

REVIEW
OF THE
FOREST ADMINISTRATION

IN THE
SEVERAL PROVINCES UNDER THE GOVERNMENT OF INDIA,

FOR THE YEAR

1880-81:

BY
W. SCHLICH, PH. D.,
OFFG. INSPECTOR GENERAL OF FORESTS TO THE GOVERNMENT OF INDIA.

Dated the 1st July 1882.

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A

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INTRODUCTION.

THE present Review deals with the several provinces under the Government of India, including Berar, Biluchistan, and, in the financial chapter, Madras and Bombay. Mysore has now been made over to the Maharajah of that country, and, as no Report on Forest Administration in that State during the year 1880-81 has been received, it has been excluded from the several statements contained in the Review.

2. Localisation of the Superior Staff.—By a Resolution of the Government of India, dated the 1st April 1881, the Superior Forest Staff has been localised, after having been arranged in six lists, in the following manner:—

Name of List.	Conservators.	Deputy Conservators.	Assistant Conservators.	Total.
1. Bengal and Assam	2	5	8	15
2. North-Western Provinces and Oudh ...	3	6	9	18
3. Punjab	1	7	10	18
4. Central Provinces	1	6	6	13
5. British Burma	2	8	7	17
6. Residuary list (including School appointments)	1	5	6	12
Total ...	10	37	46	93

First appointment to the grade of Assistant Conservator rests with the Government of India: promotion from Assistant Conservator, 3rd grade, to Deputy Conservator, 1st grade, with the Local Government; while the appointments to the rank of Conservator of Forests are reserved to the Government of India. It will be seen that the Local Governments are quite

independent, except that the Government of India confirms first appointments to the Department and selects the head of the Department in each Province or Circle.

3. Forest Officers connected with Civil Officers.—The system of connecting Forest Officers closely with the Civil Administration was suggested by Mr. Brandis, the Inspector General of Forests to the Government of India, when submitting proposals for a re-organisation of the Bombay Forest Staff in 1870. The plan then adopted consists of the appointment of a "District Forest Officer" to each district or collectorate, who is in charge of all forest matters in the district, and entirely subordinate to the Collector, through whom he corresponds with the Conservator.

The next step in this direction was taken by the Chief Commissioner of the Central Provinces, who introduced, in 1877, a modified system, according to which the Conservator and his Assistants remain in independent charge of all Reserved Forests, while the District Forest Officers are subordinate to the Deputy Commissioners regarding all Unreserved Forests.

A further modification was introduced by the Government of the North-Western Provinces and Oudh in 1880, by which the District Forest Officer is made subordinate to the Collector, his correspondence being arranged in two classes; that referring to accounts, establishments and a few other subjects is sent direct to the Conservator of Forests, while that on all other subjects is submitted by the District Forest Officer to the Collector, who forwards it to the Conservator.

The same system was introduced into Assam on the 1st January 1882.

In Chittagong several changes took place. Originally the Forest Officer acted directly under the Conservator of Forests, Bengal; then he was made subordinate to the Deputy Commissioner of the Chittagong Hill Tracts, the Commissioner of the Division being at the same time gazetted as Conservator of Forests. Subsequently the original system was re-established, and finally the Forest Officer was again made subordinate to the Deputy Commissioner of the Hill Tracts, the Conservator of Forests, Bengal, remaining Conservator for the Hill Tracts.

In the Hazára and Rawalpindi Districts of the Punjab the Forest Officers have, for many years past, been nominally subordinate to the Civil District Officers.

In Madras a system similar to that adopted in Bombay has been in force for some time, and the matter has been discussed in almost every other Province.

4. Experience has shown the great advantages of the principle, and the time has now arrived when the system of connecting the Forest staff directly with the Civil staff should be generally adopted throughout India. Of the different modifications, that followed in Bombay seems to have worked best, and it is, with certain alterations, about to be introduced into the Madras Presidency. The system, as now perfected, has been described in detail in a Memorandum drawn up by Mr. Brandis, three Collectors, and the Conservator of Forests in Madras, and it may be indicated as follows:—

The District Forest Officer and the staff under him hold charge of all forests, whether reserved or otherwise, in the district, and they are directly subordinate to the Collector. The District Forest Officer receives no orders from any other authority, and he will be in the position of Assistant to the Collector in forest matters, while the Collector will give no orders on such matters, except through him. On matters of ordinary routine the Collector will authorise the District Forest Officer to issue orders without reference to him, making such arrangements as may be necessary for such orders being reported by means of weekly abstracts. Other matters will be referred to the Collector by means of office notes. The District Forest Officer, being the head of a branch of the Collector's office, will not communicate with the Collector by official letters. He will draw up in his own hand a sufficiently full report or diary of all business, and send it to the Collector at the close of each week. The Collector, after recording any remarks or instructions he may think fit, will send it on for the Conservator's information, and that officer will return it

without delay, noting any remarks or suggestions he may have to offer. It will then go back to the District Forest Officer, the Collector, if he disagrees with the Conservator's remarks or suggestions, informing the District Forest Officer, so as to guard against action being taken of which he disapproves. In such cases he will at once inform the Conservator. It will thus be seen that the Collector will have full executive power, while the functions of the Conservator in regard to the current work are mainly those of advice. On the other hand, the control of the departmental finance and organisation will rest with the Conservator.

5. As to finance, there will be an annual budget, which will be sanctioned by Government. This will be made up of district budgets; and in close connection with and, in fact, depending on these budgets, will be the annual plans of operations in each district, which will be framed by the District Forest Officer, and discussed, and probably agreed upon, by the Collector and the Conservator. If they differ as to the budgets and plans of operations, each will have his say, and it will be for Government to decide. This done, the responsibility for the execution will rest with the Collector alone. The existing powers of financial control vested in the Conservator, namely, of making transfers from district to district under "A—Working Charges" and "B—Establishments," and of sanctioning estimates for works, should remain with him; but he should not have power to transfer any allotment from a district without the Collector's assent, or the orders of Government. If during the year the Collector desires to incur expenditure which is not provided in the budget, he will have to address the Conservator, who, if he approves and can find the money, will make it available. The Conservator will be kept informed of what is going on in all districts, and will be able to watch progress; but the responsibility for the due execution of the programme, and for the conduct of all district business, will rest with the Collector, and not with the Conservator. The Collector, however, should not be at liberty to make transfers under "Working Charges" in his district without the Conservator's sanction.

6. As to the staff, the scale of establishments will be sanctioned by the Government, and the appointment, posting, and promotion of the superior officers rest with them. The appointment, posting, and promotion of Forest Rangers and Foresters should vest in the Conservator, and the appointment, posting, and promotion of Forest Guards in the Collector, who will no doubt, in practice, leave these matters to his District Forest Officer. The Collector should have the power to fine and suspend Forest subordinates, and to dismiss Forest Guards. The dismissal of Rangers and Foresters will rest with the Conservator, who appoints them, but he will naturally be guided in his action by the Collectors, who are responsible for the local working and protection of the forests. It is of supreme importance that all Forest Officers, those of the subordinate as well as of the superior staff, shall possess the requisite qualifications and training, and these would not in all cases be secured, nor could the flow of promotion necessary to efficiency in the department be maintained, under a system of local selection by Collectors. In regard to Forest Rangers and Foresters, therefore, Collectors must accept the Conservator's decisions, though no doubt that officer will, as far as he can, consult the convenience and wishes of the Collectors in the disposal of the staff.

7. Professional matters will eventually be mainly regulated by working plans prepared for each forest. Whenever circumstances are sufficiently advanced to justify the preparation of such working plans for any forest, the data will generally be collected, and the proposals framed, by a specially qualified Forest Officer, working in conjunction with the District Forest Officer and under the control of the Conservator. When completed, such working plans should be concurred in by the Collector, and if intended to regulate operations during a long series of years, they should be submitted to higher authority for sanction. No deviation from the provisions laid down in such working plans should be permitted without the Conservator's concurrence, and none should be made unless necessitated by unforeseen events.

8. But it will be a long time before the preparation of working plans for all forests can be undertaken on a large scale, and the present organisation must, therefore, be framed for the existing state of things. As already explained,

the work in each district will be regulated by annual plans of operations prepared in close connection with the budgets. Whenever working plans have been framed, these annual plans of operations must be based upon the provisions of the working plans. Where no working plans exist, and until such plans have been made, the annual plan of operations must be based on the general principles of forest conservancy. These annual plans will prescribe what work is to be done in the demarcation of boundaries, road-making and other communications, fire-protection, closing forests against grazing, cultural operations, and thinning and cutting; and they will generally indicate all work that should be done during the year in each forest range of the district. The District Forest Officer will, under the Conservator's advice, frame the plan of operations, which, as already explained, must receive the Collector's approval. The responsibility for carrying out the plan of operations will rest entirely with the Collector, but for such deviations as may be necessitated by unforeseen events the Conservator's consent must first be obtained.

9. In this manner the Conservator will exercise the needful control in professional matters, and maintain that continuity of action which is necessary. But in the present state of forest administration, it must not be expected that the annual plans of operations will be sufficient. There will be many instances in which the Conservator will find it necessary to communicate with the Collector regarding matters of a professional nature, which are not provided for in the annual plans. Hence, it is indispensable that the Conservator should be kept fully informed of all that is going on, and this will enable him at any time to communicate his opinion to the Collector; and, if the matter seems of sufficient importance, to address Government. Eventually each Collector will have at hand a professional officer of high qualifications: this will tend to diminish references by and to the Conservator, and there will then be little danger of action in a wrong direction being taken, or of the Conservator being unable to make his professional influence felt.

