjee.
Rs. 50 { Jadav Krishna.

Lastly, are the statistical clerk and his assistant. Of the work required of these two members of the office, I need only remark that they receive and despatch the weekly, monthly, and annual returns of sickness, invaliding, and mortality of the Native army of Bengal, which amount to 109 annual returns in duplicate, 1,464 monthly returns, and nearly 12,000 weekly returns per annum; and that these have not only to be examined and checked, but largely returned for correction, and have to be abstracted afresh so as to produce combined tables for the departmental annual report. These two men have to struggle with not only errors of educated officers, who either from junior standing or from forgetfulness are unmindful of standing orders, but also with repeated arithmetical and technical blunders of hospital assistants who are temporarily in medical charge of detachments. And ultimately, when every document has been corrected and passed on to the statistical officer, Dr. Bryden, a complete and really abstruse set of tables have to be prepared for the annual report of the Native army for the information of the Secretary of State. It will probably be asked why this duty is not entirely relegated to the statistical officer proper; to which it may be replied—for two reasons. First, because Dr. Bryden, being detached from his proper chief, the head of the Indian medical department, would not be able nor would he have the administrative powers to secure the punctual submission and the prompt correction of those thousands of returns from all over India, and the statistics would infallibly fall into inextricable confusion; and secondly, because he, as the statistical officer, remaining detached from the control of the surgeon-general, the returns necessary to enable this department to prepare its annual report of the Native army would not be forthcoming or would be objected to and changes suggested until all discipline was at an end. If the Government really desire to combine efficiency and economy, I venture to observe that the proper direction is to relegate the statistical officer to the authority of the surgeon-general, and combine his office with the present.

Dr. J. M. Cunningham, Sanitary Commissioner with the Government of India.

(a) *General branch*—
1 head clerk.
2 assistant clerks.

Statistical branch—
1 head clerk.
5 assistant clerks.

(b) None.

The clerks of the general branch are merely copyists. The head clerk manages the office, and goes to the hospitals, checks the figures and other statements made in office letters and notes. The statistical branch is entirely taken up with statistical work.

Colonel Harrison, Controller of Military Accounts, Bengal.

(a) *OFFICE OF CONTROLLER OF MILITARY ACCOUNTS.*
1 head assistant.
3 1st class assistants.
4 2nd ditto.
5 3rd ditto.
5 4th ditto.
9 5th ditto.

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27
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Estimate and marine section.

The head assistant and four clerks are engaged in this sub-division of the office. The preparation of the military and marine budget and cash estimates, and all correspondence connected therewith, of the annual account statements of reports on establishments, and the maintenance of the establishment books, of matters relating to forms and of the Indian marine, are entrusted to this sub-division.

Pay section.

One 1st class assistant and two clerks carry on the work of this section, which, as its name denotes, deals with all questions regarding pay and allowances and travelling charges.

MISCELLANEOUS SECTION.

Consists of one 1st and two 2nd class clerks, who deal with all questions relating to the commissariat, stud, clothing, ordnance, and medical departments that are not connected with the estimates or pay.

PENSION SECTION.

Consists of two clerks, who deal with all questions relating to pensions.

RECORDING AND REGISTERING SECTION.

Consists of five clerks, whose duties pertain to the recording, registering, and indexing, of all documents, &c.

DESPATCHER.

One clerk.

COPYING SECTION.

Six clerks.

One 1st class clerk on deputation to Umballa.

One 2nd class clerk absent on medical leave.

(b) None.

(a) OFFICE OF CONTROLLER OF MILITARY ACCOUNTS, ACCOUNTS BRANCH.

Military branch.

1 principal clerk.
 3 1st class clerks.
 3 2nd ditto.
 6 3rd ditto.
 8 4th ditto.
 16 5th ditto.
 5 copyists.
 6 computers.

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 48
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Marine branch.

1 2nd class clerk.
 1 4th ditto.
 1 5th ditto.
 1 copyist.

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 4
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One principal clerk and book-keeper supervises the clerical business of the office, and has direct control over the book-keeping sub-division.

ACCOUNT CURRENT SUB-DIVISION.

Two clerks.—Have the general charge of all the accounts, and deal with the correspondence that may arise in connection therewith.

HOME SUB-DIVISION.

Nine clerks.—Deal with all the transactions adjustable with Her Majesty's Imperial and Indian Governments in London, and prepare and record the various abstracts and returns relating thereto.

INTER-DEPARTMENTAL SUB-DIVISION.

Thirteen clerks.—Examine and adjust all transactions between the military department of this presidency and the several civil governments, provinces and administrations, the public works department, India, and the military account departments of Madras and Bombay.

BOOK-KEEPING SUB-DIVISION.

Seven clerks.—Compile the military books and accounts submitted to Government through the accountant general.

REGISTERING SUB-DIVISION.

Three clerks.—Register and index letters received.

COPYING SUB-DIVISION.

Four clerks.—For family remittance rolls.

Seven clerks.—General clerical work of the office.

One clerk.—Despatcher.

One clerk.—Record-keeper.

(b) None.

(a) OFFICE OF EXAMINER OF COMMISSARIAT ACCOUNTS.

1 superintendent.
 51 clerks.
 35 computers.
 5 copyists.

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 92
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One superintendent.—Supervises the working of the entire office.

Two assistants.—Conduct the general correspondence of the office.

Four assistants.—Supervise the cash, store, and stock audit.

CASH AUDIT BRANCH.

Forty-eight assistants.—Audit executive officers' monthly disbursements in the twenty-four commissariat ranges.

STORE.

Eleven assistants.—Audit executive officers' monthly store and stock returns, returns of purveyors' stores, &c.

RAILWAY AND BULLOCK-TRAIN BRANCH.

Four assistants.—Deal with transport charges.

CASH ACCOUNT CURRENT.

Two assistants.—Do the work of this section.

STUD SECTION.

Two assistants.—Do the work of this section.

COMPILATION BRANCH.

Seven assistants.

COPYING BRANCH.

Seven assistants.

RECORD SECTION.

Four assistants.

(b) None.

(a) OFFICE OF PAY EXAMINER, MILITARY ACCOUNT DEPARTMENT.

1 superintendent.
4 1st class assistants,
4 2nd ditto,
8 3rd ditto.
15 4th ditto.
28 5th ditto.
19 copyists.
13 computers.

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92
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One superintendent.—Superintends generally the work of the office.

Three assistants.—Audit the pay lists of office establishments and pay bills of officers and others who are neither in regimental nor staff employ.

STAFF SUB-DIVISION.

Six assistants.—All staff bills and muster-rolls are audited and checked, and all correspondence relating thereto is carried on in this sub-division.

BRITISH TROOP SUB-DIVISION.

Twenty-three assistants.—The pay lists and accounts of British troops; and all correspondence connected therewith are audited and carried on in this sub-division.

SAVINGS BANK SECTION.

One assistant.—Audits the regimental savings bank accounts, keeps the ledgers, and conducts the correspondence connected therewith.

NATIVE TROOP SUB-DIVISION.

Eight assistants.—The pay lists of regiments of Native cavalry, artillery, and infantry are audited in this sub-division.

COMPILATION SUB-DIVISION.

Thirteen assistants.—The classification and compilation of all the charges passed in the office revolve on this sub-division.

LEDGER SUB-DIVISION.

Four assistants.—The pay of every officer and warrant officer is posted into the books by this sub-division.

BILLS AND PENSION SUB-DIVISION.

Eight assistants.—The audit of all pensions, payments, and the maintenance of the pension registers are in this sub-division.

COPYING SUB-DIVISION.

Twenty-four copyists.

RECORD SUB-DIVISION.

One assistant.—In principal charge of all the records.

(b) None.

(a) ORDNANCE EXAMINER'S OFFICE.

The number of clerks and writers is as follows:—

1 superintendent.
1 1st class clerk.
1 2nd ditto.
2 3rd class clerks.
6 4th ditto.
17 5th ditto.
5 copyists.
13 computers.

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46
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DUTIES.

One superintendent.—Supervises the framing of reports, statements, &c., and the clerical business of the office; occasionally checks the accounts, and assists with his opinion doubtful points submitted by auditors.

ORDNANCE AUDIT SECTION.

One clerk.—Superintends the audit of factory, arsenal, and depôt monthly journals, and the annual factory accounts; compiles the annual accounts of the small-arm ammunition factory at Dum-Dum, and carries on correspondence.

Two clerks.—Audit factory, arsenal, and depôt monthly journals and material reports; dispose of Europe invoices, and prepare statements of stores, &c.

One clerk and two computers.—Assist in auditing factory, arsenal, and depôt monthly journals and material reports.

ACCOUNT SECTION.

One clerk.—Keeps up the abstract ledgers of stores, prepares statistical statements as required and monthly returns, compiles statements of securities deposited by contractors, and audits schedule of inter-departmental payments.

One clerk.—Prepares all valuation statements of debits and credits, keeps up a register of Europe stores, and draws up various statements and reports.

One clerk.—Audits cash recoveries of stores supplied to corps, individuals, and foreign States, forwards treasury receipts to office of controller of military accounts, and disposes of all packing accounts.

Three clerks, one copyist, and one computer.—Calculate and rate entries of receipts and issues in day-books of factories, arsenals, and depôts.

One clerk and one computer.—Prepare and check valuation statements of stores supplied on payment or lost or damaged, and draft letters in connection therewith.

One clerk.—Audits bills for extra establishment and contingent charges for factories, arsenals, and depôts, and bills for camp equipage, &c., and drafts letters in connection therewith.

One clerk.—Prepares valuation statement of stores taken by regiments leaving this presidency, and other returns and statements.

One computer.—Keeps index of bills received and audited, and issues vouchers for payment.

REGIMENTAL AUDIT SECTION.

One clerk.—Superintends the audit of half-yearly equipment ledgers of ordnance and military stores, keeps up register of returns received and audited, and carries on all the correspondence of this section.

Four clerks, one copyist, and one computer.—Their duties are alike, and consist in auditing army and miscellaneous half-yearly equipment ledgers.

One computer.—Compares invoices of stores received by corps and batteries with monthly journals of arsenals and depôts.

One computer.—Audits returns of ordnance stores in charge of military departmental officers, returns of camp equipage, and accounts of rest camps.

GENERAL STOCK SECTION.

Three clerks and two computers.—Audit all store ledgers of factories, arsenals, and depôts.

CURRENT SECTION.

One clerk.—Indexes all receipts and issues, and keeps up a stationery ledger.

Three clerks, two copyists, and two computers.—Fair-copy letters and other documents.

One copyist.—Despatches papers.

Two clerks and one computer.—In charge of records.

(b) None.

(a) OFFICE OF EXAMINER OF CLOTHING ACCOUNTS.

- 1 2nd class assistant.
- 2 3rd do. assistants.
- 1 4th do. assistant.
- 5 5th do. assistants.
- 6 copyists.
- 1 computer.

16

One assistant.—Supervises the general working of the entire office.

One assistant.—Deals with questions relating to "necessaries" branch, and a portion of the general branch relating to accounts.

One assistant.—Prepares annual account current of stock and cash, &c.

One assistant.—Attends to questions relating to the stock expenditure of clothing made up in the agency.

Five assistants.—Keep the stock ledger and various registers, and assist the other clerks generally.

One assistant.—Record-keeper.

Six copyists.

(b) None.

OFFICE OF EXAMINER OF MEDICAL ACCOUNTS.

One superintendent.—Conducts correspondence, frames reports, and exercises general supervision over the establishment.

One clerk.—Supervises the work of the medical store section, and conducts correspondence connected therewith.

One clerk.—Supervises the work of the commissariat supply section, and conducts correspondence connected therewith.

One clerk.—Compiles commissariat accounts for charges incurred by the commissariat for the medical department, and prepares budget estimates and other statements.

One clerk.—Prepares the rate list of stores, the quarterly cash accounts and compilations, also the annual stock accounts, and conducts correspondence connected therewith.

One clerk.—Prices indents and stores issued from medical depôts and annual stock accounts.

One clerk.—Compiles commissariat accounts for charges incurred by the committee for the medical department, and assists in the preparation of budget estimates and statements.

One clerk.—Checks transfer lists and half-yearly returns, conducts correspondence connected therewith, supplies references, and despatches letters.

One clerk.—Checks diet returns, and prepares returns of stimulants and other statements.

One clerk.—Checks and prices articles returned into store, and prepares loss statements and rate lists of stores.

One clerk.—Keeps register of indents and invoices of stores issued, stationery accounts, and prepares miscellaneous statements.

One clerk.—Prepares data for annual indent, rate list of stores, and prices indents and stores issued.

One clerk.—Keeps ledger of receipts and issues of stores of the Allahabad depôt, and audits returns connected therewith.

Two clerks.—Price indents and stores issued from medical depôts and annual stock accounts.

One clerk.—Checks half-yearly returns of surgical instruments, and keeps postage accounts and records.

One clerk.—Prices indents and stores issued from medical depôts, and copies letters.

One clerk.—Compiles commissariat accounts, and assists in preparing budget estimates.

One clerk.—Keeps ledger of receipts and issues of stores of the Meean Meer depôt, and audits returns connected therewith.

One clerk.—Keeps diary of letters received, copies letters, and prepares statements.

Total 20 clerks.

(b) None.

(a) OFFICE OF EXAMINER OF FUND ACCOUNTS.

One clerk.—Conducts correspondence, and superintends the working of the office under the orders of the examiner.

One clerk.—Drafts letters, and prepares periodical accounts.

One clerk.—Drafts letters, prepares home returns, indexes, and takes notes of promotion, &c.

One clerk.—Prepares statements of subscriptions, calculates interest, and makes out accounts under article 8.

One clerk.—Posts receipts on account of subscription and family contribution to the orphan fund, keeps general and statistical register of children, and prepares quarterly returns of them for transmission to the India Office.

One clerk.—Makes out bills, budget estimates of Kidderpore house and lower school, audits payments to outwards, keeps accounts of both schools, and analyzes certified lists.

Eleven clerks.—Keep the ledger accounts and registers, and conduct the general work of the office.

One clerk.—Record-keeper and reference clerk.

Two clerks.—Copyists.

One clerk.—Vacant.

Total 21 clerks.

(b) None.

(a) PRESIDENCY PAY OFFICE.

1 head assistant.
5 2nd class assistants.
6 3rd do. do.
5 4th do. do.
1 treasurer.
1 moonshee.

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19
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PAY SECTION.

One assistant.—Supervises the working of the entire office.

One assistant.—Keeps up registers of family remittances, miscellaneous deposits, &c.

Three assistants.—Check establishment pay bills, travelling bills, officers' pay bills, &c., adjust demands, and issue last-pay certificates.

Two assistants.—In charge of register of all pensions paid by pay section, register of service funds, &c., and make out disbursement schedules.

Two assistants.—Write cheques, military and marine, transfer receipts, &c.

One assistant.—Reference clerk.

One assistant.—Diary-keeper.

Two copyists.

One cash-keeper.

PENSION SECTION.

Three assistants.—Deal with all questions relating to Native military pensions, prepare all schedules and returns, and conduct the correspondence of the section.

One treasurer.—Makes payments, and keeps vernacular cash-book.

One moonshee.—Performs vernacular work.

(b) None.

(a) NORTH-WESTERN PROVINCES CIRCLE.

Allahabad Pay Office.

- 1 1st class assistant.
- 6 2nd do. assistants.
- 9 3rd do. do.
- 3 4th do. do.
- 2 treasurers.
- 2 moonshees.

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23

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Duties are the same as in the presidency circle pay office.

(b) None.

(a) PUNJAB CIRCLE.

Pay Office.

- 1 1st class assistant.
- 6 2nd do. assistants.
- 5 3rd do. do.
- 3 4th do. do.
- 1 moonshee.
- 1 treasurer.

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17

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Duties are the same as in the Presidency circle pay office.

(b) None.

Major O. E. Newmarch, Accountant-General, Military Department.

(a) At head-quarters 19
 (b) At Calcutta 2
 and their respective duties are as follow:—

MR. JONES, chief accountant—

Has general supervision of the office establishment. Distributes papers to assistants, and notes thereon how they are to be registered, &c. Inspects and initials all pay and contingent bills of the office before submission for signature. Franks all covers sent by post on Her Majesty's service. Applications for leave, &c., from assistants are made through the chief accountant.

All cases, drafts, &c., are submitted by the assistants through the chief accountant, through whom also all papers are ordinarily sent to office by the accountant-general and assistant accountant-general.

Has general charge of office cash and stationery.

Royal warrants.

Army circulars (War Office).

Horse Guards general orders.

Estimates, military.—Budget, revised, and cash requirement. Examines, consolidates, and prepares reviews thereon for orders.

Expenditure, military.—Furnishes explanations connected with; prepares annual report.

Pay and allowances.—Prepares cases relating thereto.

Pay Code for India.—Prepares draft general orders of corrections in; and connected with—

MR. DIAS, senior assistant—

Prepares for orders cases on the following subjects; also keeps a note of all Government decisions bearing thereon:—

- Appointments.
- Army List.
- Asylums.
- Camp-followers.
- Claims.
- Clothing.
- Commands.
- Discharges.
- Disturbances.
- Dress.
- Enlistment.
- Estates (Native troops).
- Field operations.
- Foreign.
- Furlough and leave.
- Guards.

- Honorary distinctions.
- Honors and rewards (officers).
- Medals and rewards.
- Memorials.
- Military department.
- Officers.
- Pensions.
- Prize.
- Rewards (Native army).
- Savings banks.
- Service.
- Special.
- Staff corps.
- Volunteer corps.
- Women and children.

MR. DEMONTE, senior assistant—

Prepares for orders cases connected with the following subjects; also keeps a note of all Government decisions bearing thereon :—

Accommodation and quarters.
Account department, military officers.
(Appointment, promotion, and distribution of officers).
Budgets.—Notes all orders affecting—
Barrack Department.
Cantonments.
Complaints.
Defences.
Discipline.
Judicial matters.
Medical department.
Organization.
Passages (land and sea).
Pensioners—Analyzes the returns of military and civil—paid in the military department.

Prisoners.
Railways (use of—by military department).
Regimental institutions.
Register.—Keeps up a—showing the financial effect of all orders relating to army expenditure.
Reports.—Reviews and prepares for orders the annual administration and financial—of departments and factories in the three presidencies.
Royal engineers.
Sanitation.
Transport of baggage and stores, &c.
Working-parties.

In addition to the above, Mr. deMonte assists in the examination and consolidation of the military budget estimates.

MR. CLINTON, 1st class assistant—

Prepares for orders cases connected with the subject "marine"; also keeps a note of all Government decisions bearing thereon.

Marine budgets.—Scrutinizes the annual budget of Bengal, Madras, Bombay, and British Burma.

Marine officers.—Keeps a corrected list of—.

Marine proceedings.—Examines—of local governments, and submits for orders any decisions or resolutions therein recorded opposed to rule or otherwise requiring notice.

MR. BRYANT, 2nd class assistant (at present on furlough). His duties are at present distributed among the other assistants.

Prepares for orders cases connected with the following subjects; also keeps a note of all Government decisions bearing thereon :—

Advances.
Agricultural.
Artillery.
Camps.
Commissariat.
Drill and instruction.
Horses.
Inspections.
Native languages.
Native States.
Ordnance.
Organization.

Regulations.
Ecclesiastical.
Educational.
Equipment.
Establishments.
Exhibitions.
Funds (I. S. F. P. only).
Schools.
Studs.
Unattached list.
Veterinary department.
Warrant officers.

In addition to the above, Mr. Bryant assists generally in the examination and preparation of the budget appendices.

BABU M. L. GHOSE, 2nd class assistant—

Record-keeper and reference clerk; has charge of all documents, and maintains detailed reference books.

MR. COCK, 2nd class assistant—

Is in charge of the following statements and returns connected with the military accounts of the three presidencies, maintains the same to date, keeps a note of decisions, &c., connected therewith, and drafts correspondence :—

of exercise.
of deposit account balances.
of military.
of auditure (receipts and charges).
of allotments.
of London account current schedules and vouchers.

London account current.
Prize funds.
Remittance accounts current of the Secretary of State.
Remittances, soldiers', &c.
Savings banks
Her Majesty's Indian troop-ships.

BABU B. M. BANNERJEE, 2nd class assistant—

Indents and estimates for Europe stores appertaining to the several departments in the three presidencies. Examines and prepares reviews thereon for orders; also drafts correspondence connected therewith; keeps a note of all decisions relating to indents and estimates.

Camps of exercise.—Prepares estimates of cost of—.

Reliefs and movements of troops.—Prepares estimates of cost of—.

Monthly statements of stores and freights paid in England, and of invoices despatched to India.—Examines and prepares them for orders.

In addition to the above, Babu B. M. Bannerjee prepares, when required, estimates on general questions affecting military expenditure, and assists in the preparation of the budget appendices and the military budget estimates of the three presidencies.

MR. MANUEL, 3rd class assistant—

Regulations.—Corrects to date the various military and pay regulations and codes, and assists in general work.

BABU K. C. CHATTERJEE, 4th class assistant
(at Calcutta).

Record-keeper and reference clerk at Calcutta.
Has charge of *of stationery and office cash at Calcutta.*

BABU G. C. CHATTERJEE, 3rd class assistant—

Assists Mr. Cook with the accounts and Mr. deMonte in keeping the register showing the financial effect of all orders relating to army expenditure; also assists generally in the budget work.

MR. REMEDY, 4th class assistant.

Superintends copyists, examines all papers copied, and supervises despatches.

BABU M. L. DASS, 4th class assistant—

Assistant record-keeper and reference clerk.

Office bills—Pay and contingent; prepares these.

Office cash advances } —Has charge of—at Simla, under the orders of the chief accountant.
Office stationery }

MR. WYMAN, 4th class assistant—

MR. COCKBURN, 5th class assistant—

Keep the registers of all documents received in and issued from office.

BABU A. C. CHATTERJEE, 5th class assistant—

Despatcher.

BABU S. C. CHATTERJEE, 5th class assistant—

Copyist and general assistant in indent section.

BABU N. C. GUPTO

” O. K. MITTER

” P. N. GHOSE

(at Calcutta).

ABDUL KURRIM

BABU B. N. ACHARYA,
officiating.

} Copyists, &c.

Colonel B. Walton, Supdt. and
gent, Army Clothing, Bengal.

(a) *Vide* schedule No. 10 in answer 9.

(b) None.

Colonel J. K. Cooper, Director
of Army Remount Operations.

Vide following statements of the offices of director and of the Hapur and Saharanpur depôts respectively.

An office allowance of Rs. 100 per month was sanctioned by Government for the remount agency at Calcutta when it was first established, and the same arrangement continues in force.

Statement showing the number of writers attached to the office of the director of army remount operations, and their respective duties.

No.	Description.	Amount of pay.			Nature of duties.
		Rs.	A.	P.	
1	Head clerk ...	250	0	0	Conducts correspondence, and registers all documents received; puts up references connected with correspondence, and supervises office generally.
1	First writer ...	120	0	0	Chief copyist, indexer, and preparer of statistics of remounts, also annual returns.
1	Second writer ...	80	0	0	Assistant copyist and despatcher; checks calculations of depôt bills and estimates received.

Statement showing the number of writers attached to the Hapur remount depôt office, and their respective duties.

No.	Description.	Amount of pay.			Nature of duties.
		Rs.	A.	P.	
1	Head writer ...	120	0	0	Correspondence, cash-book, ledger, &c., keeping of the accounts, returns, &c., and to check all stock and cash accounts. To exercise a general supervision over the whole of the office people, and see that each performs his duties properly.
1	Second writer ...	50	0	0	Dailies, bills, descriptive-roll of remounts, stock-book and returns, muster-roll of Native depôt and stable establishments, copying correspondence, and postage books.
1	Third writer ...	20	0	0	Copying of returns, bills, making of remount tickets, and keeping registers of horses; making himself generally useful, such as taking the second clerk's and godown lallah's duties, &c.
1	Treasurer and moonshee.	24	0	0	Persian correspondence, keeping of cash-book and accounts in Persian.

Statement showing the number of writers attached to the Saharunpur remount depot office, and their respective duties.

No.	Description.	Amount of pay.			Nature of duties.
		Rs.	A.	P.	
1	Head writer ...	120	0	0	Correspondence, accounts, and book-keeping.
1	Second writer ...	50	0	0	Keeping register of horses, and preparing bills, &c.
1	Third writer ...	20	0	0	Copyist, keeper of dailies and bills, &c.
1	Treasurer and moonshee.	24	0	0	Cash and vernacular record-keeper.

J. H. B. Hallen, Esq., General Superintendent of Horse-Breeding Operations.

At the head-quarters—
Office of general superintendent—
1 head clerk.
1 second clerk.
1 third clerk and moonshee.
1 fourth clerk.

In each of the offices of assistant superintendent—
1 head clerk.
1 second clerk.
1 moonshee.

The duties of the office establishment of general superintendent have been detailed in the preceding answer (No. 9). Those of the assistants are to carry on correspondence with local Governments, general superintendent, horse-breeding operations, and district or civil officers; keep up registers of Government stallions and of branded mares, in both English and vernacular; issue extracts of registers certifying dates of serving of mares, birth of produce, &c., to the owner of each branded mare; submit to the office of general superintendent annual, half-yearly, quarterly, and monthly statements and bills for keep of stallions, contingent expenses, &c., in connection with the operations of this department.

Major-General Sir P. S. Lumsden, K.C.B., O.S.I., Adjutant-General in India.

(a) 31 clerks and 15 writers.
(b) No clerks employed elsewhere; divisional offices are paid from the Rs. 135 per month allowed to the assistant adjutant-general. The duties of the clerks at head-quarters are detailed in the accompanying office* manual, section IV.

Colonel C. C. Johnson, Officiating Quarter-Master-General in India.

At head-quarters—
European clerks 12
Native ditto 11
European draftsmen 2
Native ditto 6

When the intelligence department is established, it will consist of—
1 sergeant.
2 corporals.
7 privates.

With divisions—

European and Native clerks 20.

The salaries of these latter being fixed, divisional officers have discretionary power to entertain European or Natives, as most convenient.

Duties.—The European clerks at head-quarters superintend branches, write notes on cases, draft correspondence, keep diaries, prepare important returns and compilations, write précis, examine and report upon government fund and punkah and tattie estimates, and check accounts, also examine the work of the scribes.

The Native clerks keep office cash accounts, prepare indents and periodical returns, assist the European clerks, keep office indexes and registers, copy correspondence, and despatch letters.

Divisional offices.

The clerks in these offices perform somewhat similar duties to those at army head-quarters, with the exception that, being less efficient as regards education, training, and experience than the more highly paid clerks at head-quarters, all the important reports and correspondence are prepared by the departmental officers attached to commands.

Colonel A. H. Murray, Deputy Adjutant-General, Royal Artillery in India.

There are nine European clerks and two Native copyists on the establishment, with one temporary hand (Native copyist) during the present pressure of work, owing to the Cabul campaign. These are all at head-quarters.

The duties of the head clerk are to receive and open all official letters, receive them after being entered in the diary, and submit them for orders with the usual previous papers and report, and distribute the work amongst the clerks under him. He submits all letters for signature, keeps a check upon issue of stationery and upon all contingent bills, supervises, and is responsible for the working of the office generally.

The second and third clerks draft and write letters. (The second prepares all cases for the Commander-in-Chief, keeps the confidential reports and books.)

* Not printed.

Two are employed with the returns and correspondence relating to them.

One with promotions and transfers of non-commissioned officers and men, practice, &c., and three are occupied with the diaries, précis work, and comparing.

The Native copyists write fair letters from drafts, copy enclosures, &c., and despatch.

All these men are fully occupied from 10 A.M. until 5-30 P.M., and some of them commence much earlier and cease much later, working even occasionally on Sundays.

Colonel J. Young, Judge Advocate-General, Bengal.

All at head-quarters.

Head assistant is channel of communication between judge advocate-general and office; receives, registers, and keeps notes of cases received, and prepares them for submission to me; drafts replies in cases within his special province, also warrants under preparation for

Commander-in-Chief's signature; prepares schedule papers for the Commander-in-Chief, and takes action on the orders received; has general superintendence of office.

Second assistant examines fair copies of all reports, letters, &c.; prepares abstracts of courts-martial for report to the Commander-in-Chief; indexes all office opinion books, and checks sundry office returns.

Third assistant registers all courts-martial and monthly returns of courts-martial (Native) from divisions; prepares returns relating to courts-martial, and helps examiner.

Fourth assistant indexes office letter-book; docketts and deposits papers; is despatcher, and helps-examiner.

Seven Native writers transcribe all reports, memoranda, letters, &c., for despatch and for office books, and help the assistants in answering references, depositing and filing courts-martial papers, &c.

Recent arrangements having somewhat reduced clerical labor in this office, in event of any Native writer finding employment in other offices, as one or two of them have applied for, work would be carried on without filling up their places, unless such should be found absolutely necessary.

F. F. Collins, Esq., Principal Veterinary Surgeon, Bengal Army.

(a) At head-quarters, one head clerk and one writer.

(b) Elsewhere, at Meerut one head clerk.

Major A. S. Hunter, Director of Garrison Instruction in India.

There are no clerks or writers in this department receiving Government pay either—

(a) at head-quarters, or
(b) elsewhere.

Major H. J. Hallows, Inspector of Gymnasias in India.

One clerk at head-quarters, who makes out all returns, copies letters, &c., and keeps diary of letters received; also despatches all covers, &c.: *vide* answer 9. The clerk is paid out of the office allowance.

Major F. W. Dunn, Superintendent, British Army Schools.

One writer on Rs. 30 a month in the office of the superintendent only. His duties are indicated in answers to queries 1 and 9. I have lately renewed an urgent application several times made for additional clerical assistance. One writer is wholly inadequate to the requirements of the office.

Major F. H. Marsh, Superintendent, Native Army Schools, Umballa.

I have only one clerk, who copies and keeps up registers and records from my papers, with all other office duties.

Colonel R. A. Moore, Acting Commissary-General, Madras.

A list of the clerks was forwarded with my reply to query 4 (b), section-I.

Colonel S. H. E. Chamier, in charge Ordnance Department, Madras.

One manager, one deputy manager, and twenty-three clerks in the office at head-quarters; none belonging to the office elsewhere.

There are, however, fifty-eight clerks employed in arsenals, factories, and depôts at Madras and out-stations.

The manager has the general supervision of the office.

One deputy manager and three assistants in the ordnance section are chiefly employed on correspondence, returns, reports, &c., connected with manufacture of powder, fuzes, tubes, carriages, &c., replies to references from Government regarding war *matériel*, &c.; correspondence, regarding alterations, additions to, and general questions respecting, equipments; preparation of administration reports and annual statements of allotments and equipments of forts, &c., &c.

One clerk and two assistants,—checking and passing indents from regiments, batteries, and departments for supplies; examination, &c., of arms, boards and chief civil master armourer's reports.

One clerk and three assistants,—preparation of annual budgets, estimates of cost of Europe stores, annual indent for Europe stores, giving orders for disposal of unserviceable and redundant stores, checking and passing of bills, checking and approving of contracts and tenders, and checking stationery indents.

One clerk and one assistant,—promotions, postings, removals, &c., of officers, warrant and non-commissioned officers, and of the European and Native establishment, and general correspondence regarding *personnel* of the department.

One clerk and three assistants employed in fair-copying letters, returns, reports, statements, &c.

One clerk and four assistants employed in attending to record department, keeping postage accounts, and despatching letters, &c.

One clerk keeps a general register of all documents received in the office.

All clerks in factories, arsenals, and depôts are employed on the usual routine work of their offices.

Surgeon-General C. A. Gordon, M.D., C.B., Principal Medical Officer, British Force, Madras.

The terms "clerk" and "writer" as applied to the surgeon-general's office are synonymous.

There are 11 clerks, *viz.*—

at head-quarters 10
at Ootacamund 1

Some are employed in the statistical branch; their duties being, under supervision of the manager, to abstract the various items of statistical information from the weekly and other periodic returns, and to prepare the various statistical tables required to accompany the annual and other reports submitted to director-general, army medical department, and to Government. Others are employed in the correspondence department; their duties being confined to copying, indexing, and registering the office correspondence daily received and issued, and in keeping up the various office records.

Dr. H. R. Oswald, Acting Surgeon-General, Indian Medical Service, Madras.

(a) The office establishment of writers at head-quarters is—

1 manager.
1 examiner.
1 budget clerk.
2 first class clerks.
2 second class clerks.
3 copyists.
1 registering and despatching clerk.
2 record-keepers.

(b) There are no clerks or writers elsewhere than at head-quarters.

The respective duties of the several members of the office establishment may be briefly summarized thus:—

Manager.—Drafts letters under orders and for the approval of the surgeon-general and secretary; arranges for the enlistment, education, and posting of medical subordinates; drafts the military budget estimates of the medical department; exercises a general supervision over the office, and is the common referee.

Examiner and indexer.—Compares transcripts with originals; keeps diary of daily transactions; indexes all disposals before despatch; assists in the disposal of routine papers, and compiles the quarterly sheet of circulars and general orders.

Budget clerk.—Prepares the civil budget estimates of the medical department, monthly pay abstract of the office, annual indent for European medical stores on the Home Government, and the forecast estimate of stores; checks local fund budget estimates of civil hospitals and dispensaries, and supervises civil hospital expenditure.

First class clerk.—In charge of the statistical department; prepares the following statements for the annual reports submitted to Government—

- (a) Returns for the administration report, civil and military,
- (b) Returns for the lunatic asylum,
- (c) Returns for the lock hospital,
- (d) Returns for civil dispensaries,
- (e) Returns for Native army of Madras,

and attends to the correspondence of the statistical department.

First class clerk.—Registers statistical returns, and is in charge of professional records; assists in the compilation of statistical returns enumerated above.

Second class indent clerk.—Registers and disposes of indents of executive medical officers for medical stores and other supplies;—compiles military budget estimate of the medical department as checked by the manager; librarian.

Second class clerk.—In charge of the books connected with commissioned medical officers and medical subordinates; prepares quadrennial statements of service of commissioned medical officers, statements of service for the Commander-in-Chief of all officers proceeding on leave to England; indexes general orders, and keeps the demi-official letter book.

Registering clerk.—Registers the daily receipt of letters, and despatches all disposals.

The copyist and record-keeper's duties being obvious, need not be detailed.

The following statement will furnish information as to the growth of work since the present office establishment was fixed in 1867, without any addition since to its numbers:—

	Letters received.	Letters despatched.	Total.
...	5,725	5,293	11,023
...	11,088	8,913	20,006

Dr. W.
Sanitary Commissioner for Madras.

One manager and seven clerks at head-quarters in Madras; none elsewhere. One of the clerks by turns accompanies the Sanitary Commissioner on tours of inspection. Their duties are as follow:—

Manager is in charge of the office in the absence of the sanitary commissioner on tours of inspection, which extend from six to eight months annually. Conducts routine correspondence, edits the monthly proceedings of the sanitary commissioner, prepares abstracts of sanitary reports from municipalities, local fund circles and cantonments, and exercises general superintendence over the whole department, general and statistical, &c.

One clerk, examiner of correspondence and record-keeper, and in charge of library.

Two clerks for registering of letters, &c., received and despatched, and as general copyists.

Four clerks employed in the tabulation and compilation of all statistics relating to the general population, jails and army, received in the sanitary commissioner's office.

Colonel J. W. Rideout, Controller of Military Accounts, Madras.

(a) Clerks, &c., at head-quarters.

General department—

1. Head assistant.
2. Head clerk.
3. Indexer.
4. Record-keeper.
5. Diary-keeper.
6. Despatching clerk.
- 7, 8 & 9. Copyists.

Pension department—

1 assistant.
1 verifying clerk.

Budget department.

1 assistant.
3 clerks.

The head assistant and two assistants have charge of their respective departments, prepare drafts, &c.

The head clerk examines fair copies, sees to the despatch of circulars, reminders, and other routine work of the office.

The designation of the other clerks sufficiently explain the nature of their duties.

(b) There are no clerks elsewhere than at head-quarters.

Pay Examiner, Madras.

1 assistant examiner,
1 superintendent,
2 1st class clerks,
5 2nd do.
4 3rd do.
12 4th do.
17 5th do.
10 computers,
9 record-keepers,

and it is with difficulty that the work can be done with the above establishment, as it leaves no margin whatever for sickness or absence, during which, when occurring, work would fall in arrears were this not prevented by working extra hours.

The office is specially weak in superior clerks, i.e., the number of 1st, 2nd, and 3rd class clerks, and I may have to submit a representation on this subject ere long.

The duties of the clerks may be briefly thus detailed:—

The assistant examiner is a supervising officer, and assists the examiner in the control and working of the office and checks cash bills received for pre-audit.

The superintendent assists in the supervision of the office, has charge of the stationery, postage labels, permanent advance, and superintends the issue of printed forms to regiments, batteries, &c., and the office servants are under his immediate charge.

The clerk in charge of each section of audit, assisted by the clerks under him, audits the pay list, &c., and prepares the objection and disallowance statements; he drafts replies to papers referred for report, letters, &c., and is responsible for the work of the section. The computers check the rates of pay and calculations in the pay lists, &c.

The indexer keeps an index of all orders of Government, His Excellency the Commander-in-Chief's, and the orders of other presidencies, and is in charge of the office books.

The head clerk, correspondence section, keeps a register of, and despatches, all letters, &c., and, assisted by the other clerks, makes fair copies of correspondence, objection and disallowance statements, &c., which are very heavy.

The head record-keeper is in charge of the office records.

The head compiling clerk conducts the correspondence in this circle, and assists in and supervises the work of compilation, and the preparation of schedules performed by the clerks under him.

I may observe these replies are of necessity very brief, owing to the time allowed me to meet this call.

Examiner of Commissariat, Clothing, and Stud Accounts, Madras.

(a) 1 superintendent on Rs. 300 to 400.
2 1st class clerks on Rs. 200 to 250.
3 2nd ditto on Rs. 100 to 150.
9 3rd ditto on Rs. 70 to 90.
10 4th ditto on Rs. 40 to 60.
21 5th ditto on Rs. 40 to 60.
15 computers on Rs. 20.

(b) All at head-quarters; elsewhere none.

As regards their duties, *vide* this office letter No. 2556 of the 21st December 18... and with regard to the particular duties of the clothing section, *vide* code of regulations of the... accounts department, chapter VII, "clothing examiner's office."

Examiner of Ordnance Accounts, Madras.

(a) At head-quarters—
1 superintendent.
1 1st class clerk.
2 2nd class clerks.
4 3rd do.
8 4th do.
8 5th do.
6 computers.

—
30 total.

Of these, 11 are auditors employed in the ordnance and regimental audit section in scrutinizing the several transactions recorded in periodical accounts rendered by ordnance, regimental, and station staff officers to this office. Thirteen are engaged as accountants in the account section. Their duties are as follows:—

I.—Preparing monthly cash and store compilation statements.

II.—Preparing monthly list of cash recoveries for despatch to account branch office.

III.—Preparing abstract of accounts for annual transactions under their several account heads.

IV.—Reporting on annual and special indents and estimates for Europe stores.

V.—Reporting on tenders.

VI.—Preparing annual expenditure under several grant heads of service for inspector-general of ordnance and magazines.

VII.—Tabulating invoices received from and checking payments made in England.

VIII.—Preparing annual return of dead and quick stock.

IX.—Preparing annual financial review of ordnance expenditure.

X.—Passing bills for local supplies, freight and miscellaneous charges.

XI.—Adjusting advances of cash authorized by inspector-general of ordnance and magazines.

XII.—Preparing valuation statements (debit and credit) of inter-departmental transactions, as well as those with other Governments, &c., and

XIII.—Attending to other miscellaneous statements, &c.

Three clerks are employed in the record department; they are required to register all papers received into, and despatched out of, the office in their respective registers, to arrange all disposed of papers according to their subjects, and to put them in their respective bundles. They also collect correspondence, index all Government orders, and occasionally assist account and audit sections of the office.

Two clerks are employed as copyists.

The superintendent, besides watching the correspondence received in the office, sees that all accounts, reports, &c., are promptly attended to; frames reports on various questions referred to the examiner, and passes all drafts, statements, audits and fair-copied letters and documents for examiner's approval and signature.

(b) Elsewhere none.

Examiner of Medical Accounts,
Madras.

There are one superintendent and 12 clerks employed in the military duties of this office:—

1 *Superintendent*.—Exercises a general supervision over all the work of the office, and conducts current correspondence.

1 *3rd class clerk*.—Audits and compiles all charges other than those disbursed by the commissariat department.

2 *4th class clerks*.—Audit and compile commissariat charges of four ranges, prepare price lists, and check half-yearly returns and inventories of surgical instruments.

8 *5th class clerks*.—Of whom, three audit and compile commissariat charges of nine ranges; three audit store returns, and check invoices of European medical stores; two keep diaries of letters received and despatched, and give references, &c., &c.

1 *computer* is in charge of records, and copies letters, &c.

In addition to the clerks employed for military accounts, there are four clerks paid by the civil department attached to the medical examiner's office. They are engaged in pricing and compiling vouchers for medical stores issued to all departments other than military, including the audit and compilation of all charges incurred in the 9 civil hospitals at the presidency town.

Examiner of Medical Fund
Accounts, Madras.

The establishment of the medical fund office consists of 1 manager or head clerk and 2 other clerks.

The *head clerk* calculates the values of contingent pensions secured for wives and children.

Issues warrants on the paymaster on account of payments due by the fund.

Prepares monthly statements of recoveries made by commanding officers, &c., for transmission to the accounts branch of controller's office.

Compares receipts from Madras bank with the monthly statements received from the accountant-general.

Forwards certified lists of recoveries made in other presidencies to the accountant-general for verification.

Examines monthly and quarterly statements of payments made by presidency paymaster.

Corrects to date the list of subscribers and small annuitants.

Takes note of all promotions, retirements, casualties, furlough, &c., and arrival and departure of subscribers from Madras.