10. The introduction of the system here sketched must be of the utmost importance for the progress of forest conservancy in India. The Forest Department having thus become an integral part of the general administration, all jealousy about lands and revenue disappears, and, the Collector being directly interested in the administration of the forest lands, a thorough safeguard is established that the Forest Law is applied in a judicious manner, and that the requirements of the people of the district are duly considered.

11. **Organisation.**—Closely connected with the subject noted above is the organisation of the Department and of the staff. The difficulty at present in the way of a systematic organisation is the unequal distribution of the forest area. Some districts are rich and others poor in forest. For the former a separate District Forest Officer should always be appointed, and he should be put under the orders of the Collector or Deputy Commissioner, as the case may be, but it is not always easy to arrange for districts with a limited forest area. In some cases several districts may be joined into one Forest Division, the Forest Officer being either put directly under the orders of the Commissioner of the Division, or under the orders of the Collectors as regards the forests in their respective districts. The latter arrangement is of course awkward, as it necessitates the placing of the Forest Officer under several masters, and it should be avoided, whenever this can be done. In such cases it will, as a rule, be better to put the Forest Officer directly under the Commissioner's orders.

12. An important point is the formation of suitable "Ranges" or executive charges. When this has been done, we shall have the following organisation:—

- (1) **Circle.**—Comprising a province or part of it, presided over by the Conservator of Forests;
- (2) **Division.**—Ordinarily comprising a district, presided over by the District Forest Officer, who should be a Deputy Conservator of Forests; and
- (3) **Range.**—Comprising part of a district, presided over by a Ranger, Sub-Assistant Conservator, or Assistant Conservator, according to circumstances.

The superior staff will, in future, be chiefly recruited by trained men sent out from home, who enter as Assistant Conservators of the 3rd grade, and who will take charge of Ranges, until they have qualified for the charge of a Division, and until suitable vacancies arise. The Rangers and Sub-Assistants are men appointed in this country, and they will all be Natives of India. The men selected for this branch of the service will ordinarily enter as Foresters, and after they have done one year's satisfactory service, they will be sent to the Dehra Dún Forest School. Here they remain for not less than 16 months, and, if necessary, for 28 months. On obtaining the Ranger's certificate they return to their Province to be appointed as Rangers as vacancies occur.

Rangers who distinguish themselves specially may subsequently be advanced to the rank of Sub-Assistant Conservator, and even to Assistant Conservator in exceptional cases. It is evident, without further explanation, that the success of Forest Administration in the future depends greatly on the formation of a competent staff of Rangers, or executive officers.

13. **Dehra Dun Forest School.**—For the purpose of training an efficient staff of executive officers, the Forest School at Dehra Dún has been established. It has repeatedly been referred to in previous Reviews, and it will suffice to mention that, though started in 1878, it has been permitted to grow slowly, the instruction for the first two years having been practical only. In the summer of 1881, however, the first course of theoretical instruction was held. About 30 students, arranged in two classes, attended the lectures on Forestry, Botany, Forest Law, Natural Sciences, Mathematics and Surveying. The result has been satisfactory, though much remains to be done. The school buildings have now been arranged in a suitable manner, the collections are steadily being extended, a forest garden and experimental blocks have been taken in hand, and the preparation of short hand-books to assist the students in their work is fairly advanced; but, of course the completion of all this work takes time, and it must not be expected that matters can be placed on a thoroughly satisfactory footing all at once.

The Working-Plan Branch has been connected with the Forest School, and thus the means of teaching in that branch have been augmented.

14. As the result of the experience gained during the first course of theoretical instruction, it has been decided to raise the educational requirements of the students, and to admit only men who have passed the entrance examination of an Indian University on the English side, it having been found that the students require that minimum of education to enable them to follow the lectures.

The second course of theoretical instruction commences on the 1st July 1882, and it is expected to extend over a term of 4 months. The Foresters join the School on the 1st July, and they will thus attend two terms of theoretical instruction of 4 months each, and one term of practical instruction during the intervening 8 months. Those who do not earn the Forest Ranger's certificate at the end of the 16 months may be retained at the School for an additional term of 12 months, or remanded to their province as unfit for the executive branch of the service.

15. **Fodder and Fuel Reserves.**—The establishment of combined fodder and fuel reserves was referred to in last year's Review, and a good stride in advance has been made during the last twelve months.

In addition to the Ajmere and Merwara Reserves mentioned in last year's Review, a fodder and fuel reserve has been established near Amraoti. In the North-Western Provinces a scheme is under discussion for taking up 100 square miles of usár (saline) land, with the view of transforming the several blocks into grass and fuel reserves. Experiments in this direction were commenced some two years ago by the Agricultural Department of the Province, but it is now proposed that the Forest Department shall take over the work.

The Government of Madras, it is believed, has this subject now under consideration, and salutary measures are likely to be adopted shortly.

The Punjab possesses some 15,000 square miles of so-called rákh lands scattered over the various districts. Only a small portion of this area has as yet been definitely set aside for the supply of fodder and fuel, but it is hoped that this work will be rapidly advanced now, by deciding what areas are to be maintained permanently for fodder and fuel, and what parts shall be thrown open for the extension of cultivation. The system of District Forest Officers will in the Punjab, more than anywhere else, facilitate the solution of the questions involved, and the sooner it is introduced into that Province the better.

16. Generally speaking, the establishment of fodder and fuel reserves is of the utmost importance in the dry districts of North-Western, Central, and Southern India, and the subject cannot be pressed too strongly upon the attention of Local Governments, whose duty it is to prevent or reduce the mortality of cattle during years of famine, apart from the fact that the increase in the supply of fuel must ultimately restore manure to its legitimate use, instead of its being burned, as at present, over large stretches of country.

17. **Government Agency vs. Private Enterprise.**—Connected with the organisation of the future is the question whether the forests shall be worked by Government agency, or by private enterprise. When forest conservancy was first commenced, working by Government agency had to be resorted to, because it was essential to change the wasteful system in force for one based on economic principles; but now that conservancy has succeeded in getting the greater portion of the forest areas fairly in hand, the question has been raised whether the working could not gradually be made over again to private parties. The experience gained in Burma is certainly not encouraging, but there, it appears, adverse agencies were at work, which can easily be rendered harmless in the future. In the Central Circle of the North-Western Provinces, a system of cutting sleepers by private agency has been introduced, which, it is believed, has worked satisfactorily. A contractor undertook to cut about a lakh of sleepers out of certain timber set aside for the purpose, under the simple arrangement that Government shall receive one rupee royalty per sleeper when they are sold, while the whole of the financial risk remains with the contractor.

18. The important point is, that in all high timber forests the marking of the trees must rest with the officers of the Forest Department. If, in addition to this, conditions destined to secure an economical working can be enforced, then the extraction of the material may safely be handed over to private parties. Of course, it cannot be expected that the direct return to Government will be quite as high as under the system of Government agency (and in connection with this subject attention is invited to Chapter IV of this Review), because contractors expect to realise a certain amount of profit; but the difference need not be great, and the indirect advantages are considerable. If relieved of departmental timber and fuel works, the Forest staff will be able to devote a much larger portion of its time to protective and reproductive measures, by which the yield of the forests will ultimately be greatly enhanced. It is not intended to change all at once the system now in force, and in certain cases it may be necessary to retain the work in the hands of Government for years to come; but the subject should be kept in view, and where the working can be made over to private enterprise without serious loss to Government, the matter should be taken into consideration.

19. **Central Office of Forest Accounts.**—The organisation of a Central Office of Forest Accounts has been so great a benefit to the Department, that the matter deserves being mentioned here. The following account is taken from a Note by Mr. Brandis:—

Until 1860 the accounts of the Forest Department in the different Provinces were audited by the local Accountants General. At that time one of the numerous obstacles to progress in Burma was the difficulty of getting the monthly Forest accounts audited. Almost every charge connected with timber operations or other forest work was objected to or formed the subject of lengthy correspondence. The office establishment of the Superintendent of Forests had to be increased and a separate Deputy Superintendent had to be

appointed, chiefly to look after the accounts, and to carry on the correspondence with the Accountant General in Calcutta.

The inconvenience was so great that a remedy became necessary, and this was found in the transfer of the accounts from the Accountant General, Calcutta, to the Controller, Public Works Accounts, at Rangoon. A simple and practical system of accounts was then elaborated, and the forms adopted at that time have been the basis of the present system of Forest accounts. The control and audit was exercised in a manner suitable to the requirements of the Department, and from that time all difficulty in respect of the accounts of the Burma Forests ceased.

A similar system was soon afterwards adopted in Oudh, the Punjab, and other provinces.

20. About 1866 a re-action set in, and the control and audit of the Forest accounts was transferred to the Provincial Accountants General. This arrangement did not give satisfaction, and in 1871 it was decided to entrust the Conservator of Forests in each Province with the entire control and audit of the accounts. Already in 1874 doubts were entertained as to whether the control and audit of the accounts was properly performed by Conservators, and an enquiry was held, the result of which was the introduction, in 1877, of a new system, which has gradually developed into that now in force.

It was arranged that the divisional accounts should continue to be rendered to the Conservator for scrutiny in the first instance, but that they should afterwards be transferred for final audit to the Comptroller General. For the latter purpose an officer of the Forest Department of some experience and standing was attached to the Comptroller General's Office, with the designation of Assistant Comptroller General.

This system contemplated that the Conservator should watch the stock accounts, the working accounts, and the revenue accounts, while the Comptroller General (Forests) should do the work of pure audit and account.

It was, however, soon found that a considerable amount of mechanical check was done twice—once in the Conservator's and a second time in the Comptroller General's Office. In order to see whether this could not be avoided, it was arranged, as an experiment, that the monthly accounts of divisional officers in the Lower Provinces of Bengal should be sent for examination and audit to the Comptroller General direct, without passing through the Office of the Conservator of Forests, the latter officer being kept informed of the progress of receipts and charges by being furnished with a copy of the classified abstract of receipts and charges, which is sent to him by the Divisional Officer on the same day as that on which he despatched his accounts to the Comptroller General. This experiment was commenced on the 1st April 1878, and, as the results were favourable, it was decided to extend the system to all the Provinces under the Government of India.

21. Since the 1st April 1880 the Forest Branch of the Comptroller General's Office does the work of departmental audit and control, as well as that of pure audit and account.

This system has been attended with most satisfactory results. The check is as perfect as under the circumstances of the case it can be made, and at the same time the preparation of, and the correspondence regarding, the accounts takes up as little as possible of the time and attention of Conservators and of Divisional Officers. Moreover, the entire business connected with the accounts is done by one central office and by an officer practically acquainted with forest business. This, it may be said, is as necessary in the Forest Department as it is in the Public Works and Military Departments, because in the present condition of the forest business a great deal more is required from the officer in charge of the accounts, than mechanical check and adherence to rules, such as might be expected where the accounts are in charge of an ordinary member of the Accounts Department who is unacquainted with the peculiarities of forest work. In the latter case it would be almost impossible to exercise a searching control over the timber transactions without taking up a large proportion of the time of the Divisional Officers by references and by asking for explanations.

22. It is believed that some general changes in regard to the organisation of the system of audit and account are contemplated by Government; but as regards the forests, it will be best to permit the continuous development of the system now in force. The peculiar circumstances of the forest business require that Conservators and Divisional Officers should be on the move constantly, and that their time should be taken up as little as possible by office and account work. Under these circumstances, the most economical arrangement is the maintenance of a central office in which all the work of control, audit and account is performed. No other arrangement can possibly be as economical as this, and if the control were again localised, the necessary result would be increased expense, leaving out of consideration the fact that Conservators and Divisional Officers would again be tied down to their desks—a result which would be detrimental to the working of the Department.

CHAPTER I.

RESERVED AND LEASED FORESTS.

Area and Boundaries.

23. The area of the Reserved Forests in the Provinces under the Government of India has undergone the following changes during the last five years:—

				Square miles.
Area on the 1st April 1877	...	...	...	17,386
” ” 1878	...	...	...	17,671
” ” 1879	...	...	...	14,673
” ” 1880	...	...	...	14,890
” ” 1881	...	...	...	16,246

As explained in the Review for 1878-79, the area of reserves was temporarily reduced in consequence of the passing of the Indian Forest Act of 1878. During the year 1879-80 the procedure prescribed in Chapter II of that Act was set in motion, but only a very small area was actually gazetted as reserves during that year. Since then, however, fair progress has been made, so that the area added during the year 1880-81 amounts to 1,356 square miles, and considerable further additions may be expected to take place for some years to come.

24. The details of the changes which took place during the year under review may be seen from the following statement:—

Province.	AREA OF RESERVED FORESTS OF		LEGAL AUTHORITY UNDER WHICH FORESTS HAVE BEEN RESERVED.
	1st April 1880.	31st March 1881.	
	Sq. miles.	Sq. miles.	
Bengal	2,945	3,411	Indian Forest Act, 1878.
North-Western Provinces and Oudh ...	3,279	3,313	Ditto ditto, and lease from the Garhwal State.
Punjab	795	943	Indian Forest Act, 1878; Hazára Forest Regulation, 1873; lease from Native States.
Central Provinces	2,535	2,535	Indian Forest Act, 1878.
British Burma	1,612	2,288	Government Forest Act, 1865, and Act VII of 1869.
Coorg	220	233	Government Forest Act, 1865.
Ajmere	101	122	Ajmere Forest Regulation, 1874.
Assam	2,015	2,015	Indian Forest Act, 1878.
Total	13,502	14,860	
Berar	1,388	1,386	Forest Rules, 1871.
GRAND TOTAL	14,890	16,246	

These areas have been reserved under a variety of legal enactments, and they may, accordingly, be classified as follows:—

	Square miles.
Under the Indian Forest Act, 1878	11,590
" Government Forest Act, 1865, and Act VII of 1869 ...	2,521
" Local Rules, Hazára	236
" " Ajmere	122
" " Berar	1,386
Leased Forests	391
Total	16,246

25. **Bengal.**—It will be noticed that Bengal, where Forest conservancy in a systematic manner was started at a comparatively late date, has now surpassed all other Provinces, and a similar activity has been displayed in Assam. In Bengal an area of 466 square miles was added during the year, and proposals for further additions were under discussion at the close of the year.

North-Western Provinces and Oudh.—The small changes are due to corrections and transfers. It is, however, proposed to reserve additional areas in the Gonda and Gorakhpur Districts of Oudh, while a proposal is now before Government to establish forest and fodder reserves in the Central Circle. In Tehri-Garhwál and Bashahr considerable areas have yet to be brought on the books of the Department.

Punjab.—Although Forest conservancy was commenced at an early date, the work of establishing Reserved State Forests is very backward. Only an area of 943 square miles has been actually gazetted, of which 152 square miles were added during the year. It has been reported that the work preliminary to reservation has been pushed on during the year, but the delays that have occurred are far from satisfactory. No doubt the difficulties to be encountered are great, but the present state of affairs is all the more to be regretted, because in no other Province of India is the permanent maintenance as forest of a certain proportion of the area more important than in the dry climate of the Punjab.

Central Provinces.—No changes have taken place. The work of deciding what parts of the second class reserves should be transferred to the first class reserves remains to be done.

British Burma.—The work of reservation was, until a few years ago, very backward, but a vigorous start has been made lately, and 599 square miles were gazetted during the year, while an additional area of 1,091 square miles has been reported on by the Forest Settlement Officers. At this rate Burma will soon be brought on a par with the more advanced Provinces.

Coorg.—The changes recorded are chiefly due to corrections.

Ajmere.—21 square miles have been added during the year, and further reservations are contemplated.

Assam.—No change has taken place during the year under review, but various additions were expected to be made in 1881-82.

Berar.—Although only a correction, amounting to two square miles, has occurred, a very important measure was carried out during the year, namely, the formation of the Amraoti Hills Reserve as a "*forest and fodder reserve.*" Out of a total area of 49,847 acres, a block comprising 17,944 acres has been closed, while 31,903 acres remain open to meet the immediate wants of the people. The formation of reserves (not protected forests), like that on the Amraoti Hills, which are destined to provide permanent supplies of wood and fodder for the surrounding districts, is of the highest importance in all parts of India which are liable to suffer from periodical drought, and it is hoped that the example set by the administration in Berar may be imitated by the Governments of all Provinces similarly situated.

26. **Boundaries.**—The proper demarcation of the reserves is, of course, a measure of the first importance. Unless the boundaries are unmistakably laid down on the ground, protection is in most instances very difficult, if not impossible. In some cases the desire for economy has prevented the clearing of the boundaries, but there can be no doubt that this is false

economy, and the Government of India have on several occasions drawn attention to this point. The provincial reports should always give a clear idea how the work stands in the case of each reserve, shewing what part of the boundary is in good order, and what portion remains to be cleared or demarcated. This information should be given in miles of boundary and in the form of a tabular statement, either for each Division, or for the whole Province.

27. **Cost of Demarcation.**—The total cost of demarcation charged during the year amounts to Rs. 53,002, while the increase in the area of reserves is equal to 1,356 square miles. These data compare as follow with the corresponding figures of the two previous years;—

Year.	Area of reserves at the end of the year.	Outlay on demarcation, &c.
	Sq. miles.	Rs.
1878-79	14,673	38,855
1879-80	14,890	45,299
1880-81	16,246	53,002

The outlay on account of compensation for land and rights during the last three years stands as follows :—

Year.	Outlay.
	Rs.
1878-79	64,704
1879-80	4,610
1880-81	17,333

28. **Leased Forests.**—Of the area given above as Reserved Forests for 1880-81, 391 square miles are Leased Forests. The rent paid on account of these forests, including payments to shareholders in forests managed by Government, amounts to Rs. 75,341, which is distributed as follows :—

	Rs.
North-Western Provinces (for lease of forests in Tehri-Garhwal)	12,501
Punjab (including payments for the lease of the forests in Bashahr and Chamba, to shareholders in Kalesar, and half seignorage on account of timber cut in the Hazára forests)	45,720
Berar (annual payment to Melghát Rajas)	17,120
Total	75,341

During the last five years the totals have been—

	Rs.
1876-77	61,774
1877-78	62,814
1878-79	62,174
1879-80	61,931
1880-81	75,341

This statement shows for 1880-81, an increase of Rs. 13,410 on the sum expended during the previous year, which is chiefly due to the payment of an instalment of Rs. 10,500 to the Rajah of Chamba, in the Punjab, in March 1881, instead of in April, when it became due.