Has charge of current correspondence.

2nd clerk posts all subscriptions in the subscription book; audits the accounts of subscribers.

Prepares statements showing payments to be made by subscribers absent in Europe.

Prepares statements showing balances due by subscribers on succeeding to annuities.

Notifies to subscribers payments due on promotion, marriage, births of children, &c.

Adjusts over or short payments of allowances to sick officers.

Checks calculations made by the head clerk.

Prepares monthly pay abstracts.

3rd clerk.—Fair-copies drafts of letters and statements. Despatches all letters to their respective addressees. Registers all letters, statements, &c., received in the office.

Examiner of Madras Military
Funds Accounts, Madras.

The establishment of the military fund office consists of one head assistant or manager and 12 clerks.

The *head assistant* has direct control over all the other clerks; he has the entire supervision of the clerical business of the office, and conducts the current correspondence.

1 *clerk* has charge of registers of annuities, statements of recoveries by paymaster and others, verification of documents by accountant-general, and the accounts branch of the controller's office.

1 *clerk* has charge of 1 volume ledger, checks accounts, and issues certificates to officers proceeding to Europe, &c.

3 *clerks* have charge of 3 ledgers of personal accounts.

1 *clerk* has charge of general ledger; also of the day-book and ledger of the Indian family pension fund.

2 clerks have charge of nominal roll, register of marriages and baptisms, registers of subscriptions payable, and prepare returns.

1 clerk has charge of loan ledgers.

2 clerks have charge of the monthly report register, and the preparation of various documents connected therewith, the copying, registering, and despatching of letters.

1 clerk performs the duties of record-keeper, and assists in any other work that may be required.

Military Accounts Department, Account Branch, Madras.

The strength of the establishment is given below—

1 head assistant.	4 third class clerks.
2 first class clerks.	6 fourth ditto.
2 second ditto:	14 fifth ditto.

6 computers.

The duties of the office are described in the code of regulations for the military accounts branch, chapter II, published in Calcutta in 1869.

Presidency Pay Office, Madras.

The total number of clerks and writers employed in the paymaster's department is 19. These are all employed at head-quarters; none elsewhere. The pay that they receive is as follows:—

	Minimum.		Maximum.		Annual increase.
	Rs.	A. P.	Rs.	A. P.	
1 head assistant	200	0 0	250	0 0	10
2 1st class clerks at Rs. 100 to Rs. 150.	200	0 0	300	0 0	10
3 2nd class clerks at Rs. 70 to Rs. 90.	210	0 0	270	0 0	4
4 3rd class clerks at Rs. 40 to Rs. 60.	160	0 0	240	0 0	4
6 4th class clerks at Rs. 20 to Rs. 40.	120	0 0	240	0 0	4
3 copyists at Rs. 20	60	0 0	60	0 0	...
11 servants	78	4 0	78	4 0	...

There are five employed as auditors; one head assistant; three as accountants; one cheque writer and cash-keeper; also one transfer receipt writer; one day-book writer with one assistant, who also copies schedules of cheques; one assistant day-book writer, who also copies schedules of transfer receipts; also five other clerks to carry on the general working of the office.

Lieutenant-Colonel A. Searle, Superintendent, Army Clothing, Madras.

No.	Designation.	Salary. Rs.
1	head assistant	250
1	head accountant	150
1	deputy accountant	75
1	1st assistant accountant	55
1	2nd " "	40
1	deputy assistant accountant	40
1	tabulator of indents	35
2	calculators at Rs. 35	20
2	" " 30	10
1	examiner of indents	100
1	deputy examiner of indents	50
1	correspondence clerk	35
1	diary-keeper	25
2	copyists at Rs. 25	10
1	store writer	...
1	diary-keeper of supplies issued	...
1	estimate maker	35
1	assistant estimate maker	25
(b)	None, as explained in answer 3.	

Brigadier-General F. W. Jebb, Adjutant-General, Madras.

Taking Madras as the head-quarters in this presidency, the establishment consists of—

1 manager,
1 deputy manager,
29 clerks,

4 of whom are usually deputed to accompany the officers of the department proceeding on tour with the Commander-in-Chief.

Manager.—Has general superintendence of the office, with charge of confidential correspondence and business of a general nature not appertaining to any particular branch of the office, court-martials, officers' charges, army regulations, &c., &c.

Deputy manager.—Transacts business relating to European officers generally, promotions, appointments to the staff, good service pensions, colonels' allowance, leave, furlough, statements of service,

retirements, staff corps admissions, leave certificates to accountant-general, keeping up of registers connected with officers' services.

Has one assistant.

Examiner.—Examines all papers copied in the office other than returns, and is responsible that all correspondence despatched from the office is complete and correctly sent. Is also charged with business connected with the medical arrangements of the army, and conducts all correspondence relating to medical officers and subordinates.

European department.—European staff of the Native army and garrisons, schools, British and Native, clothing, prisoners, discharges, bounties, re-enlistments, rations, bedding, canteens, Chelsea pensioners, good-conduct medals, warrant and non-commissioned officers of the unattached list, promotions, furlough, pensioners' records and estates, home correspondence, and all matters relating to the European soldier.

One assistant.

Record department.—Head record-keeper and collector of correspondence, with the supply of books of regulation, soldiers' libraries and correspondence relating thereto, issue of blank forms W. O. and others, inspection and confidential reports, returns, charge of office furniture, &c., &c.

One assistant.

Return department.—Examining and compiling all returns received from and despatched to regiments, batteries, corps and detachments, Horse Guards, War Office, India Office, Government, Government of India, Adjutant-General, India, Commander-in-Chief, India, and to several local departments, including annual, half-yearly, quarterly, monthly, bi-monthly, as well as any special, returns that may be called for or required by the department.

Five assistants, who are continuously employed in examining, compiling, and copying.

Pension department.—The examination and disposal of invaliding and pension proceedings of the Native army and of European soldiers, the admission of the widows of officers and soldiers upon Lord Clive's Fund, and the examination and disposal of the proceedings on claims to pension of heirs of Native officers and soldiers.

One assistant, who prepares extracts of all admitted claims for transmission to corps, and assists the manager in work connected with officers' remount chargers, committees, keeping up register, &c.

Army list.—Transacts all business connected with the quarterly Madras army list, correcting and examining proofs, postings of officers, the keeping up of leave and furlough registers, manuscript army list book, gradation list, examination of London gazettes and general orders of other presidencies, and prepares services of local officers for promotion, corrects Government office and departmental officers current army lists.

Equipment, musketry.—Conducts all correspondence relating to equipment of the British and Native armies, arms, accoutrements, rifle and musketry questions.

Native army.—Promotion of Native officers and men, enlistments, discharges, claims, exchanges, transfers, embarkations, war services, and all correspondence relating to the Native effective service.

One assistant, who also registers and conducts all correspondence connected with petitions of whatever nature.

Vakil.—Has charge of all books and papers connected with the pay of the establishment, telegrams, postage and contingent accounts; also charge of office stationery, &c., &c.

Medals.—Charge of the medals and medal books, stars of British India, order of merit, and conducts all routine correspondence having reference to them and prize claims; also in charge of correspondence connected with Native languages.

General orders.—Preparation of general orders for the press, examination of proofs, arrivals and departures, confirmation orders, &c., &c.

One assistant for the compilation of indices to general orders, who also registers papers passing to and from head-quarters office when on tour.

Proceedings of Government.—Has charge of all proceedings of Government, with keeping up of diary, index, &c.; also posts up Government and general letter index.

Discharge-keeper.—Registers all letters received, and distributes them to the different clerks for disposal, marking off action taken, and bringing to manager's notice any unanswered references, &c.

Current department.—One clerk in charge of current records and collected papers, inspection reports, &c.

Four clerks for general work, who also keep up current indices, Government and general memoranda books.

Major-General, Officiating Quarter-Master-General, Madras.

There are at head-quarters 1 manager and uncovenanted assistant, 16 clerks, 1 conductor of the unattached list, 1 head draftsman, 2 draftsmen, and 3 moolchies. Their duties are—

Manager and uncovenanted assistant—disposes of all papers marked to him by the quartermaster-general, distributes papers for disposal by the office clerks, and superintends the management of the work.

clerk 1 and deputy manager—in charge of the register of tent lascars; prepares allotments of camp equipage, &c., to regiments; issues grants of land; custodian of office stationery and postage-stamps; drafts correspondence on the above subjects.

clerk 2—hutting, passage, and boat bills, cart-hire of Native troops, and registers of them.

clerk 3—transit bill and contingent charges incurred by troops, 1st referencer, and docket letters; fair-copies letters to Government.

clerk 4—indents for camp equipage, sick carriage, cattle and bearers; checks returns of the same; indents for stationery from out-station offices of the department; drafts correspondence on the above subjects; conservancy accounts.

clerk 5—record-keeper and referencer; index to particular subjects.

clerk 6—indents for barrack supplies and attendants; custodian of books received for record; in charge of printed forms.

- clerk 7—compiler of monthly distribution returns of the army; register of movements; custodian of monthly returns of regiments.
 clerk 8—indexer of orders of Government and of general correspondence despatched from the office.
 clerk 9—prepares notification of movements of corps and detachments.
 clerk 10—assistant record-keeper and referencer.
 clerk 11—in charge of the diary of letters received.
 clerk 12—despatcher.
 clerk 13—copyist generally.
 clerk 14—do.
 clerk 15—reader and copyist.
 clerk 16—copyist.

The conductor, examiner—corrects regulation books in the office; charge of registers of barrack and shipping sergeants and rest-house superintendents; checks bills for hired quarters and indents for gymnastic articles.

Head draftsman and two draftsmen—prepare disposition maps of the army, topographical maps of cantonments, &c; keep the route book corrected.

Three moolchies—prepare office covers and attend on officers of the department; mount plans; assist despatcher in weighing and affixing postage-stamps to letters.

No clerks of this department are employed elsewhere.

Colonel G. P. B. Sherard, Judge
 Advocate-General, Madras.

(a) At head-quarter—

One unconvicted assistant, whose duties are to aid the judge advocate-general in the arrangement and custody of his records; in drafting all correspondence, charges, reports, &c., &c.; in the examination of all proceedings of general, district, or garrison courts; summaries of evidence on applications for courts-martial; and all other matters and papers submitted to the judge advocate-general for opinion are submitted by the judge advocate-general to the Commander-in-Chief for orders or information, with general superintendence of the office.

One head clerk—indexer, examiner of fair correspondence, and copyist.

One clerk—copyist.

(b) One clerk at Madras in charge of office, records and stationery, &c., and referencer; also a copyist when the head-quarters are at Madras.

Lieutenant-Colonel M. W.
 Willoughby, Commissary-General,
 Bombay.

Major-General W. S. Hatch,
 Inspector-General of Ordnance and
 Magazines, Bombay.

The information required is given in reply to question 4 (b),
 paper I, under the head commissary-general's office.

At head-quarters	...	...	15 clerks
Gun-carriage factory	...	...	12
Gunpowder factory	...	...	4 "
Small-arm ammunition factory	...	...	7 "
Bombay arsenal	...	...	18 "
Poona arsenal (to be reduced to depôt, 1st October 1879)	...	...	8 "
Aden 4, Mhow 5, Kurrachee 5, Neemuch 3, Ahmedabad 1, Belgaum 1	...	...	19 "

(a) *Head-quarters.*

- 1 head clerk; supervises.
- 2 in account branch; compile budget estimate; examine purchase lists, contracts, records of store lascars; keep pay and stationery accounts, conversions, and camp equipage.
- 3 in indent branch; examine indents, committee proceedings, packing accounts, discrepancy lists, warrants, transfers of stores, returns of stock-taking.
- 1 prepares annual estimate and indent on England, quarterly returns, English packing accounts, records of warrant officers and non-commissioned officers, miscellaneous returns.
- 2 in record branch; prepare previous papers and references on correspondence; compile records; post register; arrange compilations.
- 1 despatching clerk, and keeps postage accounts.
- 1 registers correspondence; posts up disposal of subjects; assists to examine files of documents, annual returns of stationery.
- 4 copying clerks.

15 total clerks.

(b) *Elsewhere.*

GUN-CARRIAGE FACTORY.

- 1 head clerk; supervises.
- 2 accountants; value ledgers, complete statements, &c.
- 2 register labor and material.
- 1 ledger and calculations of timber.
- 1 muster-keeper.
- 2 general clerks; keep ledger, including that of Poona branch.
- 1 pay clerk, cash account, acquittance rolls, &c.
- 1 posts daily warrant book; makes up monthly lists.
- 1 correspondence, register and files.

12 total.

GUNPOWDER FACTORY.

- 1 supervises; prepares pay, cash accounts, acquittance rolls, estimates, indents.
- 1 returns, conversions, valuations, returns of machinery, correspondence.
- 2 copy letters, returns, ledgers; prepare muster rolls; general correspondence clerks.

4 total.

SMALL-ARM AMMUNITION FACTORY.

- 1 head clerk ; supervises.
- 1 prepares annual accounts ; values conversions, material, &c.
- 1 financial and pay business.
- 1 copying, and keeps correspondence.
- 1 quick and dead stock ledgers, quarterly returns, &c.
- 1 monthly conversion book, &c.
- 1 keeps the time, and checks labor conversions, reports of men on daily pay, &c.

7 total. BOMBAY ARSENAL.

- 1 head clerk ; supervises.
- 2 local supplies stores from England ; prepare budget.
- 2 pay and cash accounts, acquittance rolls, &c.
- 6 store account branch.
- 2 office work connected with establishments, camp equipment, &c.
- 2 charge of office ledgers.
- 1 transport of stores, packing accounts, &c.
- 2 charge of records and correspondence branch.

18 total POONA ARSENAL.

- 1 head clerk.
- 1 registers indents, packing accounts, issue orders, orders to contractors, &c.
- 1 posts quick and dead stock ledger.
- 1 pay and cash accounts ; all office work concerning establishment.
- 2 monthly store and other returns, musters, morning reports.
- 2 make out minor returns, copy letters, statements, &c.

8 total.

OTHER ARSENALS:

The work of clerks in the other arsenals is much the same as that at Poona, and is distributed in much the same way.

Deputy Surgeon-General J. M. S. Fogo, Officiating Surgeon-General, British Forces, Bombay.

There are eight clerks or writers, all at head-quarters. One of them accompanies the surgeon-general to Poona.

The head clerk.—Superintends the work of the clerks in general ; compares the correspondence ; examines the stationery and postage accounts, pay abstracts and bills ; drafts memoranda, ordinary letters and circulars as ordered ; prepares the budget estimate for the controller ; compiles the addenda to the medical code ; prepares notifications and orders connected with the movement and appointments of medical subordinates.

2nd clerk.—Examines and compiles all the annual sanitary and medical returns and other statistical returns that may be required.

3rd clerk.—Compiles the monthly statistical returns.

4th clerk.—Registers inward and outward correspondence ; keeps the index and compilations of the correspondence branch ; copies letters and reports.

5th clerk.—Despatches all papers ; keeps the inventory of the records, stores, &c. ; prepares the monthly and annual returns of medical officers ; pay abstracts and bills ; keeps the postage and stationery accounts ; copies letters, reports and orders.

6th clerk.—Compiles the general weekly returns of sick, and monthly returns for the commander-in-chief ; weekly returns of cholera, and quarterly sanitary report for the director-general, army medical department.

7th clerk.—Keeps the inward and outward registers of the correspondence in the statistical branch ; copies letters, memoranda, returns, and reports of the statistical branch.

8th clerk.—Compiles the several minor returns, such as vaccination, venereal, &c. ; copies statistical returns and keeps the records of the statistical branch.

As the temporary head-quarters are at Poona for most of the months of the year, I consider the efficiency of the office would be increased if the permanent establishment were removed from Bombay to Poona.

Accommodation is procurable on the finance building, for which no rent would be charged.

The presidency house-rent of Rs. 75 per mensem of my secretary would thereby be saved.

Dr. W. G. Hunter, Surgeon-General, Indian Medical Department, Bombay.

- 1 chief clerk.
- 1 budget clerk.
- 2 copyists.
- 1 despatcher.
- 1 statistical clerk.
- 1 assistant for military.
- 2 assistants for civil.
- 1 standing medical committee clerk.

The office never moves from head-quarters.

There are none elsewhere.

Chief clerk.—Correspondence and management of office ; keeps general register of officers and subordinates ; receives orders for notifying appointments and all departmental charges ; prepares annual statement of subordinate medical department for controller of military accounts ; keeps a register of all charges.

Registrar of outward letters.—Supervises work of budget, statistical, and standing medical committee branches, &c., &c.

Budget clerk.—Compiles budget, military, civil, and marine.

Registrar of inward letters, general record-keeper, and compiler of correspondence, general referee.—Prepares statement of unanswred references from and to Government in the military department every quarter; prepares quarterly statements of increase and decrease in this department for the accountant-general; examines and audits dispensary accounts, &c., &c.

Statistical clerk.—Prepares all statements, military and civil, for the statistical officer, who is the secretary, in order to enable him to summarize and compile the administration reports of this department, &c., &c.

2 copyists.—For correspondence.

1 despatcher.

1 *standing medical committee clerk.*—Prepares all cases appearing before the board; furnishes such information as the committee may call for; and prepares the record of service of medical officers proceeding on furlough to Europe for submission to His Excellency the Commander-in-Chief.

Dr. John Lumsdaine, Sanitary Commissioner for Bombay.

The head-quarters or central office is in the secretariat at Bombay. The following clerks and writers are there, and their duties are briefly given:—

1 assistant in general charge of the office, and responsible for its good order.

1 head clerk in charge of vaccination branch; abstracts applications for leave and transfer and promotions in district establishments.

2 clerks for inward and outward registers and records, rain and sub-soil water-level returns.

2 clerks for monthly registers of births and deaths.

2 clerks for cholera returns.

1 clerk for vaccination returns.

2 clerks for copying.

A total of one assistant and 10 clerks, of whom one, or two, or more accompany the sanitary commissioner on tour. Each of the five deputy sanitary commissioners has three clerks, and the superintendent of vaccination in Western Guzerat has two.

They have charge of the English and vernacular correspondence, and compile the talukwar returns received from mamlatdars.

Clerks at head-quarters	...	...	...	...	...	10
Clerks in districts	...	...	...	...	...	17
						<u>27</u>

Statement B shows the inward and outward numbers for the central office, and gives an idea as to the work to be done. Statement C shows the monthly cost to Government of the entire sanitary department, but the charges are all disbursed in the civil department.

Statement B showing for nine years the annual number of inward and outward receipts and issues in the head-quarters office of the Sanitary Commissioner for the Government of Bombay.

Year.	Inward No.	Outward No.
1870	1,013	941
1871	1,929	2,158
1872	8,501	2,494
1873	6,323	2,801
1874	6,041	2,847
1875	6,460	2,982
1876	5,950	3,033
1877	7,787	2,908
1878	6,151	3,055
<u>Means</u>	<u>5,573</u>	<u>2,955</u>

● *Statement C showing detailed monthly cost to Government of the Sanitary Department of the Bombay Presidency.*

District.	Sanitary Commissioner.		Deputy Sanitary Commissioners.		Superintendents of Vaccination.		Analyst.		Clerks.		Inspectors.		Assistant Superintendents of Vaccination.		Vaccinators.		Peons.		Travelling allowance to Sanitary Commissioner.	Total.
	Number.	Rs.	Number.	Rs.	Number.	Rs.	Number.	Rs.	Number.	Rs.	Number.	Rs.	Number.	Rs.	Number.	Rs.	Number.	Rs.		
The Presidency	1	2,000	5	4,800	3	1,370	1	200	29	1,323 8	37	2,425	3	175	3	32 8	64	564 8	300	13,179 8
1. North Deccan
2. South
3. Konkan
4. East Guzerat
5. West
6. Sind
7. Bombay City

Absence.

1 Sanitary Commissioner	Rs. A.	2,000 0	2 Assistant Superintendents of Vaccination	Rs. A.	175 0
5 Deputy Sanitary Commissioners	4,800 0	3 Vaccinators	32 8		
3 Superintendents of Vaccination	1,370 0	64 Peons	564 8		
1 Analyst	200 0	Travelling allowance to Sanitary Commissioner	300 0		
23 Clerks	1,323 8				
37 Inspectors	2,425 0	133 Total	13,179 8		

Major W. Perreau, Examiner,
Pay Department, Bombay.

- (a) At head-quarters—
1 superintendent.
3 first class clerks.
4 second ditto.
4 third ditto.
6 fourth ditto.
10 fifth ditto.
10 copyists or computers.
—
38 in all.
—
(b) Elsewhere none.

The office is sub-divided into branches :—

- I.—The Native troops branch, under the supervision of the assistant examiner has one assistant auditor, seven examiners and calculators to audit and compile accounts, and dispose of all reports, references, and correspondence connected with the payment of the Native army and followers.
- II.—The British troops branch, for the audit and compilation of accounts, the disposal of all reports, references, and correspondence of the British army and its followers; there is one auditor, one assistant auditor, nine examiners and calculators.
- III.—The presidency paymaster's disbursement, referred abstracts, and contingent bill branches. The compilation and the pension and prize branches, under the supervision of the superintendent, with two auditors, three assistant auditors, nine examiners and calculators, for the audit and compilation of the presidency paymaster's accounts and the accounts of the three pension paymasters, and the disposal of all reports, references, and correspondence connected with these branches.
- IV.—Two general copyists, one indexer, and one record-keeper.