Protection from Fire.

29. Fire protection is steadily extending, so that, in the British Provinces alone, upwards of two millions of acres have now been taken under protection. The following table shows the results obtained in 1880-81:—

Province.	Acres.	Outlay during the year.	Outlay per acre protected.	Total outlay from commencement.	[Date to which expenditure has been incurred.	Year when fire conservancy commenced.
Bengal ...	406,032	Rs. 8,878	Rs. A. P. 0 0 4	Rs. 27,162	30th June 1881	1872
North-Western Provinces and Oudh.	490,618	26,937	0 0 10	1,16,951	Ditto	1872
Punjab ...	...	...	...	...	...	...
Central Provinces ...	869,828	13,383	0 0 3	1,14,379	30th June 1881	1864
British Burma ...	76,858	10,577	0 2 2	76,297	Ditto	1857
Coorg ...	106,768	2,927	0 0 5	13,682	31st May 1881	1876
Ajmere ...	75,658	1,139	0 0 3	4,793	30th June 1881	1874
Assam ...	102,940	6,030	0 0 11	26,639	Ditto	1873
Total ...	2,128,702	69,871	...	3,79,953		
Berar ...	555,678	3,129	0 0 1	19,605	Ditto	1870
GRAND TOTAL ...	2,684,380	73,000	...	3,99,558		

The totals for the last 4 years, showing the areas attempted and the results, are as follow:—

Year.	Area attempted, in acres.	Failures, in acres.	Proportion of failures to area attempted, in per cent.
1877-78	2,075,327	332,936	16
1878-79	2,223,542	342,961	15
1879-80	2,606,130	232,104	9
1880 81	2,857,716	173,336	6

30. Although the percentage of failures has considerably decreased during the last two years, doubts are entertained whether this really indicates a substantial and lasting improvement. In the first instance, new and extensive areas have been taken under protection, which have not been shown separately from the areas protected previously; and, secondly, the last two years have been specially favourable for fire protection. The results of the season just passed, 1881-82, show that the above remarks are fully justified, as numerous and extensive fires have taken place in most Provinces simply because the season was unfavourable. Under these circumstances it cannot be said that, however favourable the results of the years 1879-80 and 1880-81 may have been, the business of fire protection has been fully mastered. The first thing to be done, under these circumstances, is not to extend the areas attempted any further until absolute success has been achieved for a number of years; and when, hereafter, operations are again extended, new areas must be shown separately, so as to enable Government to follow up the fate of each area through a number of years.

31. The following table shows the results of fire protection in the several Provinces for the last 4 years :—

BENGAL.

YEAR.	Area in acres.		Proportion of failures to area attempted, in per cent.	Cost per acre protected.
	Attempted.	Protected.		
1877-78	122,729	78,834	36	Rs. Aa. P. 0 0 5
1878-79	189,653	106,754	44	0 0 4
1879-80	447,836	423,105	5	0 0 5
1880-81	460,396	406,032	12	0 0 4

ASSAM.

1877-78	89,761	60,028	33	0 1 0
1878-79	90,342	33,259	64	0 1 11
1879-80	92,605	91,935	...	0 1 1
1880-81	104,925	102,940	1	0 0 11

NORTH-WESTERN PROVINCES AND OUDH.

1877-78	376,384	344,658	8	0 0 10
1878-79	392,012	301,291	23	0 0 9
1879-80	429,413	423,169	1	0 0 10
1880-81	507,816	490,618	1	0 0 10

CENTRAL PROVINCES.

1877-78	702,310	575,304	18	0 0 3
1878-79	749,319	691,363	8	0 0 3
1879-80	827,470	715,773	13	0 0 3
1880-81	924,380	869,828	6	0 0 3

BRITISH BURMA.

1877-78	4,215	68,198	19	0 1 11
1878-79	74,867	71,322	5	0 2 2
1879-80	98,637	96,413	2	0 1 6
1880-81	96,218	76,858	20	0 2 7

COORG.

YEAR.	Area in acres.		Proportion of failures to area attempted, in per cent.	Cost per acre protected.
	Attempted.	Protected.		
1877-78	21,306	16,106	24	Rs. As. P. 0 1 11
1878-79	82,166	76,896	6	0 0 9
1879-80	122,849	102,865	16	0 0 8
1880-81	123,278	106,768	14	0 0 5

AJMERE.

1877-78	44,686	44,686	...	0 0 1
1878-79	44,686	44,659	...	0 0 3
1879-80	64,428	62,514	3	0 0 3
1880-81	76,631	75,658	1	0 0 3

BERAR.

1877-78	633,937	554,577	12	0 0 1
1878-79	600,497	555,037	7	0 0 1
1879-80	522,892	458,252	12	0 0 1
1880-81	564,672	555,678	2	0 0 1

In the Punjab no special measures against forest fires have been considered necessary so far. In 1879-80 an area of 142,599 acres, or 5 per cent. of the total area under the management of the Forest Department, was overrun by fires. The subject was taken up vigorously by the Government and the Conservator of Forests, and, in consequence of a stricter control and supervision, the area burnt in 1880-81 amounted to 22,073 acres only, which is less than 1 per cent. of the total forest area managed by the Department.

32. The cost of fire-protection is as yet moderate, as will be seen from the subjoined abstract, giving the totals of all Provinces:—

Year.	Area successfully protected, in acres.	Cost.	
		Total.	Per acre.
		Rs.	Rs. As. P.
1877-78	1,742,391	47,768	0 0 5
1878-79	1,880,581	49,993	0 0 5
1879-80	2,374,026	69,780	0 0 6
1880-81	2,684,380	79,000	0 0 5
Average	2,170,344	60,135	0 0 5

If absolute success is to be secured, the cost must be somewhat more heavy than in past years, but the main point is to establish a systematic and efficient organisation of the work, so as to ensure uninterrupted vigilance.

Plantations and other Reproductive Measures.

33. It has frequently been stated that reproduction in the greater part of the Indian forests must be effected by natural means; that is to say, by treating them in such a manner as to ensure the re-stocking of cleared areas without having recourse to planting. It is in this that the skill of the Forester shows itself, and it is for this reason that so much stress has been laid on the continental training of our Forest Officers. Artificial planting is generally expensive in India, and as extensive areas have to be dealt with, the average revenue per acre from which is small, reproduction by natural means will always form the mainstay. At the same time artificial reproduction, or sowing and planting, must be resorted to in many cases, as, for instance, where blanks have to be stocked, where natural reproduction has failed, where it is not likely to be successful within a reasonable period of time, or where forests do not possess the desired mixture of species.

34. It is generally not easy, if it is not impossible, to represent, in figures or in a tabulated form, the work done in natural reproduction, or that of natural and artificial reproduction combined, and the practice has, therefore, grown up of recording in this manner only the results of regular plantations. The following statement exhibits the state of the plantations for the year under review :—

PROVINCE.	AREA.			EXPENDITURE.			
	At the commencement of the year.	Added during the year.	Excluded during the year.	At the close of the year.	Previous to the year.	During the year.	Total.
	Acres.	Acres.	Acres.	Acres.	Rs.	Rs.	Rs.
Bengal	940	267	...	1,207	88,126	10,328	98,454
North-Western Provinces and Oudh.	2,262	226	...	2,488	39,671	4,266	43,937
Punjab	20,328	15	3,216	17,127	5,95,932	23,315	6,19,247
Central Provinces ... ..	...	...	...	...	...	...	...
British Burma	3,389	155	...	3,544	3,00,689	13,565	3,14,254
Coorg	580	82	334	323	85,915	7,166	43,081
Ajmere	416	10	16	410	33,906	2,886	36,792
Assam	1,088	6	...	1,094	57,327	13,819	71,146
Total	29,003	761	3,566	26,198	11,61,566	75,365	12,26,931
Berar	1,504	...	95	1,409	82,808	407	33,215*
Grand Total	30,507	761	3,661	27,607	11,84,374	75,772	12,60,146
Deduct revenue ... ..	...	...	...	...	1,57,649	...	...
Net outlay on plantations ... ..	...	...	...	...	10,26,725	...	...

* This amount does not include the cost of failures.

It will be noticed that the operations have so far extended over 27,607 acres, or at the rate of about 3 square miles per annum. At this rate about 300 square miles would be dealt with in the course of a century, while the present area of our Reserved Forests alone comes to 16,216 square miles. It is evident, therefore, that regular plantations can only touch a small fraction of the

forests; and it seems highly desirable that the reproductive measures, other than regular plantations, should be dealt with in detail in the Annual Reports, so as to enable Government to judge of the merits of the management in the various Provinces.

35. **Bengal.**—An increase of 267 acres in the planted area has been recorded. The chief extensions consist of 48 acres at Bamanpokri, in the Kurseong Division, and of 202 acres at Buxa. At Bamanpokri an area already partly stocked with natural growth was filled up by planting teak and other trees in patches arranged in lines 50 feet apart, with a distance of 50 feet between the patches. The system followed in the Buxa Reserve consists of clearing 4 feet bands through the grass at a distance of 20 feet apart, and filling up these bands partly by transplants 2 feet apart, and partly by broad-cast sowings of sál and other trees. This system promises to be a cheap and effective remedy for re-stocking the extensive savannahs in the reserves of the Buxa and Jalpaiguri Divisions.