Lieut.-Colonel D. B. Young,
Officiating Controller of Military
Accounts, Bombay (Pension Pay-
Master's Office).

		<i>Presidency Circle.</i>	Rs.
1	clerk	...	90
1	"	...	60
1	"	...	40
1	"	...	30
		<i>Poona Circle.</i>	
1	clerk	...	120
1	"	...	75
1	"	...	60
1	"	...	50
1	"	...	35
1	"	...	30
		<i>Southern Konkan Circle.</i>	
1	clerk	...	50
1	"	...	35
1	"	...	25
1	"	...	15
1	"	...	10

Their duties are to pay pensions, prepare the necessary accounts, estimates, and returns, and to carry on the correspondence connected therewith.

There are no clerks employed elsewhere than at head-quarters.

Major M. A. Rowlandson, Examiner of Commissariat, Clothing and Barrack Accounts, Bombay.

There are, including the head assistant, 46 permanent clerks in this office, and 3 temporary extra clerks for auditing the accounts connected with the Afghan expedition.

Of this number, there are—

- 8 auditors.
25 assistant auditors.
4 calculators.
4 copyists.
2 registrars.
2 record-keepers.

The duties of the former consist in auditing the accounts of their ranges, and disposing of the references made concerning the same.

Assistant auditors are employed in assisting the auditors in the examination of their accounts and replies to objection statements.

Calculators are employed in testing the arithmetical accuracy of all charges included in bills and vouchers attached to accounts, &c.

Copyists are employed in fair-copying all letters and statements.

The registrars register all letters, bills, &c., received in office, and number and despatch all fair letters.

Record-keepers file all papers and disbursement vouchers, accounts, &c.

Lieutenant W. R. L. Anderson,
in charge Ordnance Examiner's
Office, Bombay.

The following is a detail of the clerks and writers in this office, with
a brief outline of their duties:—

Nos.	Clerks and writers.	RATES OF PAY PER MENSEM.		Duties.	
		Mini- mum.	Maxi- mum.		
	<i>General Branch.</i>	Rs.	Rs.		
1	Superintendent ...	400	500	General duties and supervision under examiner. Care of records. Registration of documents received and despatched, and preparation of copies of audit statements, accounts, and correspondence.	
1	5th class clerk ...	40	60		
1	Ditto ...	40	60		
3	Copyists or computers ...	30	30		
	<i>Audit Branch.</i>				
1	1st class clerk ...	250	350	Audit of indents of ordnance and military stores and equipments, audit of store returns from arsenals, depôts, and factories, from corps and army officers, and from barrack masters. Audit of reports from arsenals, depôts, and factories, of expenditure of materials and labor on manufac- tures, repairs, &c. <i>Note.</i> —This portion of the audit branch is divided into five sections, each of which is responsible for a partic- ular portion of the work; the 1st class clerk being directly in charge of the 1st section, and exercising general supervision over the other sections. Two of the subordinate clerks are sometimes at work in one, and sometimes in another section, or in the general branch employed in copying, according to the pressure of work. The scrutiny of, and report on, tenders for supplies of stores to arsenals, depôts, and factories. The audit of claims for purchases of stores by arsenals, depôts, and factories. The audit of claims for extra artificers, &c., employed by arsenals, depôts and factories. The audit of claims for repairs effected to stores in use with the army, &c. The audit of claims for purchases made from annual grant to sappers and miners for field practice. <i>Note.</i> —This clerk also disposes of accounts of trans- actions with the Indian troop service and of march- ing kits issued to troops from England, and has charge of the office stationery, and the office contingent allowance and pay and leave accounts.	
2	3rd class clerks ...	90	120		
2	4th ditto ...	60	90		
6	5th ditto ...	40	60		
2	Copyists or computers ...	30	30		
1	2nd class clerk ...	150	200		
	<i>Account Branch.</i>				
1	4th class clerk ...	60	90		Preparation of bills for hire of tents and stores drawn on payments, lost, &c., and watching their due adjustment. Preparation of bills and valuation with accounts which concern other departments and Governments. The check and completion of estimates of, and indents for, ordnance and military stores and equipments required from England by the inspector-general of ordnance and magazines. The disposal of packing accounts, invoices, and survey and other reports in connection with stores sent out from England. The preparation of materials for reports, review state- ments, and general returns. Assists in the work done by the eight clerks imme- diately preceding, and in the preparation of bills for hire of tents, &c.
1	ditto ...	60	90		
1	5th ditto ...	40	60		
1	4th ditto ...	60	90		
4	5th class clerks ...	40	60		
3	Copyists or computers ...	30	30		
1	Copyist or computer ...	30	30		
32	Total ...	2,070	2,790		

Surgeon-Major P. S. Turnbull,
M.D., Examiner of Medical Ac-
counts, Bombay.

The number of clerks is 15, and their duties are as follow:—

Superintendent	...	Conducts correspondence, frames reports, tests accuracy of all accounts and audit memoranda, and exercises general supervision over the establishment, under the immediate orders of the examiner.
3rd class clerk	...	Prepares monthly accounts of receipts and issues of medical stores from and to charges pertaining to civil, marine, and public works departments of this presidency, and civil and public works departments of Governments of India, Bengal, Madras, Central Provinces, and Hyderabad Assigned Districts; also quarterly accounts of Her Majesty's Colonial Governments, Ceylon, Mauritius, and New Zealand, Governments of Cape of Good Hope, and China, Imperial Government, London, and Indian troop service; also bills on chargeable issues, checks annual return of surgical equipments of civil, marine, and public works departments; also transfer accounts on officers quitting India on leave, and conducts correspondence connected therewith.
4th " "	...	Compiles medical store accounts, and prepares statement for annual review; prepares data for and checks the annual home indent and estimate; prepares rate list of stores, examines packing accounts of stores received from England, and prepares short and damaged delivery reports thereof; examines tenders and contingent bills for stores purchased locally and manufactured by piecework; prepares statements of annual cost of stores supplied to civil charges for transmission to the deputy surgeon-general for financial report, and statements of average cost of three years' supplies to charitable dispensaries, &c., for budget estimates; has supervision of the pricing of vouchers and audit of the medical depot return; examines the accounts of medicine chests, &c., kept in charge of the deputy surgeon-general, Bengal medical service, Bombay, for troop- ing season; verifies statements of payments made in England on account of medical stores; conducts correspondence connected with the above.
4th " "	...	Audits indents for hospital supplies, <i>vis.</i> , bazar medicines, hospital neces- saries, stationery, articles of diets, and extras, supervises the work of the commissariat supply section, and conducts correspondence connected therewith.
5th " "	...	Audits returns of surgical equipment of European and Native hospitals and veterinary establishments; also transfer accounts on officers quitting India on leave, and conducts correspondence connected with his depart- ment; keeps diary of letters received.
5th " "	...	Keeps ledger of receipts and issues of medical stores, and classifies medical stores supplied to and received from charges into Europe and India, for compilation of general store account; keeps an index of medical officers proceeding on leave in and out of India, also of those retiring on pension; issues pay of establishment, and assists the fourth class clerk in preparing statements for review and data for home indent and esti- mate, &c.
5th " "	...	Assists in the audit of the hospital diet rolls, and checks stimulants issued on indents for diets according to scale of European troops, and examines wine expenditure, returns of Native troops; prepares monthly and an- nually statements of stimulants issued to European and Native troops; compiles annual statement of the cost of dieting European sick; keeps stationery and contingent accounts; and conducts correspondence con- nected with the above.
5th " "	...	Audits medical depot return, including that of cutler's bills; examines annual stock-taking of the medical depot, also the annual stock return; and conducts correspondence connected therewith.
5th " "	}	Verify the pricing of indents of stores issued from and returned to the medical store depot, also the home indent and figures required for esti- mate, statements of breakages, jail lists of medical store expenditure, stock accounts, schedule of differences found on verification of the stock of the depot, statements for annual review, percentages of difference between the rates tendered and invoice rates, also pricing rate list.
6th " "		
6th " "	...	Price the above statements, indents, &c.
6th " "	...	Assists the third class clerk in auditing returns of surgical equipment, and has the care of the record of the medical store section, also assists the copyist when time admits, keeps register of indents of stores issued from and returned to the depot, and files them; registers annual returns of surgical equipment of military and civil charges.
6th " "	...	Audits annual dead-stock returns of Native hospitals, and conducts cor- respondence in connection therewith; has care of the record of the commis- sariat supply section, including vouchers, general orders, <i>Government Gazettes</i> , &c.; assists the 5th class clerk in preparing statements of the expenditure of stimulants, &c.; prepares monthly pay abstract of estab- lishment.
6th " "	...	Is copyist; also registers and despatches letters and keeps the service postage label account.

Lieut.-Colonel D. B. Young,
Officiating Controller of Military
Accounts, Bombay (Accounts
Branch).

At head-quarters—

- 1 head assistant.
- 1 first class clerk.
- 2 second class clerks.
- 3 third class clerks.
- 6 fourth class clerks.
- 12 fifth class clerks.
- 14 unclassified.

—
39 total.

Elsewhere none.

The establishment is divided into three divisions, with one first class and two second class clerks as senior clerks, under the supervision of the head assistant; their duties are to examine all the cash accounts, accounts current, remittance rolls and other returns received in the office, to compile the corresponding returns and statements furnished from the office, and dispose of all references connected therewith.

Captain H. Cowper, Presi-
dency Paymaster, Bombay.

The number of clerks in the office is 38, including the head clerk.

- 1 head clerk supervising the office.
- 3 clerks, superintending the several branches of the office.
- 8 clerks examining pay lists, abstracts, and bills, &c.
- 2 clerks preparing abstracts and making payments and last-pay certificates of officers proceeding to and returning from Europe.
- 1 clerk preparing an account of other payments to officers at Bombay.
- 1 clerk preparing cash receipts and banking transactions.
- 4 clerks making cheques, transfer receipts, and their advices, on account of the several branches.
- 2 clerks posting and balancing daily payments; also making payments of advances to artillery.
- 1 clerk making payments of all remittances to Bombay.
- 3 clerks for compiling and totalling abstracts and bills (compiling branch).
- 4 clerks for preparing cash account and the returns connected therewith.
- 2 clerks for registering abstracts and bills sent for and received from audit, preparing military fund and house-rent returns.
- 1 clerk for preparing retrenchment, advance, and deposit accounts.
- 1 clerk for examining Europe remittances, receiving, registering, and distributing daily post.
- 4 clerks for copying, registering, and despatching daily letters, &c.

Colonel J. Thacker, Superin-
tendent, Army Clothing, Bombay.

As follows:—

(1) *In office and store branch.*

Head-clerk on Rs. 175—

General supervision of the office; keeps daily cash book; prepares cash accounts; verifies all important documents before they pass out of the office.

One clerk on Rs. 150—

Checks factory requisitions with the proportion tables; is responsible for the correctness of the personal ledgers, the entries in which he daily verifies; replies to audits; prepares the budget estimate; examines the annual returns of great-coats and cloaks rendered by corps and batteries, and checks demands for those garments; examines, and is responsible for the correctness of, the annual indents on the home authorities.

One clerk on Rs. 95—

Prepares the monthly and annual store returns; makes out bills for regimental necessaries and clothing supplied on payment; prepares sundry statements required by the Government of India, and assists in preparing budget estimates.

One clerk on Rs. 83—

Examines all claims for clothing, and is responsible that the indents on this department are correct and in accordance with the regulations before they are passed; prepares from the indents lists of the garments required to be prepared by the factory; keeps a register showing the clothing supplied, and for what period to each corps or battery, and to each individual whose claims are made on separate indent. This clerk's duties fully occupy time of two men, and he is therefore assisted by a clerk on Rs. 58 as hereafter shown.

One clerk on Rs. 83—

Keeps the store receipt and issue day-books in which are entered all store transactions, and on which the ledger entries are based; assists in preparing the annual indents on the home authorities; keeps register of sizes of boots received and issued; calculates and enters in the detailed statement of materials to be supplied by the store branch the various articles issuable to make up clothing demanded on indents; checks the issues of materials from the retail store.

One clerk on Rs. 68—

Assistant to the examiner of clothing claims on Rs. 83; *vide* remark opposite that clerk.

One clerk on Rs. 58—

Converts into Indian currency the English invoice charges for stores sent out, adding percentage for freight and packing; calculates the cost per yard, gross, &c., and records the result in the "rate book"; verifies all calculations made in bills, &c., prepared in the office, and in the statements on which are based the annual indents.

One clerk on Rs. 50—

Has charge of, and posts up, the retail and personal ledgers.

One clerk on Rs. 46—

Keeps whole-bale ledger, and the account of stores issued from the whole-bale godown; books from the invoices all clothing stores and regimental necessaries received from England; assists in receiving and weighing consignments received from England, and in comparing them with the packing accounts.

- One clerk on Rs. 41—
Assists the clerk on Rs. 95 in preparing the monthly and annual store returns and bills for regimental necessaries and clothing supplied on payment: the duties fully occupy the time of two men.
- One clerk on Rs. 41—
Head copyist: copies, compares, and despatches correspondence.
- One clerk on Rs. 36—
Prepares pay abstracts; pays office, store, and factory establishments; assists the head clerk in preparing cash accounts; registers inward letters.
- One clerk on Rs. 36—
Copies correspondence, bills, receipts, returns, &c.
- One clerk on Rs. 20—
Copies correspondence, bills, receipts, returns, &c.
- One clerk on Rs. 20—
Keeps records and assists in copying.

(2) *In factory.*

- One clerk on Rs. 75—
Pays the workmen; issues garments to, and receives them from, the tailors, and keeps account of the work done by each man.
- One clerk on Rs. 20—
Assists in preparing pay sheets, and keeps daily attendance book—
Besides the clerks enumerated above, the following are the *employés* in the store branch and factory.

(i) *Store branch.*

- Store-keeper on Rs. 100, exclusive of pay of rank as conductor; in all Rs. 200—
Receives and surveys stores under the superintendent's orders; has charge of all stores and necessaries received into the department, and issues them to the factory or packer as required, on requisitions passed in the office; verifies the daily entries in the day-books and retail and whole-bale ledgers; supervises the preparation of annual indents on the Home Government for clothing materials, equipments, and appointments; arranges for the provision of helmets for troops arriving from England; exercises general supervision over the receiving and packing branches; drafts correspondence connected with the store branch.
- Receiving-inspector on Rs. 60—
Receives made-up garments from the factory, and keeps a register of such receipts; compares size tickets on the garments with the size rolls received from corps; lays out garments for inspection by the surveying officer; makes them over to the packer, whose receipt he obtains.
- Head-packer on Rs. 46—
Superintends the packing and despatch of all made-up clothing, materials, boots, and necessaries, comparing the quantities with the package lists and statements prepared in the office; prepares invoices; intimates to the commissariat department when packages are ready for despatch; sends advices of despatch to corps and batteries, &c.; keeps registers of all clothing, &c., received and despatched, and of all bale-wrappers, empty cases, &c., used in packing.
- Inspector on Rs. 30—
Receives and conveys packages of clothing, boots, &c., to the commissariat department, and to corps and batteries in Bombay; receives helmets as they arrive from Meerut, and stores them in the helmet godown; is responsible for their condition while in store; on the arrival of each troopship, goes on board with sufficient helmets of each size to fit the troops; assists in copying.
- Assistant-packer on Rs. 25—
Assists the packer generally, and in the preparation of invoices, letters of advices, &c.
- Maistris on Rs. 15 and compensation for dearness of grain—
Assists storekeeper in issuing materials to the factory, &c., from the retail store.

(ii) *Factory.*

- Master-tailor on Rs. 364—
Superintends the work of the factory, and keeps machines in working order. *Minimum is Rs. 310; maximum is Rs. 400; annual increase Rs. 18.*
- Assistant master-tailor on Rs. 120—
Superintends the cutting branch.
- One head maistris on Rs. 58—
In charge of the factory store, and accounts for receipts and issues; frames requisitions for materials required from the store branch.
- Examiner of clothing (sergeant royal artillery) on Rs. 20, exclusive of his regimental pay—
Superintends the examination of all clothing made up by the workmen before it is passed; is assisted by—
1 assistant on Rs. 41,
1 ditto " " 15,
and grain compensation.
- Section superintendent on Rs. 45—
Superintends the machine workshop.
- Section superintendent on Rs. 45—
Superintends the tailor's workshop.
- Ironer on Rs. 20—
Superintends the ironing.
- Trimmer on Rs. 17—
Serves out silk, thread, hooks and eyes, &c., sufficient for each garment, according to tables of proportion.

Two cutters on Rs. 12 each and compensation for dearness of grain ;
 Two ditto on Rs. 13 each ditto ;
 Three ditto on Rs. 10 each ditto ; employed in cutting of garments.

Furnace-man on Rs. 10—

In charge of irons; keeps up the fires; is responsible for putting them out when the work over.

The above shows the fixed establishments.

Machine-drivers, basters, and extra cutters are employed as required. The handwork is done on the premises by piece-workers.

Brigadier-General H. F. Brooks,
 Adjutant-General, Bombay.

At head-quarters

...

{ 17 clerks.
 7 writers.

Elsewhere

None.

Their respective duties are—

1 Chief Clerk.—General superintendence of the office, and has charge under the adjutant-general of "A" branch correspondence (*vide* reply to query 1).

5 Head Clerks.—Have charge of branches under their respective branch officers (*vide* reply to query 1).

11 Clerks.—Assistants to head clerks in the general duties of their respective branches.

7 Writers.—Employed as copyists and distributed amongst the branches.

Brigadier-General G. Burrows,
 Quarter-Master-General, Bombay.

All the office establishment is at head-quarters; it consists of 17 clerks and three draftsmen. The duties are as follows:—

Chief clerk, in charge of the working of the office generally, open all official covers except such as may be marked "confidential," and has the custody of confidential papers.

The correspondence and work of the office is divided into branches as follows:—

<i>Clerks.</i>	<i>Subjects dealt with.</i>
One senior } ...	Accommodation, public works, fortifications.
One junior } ...	Carriage, field operations, movements, passage, transport camp-equipage.
Two senior } ...	
One junior } ...	Budgets, conservancy, cantonments, departmental, sanitation, water-supply.
One senior } ...	
One junior } ...	All subjects pertaining to barrack department supplies also examines all documents before they leave the office.
One senior } ...	
One junior } ...	Maps, plans of cantonments, and military buildings, surveys, encamping-grounds, routes, lithographic press
Three draftsmen } ...	
One pressman } ...	All subjects connected with the corps of guides.
* One junior } ...	Registrar, and in charge of the record-rooms.
* One junior, pay clerk. Ditto, Commander-in-Chief's schedules, and corrects copies of regulation books.	These men are also available for any work in branches, and have copying to do.
* One junior, returns. Three ditto, copyists.	

Colonel C. O. Maude, Judge-Advocate-General, Poona.

Three Native clerks at head-quarters. None elsewhere. The deputy judge-advocates have private clerks.

The head clerk assists the judge-advocate-general in matters relating to courts-martial, &c., the second clerk conducts his duties under the orders of the head clerk, and together with the third clerk enters reports, letters, &c., in the office books, and prepares all monthly and half-yearly returns, and all papers connected with the office.

Memorandum with reference to questions put by the Imperial Government for report: submitted with details for the consideration of the Commission by MAJOR-GENERAL C. L. SHOWERS, Bengal Staff Corps, and late Political Resident in Rajputana and Gwalior,—dated 4th August 1879.

1. What number of troops, British and Native, must necessarily be maintained in India in peace time, for the maintenance of the internal peace of the country, and performance of the necessary garrison duties only?

2. What should be the distribution of that force, and its proportionate allotment to the several provinces? To aid the commission in forming their opinion on these points, the heads of local governments and administrations have been called upon to furnish the commission with full particulars as to the population, condition, state of feeling, and special elements of danger in their respective provinces; as to the strength, distribution, and efficiency of the local police; and to state their views as to military requirements of their several provinces.

1. This point will doubtless be maturely considered and correctly determined by the commission, assisted as it will be by the statistics at hand and the special knowledge of the adjutant-general, the quarter-master-general, and the other experienced officers who are members of the same.

2. The only remark that I shall venture to offer under this head has reference to the arming of the local police, as bearing on the question of the military garrison required. On no account would I allow them to be equipped with firearms. It is not the policeman's weapon in itself that strikes terror, but inasmuch as it is the symbol of authority; and for this purpose the constable's staff is as effective as a gun. The staff can only be used in the preservation of order; the gun may be used against us. On the rising of the Neemuch brigade in the mutiny, the police of the Jawad-Neemuch district to a man joined the mutineers. After the recovery of the station and restoration of order through the

* Their special duties are carried on under the supervision of the chief clerk.

Native levies of the Odeypore State, the superintendent raised a fresh body of police. On a second wave of rebellion surging over the country under the Delhi Prince Feroze Shah, the new police again to a man joined the rebels. If a strong band of robbers has to be dealt with, call out a detachment of the military. But a large body of armed police diffused throughout India, without military organization or discipline and subject to sinister local influences, is, I think, an element of danger to be guarded against in the contingency of our power ever being seriously threatened from any quarter.

3. What should be the full war establishment of the Indian army, calculated under the two heads of—

- (a) the number of troops that India ought to be able to place and maintain in the field for service wherever required.
(b) the garrisons and reserves to be maintained in India?

4. By what means, short of permanently maintaining the army on a war footing, can the difference between 1 and 3 be most efficiently provided for?

(being feudal retainers of the Native chiefs) which could be counted on for co-operation with our army on field service. Third, (c), by effecting a large reduction in the organized mercenary armies of some of the Native princes comprehending virtually their extinction.

The first object, (a), I would propose to attain, having regard to the circumstance that the sepoy are mostly of the agricultural class, through the medium of regiments of three battalions, of 800 rank and file each, all recruited in the same district from which the regiment would take its territorial designation. One battalion in turn to be always on long furlough at their home on half pay, and would act as a depôt for recruiting and furnishing men to fill vacancies as they occurred, in the service battalions. After fifteen years' service, men to be placed on a reserved list on a low provisional pension, but to be held liable during the ensuing ten years to be called up, on war breaking out, to serve on garrison duty.

The European officers present with the battalion proceeding in its turn on furlough, with the exception of a commandant and adjutant to carry on the depôt duties, shall be placed on half pay equally with the men during the triennial furlough period, and allowed to pass the time at home or in India at their option, inducements being held out to them to stay and settle in India by grants of land on favorable terms.

The European officers of each battalion should be increased to twenty-five in number. Retaining with the battalion on duty with the colors an equal number of officers as now serve with the Native regiments, and on equal pay, the remainder should be eligible, after four years' service with the regiment, to be drafted off for the executive duties chiefly of the civil administration of the Government, on qualifying examination, the judicial offices being filled mostly by Natives. Such diversion of military officers to civil employ to be on the understanding that all, as a rule, should rejoin the colors of their regiments on war breaking out, the exceptions in respect of absolutely indispensable British incumbents of offices being so few as practically to prove the rule. This would provide the reserve of officers to meet the contingency of war, the want of which has been felt by every commander in the field, from Sir Charles Napier at Meanee downwards. Their rank would go on in their regiments, they would subscribe to all its institutions, band, mess, &c. And after their early regimental training they would rejoin for service with undiminished zeal and efficiency, looking upon their regiment as their home. They might be permitted in certain proportions to join the periodical camps of exercise to keep abreast of their profession. As a matter of experience, some of the ablest commanders in Indian wars have been officers who had been long absent from their regiments, in civil employ,—Sir Walter Gilbert and others. The introduction of this system would enable the expensive civilian element in the administration to be gradually dispensed with, to the enormous relief of the finances, and scarcely to the detriment, I venture to think, of practical efficiency. The administration of the non-regulation provinces through military officers mostly has always been admitted to be most successful. Of its comparative economy there could be no question.

The proposed change would facilitate the gradual extinction of the cumbrous staff corps with its rank and file of field officers—an incubus which Government has been endeavouring to get rid of by various devices. A place for some of them might be found in the reorganized army.

Interchanges between officers and men respectively of the several battalions to be permissible, not compulsory.

As difficulty might be apprehended under the present system of competition in filling appropriately the large number of vacancies to complete the Native regiments to the proposed strength in European officers under the revised organization, let the nominations of cadets be made direct from home as formerly, subject to a qualifying examination. A standard of competency being fixed, the nominee system would afford guarantees of character and conduct which are wanting under the competition system, inasmuch as both nominator and nominee would be under the salutary restraint of "Noblesse obligé." The jealousy on the part of the public which swept away the nomination system was an unworthy and, I submit, an unreasonable distrust of its public men. I would address my fellow-countrymen from a standpoint above and beyond the sphere of party or interested influences. "You entrust your public servants in high places with most important national concerns, with making your treaties with foreign powers on which the national greatness or commercial prosperity depends; and yet in a matter of domestic patronage you will not trust them to act for the public good! Ponder on the poet's inspired line: 'Trust me all in all, or not at all.' If the time should ever come, *ahis!* omes!—when your public men betray your trust, and you can no longer confide in them, it will be time for you to take the management of your affairs into your own hands."

Apart from the general considerations on which the expediency of a reduction of our European garrison in India is indicated,—the same having reference to the largely reduced strength of the Native army since the mutiny, to the withdrawal of our artillery absolutely from their hands, and to the development of the railway system in the interval,—the measure might still further be facilitated by

forming an Algeria for our Native army with which to interchange troops for service periodically. Within our own dominions, the remote stations of Burma, Aden, Assam, and our newly acquired possessions on the north-west frontier, immediately occur. Abroad, the West Indies, Zululand, and eventually perhaps Abyssinia, should possible political changes in that country favor the restoration of the young prince, Theodore's son, now our *protégé* in England, to the Abyssinian throne. Again, Egypt looms in the possibly not remote future, and will again, perhaps, as of old, prove an Indian field. Some of these countries possess in their population the finest raw material in the world, perhaps, for troops. So long ago as 1846, Colonel John Sutherland, formerly Agent Governor-General in Rajpootana, pointed out the Kaffirs from personal knowledge as eminently suited for our ranks. Trained by us, such foreign troops would constitute in periodical reliefs an useful counterpoise to our own Native army, to be relieved from time to time by such of our regiments as it might be deemed expedient to send on foreign service for a time. Favorable elements of counterpoise, moreover, exist, within our own shores in the several corps of aborigines scattered throughout the country. When officially inspecting the Meywar Bheel Corps in 1850, I took occasion to point to the policy of enrolling a proportion of Bheels in the ranks of our Native army, since, as I observed, the distinction which good soldiers of this socially contemned race would receive simply as reward for military merit, would teach bigoted sectarians in our ranks that distinctions of creed did not enter into the composition of a disciplined soldier whose highest religion should be his military duty. In taking occasion to advert, after the mutiny, to my neglected warning, I submitted whether, if the Bheels and other aborigines had been enrolled at that early day, there might not have been found in every regiment a few faithful among the faithless to warn our officers of the impending danger. The adoption of such a system might enable our European garrison, as above remarked, to be considerably reduced.

Divide et impera.

Native commissioned and non-commissioned officers should be appointed to their grades direct from the ranks of the landed gentry or other respectable classes. This would not be intended to exclude from promotion to the non-commissioned grades any privates of exceptional merit; but, as a rule, the prospect of such promotion on enlistment is too remote to be taken account of by the recruit, and consequently the change would not practically affect the class of recruit obtainable under the new system. The advantage to Government of having in its employ so high a class of intelligent, well-born Native officers in the ranks of its Native army might expediently be extended by offering substantial inducements to them to serve on to a prolonged period. Their influence, example, and the military traditions of which they would be the living representatives would give a tone to the younger ranks as they came on, from time to time, in successive batches of recruits.

Raise Eurasian corps wherever this class may be found in sufficient numbers and willing to enrol themselves. Their necessary identity of interest with the British governing class, their courage, their intelligence, would constitute such corps important factors among the elements of counterpoise above indicated.

The question may arise, is conscription suitable for India? Considering the vast diversity of races peopling this continent, from the most warlike and hardy to the most opposed to and physically unfit for war, it would seem but reasonable that, while the former contribute their quota of cadets to our ranks, the latter, who decline to assist in protecting the country, might be called upon to pay an indemnity to be absolved from the conscription. The aggregate amount so accruing from the non-combatant portion of the 200 millions of the population of India, even at an infinitesimal rate of indemnity, would be very large and go far to recoup the whole amount of the army estimates.

Second head (b). Have the Native retainer contingents duly told off to the different States according to their capacity by an officer specially deputed, who would report to Government the aggregate strength of the auxiliary force that might be thus counted upon. Concurrently with this measure, and in full reliance on its efficacy for the maintenance of order within Rajpootana, after all the regular paid troops had been eliminated from the forces of all the States, the British troops stationed there, comprising three brigades, might be wholly withdrawn and the strength of the army correspondingly reduced.

The doing away with the organized *mercenary* forces of some of the States [third head (c)] might expediently be negotiated by the same officer, one specially deputed on these difficult and delicate duties being indispensable. Those of Scindia, Holkar, the Nizam, Cashmere, Kattiawar, Odeypur, Jeypur, immediately occur as demanding his early attention. Speaking from an acquaintance with Maharaja Scindia so presumably intimate and confidential that on having to leave for his health during the time that I was Resident at Gwalior, His Highness made over the charge and control of the Gwalior State unreservedly to my hands,—seeking and obtaining the formal sanction of the Viceroy to such an exceptional delegation of his authority as ruler to the British representative at his court,—I think I can venture to say that the object in view might be effected in his case by delicate negotiation without causing any jar or leaving any unpleasant impression.

5. Having regard to 1, 3 and 4, what number of troops must be kept permanently under arms to garrison the country in peace time and furnish the required cadres for war; and what organization will best combine the necessary elasticity with efficiency in peace and war?

5. See remark to No. 1.

6. Assuming that the British force now in the country is not to be reduced, can the cost of its maintenance be diminished by alterations in its organization, or in the system under which it is recruited and relieved?

6. Yes: (1) by enlisting recruits specially for service in India for ten years, with option to re-engage for a further period on a bonus. It fell to my duty, when Resident at Gwalior, in my capacity as J. P., to register the re-engagement of numbers of men of 10 years' Indian service and upwards. After such a period, from all I gathered, service in India appears to have more attraction to many men than returning to home service. I was in Calcutta in 1864 when the 92nd Highlanders were ordered home. Their commander, Colonel Lockhart, confidently relied on their clanish feeling to take home his regiment complete. To his surprise, and much to his disappointment, a

large proportion of the regiment volunteered to serve on in India. Judging from the experience of the old local European army, especially in the artillery branch, enlistment for long Indian service might be expected to attract a far superior class of recruits than obtains under the present short service system. I make no account of the danger supposed to be inherent in the old system as illustrated by the "*White Mutiny*." That untoward event was simply the consequence of lamentable mismanagement on the part of the authorities in attempting to enforce a change in the conditions of the men's service on a bare dictum of the "Law officers of the Crown." Instead of which, had their loyalty been appealed to, and a bounty offered to drink the Queen's health, we should have heard nothing of the "*White Mutiny*."

The less frequent reliefs of regiments under the prolonged period of Indian service here advocated would admit of the abolition of the present costly system of troopships, recourse being had, as formerly, to the open market of the mercantile marine, as occasion arose, from time to time, at diminished intervals for reliefs. Indeed, the existence of the troopships prevents the development of the mercantile marine into an efficient transport service to meet the strain of possible war, and which the troopships alone would not be equal to. In their place, the whole mercantile marine in eastern waters, whether belonging to companies or individuals, and especially the subsidized postal lines, should be put into requisition, the latter directly and ordinarily on an enhanced subsidy, and styled the postal transport service; the former, or the general marine, should be invited to tender for transport, conditional on contingencies. All vessels so tendering to be registered in minute detail as regards capacity for transport of men, horses, guns, elephants, &c., and written contracts as to rates entered into. By such a system, Government would know its transport resources in the event of war breaking out, and would be able to avail itself of the same at ordinary rates, instead of monopoly war rates. Such an effective demand, moreover, might be expected to call into existence a class of vessels specially adapted for the service, conforming to stipulated height between decks, platforms fitted with kneebolts for guns, and suitability for being converted into horse and mule transports, &c., &c., the same to be taken up only on being required. Such occasional contingent expenses bear but lightly in comparison on the army estimates, and, at all events, are under control. It is the dead-weight of an organized establishment, even with a tendency to increased cost, that weighs upon the finances with the rigidity of a *constant quantity*—precluding all elasticity or hope of occasional relief.

The principle herein involved is applicable to certain civil branches of the public service which I shall be prepared at proper time and place to name, and furnish examples in illustration.

Further, the cost of maintenance of the British force in India, if a portion of it were reconstituted into a local army, would be diminished by the amount of the present depot expenses of a like number of regiments. It would be in a great measure recruited inexpensively by volunteers from the line regiments returning to England from time to time in relief. One of the fundamental conditions of its reconstitution as a local army should be that it would be available for service in all parts of the world on emergency, that it should be a body of pioneers available for working on roads, fortifications, &c. Schools in the hills for their children would form the germ of colonies, and waste lands being allotted would give them a local habitation.

In the foregoing remarks I have restricted myself to the consideration of the money economy view of the question, as between long and short service in the European ranks in their comparative burthen on the Indian finances. But, considering that efficiency in the army, at whatever cost secured, is the truest economy, I would remark on some of the boy-soldier regiments I met with in the field lately when proceeding to the front as troops which the Government of India might reasonably demur to be saddled with. An average age of 20 throughout the ranks including non-commissioned officers, and not a man in the regiment over 25 years, renders apparent to the commonest non-professional understanding the defects of a system that could place such regiments in the field for hard active service. Physically, what resisting stamina could they possess? Professionally, what training, in the sense of moral discipline and the acquiring of a military instinct, could be expected in so brief a period with the colors? Good experienced non-commissioned officers are the backbone of an army, giving tone and steadiness to the rank and file by their example and controlling presence, and firing enthusiasm by the traditions of which they are the living representatives. What salutary influence in such respects could the boy recruit be expected to derive from the non-commissioned officer but a few years, if at all, his elder, and equally raw. I forbear to dilate on all I saw and gathered in the front, merely recording the serious impression it made upon me of the necessity of a change in the system of organization. Whether the object of accumulating a strong home reserve which suggested the short-service system might not be secured by extending the period of service in the reserve from 6 to 12 years, and the minimum term of enlistment to 10 years with inducement to re-engage, it will rest with the commission to consider. Most especially should exceptional inducements be held out to non-commissioned officers to continue to serve on for prolonged periods.

7. What should be the territorial organization and division of commands, and proportion of superior officers and staff?

7. See remark to No. 1.

8. What units of organization for field service seem best suited to the usual conditions of Indian warfare; and can these be adapted to, or connected with, the territorial organization, as in Europe?

8. See remark to No. 1.

9. Is it desirable to maintain the presidential armies distinct as at present; and are the large staffs and separate departments now maintained essential to the efficiency of the army administration under the present presidential system?

9. This would appear to be but part of a larger question involving the continuance of the minor presidencies; but if required to be answered with reference exclusively to its military aspect, it may be conceded that it is not desirable to maintain the presidential armies distinct as at present. In abolishing, however, the minor presidential army commands, it might be found expedient, in order to obviate the possible inconvenience of the additional patronage being thrown exclusively upon the hands of the Commander-in-Chief in India, to devolve it partly on generals of division who, specially selected, should be vested with political as well as military power within the circles of their divisional commands. Nominations to military staff

appointments within the division to be subject to confirmation by the Commander-in-Chief in India. Nominations to political appointments, in the local political corps and others, to be subject to confirmation by the Viceroy.

In order to enable the Commander-in-Chief to exercise impartially his increased powers over the presidential armies, his head-quarters should not be fixed; but he should be required to move the same from presidency to presidency, to become acquainted with the country, its armies, and its officers. Again, His Excellency's head-quarters staff should be appointed in due proportion from among the officers of the minor presidencies. These provisions might probably compensate the not unnatural leanings towards personally known candidates for appointments on the part of the dispensers of patronage at Simla head-quarters. Again, in time of war, such guarantees might obtain for the armies of the minor presidencies a fair share of war service, and thus relieve the chief military authorities from the too-often reiterated charge of partiality in the formation of armies for field service. The abolition of the presidential commands would of course carry with it the abolition likewise of the local armies' head-quarters staff, such as the adjutant-general, quarter-master-general, commissary-general, &c., to the further relief of the finances.

The increased power above provided for to be placed in the hands of divisional generals would be but reverting to the system which has been found to work so well in former days as in more recent times. Examples from both periods abound. General Sir David Ochterlony, General Sir John Malcolm, General Lord Lake, General Sir Arthur Wellesley and others in the past,—Brigadier-General Sir Henry Lawrence, Lieutenant-General Sir James Outram, Brigadier-General Sir Richmond Shakespear more recently in the mutiny, were one and all conspicuous examples of the increased efficiency acquired by the concentration of power, military and political, in one and the same hand. Practically in troubled times, authority insensibly resolves itself into divisional or district circles, military or civil. The first thing that happens is, the wire is cut; then the post ceases to arrive—and the central authority is at an end. The district then becomes isolated—a typical unit of the empire—an island in the midst of an ocean of troubled waters. It was so in the mutiny. It may be so, *mutatis mutandis*, again. The necessary assumption and fearless discharge of absolute power by district officers, soldiers or civilians of the antique type, was admitted by all observers of the outside world to have been one of the main instrumentalities in our surmounting that crisis. In order to legalize then, and indemnify by anticipation, the inevitably strained action of public officers on emergencies, sealed commissions should issue, investing the Government nominee in every district, soldier or civilian, with supreme power within their circles in the event of contingencies. Sir Henry Lawrence, it is understood, had the reversionary commission of Governor-General in his possession when he died. He had himself delegated, by dying testament, his supreme authority in Lucknow, military and political, to Major Banks, although junior to others in the garrison. In abolishing then the minor presidential commands and supplementing their lapsed authority by placing increased power in the hands of officers commanding and in charge of districts, it might be wise to provide against all possible eventualities by the above provisional measure.

10. Should the troops of the several presidential armies, as a rule, serve in their own presidencies only, except when called out for war; or should they take a recognized share of frontier and other general duty?

1st with a view to excite emulation through *esprit de corps* when meeting on common field service; 2nd, to admit of the more perfect development of the divisional circle system above advocated.

Examples of healthy emulation abound. Those that immediately occur to me are Broadfoot's Madras sappers in the first Afghan war. Blood's troop of Bombay horse artillery at the battle of Goojerat. On riding back from the front at the close of the day, carrying to the Commander-in-Chief, Lord Gough, on whose staff I was serving, General Thackwell's verbal report of the operations and results of the pursuit, I met this battery, by successive half troops, far in advance of any of our other artillery batteries. But then it was the only artillery battery on the "detachment system" in the field, which of course gave it a greater command of horse power. It was horse, moreover, by Arabs, pure or Gulf. Again, Malcolm's charge with the Sind horse, in the same battle, was one of the most brilliant in the day. In the late war, the Madras sappers have again gone well to the front. The Mhairwara battalion affording another striking instance. And the 3rd Sind horse in the affair on the Helmund during the late war yet another, by token of the loss of the lamented Reynolds, who fell while gallantly leading his men to victory against overwhelming numbers. On the Bengal side, on the other hand, the feats of individual gallantry on the part of officers and men, European and Native, vied with the exploits of their comrades in the sister-presidencies. The chivalrous and lamented Battye, Cook and his gallant Goorkhas, whom I witnessed receive the Victoria Cross at the hand of their Commander Sir F. Roberts; Higginson and Campbell in the Thull-Chotiali fight,—the Revd. Mr. Adam scarrying orders as A.-D.-C. in the thick of the Peiwar Kotal assault, &c.

In divisional circles, more especially where their boundaries run conterminous with foreign territory, it would be the duty of the divisional staff to become intimately acquainted with such territory, topographically and politically, so that, in the event of hostilities breaking out, they might be prepared to seize at once on strategic positions, and create diversions by political combinations. A proportion of the troops in each division to be held fully equipped with their war complement of transport. Such a state of watchful preparedness would seem but a natural corollary to the proposed reduction of the number of men in garrison, so that we might come to find that true economy consisted, as was well put by a contemporary military writer, "in having a minimum number of men in a maximum state of efficiency."

11. Having regard to the alterations made in our frontier and redistribution of our frontier garrison, is it desirable to retain the Panjab Frontier Force on its present footing, or to place it in part or altogether under the orders of the Commander-in-Chief?

11. To be placed under the orders of the Commander-in-Chief in order that it may be brought under the same military organization as the rest of the reorganized army. By this measure, the efficiency of the frontier force would be increased, and certain existing anomalies in respect of ordinary military rules and usages be redressed. A division of the fron-

tier force thus reorganized, horse, foot and guns, fully equipped as a moveable column, to be retained under the orders of the civil power for the tranquilization of the rectified frontier through a general officer specially selected by the Viceroy and vested with full political authority in and over the Kuram and Khyber frontiers; so as to throw the hilly tract of the Tirah with its turbulent tribes—Afreedes, Orakzais, Zaimushis, Musseezais, Alisherzais, &c., &c., under one and the same controlling authority. On the reclamation of the border tribes and the attainment of order on the border, which might be accomplished on the lines of our successful operations in Rajputana over once equally turbulent tribes, Bheels, Meenas, &c., &c., this division of the frontier force to revert to the command of the Commander-in-Chief for general service.

12. Assuming that Sind is to be annexed to the Panjab, should the Sind regiments remain localized as at present, and under whose command should they be placed?