36. **North-Western Provinces and Oudh.**—An area of 226 acres was added to the regular plantations. Of this, 118 acres consist of sissu plantations made in Oudh. No decided success has as yet been achieved in these operations. The rest consists of 75 acres transferred with the Patri Forest from the Superintendent of the Roorkee Workshops to the Forest Department, and of small experimental plantations in the hills and in the plains.

Planting in the higher hills seems to have been fairly started now, but in the outer hills and plains operations are as yet in the experimental stage. On the whole, much has yet to be learned as regards the artificial reproduction of deodar and sál. Fortunately the natural reproduction of sál is good, and fair progress has been made in studying the conditions under which deodar will reproduce itself naturally.

37. **Punjab.**—The area of plantations has been thoroughly scrutinised during the year, and all parts not actually stocked have been excluded. This has caused a reduction of 3,201 acres, and the figures stand now as follow:—

	Acres.
Regular plantations ...	15,669
Rakh improvement ' ...	1,458
	<hr/>
Total ...	17,127

costing Rs. 6,19,247. The plantations have already yielded considerable returns, and it is expected that Changa Manga will, in future, steadily yield a surplus. This plantation comprises an area of 11,409 acres; it was commenced in 1866, so that the oldest plantings were, on the 1st April 1881, fifteen years old. The total expenditure amounts to Rs. 4,46,812, while the receipts come to Rs. 1,03,911, leaving a net expenditure of Rs. 3,42,901. As the greater part is stocked with sissu, or tali, it has been decided to work the plantation as coppice, with a rotation of 10 years. The trees are cut partly flush with the ground, and partly stubbed out, both methods yielding satisfactory results.

The rákh improvement in the Punjab is a very difficult piece of work. The rainfall is small and very uncertain, so that planting without irrigation can only succeed in years when the rains are specially favourable. So far, not much success has been achieved.

The planting of deodar, especially in Kalatop, where 97,437 seedlings have been planted out into the forest during the last six years, has been fairly successful; and in the Sutlej Valley several cases of successful natural reproduction, by means of regeneration cuttings, may be seen.

38.—**Central Provinces.**—Various cultural operations have been carried out during the year, but they have not been described with sufficient precision, so as to enable a judgment to be formed of the success obtained.

39.—**British Burma.**—It is satisfactory to notice that, although much of the officers' time has been spent in demarcation work, a considerable area

has been planted with teak during the year, as may be seen from the subjoined data:—

	AREA PLANTED, IN ACRES.			OUTLAY, IN RUPEES.	
	At the beginning of the year.	Added during the year.	Total.	Total from the commencement.	Per acre.
Regular plantations ...	3,389	155	3,544	3,14,274	89
Toungya do. ...	2,515	1,072	3,587	31,202	9
Total ...	5,904	1,227	7,131	3,45,476	48

It has been suggested that 200 acres of regular plantations, and at least 1,000 acres of toungya plantations, should be made annually. The cost of these operations was estimated at Rs. 40 per acre for the former, and Rs. 14 for the latter. The estimated areas have been fairly worked up to, but it appears that the cost of the regular plantations at any rate will be considerably higher than the estimate.

40. **Coorg.**—The area of plantations has been reduced from 580 to 328 acres, although 82 acres were planted during the year, in consequence of all unstocked areas having been omitted from the returns. The work seems to have received attention during the year, and the results were fairly satisfactory.

41. **Assam.**—Only 6 acres were added to the planted area, which stands now as follows:—

Species of tree.	Area planted, in acres.	Cost.	
		Total.	Per acre.
		Rs.	Rs.
Caoutchouc ...	912	51,885	57
Teak ...	150	13,767	92
Sissu ...	20	1,795	90
Bamboo ...	2	76	...
Cinchona ...	2	1,093	...
Miscellaneous ...	8	2,530	...
Total ...	1,094	71,146	...

The more important plantations are those of caoutchouc and teak. The importance of securing a permanent supply of teak wood is very great, and as Assam has excellent water communication, not only within its own limits, but also with Lower Bengal, it is important to ascertain whether the tree will thrive in Assam. For this purpose the area of 150 acres so far planted will probably be sufficient. As regards caoutchouc, it should be remembered

that Assam and the neighbouring low hills are the true home of the *Ficus elastica*, and that the produce of that tree forms an important article of trade. Unfortunately it has not been found practicable to protect the trees in the natural forests, which have suffered greatly from overtapping. At present the greater portion of the caoutchouc exported from Assam comes from beyond the British frontier; and it cannot be expected that the wild tribes who inhabit the tracts in question will work their India-rubber trees so as to secure a sustained yield. It is, therefore, the duty of the Government of Assam to prevent the trade dying out, by propagating the rubber tree on compact areas, which can easily be protected; in addition to protecting the natural trees, wherever this may be practicable.

42. **Ajmere.**—Planting operations were restricted to an extension of one acre, and the laying out of nurseries covering 9 acres of ground.

43. **Berar.**—No extensions were made, but 95 acres, which proved to be failures, were excluded from the returns. The result of fire protection has been that vast numbers of seedlings have sprung up all over the protected tracts, and this will, no doubt, reduce the necessity for artificial operations. At the same time there must be cases in which the forests are poor in the more valuable species, and where their introduction and extension, by means of planting or sowing, is indicated. It will be necessary, therefore, to resume planting operations as soon as the demarcation of the reserves and their protection against fire and otherwise have been sufficiently advanced to give to the staff the necessary time for such work.

44. Form No. 46, appended to the Annual Reports, gives the area of the regular plantations and their cost. Some of the plantations have, however, yielded considerable returns already, and, if the account is to be of value, these should be deducted from the cost; it is suggested, therefore, that the necessary information may be given in future Reports. It would also be a great improvement if, at the foot of the form, all works of reproduction which cannot be classed as regular plantations were mentioned, in so far as they can be represented by figures.

Forest Survey.

45. The survey of the submontane forests of Kumaun and Garhwál has been continued, while, in addition, certain operations were conducted in the Tons Division of the North-Western Provinces and in Berar. The total outturn of the field work is somewhat smaller than that of 1879-80. The area planetabled comes to 260 square miles, as against 318 square miles in 1879-80; and the area triangulated in 1880-81 amounts to 93, as against 237 square miles in 1879-80. The reason of the falling off is said to be the unhealthiness of the season, which caused a good deal of sickness amongst the staff, and the deputation of separate parties to Ranikhet and Berar, who did work which cannot be indicated in square miles.

46. The cost of the work, which was somewhat high when the Survey Branch was first organised, has been considerably decreased of late, as will be seen from the subjoined data:—

	Cost per square mile. Rs.
Dehra Dún and Sahárapur survey ...	310
Jaunsár and Tons ...	203
Kumaun and Garhwál .., (up to date) ...	115

This is, of course, very satisfactory, and if the cost is still somewhat higher than in the Imperial Survey Department, this is due to the fact that the operations of the Forest Survey are generally conducted in remote and difficult parts of the country, which have naturally been set aside as forests.

47. On the whole, the Forest Survey Branch has now been brought into a high state of efficiency. This being the case, it has been decided to establish shortly an Imperial Working-Plan Branch, which, following the footsteps of the Survey, will be a very important means towards introducing into our State Forests a system of working based on a sustained yield.

Outlay on Demarcation and Improvement of Forests.

48. The following figures show the outlay during the official year divided between the various branches of work :—

PROVINCE.	DEMARCATION, IMPROVEMENT, AND EXTENSION OF FORESTS.—A VIII.						
	Demarcation.	Compensation for land and rights.	Surveys and working plans.	Plantations.	Protection from fire.	Other works.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bengal	6,161	7,115	201	10,344	11,630	68	35,519
North-Western Provinces and Oudh ...	4,513	5,804	1,939	2,463	23,571	10,915	49,205
Punjab	10,468	589	159	12,812	82	5,893	30,003
Central Provinces	1,526	208	978	3,968	13,456	14,052	34,188
British Burma	21,718	1,750	745	17,000	10,224	5,472	56,909
Coorg	1,678	50	215	7,166	2,833	...	11,942
Assam	4,730	154	4,747	13,820	5,609	3,060	32,120
Ajmere	2	1,663	...	1,667	1,145	46	4,523
Surveys ... ..	...	...	5,098	...	...	...	5,098
Total	50,796	17,333	14,082	69,240	68,550	39,506	2,59,507
Berar	2,206	...	76	1,303	3,373	460	7,418
GRAND TOTAL	53,002	17,333	14,158	70,543	71,923	39,966	2,66,925

The outlay under this head during the last five years has been as follows :—

	Rs.
1876-77	2,21,110
1877-78	2,42,962
1878-79	2,98,962
1879-80	2,55,647
1880-81	2,66,925

Average, per annum 2,57,121

Communications and Buildings.

49. The outlay on communications, buildings, and other works charged in the accounts of the year has been as follows :—

PROVINCE.	COMMUNICATIONS AND BUILDINGS.—A VII.			
	Roads and bridges.	Buildings.	Other works.	Total.
	Rs.	Rs.	Rs.	Rs.
Bengal	10,516	11,254	60	21,830
North-Western Provinces and Oudh ...	39,701	23,688	3,337	71,726
Punjab	4,553	3,624	24	8,201
Central Provinces	480	2,338	2,114	4,932
British Burma	1,920	6,618	683	9,221
Coorg	186	304	2	492
Assam	3,356	7,824	253	11,433
Ajmere	50	86	...	86
Surveys ... ..	...	...	...	...
Total	60,762	60,686	6,473	1,27,921
Berar	8,532	1,084	187	10,403
GRAND TOTAL	69,294	62,370	6,660	1,38,324

The following sums have been spent under this head during the last five years:—

				Rs.
1876-77	...	...	...	1,14,247
1877-78	...	...	...	1,11,779
1878-79	...	...	...	1,21,822
1879-80	...	...	...	1,66,193
1880-81	...	...	...	1,38,324
Average, per annum ...				1,30,473

It will be noticed that the outlay during the year is slightly in excess of the average of the last five years.