* 12. Should remain localized and be placed under the command of a general officer vested with full military and political authority on the border, as Lord of the Marches, under the general control of the Viceroy.

13. Is the present organization of the supply and transport departments of the army that best adapted to its requirements in peace and war, or are any changes desirable; and if so, of what nature?

13. The two departments, supply and transport, should be separated: the supply remaining, as at present, under the commissariat, which, as a supply department, has proved in the recent campaign, as the Indian commissariat has always been known to be, equal to the occasion: the transport to be placed absolutely under the military authorities. There should be one head of the transport department generally, under the designation of director-general of transport, whose place should be ordinarily at army head-quarters. Under him would work a staff of transport officers, one in each divisional circle of the army, and under these again a permanent staff of warrant officers. To each divisional circle should be allotted in peace time a proportion of transport calculated to equip efficiently a strong brigade as a moveable column. This transport would be used for the periodical relief of the troops on the division, thereby obviating the oppressive requisitions for this purpose on the agricultural carriage of the country. The saving, moreover, of the cost of carriage incurred in these periodical marches in relief would go far to recoup the cost of keeping up the permanent peace establishment of transport above indicated.

On war breaking out, these divisional transport trains would form the nucleus for expansion to the requirements of the whole division. Divisional transport officers would submit to the director-general estimates of the additional transport requisite to equip the whole division, and it would be sanctioned according to the strict war scale. Volunteers would be called for, an officer from each corps, to serve in the transport train; and to such officer, assisted by one or more of the permanent warrant-officer staff, would be assigned the proportion of carriage due to the corps on the sanctioned scale; and he would be responsible for it, always under the general responsibility of the commanding officer of the corps. By such a system due responsibility would be placed on commanding officers of corps to take proper care of their transport, their loading, their feeding, their foraging, &c. In regard to the essential point of loading and unloading, every officer and man in the regiment should be thoroughly instructed by a regular course of pack-drill. The total want of knowledge of this essential requisite on the part of officers in the late war was the cause of many animals being rendered useless from galls. I had the advantage recently, in passing through Rawal Pindi on my way to the front, to see the new double gun (LeMesurier's) mule battery at exercise, through the kind courtesy of Major Kane, commanding. Every man, Native driver as well as European gunner, knew the proper place for every part of the equipment, whether in battery, or dismantled and loaded in column of route; and also how to load it. The mules, on their part again, seemed to know all about it, having been carefully trained under Major Kane's judicious system of combined kindness and firmness. The celerity and smartness, consequently, with which the battery came into action from column of route, and again dismantling, re-loaded and resumed column of route, was most admirable.

Another point of detail, but one of great practical importance, is the practising of the mule attendants in stuffing and unstuffing, and generally repairing and re-arranging, the pack-saddles and other parts of the gear. The ease to the beasts, beside the saving from galling, in having knotty places in saddle and harness stuffing re-dressed, need hardly be insisted on. Inducement should be held out of increased pay, &c., to the mule attendants to learn the business.

Due veterinary care should at all times be provided for the animals of the transport train. The absence of all administrative veterinary control with the several columns lately in the field led to neglect and maltreatment of the animals, which was probably in a great measure the cause of the heavy loss that was sustained. The fact of there having been no administrative veterinary officer in any of the columns would hardly be credited. The subject of veterinary administrative and executive duties in a field force deserves the most serious consideration.

The commissariat department should indent on the transport train for their requirements which would be according to circumstances, and subject to sanction by the officer commanding the force. Their requisitions for transport would afford a useful index to the quantity of supplies available for the force.

One important item of supply might most expediently be laid upon the commissariat, *viz.*, forage for the mounted branch, in supersession of the present system of regimental grass-cutters. The injury and oppression occasioned to the rural population throughout our long-settled districts by the frequent trespassing upon their grazing lands by these organized bands of foragers can only be understood by civil officers in districts adjoining large cantonments, who, like myself, have often had before them cases of desperate affray between the two classes. Not only are the pasture-lands reserved for the village cattle intruded upon and cut without payment or compensation, but often irremediable injury is done to the homestead; the turf lining of water-channels, fringes of domiciles, &c., scraped away with the unsparing *kulpa* (the grass-cutter's hoe). Again, the wood of fences, of well-top frames, &c., carried off for firewood. The only portion of the country where the grass-cutter system can work without injury to the rural population is either in Native states where tracts of grass-land, called *dhers*, are made over for the use of the mounted branch by the Native government through the good offices of

the political officers; or, again, in newly settled British districts after conquest where waste land is plentiful. But to permit a continuance of the system in our old settled districts where the scant pasturage is being encroached on year by year by cultivation and the village cattle left without a spare rood of grazing (witness the terrible loss of cattle in every season of drought) would be to perpetuate at once a great source of hardship on the rural population, and be found to re-act most injuriously, through the loss of plough cattle, on the Government revenue.

It is true that to all cavalry stations a tract of waste land, called a ruck, is attached for the use of the mounted branch; but ordinarily it is at so great a distance off that the grass-cutters cannot make the journey, going and back, and cut their grass within the same day. They lie consequently under great temptation to trespass on private lands nearer home; the more so since the ruck when reached affords but poor forage, being generally the worst bit of waste land in the district, unsuitable for cultivation.

This subject has, I believe, often been brought before the authorities, and the evil of the system acknowledged; but its retention has been maintained nevertheless on the one vital ground of its absolute necessity on field service. This is precisely the ground on which I propose to show that the system is not only not necessary, but on the contrary an impediment and an obstruction to field operations in an enemy's country. The troops, instead of being left to rest after marching, are harassed by guards to convoy and protect the grass-cutters. And even with such precaution they are always straying out of guard range and getting cut up, to their own serious discomfort and our discredit. Again, food has to be carried for them. Now the experience of all wars, and notably the recent one in Afghanistan, has shown that hard coin will always command the resources of the country, excepting in the rare case of political embargo through the hostility of a powerful centralized government, when it would only remain to take what is wanted by force, paying for the same. Money eats nothing, and is more easily accommodated in a regimental quarter-guard than a troop of men with their ponies in grass-cutters' lines. These add, moreover, *pro tanto* to the difficulties of sanitation in a camp. As an instance of the omnipotence of the almighty rupee in the late war, I may mention an incident that occurred to myself. Having to take shelter and seek refreshment in a Zaimusht village of bad repute when done up with heat and hunger during a long ride back from the Kuram column front in June last, I was surprised at the quality of the fine wheat cakes they brought me along with the bowl of milk. My orderly, an Afridee, explained that the people all along the line had made so much money out of the British troops during the few months of the campaign that they had given up their coarse food grains, and would have nothing but the finest "*kanak*" (wheat). When I add that I have myself had to pay as much as two rupees a maund for forage, and ordinarily one rupee, the eagerness of the people to bring in supplies may be understood. On being brought in, they should be stored and husbanded at the advanced depôt and at the several halting places along the line of communications on the plan sketched in my memorandum, dated the 4th December last, in adaptation of the War Office circular of the 1st June 1878, to the operations of our armies in the field in India, copies of which I had the honor of submitting to the Viceroy, to the Commander-in-Chief in India, and to His Royal Highness the Field Marshal Commanding-in-Chief at the Horse Guards.

As to the alternative source of supply of forage if the grass-cutter system is done away with, let the commissariat have hay made and stacked as is done through contractors in the Madras and Bombay presidencies. If in the estimated annual yield any deficiency should be anticipated, tenders for the required balance might be advertised for in the same way as for other supplies required for the public service.

14. Are the warlike stores now procured and maintained in the manner most economical consistent with efficiency?

14. See remark to No. 1.

15. What lines should be considered, and maintained, as our main military lines of communication; and what new lines of road and railway are of most urgent importance?

15. Among new lines of railway:—

(1.) The Northern Panjab State Railway to be concluded to Peshawar with all possible expedition. Extensions to Kohat through that pass, and on to the foot of the Peiwar Kotal, up the Meeranzai and Kuram valleys on the one

line, and up the Khyber pass on the other, will naturally fall under consideration when our finances have been relieved by the adoption of the measures above sketched, and the frontier tribes meanwhile have been got a little in hand.

(2.) A branch of the Indus Valley Railway from Mooltan to Quetta *via* Dera Ghazi and Thull-Chotiali route, with continuation from Quetta across Pishin valley to the foot of the Kojuck pass.

(3.) A branch from the Oudh-Rohilkbund Railway to traverse Dehra Doon, entering at Hurdwar across the Ganges, and leaving the valley at Raj Ghât across the Jumna, and joining the Sindh, Panjab and Delhi line at Jugadree. This with a view of making this range of hills available for the location of European troops throughout.

With respect to the completed lines, the East Indian, Great Indian Peninsula, and others, having been laid down on maturely weighed military considerations, it is presumed that they will be maintained in their integrity. The only exception has reference to the Indus Valley Railway, which, it is believed, might more advantageously lead to Bombay by connection with the Bombay and Baroda line at Deesa, to obviate the sea-break from Kurrachee—maintaining the section from Sukkur to Kurrachee as a branch. Having traversed the Indus Valley line from Lahore to Kurrachee and back last April, from all I saw and gathered *en route* the defects of the line between Mooltan and Kotree appeared to be so radical, and calculated to entail such unnecessarily recurring cost for its maintenance, that it would seem premature to discuss the question of the terminus while such apparent defects subsist in the body of the line.

Supplementary Note.

Although not included in the questions detailed for report by the army organization commission, the proper organization of the army medical department appears to my mind of such importance to the health and well-being of my comrades-in-arms of the rank and file, and to the efficiency of the army in general,

Army Medical Department.

that I feel constrained to append some remarks on the subject, based on observations that I have recently had an opportunity of making in the field. Such remarks, I venture to hope, may appear the less obtrusive since an official committee is at this moment sitting in England to enquire into the causes which tend to prevent sufficiently eligible candidates from coming forward for the army medical service; and again, that the Secretary at War, during the late debate in the House of Commons on the army estimates for medical establishments and services, appealed to the members for Salisbury and Edinburgh University invoking the help of the medical bodies in regard to nominations of candidates for the army medical department. It would seem hence as if the medical reorganization of 1873 were on its trial, and the door to discussion therefore still open.

In that system, copied avowedly from the models of America and Germany, there is undoubtedly much that is good in theory; and, had we contented ourselves with grafting on our own system what appeared capable of adaptation for manifest improvement and susceptible of being assimilated without violence to our own institutions or to the genius of the nation, all would have concurred in approving the modified reform. But, instead of grafting the foreign bud scientifically, to cut down our own parent stem root and branch and stick a foreign tree in its place in the hope that it would take, root was rude husbandry, that savoured too much of a panic. This sweeping procedure having been adopted moreover, immediately after the Franco-Prussian war, along with the radical change in our military system to short service in our ranks, lent a color to the unfavorable impression. My lamented friend, and the justly mourned of the nation, Richard Cobden, presented me, on publication, with a copy of his numerous brochure *The Three Panics*,—exhibiting the nation in its periodical fits of scare. The explanation of such panics would seem to be that the nation is taken by surprise by some *coup* or craze on the part of the Government to which it has confided its public affairs while pursuing, individually unconcerned its private avocations. Government by surprises and harlequinade may have its dangers, if practised too often on a trusting people.

Descending to particulars, before abolishing the regimental hospital system, it would have been well to make sure that the substitute for it, in the base or field hospital system, would practically work in all circumstances. In the Franco-Prussian war, the Prussian army, our model was never off the line of rail. Consequently, if any interval at any time occurred between the advancing column in the front and the base hospital, the wounded or sick could readily be conveyed. How fared it with the British columns in the field in the recent Afghan war? On proceeding to the front I found the base hospitals at Peshawar and Kuram at distances of seventy and thirty-four miles severally from their respective front lines; these intervals not connected by railways, not even by roads, but by bare tracks slightly cleared of boulders; crossed on the Kuram line by the lofty Peiwar Kotal range of mountains, often impassable in winter; and on the other line passing through the Khaibar Pass infested by cut-throats. Consequently, the British regiments in the front were placed at great disadvantage with their reduced regimental hospital establishments—virtually cut off from the base hospital. I was at Ali Kheyl when a strong reconnaissance marched out, accompanied with a hospital, ambulance and medical equipment inadequate, apparently, to the contingency of the merest skirmish.

The theory of the thing is that the base or field hospital is immediately in rear (within a mile) of the front line. The vast difference in practice which I have pointed out would seem to indicate that the abolition of the regimental hospital system is as yet premature at least, even if ever it should be considered expedient in its sweeping scope. I would venture to submit that a modification providing for the restoration of the regimental hospital with its permanent surgeon, subject to a supervising control by the senior medical officer in garrison, or the divisional P. M. O. in the field, would be more in the interest of the men, who notoriously do better in their own regimental hospitals than in a general hospital, and more congenial to the army surgeons in restoring to them at once their homes with their regiments and the object of interest they confessedly had deep at heart in their men.

In endeavouring to trace the causes which have made the army medical department so unpopular, the terms of the present medical warrant come prominently into view. Eligible candidates are invited to join the army medical service, with a liability to be compulsorily retired after ten years, on a bonus of £1,000—this amount being considered sufficient to buy them a private practice. During such period of service, not being attached to any regiment or battery, they are virtually floating waifs on the surface of military stations and society, without a home or a circle of friends, such as a regiment would, as it did formerly, afford. Did it not occur to the framers of such a warrant that to attract eligible men to any profession, a CAREER must be opened to them—a glittering goal in the far perspective, although but one in a thousand may ever reach it, yet to all ennobling ambition and sustaining endeavour under privations and sacrifices perhaps, which only "the heart that knoweth its own sorrow" could reveal. What the marshall's baton in his knapsack is to the marching soldier,—what the woolsack is to the briefless barrister,—what the mitre to the toiling, patient curate,—that you must place at the end of the long vista before the young medical student's vision. As it is, you expect eligible candidates, young men good all round, of respectable parentage, well brought up, expensively educated at an advanced age when their contemporaries are already embarked on their respective careers,—you expect these men to sell to you the flower of their youth with all its spring-tide aspirations under the liability of being turned adrift after ten years, with perhaps a shattered constitution from service in a tropical climate, and under the presumptive stigma of "a failure," as a stock in trade to commence life anew. Some are kept on, it is true; but this only renders it the more invidious, and the more damning, to the rest. In such anticipation it would seem as if the deepest feelings of our common human nature and the ordinary motives of human action had been entirely overlooked.

After the admitted failure of the medical warrant, from causes which I have here endeavoured to trace, it seems unaccountable that a warrant on the same lines should have been issued for another very important branch of the army, *viz.*, the veterinary department. The result may but be anticipated from the experience realized in respect of the medical department.

The classic aphorism *Fas est ab hoste doceri* is sound. But, in copying what we see to be attended with successful results in our enemy's operations, we must be sure that our own circumstances are identical, or at least in all essential points similar. Otherwise, while we think we are guided by

beacons lighting us safely on the war-path, we may find that we have been deluded by an *ignis fatuus*, landing us in a bog.

In conclusion, I would only observe that, if on any of the above points indicated by Government for report, any suggestion that I have ventured to submit for the consideration of the army organization commission may tend in any degree to assist their deliberations, I shall feel that the experience on which the same is based, at whatever amount of personal effort and endurance acquired throughout a long and varied service, will not have been acquired in vain. On no point should I rejoice more in the consciousness of some good accomplished than if anything I have been able to submit in this supplementary note should conduce to the army medical department being put on a stable footing, and with an organization calculated to attract the best men into the service.

No. 8540, dated Simla, 3rd September 1879.

From—COLONEL A. H. MURRAY, Deputy Adjutant-General, Royal Artillery in India,
To—The Secretary, Army Organization Commission.

I have the honor to acknowledge the receipt of your letter No. 172 "Confidential," dated 11th August 1879, and, with reference thereto, beg to enclose my replies to papers "A" and "H" therewith forwarded.

2. I would observe that, owing to the heavy nature of the current work of my office, I have been unable to devote as much time as I could have wished to several subjects, and beg to claim the indulgence of the commission as regards the brevity of some of my replies, and to which I feel I have not been able to do full justice.

3. As regards paragraph 4 of your letter, in which it is stated that the commission will be very glad to receive any separate papers or suggestions on any other points connected with the efficiency and economy of the army which may not be indicated in the questions, I beg to submit the following, which appear to me deserving of consideration as concerning the army at large, and by which increased efficiency, with decreased expenditure to the State as also of correspondence, will be effected:—

(1) *Decentralization.*

I.—The "reform" on which most others hinge, without which it will not be possible to effect much good, but which, if carried out in its entirety, will do more than anything to promote efficiency with economy, and at the same time facilitate immensely the administration of the army in India, is "decentralization."

II.—At present all authority is centred at head-quarters, and every matter of the most trivial nature is referred there "for orders" and often forwarded thence to Government. The consequence is, the general officer is reduced to a mere "forwarding officer." He is neither held responsible nor is he responsible in the full sense of the word for his command. His "individuality" is stifled in peace time; and when suddenly placed in command of a force in the field and made responsible for everything, he may probably at first feel himself unequal to the task, solely from lack of previous training.

III.—Further "division of labor," which is the only way by which great things can be effected, does not exist. The time of head-quarters is fully occupied in settling matters of the most ordinary routine, and but little leisure is left to devote to study to reading in view to keeping with the times in military science and modern improvements, or to improving the administration, the organization, the equipment of the army, and making all arrangements for every eventuality in case of war, which should constitute the first duty of the head-quarters staff.

IV.—The army in India should no longer be divided into presidential armies, under distinct Governments. There should be but one military head of all things military with the Government of India. At present, the authority and responsibility is divided between the military and army departments, than which nothing could be more antagonistic to efficiency and economy.

V.—Subordinate to this one chief would be the commanders of the army-corps; but they should have "full powers" and be held strictly responsible for everything under their command. Under them would be the divisional generals, with much more power than at present, as also officers commanding brigades.

VI.—If this or some similar system be introduced, a saving in the staff and administration of the army, military, medical, and supply appears feasible, while diminution of correspondence, of printing, and of circulation of orders will follow as a matter of course. Reliefs need only take place within each army-corps, excepting in the case of garrison artillery, which, having no fixed place in such army-corps, should be relieved, as at present, inter-presidentially, in order to give this branch some change, especially those stationed in the Madras and Bombay presidencies. Transmission of stores will be lessened; and on the outbreak of war an immense saving of time and expense in putting the troops into the field will ensue, &c.

VII.—For the commands of the army-corps, fitness combined with administrative abilities should be first considered, and all other considerations or claims should be subordinate to this more essential qualification.

(2) *Pay.*

I.—It is known that officers commanding batteries of artillery in this country have great responsibility and much work entailed on them in the payment of their batteries and the large Native establishment necessarily attached thereto.

II.—Within the past twelve months this office has had difficulties in settling the accounts of no less than 6 batteries out of about 22 which have changed hands, notwithstanding the checks in the shape of reports by inspecting officers which at present exist.

III.—It is often extremely difficult, when endeavouring to settle the accounts of batteries which have got into confusion, to fix the responsibility with exactness. Officers who are called upon to pay up naturally dislike it extremely, and, although they obey orders, think themselves more or less hardly

dealt with. If, therefore, any further check which would obviate the evil complained of could be introduced, it would be a boon to all concerned, a saving to individuals, and in some instances to Government.

IV.—The check which at present exists of causing inspecting officers to report that a balance sheet has been kept up monthly on the proper form is not sufficient; neither would any examination made by an inspecting officer be decisive. What is wanted is a thorough auditing of the accounts of a battery *annually* by an expert, who would not only ascertain that they were kept up in proper form but also be in a position to certify, by comparing the pay lists, pay books, receipts and vouchers, &c., that the balance sheets exhibited the true state of the accounts. The only officers qualified in India to do this are those of the pay department. As some batteries do not change hands for several years, unless an annual examination takes place, the accounts may remain in confusion for a long period without its being brought to light.

V.—When the difficulties which an officer commanding a battery has to contend with are considered, it will not be surprising that accounts go wrong:—

- (a) the complicated and numerous accounts themselves;
- (b) the frequent change of officers (in garrison batteries sometimes as many as four in command in one year);
- (c) the difficulty of obtaining qualified pay sergeants;
- (d) the fact that frequently officers are entirely new to this country and the system of its accounts, and in many cases have not been long in the service;
- (e) that the officer commanding has to do all this, in addition to his other multifarious duties, whereas in the cavalry and infantry there are paymasters and regularly instructed pay clerks, who do nothing else.

VI.—I therefore strongly recommend that an expert be deputed to examine the accounts of each battery annually.

VII.—That all pay lists for one month be audited and the objections therein be notified in sufficient time to reach the corps before the pay lists of the succeeding month are despatched, and thus avoid the carrying forward of errors to the accounts of the second month. As it is, two, and sometimes three, months elapse before they are audited; and if, as is often the case, the objection is something to do with the rate of pay of punkah-coolies or other Natives who are always being changed, the money is not recoverable from the men. When an objection statement comes in, the commanding officer, as a rule, answers and returns it without delay; and, if the pay department would then give their final decisions and re-forward it at once, matters would be simplified. But this is rarely the case; they seldom return it for two months or more; and the consequence is, the drawer is unable to know how he really stands for four months. Consequently, officers leaving batteries must often lose money owing to their successors being unable to take up the clue.

VIII.—There should be no difficulty in carrying out the above proposition; and in justice to commanding officers this should be strictly enjoined.

IX.—Further, I do not think that the relations which exist between the pay department and commanding officers are on a satisfactory footing, or that the former sufficiently realize that its duty should be to assist and facilitate the adjustment of accounts, instead of endeavouring, as I fear too often is the case, to make objections which are at times unnecessary, if not vexatious. Indeed, in some cases, it would almost appear as if the object was to weary out the paymaster (*i.e.*, the commanding officer).

X.—The present system is, I think, bad; and commanding officers are at the mercy of obstructives, by whom advantage can easily be taken, especially in the case of batteries in the field; and sums which are rightly charged are retrenched for want of some countersignature, which, perhaps owing to casualties, the commanding officer, after the long time which has elapsed before the receipt of the objection statement, is unable to obtain.

XI.—I believe many officers, if called upon, would produce startling confirmatory evidence in support of what I bring to notice. I can mention one case of a commanding officer who informed me that he had had retrenchments made for want of vouchers which he had rendered and which had been "burked" by the clerk, who was convicted and handed up for the same.

XII.—Further reports on this subject shall be obtained and forwarded, if required; but I submit that the foregoing points to a flaw in the present system which requires correction.

XIII.—I do not wish it to be inferred that I make these complaints against the officers of this department; for I know it is absolutely impossible for them to check all pay lists, or even perhaps to satisfy themselves of the correctness of the retrenchments to which they attach their signatures—but rather it is the system which is at fault. Under any circumstances, a better knowledge of the nature of their general duties should be explained and enforced upon all the clerks of the department.

(3) *Boards of Survey.*

I.—I think these should be limited, and more trust and confidence placed in commanding officers with regard to the condemnation of minor articles. The report of the officer commanding the battery, troop or company, with the certificate of the officer commanding the corps after personal inspection, that the article is worn out through fair wear and tear, should suffice.

II.—Take any single instance of any article of Government property, and the routine necessary for the condemnation of the same—first, the regimental board, then, on submission of this, the station board, and all the various procedures before the article is condemned. Again, in many instances, reference has to be made to Government to strike off stores which have been lost under exceptional circumstances, or to write off articles which have been stolen through no want of care or vigilance on the part of the corps, and which cases could, in my opinion, be dealt with by officers commanding, the more serious cases being after due enquiry disposed of by general officers commanding.

(4) *Clerks for Military offices.*

I.—I think that all clerks in military offices, whether appertaining to Government army headquarters or divisions and districts, should be military men, and that the employment of civilians should be absolutely forbidden. With every prospect of increased service with the colors for corps in India, there would be no difficulty in obtaining properly qualified men. Classes should be formed for the

purpose of educating volunteers for this work ; the necessary syllabus of subjects should be taught, and a list kept of all passed men, with their respective qualifications. A stimulus would thus be given to education throughout the army ; benefits would be held out to the deserving soldier, which in time would extend themselves even so far as to have a beneficial effect on recruiting.

II.—Government would be as well, if not better, served ; and the civil pension list would be largely reduced. But I would advocate, in adopting this system, that the condition of the clerks, both in pay and pension, be considered ; and that a small portion of the large saving effected be devoted for the improvement of the soldiers in these respects.

(5) *Stables.*

I think if permanent fittings to stables, as at home, were introduced into this country, saving would be effected after the first outlay.

(6) *Line-gear.*

I.—The supply of line-gear to mounted corps by the commissariat department requires consideration in view to saving unnecessary expense to Government.

II.—Complaints are now frequent as to—

- (a) quality of articles ;
- (b) difficulty in obtaining compliance with indents ;
- (c) muster patterns not conformed to in all cases.

III.—Horse brushes especially are generally condemned as useless for the purpose of grooming. Some are so soft as to be only fit for hat-brushes. The condemnations in consequence are numerous.

IV.—The system of supply by means of sub-contracts to Natives is, in my opinion, ruinous as regards expenditure, unsatisfactory to commanding officers ; and the inferiority of the articles supplied is doubtless due to want of sufficient European supervision.

(7) *Supply of grass to mounted corps.*

The present mode of supply by means of grass-cutters is unsatisfactory, and the question will sooner or later have to be met and dealt with. The grass-cutters have had great difficulty in obtaining good grass during past years at certain seasons. With more ground brought under cultivation, and consequently less waste land, the difficulty will increase ; and I think steps should be taken to secure Government *rukhs* at all stations for the use of mounted corps if the system of grass-cutters is continued.

(8) *Military Secretariat.*

I.—As regards the military department of the Government of India, I would submit, if it is intended to keep it up under its present organization, that its constitution should be altered, that appointments thereto should be thrown open to the army at large, and that one artillery officer of standing and wide experience should be in the department, in view to his treating the more important questions of armaments, ordnance, supply, equipments, &c., which are constantly referred by Government to the Commander-in-Chief for opinion, or by His Excellency to Government for sanction.

II.—I think this would save much correspondence, especially to the ordnance department and to this office, where it is often found necessary to go more minutely into large artillery questions than would be necessary if it were known that they would be dealt with in the military department by an officer of this branch of the service versed in all the technicalities, and acquainted with artillery and ordnance in all their various details.

III.—With all due respect, I think the officers constituting the military department of this large empire should be officers of the most varied experience obtainable ; that they should have as perfect a knowledge as possible of the minor details as well as of all matters connected with the different branches of the army, at large and finally, to ensure the highest state of efficiency, that the tenure of their appointments should be limited.

(9) *Establishments.*

I.—I trust it will not be considered out of place here to remark that some officers have brought to notice the necessity in their opinion for extra European soldiers and artificers being added permanently to the establishment of batteries of royal artillery ; but as their representations were based solely on experience gained during the recent campaign, I have not recommended them.

II.—It will, I feel sure, be evident that such opinions, formed on the experience of this one campaign, which was exceptional, are not sufficient to justify any alteration in the numbers now laid down, and which have been found equal to the strains of war in numerous other campaigns, being entertained. Such few additions as may be necessary will, of course, be made in similar campaigns in future ; but I submit that suggestions coming from officers with limited experience should be received with reserve and caution.

4. In conclusion, in the event of any of my replies not being understood, or any further explanation or information being considered necessary, I would solicit the favor of further reference to me, or, if preferred by the commission, of being examined personally.

No. 1791, dated Fort St. George, 16th October 1879.

From—COLONEL J. W. RIDGOUT, Controller of Military Accounts, Fort St. George,

To—The Secretary, Army Organization Commission.

I have the honor, with reference to your letter as per margin, with its accompanying file of questions, No. 854 of 28th August 1879, to observe that, as few of the questions come within the scope of my official duties, I am diffident in venturing opinion on subjects relative to which I may be considered to have insufficient personal experience.

The few on which I may be permitted to offer remarks are as follows:—

Queries to Commandants of Native Corps.

QUESTIONS.

16. Do you consider the reserve system could be applied to the Native army *et seq.*

35. Is the present mode of payment to Madras soldiers, depending as it does on the price of rice, a judicious arrangement?

39. Can you suggest a better and more economical system in the place of the present one for compensation for dearness of provisions?

18. Is the issue of cloth clothing for British troops necessary in all parts of India?

2. Should not a greater use be made of the contract system?

ANSWERS.

16. Not unless the present term of service were considerably shortened. Pensioned sepoys, as a rule, are decrepid, worn-out men. While effective and serving with the colors, their families are with them; they have therefore no inducement to seek retirement before actually compelled to leave. I do not think with the Madras system, each regiment forming as it were its own home, it would be feasible as an economical measure to organize a reserve force.

35. I should say certainly not. The present rule gives rise to endless complications. In the present Afghan war, for instance, compensation is allowed to Madras troops serving within frontier, based on the price of grain which is scarcely used, rice not being the staple food of the country, and yet the calculation is made with the apparent object of enabling the sepoy to purchase rice at a fixed market rate. When rice is cheap, the Madras sepoy doubtless prefers it; but when dear, he appropriates the compensation money, and satisfies himself with other grain.

39. I think that compensation should be calculated on the grain which is known to form the staple food of the province in which a regiment may be serving. To grant compensation on the price of rice in a district where that grain is scarcely procurable and certainly not as a rule consumed by the sepoy, is inconsistent and very expensive.

A.

18. This question has frequently invited attention from the frequency with which applications are made for the issue of serge instead, and the grant of differential compensation in lieu, to such an extent as to demand budget provision yearly. There are, I believe, no stations in this presidency in which serge would not suffice instead of cloth.

I.

2. The contract system has been largely introduced into this presidency, and I would strongly advocate its further extension in the supply of all articles not requiring special manufacture and scrutiny. I believe much benefit would be derived financially by the purchase of all malt liquor locally; the article would be superior to that received from home, for it would undergo local examination; the price, were duty taken off, would be less, while the loss from condemnation would, it is considered, be much reduced. Last year, the loss in this presidency from wastage and condemnation was over 10 per cent.

The foregoing are in connection with the papers forwarded with your letter under acknowledgment.

The following are suggestions which may be considered worthy of investigation in the interests of army economy:—

This is an office which Madras alone possesses, and the Local Government has on repeated occasions been advised of its being unnecessary, it being quite feasible to transfer the duties, as in the sister-presidencies, to the Military Account Department.

Office of superintendent of family payments and pensions.

The present system of making pension payments monthly through the medium of civil treasury officers, station staff officers, or in a few stations of military officers specially appointed for the purpose, is quite as expensive, and not nearly so efficient, as that obtaining in Bengal, where payments are made twice a year by officers of the Military Account Department.

Introduction of the Bengal system would entail an advance of six months' pension to commence with, and of rice-money calculated on the average of the previous six months. Rice-money to pensioners is, I would observe, peculiar to Madras, and is not authorized in the other presidencies.

Existing regulations admit of the payment of rice-money to any holder of a family certificate of a soldier on field or foreign service. This involves a large expenditure, which, considering that the sepoy receives batta, and on foreign service free

Rice-money to holders of family certificates.

rations in addition, the State, in my opinion, is not called upon to meet. The attention of the Local Government was invited to this, as an item in which reduction might prospectively be effected, in a letter which I addressed it in July last; and it is for consideration whether the concession might not also be withdrawn in the case of pensioners, but not to affect men already enlisted.

A change of station in Madras is productive of considerable expense, not only in regard to hutting-money, purchase and re-sale of lines, &c., but more particularly in the payment of what is called difference of cart-hire, *i.e.*, one cart is allowed to every two sepoy for their families, and the Government pays all the hire in excess of the market-rate obtaining when the rule was made in 1851. When regiments proceed by rail, the families are carried at Government expense, and cart-money is withheld. Should such a concession be continued, the budget provision to meet which is Rs. 11,000?

The attention of the Local Government was also called in July last to the heavy expense entailed in the annual move of army head-quarters to Ootacamund, which, exclusive of the amount payable out of the tour expenses of His Excellency the Commander-in-Chief, has now risen to about Rs. 14,000 per annum.

The financial review recently submitted to Government for the last year shows that horses drafted into the service cost no less than Rs. 840, their price on landing having been but Rs. 520. It is for consideration whether so expensive a training depôt is longer necessary, horses as a rule being now imported partly trained. The Bombay system is, it is believed, far less costly.

Dated Camp Cherially, 28th August 1879.

From—LIEUT.-COL. T. ROWLAND, Commanding 1-5th Fusiliers,
To—The Secretary, Army Organization Commission.

In forwarding my replies to the queries contained in your No. 114, Simla, 9th August 1879, I have only one suggestion to offer, *i.e.*, that were tents of a much lighter description, say "sepoy's pals," than the present E. P. tents, substituted for them for all ordinary marching purposes, *i.e.*, reliefs of regiments in the cool season, there would be a *very large* saving of carriage. The E. P. tents might be kept at stations in case of any sudden requirement in the hot weather.

Rough Memorandum explanatory of the Army Corps System of Commands for India, by MAJOR P. FITZG. GALLWEY, R. A.

Division of the country into five army-corps commands: why five?

1. The whole of India to be divided into five army-corps commands. This number suggests itself as being probably the minimum consistent with the strength of each corps, extent of territory to be supervised, and the proper exercise of the command.

These commands to include *all troops* quartered within their boundaries; *none* to be under Civil Governments directly.

Staff of army-corps.—Each to be commanded by a general or lieutenant-general, with a staff as under. The whole under one commander-in-chief with the Government of India.

Army-Corps Staff.

- 1 lieutenant-general (for 5th corps a lesser rate of pay).
- 2 aides-de-camp.
- 1 assistant military secretary (except for 5th corps).
- 1 deputy adjutant and deputy quarter-master-general.
- 1 assistant adjutant and assistant quarter-master-general.
- 1 deputy assistant adjutant and deputy assistant quarter-master-general.
- 1 brigadier-general commanding royal artillery (except in 5th corps, where a colonel will suffice).
- 1 brigade-major, royal artillery.
- 1 deputy commissary-general.
- 1 deputy judge-advocate.
- 1 deputy surgeon-general.

12

2. *Boundaries.*—The boundaries not to be arbitrary, but those of existing Civil Governments or provinces.

1st Army-corps; head-quarters Lahore—the Panjab, excluding the city and civil district of Delhi: it is important to have this near to a military district head-quarters.

2nd Army-corps; head-quarters Allahabad—the North-Western Provinces, Delhi district, Gwalior State as represented by present military district (for political reasons), and Bandelkhand.

3rd Army-corps; head-quarters Bombay—the present Bombay Presidency, together with Rajputana and Central India (not included in 2nd corps), also new Pishin frontier: the latter because troops acting on the lines Quetta-Kuram-Khaibar can have no *tactical* connection. Strategically, it does not matter their belonging to two corps, besides it is not fair for one corps to absorb all chances of service.

4th Army-corps; head-quarters Madras—the Madras presidency and central provinces (entire).

5th Army-corps; head-quarters Calcutta—Bengal proper, Assam, and British Burmah: the latter belongs geographically and politically much more to Bengal than to Madras; it is nearer to Calcutta.

3. *Strength of corps.*—To have in every corps exact uniformity in all arms is impossible in a country like India; but, adhering as far as practicable to present distribution (except as regards royal artillery), the first four corps will have an equal strength in infantry, which is the guiding arm as regards numbers; the 5th corps, being in an exceptional territory, is likewise so in strength, being about two-thirds of the others in infantry.

The strength of each corps is as follows:—

1ST ARMY-CORPS; HEAD-QUARTERS, LAHORE.

Troops.
 36 battalions (12 British).
 13 cavalry regiments (3 British).
 24 batteries (5 Natives).

Divided into six district commands, viz. :—
 1, Peshawar; 2, Kohat; 3, Rawal Pindi; 4, Multan; 5, Lahore; 6, Sirhind—with an average of 6 battalions and 3 cavalry regiments each: *vide* remarks below.

The artillery are distributed as under:—

		<i>Staff.</i>
1. Peshawar district, 3 batteries ...	1 field battery, Peshawar ...	} 1 lieutenant-colonel, Peshawar.
	1 mountain battery, Landi Kotal ...	
	1 mountain battery, Charat ...	
2. Kohat district, 3 batteries ...	1 field battery, Paiwar ...	} 1 lieutenant-colonel, Paiwar.
	1 mountain battery, Paiwar ...	
	1 mountain battery, Bannu ...	
3. Rawal Pindi district, 6 batteries ...	2 horse batteries, Rawal Pindi ...	} 1 colonel; 2 lieutenant-colonels, Pindi and Campbellpore.
	2 field batteries, Campbellpore ...	
	1 mountain battery, Abbottabad ...	
	1 garrison battery, Attock ...	
	1 heavy battery, Multan ...	
4. Multan district, 3 batteries ...	1 mountain battery, Dera Ismail Khan ...	} 1 lieutenant-colonel, Multan.
	1 garrison battery, Dera Ghazi Khan ...	
	2 horse batteries, Sialkot ...	
5. Lahore district, 6 batteries ...	2 field batteries, Mian Mir ...	} 1 colonel; 2 lieutenant-colonels, Sialkot and Mian Mir.
	1 garrison battery, Lahore ...	
	1 garrison battery, Amritsar ...	
6. Sirhind district, 3 batteries ...	1 horse battery, Amballa ...	} 1 lieutenant-colonel, Amballa.
	1 field battery, Amballa ...	
	1 garrison battery, Ferozpur ...	

Total 2 colonels and 8 lieutenant-colonels, as against 3 colonels and 6 lieutenant-colonels as at present.

According to the above distribution, every lieutenant-colonel has a real command and the colonels have six batteries in their districts. Batteries of the same kind are as much as possible together, and all where they are most likely to be required, or at hand for mobilization.

Distribution and strength of 1st army-corps.—I think six districts of nearly equal strength are preferable to divisions and districts, which are of various sizes and convey no real meaning. Brigadiers and major-generals might command without difference of pay, which should, I think, be in excess of that of second class brigadiers, and considerably less than that of present divisional commands; major-generals on less pay than at present might be given the new Rawal Pindi and Lahore districts.

My principal object, however, in having six nearly equal district commands corresponding to the six brigades of an army-corps when embodied, is to facilitate mobilization. I think the infantry is fairly distributed, and of course includes (as in the other arms) *all* troops in the province. The Peshawar district I have limited to the Peshawar valley and Eusufzai. Hazara goes to the Rawal Pindi district; Kohat, Bannu, and Kuram are now sufficiently large to form a district. Sialkot I have transferred to Lahore; it can in no sense be said to belong to Rawal Pindi. I have kept all horse and field artillery (except one field battery at Peshawar and one at Paiwar) this side of the Indus, for obvious reasons. I do not see, with a battery at Abbottabad, what one is required for at Khaira Galli. I have placed it at Charat, handy for the troublesome part of the frontier: it would of course change in relief. The heavy battery is totally unnecessary in peace time at Peshawar, and it is hard making that unhealthy climate a permanent residence for the unfortunate Native establishment. At Multan it is on the rail, handy for either the Bolan or Khaibar. Multan is moreover, in my opinion, a bad place for a field battery. A *field* battery is *not* required at Ferozpur; and this station, being south of the Sutlej and in Sirhind proper, I have transferred it to the Sirhind district.

As it is very desirable to have horse artillery batteries at stations where they can not only be brigaded themselves but can also drill with a cavalry brigade (at present they are dotted all over the country and associated with batteries of another class), I have placed two at Rawal Pindi, where there is a cavalry brigade, or should be. I have also placed two at Sialkot. This is a very good place for cavalry and artillery: why, then, spoil it by having a nondescript force there at present? I think the British infantry regiment should be at Dalhousie, where very little extra accommodation would hold it. At present it is split up between two *different* divisions, part being at Amritsar. This is against all principles. By doing as I suggest, and having an *infantry brigade* at Mian Mir, the two field batteries there could drill with it and also be brigaded together. By my arrangement of the infantry, there are six British battalions always in the hills out of twelve (including one at Landi Kotal and one at Paiwar). This is very desirable.

Taking this army-corps on the whole, and making all allowances for requirements, I think we could reduce it by two batteries (one royal artillery mountain battery to be transferred to Darjiling; one garrison battery to be reduced, half at Lahore and half at Amritsar being ample for requirements), and possibly two or three cavalry regiments; but I am leaving things in the present state pretty

nearly, as far as the Bengal army is concerned. No doubt, some reduction of the Native infantry is possible; but as there is a large decrease in Madras (*vide* 4th corps) and some in Bombay (*vide* 3rd corps), none may be necessary in Bengal.

2ND ARMY-CORPS; HEAD-QUARTERS ALLAHABAD.

<p><i>Troops.</i> 36 battalions (12 British). 12 cavalry regiments (3 British). 23 batteries.</p>	<p><i>Divided into six district commands, viz. :—</i> 1, Meerut; 2, Agra; 3, Gwalior; 4, Rohilkhand; 5, Oudh; 6, Allahabad—each containing 6 battalions and an average of 2 cavalry regiments: <i>vide</i> remarks below.</p>
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The artillery are distributed as under on the same principles as before stated:—

	<i>Staff.</i>
1. Meerut district, 4 batteries ...	{ 3 horse batteries, Meerut ... } 1 lieutenant-colonel, Meerut. { 1 garrison battery, Delhi ... } { 2 field batteries ... }
2. Agra district, 5 batteries ...	{ 1 garrison battery, Agra ... } 1 colonel; 2 lieutenant-colonels, { 2 field batteries, Cawnpore ... } Agra and Cawnpore. { 2 field batteries ... }
3. Gwalior district, 4 batteries ...	{ 1 heavy battery, Morar ... } 1 lieutenant-colonel, Morar. { 1 garrison battery, Fort Gwalior ... }
4. Rohilkhand district, 2 batteries	{ 2 field batteries, Bareilly ... } 1 lieutenant-colonel, Bareilly.
5. Oudh district, 5 batteries ...	{ 2 horse batteries, Lucknow ... } 1 colonel; 2 lieutenant-colonels, { 1 garrison battery, Lucknow ... } Lucknow and Fyzabad. { 2 field batteries, Fyzabad ... }
6. Allahabad district, 3 batteries	{ 2 field batteries ... } 1 lieutenant-colonel, Allahabad. { 1 garrison battery, Allahabad ... }

Total 2 colonels and 8 lieutenant-colonels, against 3 colonels and 6 lieutenant-colonels as at present.