50. **Bengal.**—Thirty-one miles of ordinary forest roads have been laid out, and a metalled cart road tapping the Goompahar Forest has been commenced. A rest-house for officers at Lopchu has been completed, while various smaller buildings and 5 boats (for the Sundarbans) were constructed.

51. **North-Western Provinces and Oudh.**—Communications and buildings have continued to receive attention during the year. The construction of forest roads and of timber slides was taken up vigorously many years ago, and this important branch of forest management has been specially advanced in the North-Western Provinces and in Oudh.

In the Central Circle much damage was done by the unusually heavy rains of September 1880, but most of the injured roads have since been repaired and additional lines opened. In Oudh 600 miles of old roads and fire-paths were kept in order, while 77 miles of new roads were opened out; at the same time 50 old bridges have been repaired and 6 new bridges constructed.

In the School Circle various roads in Dehra Dún, Saháranpur, and Jaunsár have been made. There are now 84 miles of fair-weather roads open in the Dún forests, and 130 miles of hill roads in Jaunsár.

The construction of forest rest-houses is steadily proceeding, 14 having been completed during the year. This is a most important measure, as a properly distributed system of rest-houses will enable the officers of the Department to visit all parts of their charges at any time of the year.

52. **Punjab.**—In the plains of the Punjab not much need be done by the Department as far as roads are concerned, since the forests are generally so open that the officers can “gallop” through them. In the hill forests, however, much remains to be done. During the year a new road from Natyagulli to Thandiáni, in Hazára, was commenced, and various paths and slides in other parts were made. It is hoped that no time will be lost in making the deodar forests thoroughly accessible; the success of the timber operations and of the cultural measures will depend on this.

A rest-house for officers, at Thandiáni, was purchased during the year, and various others have been repaired and extended. On the whole, there is a fair number of rest-houses in the Punjab forests.

53. **Central Provinces.**—The principal work, it appears, was the widening of a narrow passage in the Nerbudda.

54. **Burma.**—Only minor works and repairs were attended to during the year.

55. **Assam.**—A considerable length of inspection paths and other lines of communication were opened out, or kept open. At Cachar and Sibsagar forest bungalows were commenced during the year. At Barabada, in the Goalpara Division, a substantial rest-house for officers has been completed.

CHAPTER II.

MANAGEMENT OF GOVERNMENT FORESTS NOT RESERVED.

56. **Bengal.**—The Unreserved Forests so far taken notice of by Government are the following :—

			Sq. miles.
Sundarbans protected forests	...	...	1,925
Khordah " " "	...	...	400
		Total	2,325
Angul open forests	...	...	Area unknown.
Jalpaiguri " "	...	...	8
Chittagong " "	...	...	5,100
Palamow " "	...	...	33
Saranda (about)	...	...	400
Sonthal Pergunnahs (about)	...	...	60

In the Sundarbans no change in the system of administration has taken place during the year. The forests will remain under the direct management of the Forest Department until they are required for the extension of cultivation.

The Khordah forests are under the management of the Collector, assisted by a staff of Forest officials, and the Angul forests are now being examined. It has been suggested to constitute as reserves the more important parts of these forests, and to place the whole area under the direct management of a Deputy Conservator, who will be the Assistant to the Commissioner of Orissa in the Forest Branch.

The forests in the Sonthal Pergunnahs have hitherto been under the management of the Deputy Commissioner of the district, but it is now proposed to make them over to the Forest Department.

The Chittagong forests are under the management of a District Forest Officer, for the purpose of deriving a revenue from them, and he is subordinate to the Deputy Commissioner of the Chittagong Hill Tracts.

The forests in Jalpaiguri and Saranda are under settlement as reserves.

57. **North-Western Provinces and Oudh.**—The following is a list of the Unreserved Forests :—

			Sq. miles.
Naini Tal protected forests	...	...	33
Ranikhet " "	...	...	59
Lalitpur " "	...	...	8
		Total	100

In addition, there are considerable areas of Government forests in Garwhal, Kumaun and the Terai, and of leased forests in Tehri-Garwhal and in Bashahr.

58. **Punjab.**—The area of gazetted Protected Forests amounts to 311 square miles, but the total area of all Unreserved Government and Leased Forests, including the rākhs, comes to 17,125 square miles, of which 3,851 square miles are under the management of the Forest Department; the rest are managed by the Deputy Commissioners. Of the area under the Forest Department, a very large portion is under settlement as reserves, while the Local Government has decided that others, as for instance the valuable deodar forests in Kulu, shall be gazetted as Protected Forests.

59. **Central Provinces.**—The so-called second class reserves in these Provinces are at present, to all intents and purposes, Unreserved Forests; their area amounts to 16,850 square miles, while there are, besides, 281 square miles of other Unreserved Forests, or a total of 17,131 square miles. The management of these forests has been fully explained in previous Reviews. It has been urged upon the Local Government that the first and most important step is to select the more valuable parts of the areas, especially in the vicinity of towns, large villages, and other centres of consumption, and to treat them as first class reserves, while the remainder will yield chiefly pasture and fuel.

60. **British Burma.**—The area of Unreserved Forests in Burma is very large, and it may be roughly estimated as equal to, at least, half the area of the whole Province. Until lately, only teak was a reserved tree: from the 1st July 1882, however, a number of other trees will be reserved; payment has to be made on all material exported. On the whole, the restrictions enforced in the Unreserved Forests are as yet very moderate.

61. **Assam.**—No changes have taken place in the areas, which stand as follow:—

	Sq. miles
Protected Forests	689
Other Unreserved Government Forests	5,371
Total	6,060

The Forest Officers in Assam have been made subordinate to the Deputy Commissioners, and they now manage all forest lands.

62. **Berar.**—The Unreserved Forests cover an area of 2,870 square miles. It has been suggested that the management of these areas should be made over to District Forest Officers, who will be subordinate to the Deputy Commissioners. A classification of the areas is now being made, with the view of ascertaining what portions are required for the production of wood, as grass preserves, or grazing grounds, and what parts should be kept open for the extension of cultivation.

63. To sum up, it will be noticed that the information regarding the Unreserved Government Forests is, in several Provinces, as yet very scanty, and it is hoped that fairly accurate statistics will gradually be supplied under this head.

CHAPTER III.

PROTECTION OF FORESTS.

64. The following statement exhibits the number of prosecutions for breaches of forest rules during the year under review:—

Province	NUMBER OF PERSONS		
	Prosecuted.	Convicted or under trial.	Acquitted.
Bengal	143	112	31
North-Western Provinces and Oudh	1,008	824	184
Punjab	2,188	1,131	1,057
Central Provinces	1,770	1,554	216
British Burma	181	151	30
Coorg	7	3	4
Ajmere	285	122	163
Assam	121	105	16
Total	5,703	4,002	1,701
Berar	764	591	173
GRAND TOTAL	6,467	4,593	1,874

The totals for the last seven years may be seen from the subjoined table:—

Year.	NUMBER OF PERSONS			
	Prosecuted.	Convicted or under trial.	Acquitted.	Percentage of acquittals on prosecutions.
1874-75	2,591	2,340	251	10
1875-76	4,088	3,714	374	9
1876-77	4,250	3,186	1,064	25
1877-78	4,527	3,158	1,369	30
1878-79	4,435	3,458	977	22
1879-80	6,724	5,311	1,413	21
1880-81	6,467	4,593	1,874	29

It will be observed that there has been a slight falling-off in 1880-81, which occurred in the Central Provinces, as compared with the previous year, and that the total number of prosecutions is exceedingly small as compared with the forest area under management. Roughly speaking, there has been during the year 1880-81 *one prosecution for every ten square miles of forest* under departmental management.

It stands to reason that improvement in general protection must temporarily be accompanied by an increase of prosecutions, but when further progress has been made, and the protective staff directs its energies chiefly to the prevention of breaches of the rules, rather than to the bringing of offenders to justice, a considerable falling off in the number of prosecutions must be the natural consequence.

65. On the whole, the Forest rules have been worked cautiously, and there are signs, from various parts of the country, that the people begin to appreciate the beneficial effects to themselves of forest conservancy, and that they commence to co-operate heartily with the Forest Department.

The Deputy Commissioner of Ellichpur in Berar, for instance, writes as follows:—

“ I should like, for your information and the satisfaction of the officers of the Forest Department, to be allowed to record facts that came to my notice on four different occasions, when recently in the Melghat, which point markedly to the contentment of the people in that direction, and the success that has attended the enlistment of their help and interest in forest conservancy.