Remarks on 2nd army-corps.—This corps, occupying, as it does, a position in the heart of the most important part of India, must be strong: it is also, for the same reason, liable to be called upon for troops to replace or reinforce those of surrounding corps. The principal changes I have made in order to secure pretty nearly equal commands are—Agra, transferred to a district of its own, which includes Cawnpore: this latter station will soon be *doubly* connected by rail with the Agra civil district; a line is being made through Fatehgarh to Hattaras. Gwalior gives up Lalitpur, which is in the North-Western Provinces and not in Gwalior territory. The Allahabad district loses Cawnpore and takes in Bandelkhand. Meerut, being principally a cavalry station, can afford half a battalion to Delhi, instead of Roorkee; it is much nearer and on the rail. Sitapur does not require artillery or infantry, it is close to Lucknow and Shahjahanpur: a cavalry regiment there can join the brigade at Lucknow in the cold weather. Adhering to the principle of never breaking up a regiment between two different commands, I have put the British infantry at Benares to supply Nowgong and Chunar. As regards royal artillery, the horse artillery are collected at the chief cavalry stations,—Meerut and Lucknow. The batteries at Gwalior* are all

* *i.e.*, Morar.

field. The two field batteries hitherto at Meerut are distributed to Agra and Cawnpore, so as to have two at each station. Extra barrack accommodation may be required at Agra. I think there is enough at Cawnpore in the huge infantry barracks. Horse lines could be quickly made. Similarly, the field battery at Sitapur goes to Bareilly: I doubt if barracks there are not quite large enough for two batteries. The field batteries at Lucknow and Benares respectively go to Fyzabad and Allahabad. There is plenty of room at the latter station—possibly also at Fyzabad. Nowgong I have abolished as an artillery station: a battery is utterly thrown away there. Benares is a Hindu city, and not disaffected; besides it is important to get batteries together.

As regards reductions, I do not make any. I think half a garrison battery at Allahabad and Lucknow would be ample, and possibly a few Native regiments might be dispensed with. But, then, we have to remember the calls that may come on this corps for troops—say in the event of two army-corps being sent out of the country, or to replace others, even if but one corps was sent on service.

3RD ARMY-CORPS; HEAD-QUARTERS BOMBAY.

<p><i>Troops.</i> 36 battalions (9 British). 10 cavalry (1 British). 22 batteries.</p>	<p><i>Divided into six district commands, viz. :—</i> 1, Sind and Frontier (to include Pishin); 2, Rajputana; 3, Northern; 4, Central India; 5, Central; 6, Southern—<i>vide</i> remarks below; average of 6 battalions to each district. Aden is a separate brigade, but in the corps command.</p>
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The artillery are distributed as under on similar principles to those of the other corps, *viz.* :—

	<i>Staff.</i>
1. Sindh and frontier district, 4 batteries.	{ 1 field battery, Pishin ... } 1 lieutenant-colonel, Pishin or { 1 mountain battery, Pishin ... } Quetta. { 1 garrison battery, Quetta ... } { 1 field battery, Karachi ... }
2. Rajputana district, 2 batteries	{ 2 field batteries, Nasirabad ... } 1 lieutenant-colonel. { Ahmadabad and Baroda,* 1 field battery ... }
3. Northern district, 3 batteries	{ Disa, 1 field battery* ... } 1 lieutenant-colonel. { Rajkot, 1 mountain battery ... }

* When the rail is finished to Disa, both batteries should be at one station.

The artillery are distributed as under on the same principles as before:—

		<i>Staff.</i>
1. Central Provinces district ...	{ Kampti 2 field batteries Sagar, 1 field battery	... } 1 lieutenant-colonel.
2. Haidarabad Subsidiary Force	Secunderabad { 2 horse batteries 2 field batteries	... } 1 colonel; * 2 lieutenant-colonels.
3. Haidarabad Contingent ...	3 field batteries.†	
4. Northern district	{ Madras, 1 garrison battery St. Thomas' Mount, 2 field batteries	... } 1 lieutenant-colonel.
5. Mysore district	{ Bangalore, 2 field batteries Bellary, 1 heavy battery	... } 1 lieutenant-colonel.
6. Southern district	Nil.	
		Total of staff, 1 colonel and 5 lieutenant-colonels, against 3 colonels and 6 lieutenant-colonels as at present.

Remarks on 4th army-corps.—The new districts of this corps are formed as follows. No. 1 embraces the entire central provinces; No. 2 the present Haidarabad Subsidiary Force, which includes the city and suburbs of the Nizam's capital; No. 3, the Nizam's territory, including the Berars; No. 4, the new Northern includes the old Northern (limited by presidency boundaries) and nearly all the present Central district; No. 5 includes the present Mysore division, Ceded district, and South Kanara; No. 6, the new Southern includes present Southern and Malabar. The above gives an equal division of the infantry. The cavalry are only required in three districts. The British cavalry regiment at Bangalore I have supposed reduced, because if one regiment be enough for Bombay, surely it is for Madras. The truth is it is not required especially at Bangalore. The artillery are only required in five districts out of the six. The battery at Trichinopoly is thrown away. If ever guns were required in the Southern district, they could reach in a few hours from St. Thomas' Mount. Here are two field batteries. I cannot see the use of a garrison battery there, so have removed it. There are no duties for it to perform. One remains at Fort St. George, which is ample for all requirements. The horse artillery battery at Bangalore I have moved to Secunderabad, where there is another, and where the cavalry force is strong. I have placed two field batteries at Bangalore (one available from Trichinopoly). The heavy battery I have placed at Bellary: it is in a central position and can reach any place required in a short time. The field battery now there is available for Sagar, where one on the Bengal establishment is now stationed. At Secunderabad I have placed two horse and two field batteries. The cavalry would be one British and two regular Madras cavalry, one being taken from Bellary, where it is not required. I have the same infantry force there as at present, viz., two British and two Native infantry. The total therefore is four batteries, three cavalry, and four infantry. Now, I consider that in a Native State like Haidarabad the contingent should not be stronger than the subsidiary force. At present it comprises four batteries, four cavalry, and six infantry regiments. I would therefore propose the reduction of this force by one battery and one cavalry regiment.

The Mysore division at present is absurdly small as regards troops. I have therefore included in the new Mysore district the present ceded district (i.e., Bellary) and the small province of South Kanara, containing only one regiment at Mangalore, to which there is a road from Mysore. This new district will have—

3 Batteries	... { viz., 2 Batteries	... } Bangalore.
6 Infantry	... { 1 British infantry	... } Bangalore.
	... { 2 Native infantry	... } Bangalore.
	... { 1 Battery	... } Bellary.
	... { 1 British infantry	... } Bellary.
	... { 1 Native infantry	... } Bellary.
	... { 1 Regiment ...	... } Mangalore, Merkara.

French Regts can have detachments if required.

The new Southern district contains a very quiet, unwarlike population, except on the west coast in Malabar. Here I have a whole British regiment. The other stations have Native infantry.

The new northern district includes Madras, St. Thomas' Mount, and Vellore. The present northern district is absurd; the proposed one will have three batteries and six battalions. Cuttack and Sambalpur go to the 5th corps (Bengal and Burma).

The Central Provinces district is a complete civil province, and includes Sagar, Jabalpur, and Asirgarh. As the first of these stations is off the rail and at some distance from any other artillery station, I have a field battery there, two being at Kamptee, as already stated. I cannot see how Madras requires any more troops than I have given.

The present (normal) strength in the presidency is as under, including all troops but excluding Burma, which has to be considered separately:—

British cavalry	... .. 2
British infantry	... .. 8 (including 1 at Sagar and Jabalpur).
Batteries	... .. 19 (including 4 Native of the Haidarabad contingent).
Regular Native cavalry	... .. 4
Regular infantry	... .. 35 (excluding 6 regiments in Burma and Cuttack).
Haidarabad Contingent	{ cavalry ... 4
	{ infantry ... 6

and the numbers required by my showing are—

36 Battalions (8 British).
8 Cavalry (1 British).
16 Batteries (3 Native).

* This officer to have the inspection of the Native batteries of the Haidarabad Contingent.

† N.B.—One reduced for reasons hereafter assigned.

	Infantry.	Cavalry.	Artillery.
2nd army-corps, North-Western Provinces and Bandelkhand. } 12 British 24 Native	...	3 British 9 Native	5 Horse. 12 Field. 1 Heavy. 5 Garrison.
Total ...	36	12	23
3rd army-corps, Bombay Presidency and new Frontier of Sind. } 9 British 27 Native	...	1 British 9 Native	2 Horse. 10 Field. 1 Heavy. 2* Mountain. 7 Garrison.
Total ...	36	10	22
4th army-corps, Madras Presidency and Central Provinces. } 8 British 28 Native	...	1 British 7 Native	2 Horse. 12† Field. 1 Heavy. 1 Garrison.
Total ...	36	8	16
5th army-corps, Bengal Proper and British Burma. } 5 British 19 Native	...	Nil	3 Field. 2 Mountain. 3 Garrison.
Total ...	24		8
Grand Total ...	46 British 122 Native	8 British 40 Native	14 Horse. B. 41 } Field. N. 3 } 4 Heavy. B. 4 } Mountain. N. 6 } B. 20 } Garrison. N. 1 }
	168	48	93

About 138,000 at average strength.

or 414 field and mountain guns, &c.

The total of troops of all arms now in India, including those corps not under the military authorities, are—

	Infantry.	Cavalry.	Artillery.
British ...	50†	9	15 Horse. 43 } Field. 4 } 4 Heavy.
Native ...	144	50	6 } Mountain. B. 4 } N. 23 } Garrison. B. 1 }
	194	59	100

Comparing this with the foregoing statement, the numbers that can be reduced in each arm are—

	Infantry.	Cavalry.	Artillery.
British ...	4	1	1 Horse. 2 } Field. N. 1 }
Native ...	22	10	3 Garrison.
	26	11	7

The reductions which can be made are shown in each corps; but I shall not touch on the particular troops amongst the Native cavalry and infantry which should be disbanded, further than to say that I think regular regiments should be spared as much as possible, *i.e.*, those now under the military authorities. The following, would of course, however, not be touched, *viz.*, the Panjab Frontier Force, the Central India Horse, the Bhopal Battalion, and the Mhairwara Battalion (being all too good to lose). As regards the artillery, one horse artillery battery will be reduced this year, also

* Both Native.

† 3 Native of Haidarabad Contingent.

‡ This is, I believe, the normal number, but it is not quite reliable.

one field. As regards artillery commands, the number of colonels and lieutenant-colonels to hold actual commands are—

Colonels (to have rank as brigadiers) for first four army-corps ...	4
Colonel for the 5th corps ...	1
Colonels for district commands ...	6
Colonel as inspector-general of artillery ...	1
	—
	12
	—
Lieutenant-colonels for districts and stations where two or more battalions are located ...	61
Lieutenant-colonel as deputy adjutant-general, royal artillery in India ...	1
	—
	32
	—
or if the deputy adjutant-general is a full colonel—	
Colonels ...	13
Lieutenant-colonels ...	31
	—
	44
	—
	46

* as against as at present I believe ... 46

Localization of troops in army-corps.—Having thus roughly shown how the troops of all arms could be distributed in my opinion with efficiency, it seems to me necessary to have some system of permanent "localization" which will enable Native regiments to have depôts for recruiting, when a portion of the corps is absent on service. The only plan I can see which will produce the results required and give no trouble when "mobilization" takes place is to have double-battalion regiments of infantry and to associate the cavalry in groups of two regiments; also to keep the double-battalion regiments permanently in their own corps command, such as now holds in Bombay and Madras. I cannot see any objection to this arrangement, more especially if we have "class regiments" and not "class companies." I venture to submit that the present system tends more to amalgamate differences amongst the Natives than if we had regiments of the same caste or similar castes; and it would not be difficult, I should imagine, to rearrange them so as to have corps composed of the following groups of castes, *vis.*—

1. Goorkhas.
2. Sikhs.
3. Sikhs and Dogras.
4. Punjabi Mussulmans.
5. Trans-Indus Mussulmans.
6. Brahmins and Rajputs.
7. Purbiahs of various Hindu castes.
8. Hindustani Mussulmans.

By having the regiments* belonging permanently to army-corps, reliefs would only take place within the boundaries of the corps, which would, I think, lessen expense. This would keep the army in separate localities and prevent any feeling of amalgamation between the ~~regiments~~ perhaps is an object.

I will briefly sketch what in a rough way I should propose for the ~~regiments~~ ~~perhaps is an object~~. Taking, then, the present local regiments of the Frontier Force and the 1st and 2nd ~~regiments~~ are permanently located, I would select the following Punjabi regiments for the permanent (remaining) force required, *vis.*, 14th, 15th, 21st, 22nd, 23rd, 24th, 25th, 27th, 32nd, and 45th Native Infantry, as being mostly Punjabis. The remaining Punjab regiments would be required in the 2nd corps as a mixture against the Hindustani regiments and because there is no need for them in the 1st corps.

I would arrange the above in double battalions as under, with one battalion to be ~~permanently~~ stationed at the depôt named, and the other anywhere in the army-corps territory. Both battalions would of course take their turn of the depôt, but both should never be there together.

<i>New Nos. of Regiments.</i>	<i>Old Nos.</i>	<i>Depôt stations.</i>
1st Goorkhas ...	1st and 4th Goorkhas ...	As at present.
2nd Guides† ...	5th Goorkhas and "Guides" ...	As at present.
3rd Sikhs ...	14th and 15th Sikhs ...	Ferozpur.
4th " ...	27th and 45th Native Infantry ...	Amballa.
5th Punjab Infantry ...	21st and 22nd Native Infantry ...	Rawal Pindi.
6th " ...	23rd and 32nd Pioneers ...	Mian Mir.
7th " ...	24th and 25th Native Infantry ...	Jhelam.
8th Sikhs ...	1st and 2nd Sikhs, Punjab Frontier Force.	Kohat.
9th " ...	3rd and 4th Sikhs, Punjab Frontier Force.	Multan.
10th Punjab Infantry ...	1st and 2nd Punjab Infantry, Punjab Frontier Force.	Bannu.
11th " ...	3rd and 4th Punjab Infantry, Punjab Frontier Force.	Dera Ismail Khan.
12th " ...	5th and 6th Punjab Infantry, Punjab Frontier Force.	Dera Ghazi Khan.

* Native only of course: British regiments and batteries must be as at present.

† In rearranging to have "class regiments," a new regiment of Goorkhas could be formed from those now in various regiments. This could be a 6th battalion, and form with the 5th the 2nd Goorkha Regiment, 1st army-corps; the Guides forming another battalion with any one of the above-named regiments; one regiment being reduced.

I have selected the above stations partly on account of the nationality of the regiments at each, and partly to their being convenient places for garrison troops to be left behind when the field troops went on service; and although the Sikh regiments are not all in Sikh districts, they could always send recruiting parties, as at present, into the districts from which men might be obtained. I think it would be a great object for regiments to feel that they have a permanent *dépôt*, and to know beforehand where that *dépôt* would be in case of war.

Now the above system being supposed in existence, I will imagine the order come for mobilizing a whole army-corps (the same principles would apply to a division or brigade) in the Punjab.

Mobilization of corps.—To do this we must first have some idea of what a corps, division or brigade is to be; and I think we should as nearly as possible follow the English model, which is based on that of all modern civilized armies, and consists of—

corps	...	...	3 divisions of infantry. 1 brigade of cavalry. 90 guns, engineers, train, &c. 2 brigades of 3 battalions.
infantry division...	...	...	1 cavalry regiment 1 infantry battalion* } for divisional duties.
cavalry brigade ...	...	...	3 batteries of artillery; 1 company engineers. 3 regiments, to which is attached 1 battery of horse artillery.
artillery	...	...	3 field batteries to each infantry division. 3 horse and two field with corps artillery.
engineers	...	...	1 horse with cavalry brigade, a company with each division and some as corps engineers also.

To adapt this to India, we can select nearly the same number* and distribution of infantry and cavalry regiments†; but as we should never have battalions stronger than 750 each all round, or cavalry with more than 450, the corps of eighteen battalions and six cavalry regiments, with engineers, &c., would not muster more than 20,000 combatants. I think, therefore, sixty guns of the nature required, not following the English order, would be sufficient in India; and the size of the corps altogether is quite large enough, considering the enormous length of our trains.

Supposing, then, the above to be the acknowledged and normal strength of a corps for service, every local corps would have to supply on mobilization 21 battalions, six cavalry regiments, sixty guns of sorts, five companies sappers. The divisional battalions in an English corps make the total number more than each of the Indian localized corps could furnish without trenching on the garrison troops. It will therefore be more convenient to have only the infantry of the divisions, *viz.*, six battalions each, or 18 for all. Of the infantry, I would propose that six British and twelve Native battalions and two British and four Native cavalry regiments be the ordinary proportions for the 1st and 2nd corps, which would be one British regiment per brigade.

The above being settled when the order to mobilize the corps for service is given, one battalion of each Native regiment stands fast at each *dépôt* station, and at once completes the other battalion up to war strength, sending out recruiting parties to replenish its own ranks. Each district completes two of its Native battalions (not *dépôt* ones) in this way from their own *dépôts*, and supplies also one British battalion in addition to form a brigade. The 6th district, Sirhind, cannot, however, do this. As it has four British battalions (owing to hill stations) to only two Native, both of which are at *dépôt* stations, and stand fast, therefore it will supply three British battalions, one for its own brigade and two for the 2nd districts, *viz.*, Peshawar and Kohat; these latter finding each three British instead of one British and two Native. Thus the names of all *stations* to supply garrisons can be laid down beforehand and published in a mobilization scheme in the Army List or General Orders, something in the same way as at home, but in a much more methodical and systematic manner.

Pursuing the subject of localization further, and supposing the cavalry regiments also grouped in pairs as under (these, however, need not be re-numbered but continue their old titles, *viz.*) :—

	Number of regiments.		<i>Dépôt</i> station at which one of the two must always be.
(2)	1st and 2nd Punjab cavalry	...	Rajanpur.
(4)	3rd " 4th " "	...	Bannu.
(6)	5th " 18th Bengal " "	...	Dera Ismail Khan.
(8)	10th " 11th " lancers	...	Sialkot.
(10)	13th " 14th " "	...	Amballa.
(12)	12th " 15th " cavalry	...	Multan.
(14)	17th† " 19th " lancers	...	Rawal Pindi.

These, with the Guides Cavalry, make up the 16 Native regiments in the corps.

The stations to supply the cavalry brigade and the divisional cavalry could be arranged in the same way as the infantry, taking care, of course, to let *dépôt* regiments, *i.e.*, those which happen to be at *dépôt* stations, stand fast.

As regards artillery, nothing can be settled, as the nature of the operations must govern the nature of the batteries required; but there could be no difficulty where only some ten batteries would be required out of nineteen horse, field, heavy and mountain in the corps.

Next, as to reinforcing the garrison of the Punjab, the only stations left without British infantry would be Amballa and Multan: at the former would be left one British cavalry, one Native cavalry, one Native infantry; at Multan, one Native cavalry, one Native infantry. The 1st and 2nd districts would have only two Native infantry left in each. Therefore, if the 2nd army-corps mobilized

* For the reasons subsequently stated, the divisional infantry regiments will not be included.

† One company of sappers and miners to each division and two companies for corps engineers would be ample unless under peculiar circumstances.

‡ This regiment might be made into lancers; it is partially so.

one division of infantry, *viz.*, two British and four Native battalions, these would suffice to replenish the weakened stations of any importance in the 1st corps; the 1st and 2nd or 1st and 4th districts of that corps could easily do so, and still leave its garrisons strong enough.

Lastly, as to commands, I would allow each district commander to take his own brigade in the mobilized corps, unless such as would have divisional commands, in which case the senior lieutenant-colonel of the three battalions of the same district would become brigadier, the principle being to have officers in command who know the troops under them. During the absence of district staff fresh ones to be extemporized from the regimental staff remaining in districts, but not of course on the usual pay. The corps staff duties to be performed by the staff of the 2nd corps. As part of its troops (one division of infantry) would be in the territory of the 1st, its head-quarters might be moved temporarily to Umballa to be central.

The above is a rough sketch of an organization, or some such, which I think might be introduced with advantage as affording greater facilities for mobilizing troops than the present one. If every thing was capable of being arranged beforehand, it would add much to efficiency. Without some organized system, this is impossible.

The same method as here shown for mobilizing one corps is of course applicable to all. As regards expense, I think it would be far less than at present. The abolition of presidency commands, and having a nearly uniform district system, with a staff combining both duties of adjutant and quarter-master general's department, will, I am led to believe from rough calculation, produce this result, apart from the reduction in the number of troops as shown herein.

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The 6th September 1879.