“ Three of the occasions refer to the outbreak of fire in the State Reserves towards Asalwarrah and Gugamal, and towards Kupah in Bairaghar, when I personally witnessed the most rapid concentration of Kurkoos, many from very long distances, who came up in smaller or larger parties quite unbidden, merely on the sight of smoke. On two of these occasions towards Asalwarrah, and the supposed fire at Gugamal (which, however, turned out to be beyond), there were Kurkoos newly settled in the Gangra valley, who had no forest rights or privileges like their brethren settled in certain villages on the outskirts of the Reserve, and whom it was therefore proposed to pay in money for their trouble, but they declined, saying they had voluntarily turned out, hoping that the privileges given to the older people might be extended to them; that in return they would always be ready to turn out.

“ At Kupah, in the neighbourhood of the Pili road, where the jungle was fired by a Bannia of the Public Works Department, and where the appearance of the fire was very alarming, and its extension would have done considerable harm, the rapid concentration of the people, some from extraordinarily long distances, was really very astonishing. The fire broke out late in the afternoon, some six miles from my camp, and I went to a neighbouring hill off the road to judge its position, when I saw over a hundred Kurkoos from my direction alone pass in bodies of five, ten, and more at the double. All of these had come away, unbidden, without their evening meal, with only a handful of parched gram, and were out the whole night.

"The fourth occasion was when most of the Patels of Bairagarh and Amnair met me at Chawarakund, a little more than a fortnight ago. Hitherto one of the requests of such an assemblage has invariably been to ask for the curtailment of some portion or other of the reserve; so that more teak (which is getting exhausted in the open tracts) might be available to them; but on this last occasion, except by one Patel, no such proposition was made. On my asking, somewhat surprised for the reason, why? several answered that, though it was true teak was getting exhausted outside the Reserves, yet the preservation of bamboos *within the reserves* compensated them in a way they had not formerly foreseen; that more bamboos could now be got than, owing to the destruction by fire, was ever formerly possible; and that this to them was of great value. It was a decided advance and very pleasing to me to see that the value of our forests was thus beginning to be recognised."

The Resident writes thus:—

"The Officiating Resident desires to acknowledge the ready and liberal spirit in which the Conservator of Forests and Forest Officers generally responded to applications made to them by Civil Officers during the anxious months of July and August, when, the rains having failed, the people were in difficulties about fodder for the cattle. Liberality on an occasion like this does a great deal to make the Department popular with the people."

And the Government of India, in passing orders on the Report for Berar, say:—

"The Governor General in Council has noticed with special gratification that the people have commenced to appreciate the benefit to themselves of forest conservancy, and particularly of protection against fire; this result is, no doubt, largely due to a judicious working of the conservancy rules."

When the organisation indicated in the Introduction of this Review has taken root, there will be no reason why a similar state of affairs should not be established in all other Provinces.

CHAPTER IV.

YIELD AND FINANCIAL RESULTS.

66. Statement I appended to this Review exhibits the Receipts and Charges of the Department in the Provinces under the Government of India for the year 1880-81.

By arranging these data according to the three main heads under Receipts and Charges, the following table has been obtained:—

PARTICULARS.	RECEIPTS.		CHARGES.		Surplus.	Deficit.
	Amounts.	Budget heads.	Amounts.	Budget heads.		
1. Timber and other produce removed on Government account.	Rs. 19,25,505	I.	Rs. 13,08,087	{ I, $\frac{1}{2}$ of VI, $\frac{1}{2}$ of B.	Rs. 6,17,418	Rs. ...
2. Timber and other produce removed by purchasers, and other revenue.	31,41,301	II, III, IV, V.	6,69,514	{ II, III, IV, IX, $\frac{1}{2}$ of VI, $\frac{1}{2}$ of B.	24,71,787	...
3. Formation, protection, and improvement of the forests.	...	...	11,21,742	{ V, VII, VIII, $\frac{1}{2}$ of B.	...	11,21,742
Total ...	50,66,806	...	30,99,343	...	19,67,463	...

The next table shows the revenue realised and the charges incurred under the two main heads of revenue during the last seven years:—

YEAR.	GOVERNMENT AGENCY.			OTHER SOURCES.		
	Receipts.	Charges.	Surplus.	Receipts.	Charges.	Surplus.
1874-75 ...	Rs. 21,34,690	Rs. 18,07,019	Rs. 3,27,671	Rs. 23,69,694	Rs. 4,40,196	Rs. 19,29,498
1875-76 ...	31,29,321	15,38,779	15,90,542	21,91,392	4,90,326	17,01,066
1876-77 ...	22,82,060	17,29,567	5,52,493	23,14,098	5,26,298	17,87,800
1877-78 ...	25,51,986	14,74,551	10,77,435	25,65,567	5,41,608	20,23,959
1878-79 ...	19,98,685	14,36,246	5,62,439	25,35,910	5,99,403	19,36,507
1879-80 ...	20,82,474	13,74,193	7,08,281	28,19,270	6,35,912	21,83,358
1880-81 ...	19,25,505	13,08,087	6,17,418	31,41,301	6,69,514	24,71,787
Average ...	23,00,674	15,24,063	7,76,611	25,62,462	5,57,608	20,04,854

67. These tables were introduced some years ago, and they are useful in showing the total results under each head. At the same time they contain a somewhat dangerous element, in so far that they may convey a wrong impression. The net surplus of the departmental operations during the year under review amounts to Rs. 6,17,418, while that derived from timber, &c., removed by private parties comes to Rs. 24,71,787. At first sight the departmental operations do not compare favourably with the working by private parties, but unless the quantity and quality of material removed under each system is given, it is impossible to draw any conclusions as to their merits. Only in a few cases have these data been supplied, but it may be useful to enter here, for the sake of illustration, those for the Punjab as far as they can be ascertained. The table for that Province for 1880-81 is as follows:—

PARTICULARS.	Receipts.	Charges.	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
I. Departmental timber operations	3,22,143	2,53,422	68,721	...
II. Other revenue	3,49,536	1,02,802	2,46,734	...
III. Formation, protection and improvement of the forests ... ..	...	1,39,144	...	1,39,144
Total	6,71,679	4,95,368	1,76,311	...

The quantities of timber and other produce worked out by Government Agency compare as follow with those removed by purchasers:—

Description of material,	Removed by Government Agency,	Removed by private parties.
Timber, cubic feet	476,208	463,320
Firewood, cubic feet stacked	1,140,161	4,981,568
Other items, as bamboos, grazing and fodder grass, &c., value in rupees. }	15,725	218,545

Deducting the last two items from the surplus given in the statement preceding the above table, the financial results, as regards the removal of timber and firewood, may be *approximately* represented as follow:—

	MATERIAL REMOVED,		SURPLUS OF RECEIPTS OVER CHARGES.
	Timber.	Firewood.	Rs.
	Cubic feet.	Cubic feet.	
Government Agency	476,208	1,140,161	52,996
Private Enterprise	463,320	4,981,568	23,169

It will be seen that the amount of timber is about the same in either case: the amount of firewood removed by private parties is, however, more than four times that removed by Government Agency, while the surplus derived is only about one-half; and it follows that the working by Government Agency has financially been more profitable to Government than the work done by private agency. The data given, though only rough, show further how small the surplus derived from the sale of timber and fuel is, as compared with the receipts from other sources; in other words, Government sell timber and fuel at the lowest price admissible without actual loss to the State.

It is very desirable that the discussion of this subject should be fully entered into in the provincial reports.

68. Statement II appended to this Review exhibits the financial results of the Forest Department in India.

Bengal and Assam.—Amongst the British provinces, Bengal and Assam head the list. Their revenue has risen from Rs. 38,584 in 1865-66 to Rs. 7,30,337, or twenty times the former amount. During the year under review the revenue of these two Provinces, as compared with the previous year, shows an increase of Rs. 1,16,477, which, with the exception of Rs. 4,661, occurred in Bengal. On the whole, it seems probable that the revenue of Bengal will gradually surpass that of any other Province under the Government of India, with the exception of Burma, which is very satisfactory, especially if it is remembered that forest conservancy on a satisfactory footing was commenced in Bengal only 10 years ago.

69. **North-Western Provinces and Oudh.**—The revenue has risen, between 1865-66 and 1880-81, from Rs. 7,70,370 to Rs. 9,42,229; but there has at the same time been a falling off for several years past. It appears that many of the forests were worked beyond their capability for a number of years, and the consequence is a decline in the revenue, until continued conservancy and protection from fire justify again more extensive cuttings.

70. **Punjab.**—Although the revenue has risen from Rs. 2,08,050 to Rs. 6,71,679, it has oscillated in a manner similar to that observed in the North-Western Provinces, and for the same reason. Here also many forests have been overcut.

71. **Central Provinces.**—The revenue shows the best results after Bengal and Assam, it having in the same period risen from Rs. 2,02,644 to Rs. 8,50,139. There has, however, been a serious decline during the last year, amounting to Rs. 1,56,584.

72. **British Burma.**—The revenue has risen from Rs. 8,98,629 to Rs. 15,16,613, it having stood on one occasion as high as Rs. 17,79,020. In future there will be a loss of revenue amounting to Rs. 2,50,000 per annum, owing to the reduction of duty on foreign timber from 7 per cent. to 1 per cent. *ad valorem*. Still the Burma State Forests are probably the most valuable in India from a financial point of view, and, under proper conservancy, their value should increase further.

73. **Madras.**—The forest revenue has risen from Rs. 3,26,204 to Rs. 5,01,839, the rise having taken place during the year under review.

74. **Bombay.**—The revenue has, during the last sixteen years, risen from Rs. 10,07,610 to Rs. 15,22,807.

75. **Berar.**—In this non-British Province the revenue has developed in the same manner as in Bengal and Assam, it having risen from Rs. 15,106 to Rs. 2,66,556. There has, however, been a decline during the last three years.

76. The following abstract shows the total financial results of the Forest Department in India during the last seventeen years, arranged in periods of five years:—

Year.	Receipts.	Charges.	Surplus.
	Rs.	Rs.	Rs.
1864-65 to 1868-69, (average per year)	35,83,334	21,66,765	14,16,569
1869-70 to 1873-74 " "	54,71,755	37,96,784	16,74,971
1874-75 to 1878-79 " "	64,42,051	42,98,872	21,43,179
1879-80	67,92,206	45,45,757	22,46,449
1880-81	71,05,828	45,82,859	25,22,969

This table shows that the revenue and expenditure have increased in about the same proportion, which is satisfactory, if it is remembered that a much larger share of the expenditure is now devoted to the protection and improvement of the forests than was the case in the earlier years of forest administration.

77. The surplus forest revenue of the British Provinces, that is, excluding Berar—and Beluchistan for 1880-81—during the last three years, has been as follows :—

PRESIDENCY.	YEAR.		
	1878-79.	1879-80.	1880-81.
	Rs.	Rs.	Rs.
Bengal	12,29,982	15,96,541	18,29,876
Madras	41,890	Def. 15,478	1,49,835
Bombay	1,82,732	4,68,399	4,07,711
TOTAL	14,54,604	20,49,462	23,87,422

There has been a slight falling-off in Bombay during the last year; but on the whole, these data show satisfactory progress.

78. Export of Forest Produce.—The subjoined table gives the quantities of the principal items of forest produce exported from India :—

ARTICLES.	QUANTITY IN TONS OF 20 CWT.; IN THE CASE OF TEAK, 50 CUBIC FEET.		VALUATION AT PORT OF SHIP- MENT IN 1880-81.	
	Average of ten years, 1870-71 to 1879-80.	In 1880-81.	Total.	Per ton.
			Rs.	Rs.
1. Caoutchouc	599	490	10,61,686	2,166
2. Shell-lac	3,007	3,042	43,16,287	1,419
3. Lac-dye	603	315	1,30,201	413
4. Sandalwood, Ebony, and other ornamental woods.	505	(Not known.)	2,78,563	(Not known.)
5. Cutch and Gambier	10,911	15,803	42,22,527	267
6. Myrobalans	20,577*	15,781	12,37,087	73
7. Teak	41,495	65,626	50,00,406	76
Total ... ..	...	...	1,62,46,822	...

The exports of cutch and teak have been larger than the average of the last ten years, while those of lac-dye and myrobalans have fallen off. The total value of the articles exported, at port of shipment, amounts to Rs. 1,62,46,822, as compared with Rs. 1,19,05,024 in 1879-80, which represents an increase of Rs. 43,41,798 in the year under review.

* Average of five years only.

79. **Sandalwood.**—The quantity of sandalwood sold in Coorg during the last three years is shown in the following table :—

YEAR.	Tons.	AMOUNT REALISED.	
		Total.	Per Ton.
		Rs.	Rs.
1878-79 ...	33½	14,346	425
1879-80 ...	101	35,890	355
1880-81 ...	112	20,160	180
Average ...	82	23,465	236

The falling-off in the rate realised in 1880-81 is due to the large proportion of inferior wood which has been sold during the year.

80. **Teak.**—The following table exhibits the trade in teak in British Burma during the last three years :—

YEAR.	Yield of Government Forests in British Burma.	Imports from Foreign Territory.	Total.	Exports from Rangoon and Moulmein to Indian and other ports.
	In tons of 50 cubic feet.			
1878-79 ...	22,763	170,610	193,373	133,320
1879-80 ...	17,585	157,260	174,845	121,161
1880-81 ...	22,253	124,618	146,871	151,274

The imports from foreign territory have fallen off considerably of late, but now that the duty has been reduced from 7 per cent. to 1 per cent. *ad valorem*, a great increase may be expected, whereby, in addition to the loss of Rs. 2,50,000 on account of duty, a considerable reduction in the price of the teak timber derived from the British forests may be anticipated, unless an increased demand should make up for it.

As girdling operations have been resumed, the yield of the Government forests in British Burma is likely to rise up to about 35,000 tons annually. For the present the yield should not be extended beyond that limit, in order to enable the British forests to make up for the falling-off in imports, which must occur ultimately.

81. **Boxwood.**—During the last two years several consignments of Himalayan box-wood were sent to England. The first of these realised as much as £30 per ton, and it was bought up on speculation by engravers, as it was wood from a new locality. The results have, however, not been satisfactory; the wood cut up badly, and it was found useless for engraving, owing to its being too soft and short-grained. Information has been received that engravers will not buy the consignments now remaining unsold in England. Shuttle-makers and rule-makers may possibly buy it, but it is not likely that more than £15 to £18 per ton will be realised, which is too small a price to make the production and export of boxwood a profitable transaction.

STATEMENT I.
SUMMARY of REVENUE and EXPENDITURE during the YEAR 1880-81.

BUDGET HEADS.	Bengal.	North-Western Provinces and Oudh.	Punjab.	Central Provinces.	British Burma.	Coorg.	Assam.	Ajmere.	Surveys.	Total of British Provinces under the Government of India.	Hyderabad Assigned Districts.	Grand Total.
<i>Receipts.</i>												
I.—Timber and other produce removed from the forests by Government agency.	Rs. 1,61,567	Rs. 4,40,358	Rs. 3,15,711	Rs. 76,157	Rs. 8,61,487	Rs. 50,932	Rs. 18,768	Rs. 13	Rs. ...	Rs. 19,24,993	Rs. 512	Rs. 19,25,505
II.—Ditto ditto by consumers or purchasers ...	2,66,192	4,90,176	3,23,368	7,41,669	1,89,086	32,589	1,32,758	600	...	22,76,438	2,62,707	25,39,145
III.—Confiscated drift and waif wood ...	4,470	6,642	6,432	5,046	1,28,099	...	3,597	...	...	1,54,286	1,491	1,55,777
IV.—Revenue from forests not managed by Government ...	...	...	9,396	10,192	3,25,201	...	12,669	...	...	3,57,458	...	3,57,458
V.—Miscellaneous ...	29,111	5,053	16,772	17,075	12,740	4,336	1,205	511	272	87,075	1,848	88,921
Total Receipts ...	5,61,840	9,42,229	6,71,679	8,50,139	15,16,613	87,857	1,68,997	1,124	272	48,00,250	2,66,556	50,66,806
<i>Expenditures.</i>												
A.—CONSERVANCY AND WORKS.												
I.—Timber and other produce removed from the forests by Government agency.	84,082	2,29,414	1,28,989	1,39,931	8,36,679	14,334	9,480	18	...	9,42,827	103	9,42,930
II.—Ditto ditto by consumers or purchasers ...	29,565	28,742	2,128	1,46,064	8,071	...	3,090	15	...	2,17,675	15,913	2,33,588
III.—Confiscated drift and waif wood ...	936	721	914	...	40,943	...	109	...	...	43,623	...	43,623
IV.—Revenue from forests not managed by Government ...	...	...	2,591	...	...	...	...	...	...	2,591	...	2,591
V.—Rent of leased forests, and payments to shareholders in forests managed by Government.	...	12,501	45,720	251	...	...	...	...	...	58,472	17,120	75,592
VI.—Live and dead stock ...	16,671	18,999	8,637	10,368	20,752	2,816	10,283	85	2,602	86,213	3,200	89,413
VII.—Communications and buildings. ...	21,830	71,726	8,201	4,932	9,221	492	11,433	86	...	1,27,921	10,403	1,38,324
VIII.—Demarcation, improvement, and extension of forests. ...	35,519	49,205	30,008	34,188	56,909	11,942	32,120	4,523	5,098	2,59,507	7,418	2,66,925
IX.—Miscellaneous ...	1,066	4,110	3,144	4,652	5,291	372	2,694	28	...	21,357	3,199	24,556
Total Conservancy and Works ...	1,89,619	4,15,418	2,25,277	3,40,386	4,77,866	29,956	69,209	4,755	7,700	17,60,186	57,356	18,17,542
B.—ESTABLISHMENTS.												
I.—Salaries ...	1,24,723	2,21,355	2,24,843	1,29,891	1,92,711	21,106	60,501	6,738	24,679	10,06,047	60,402	10,66,449
II.—Travelling allowances ...	16,153	31,434	32,903	14,665	32,053	4,472	9,746	742	5,476	1,47,644	6,119	1,53,763
III.—Contingencies ...	4,886	11,367	12,345	10,571	9,938	953	3,269	188	2,480	56,497	5,092	61,589
Total Establishments ...	1,45,762	2,64,156	2,70,091	1,55,127	2,34,702	26,531	73,516	7,668	32,635	12,10,188	71,613	12,81,801
Grand Total of Expenditure ...	3,35,381	6,79,574	4,95,368	4,95,513	7,12,568	56,487	1,42,725	12,423	40,335	29,70,374	1,28,969	30,99,343
Surplus ...	2,25,959	2,62,655	1,76,311	3,54,628	8,04,045	31,370	26,272	...	...	18,29,876	1,37,587	19,67,463
Deficit ...	...	...	...	...	...	...	...	11,299	40,063	...	...	...

STATEMENT II.

Receipts and Charges of the Forest Department throughout India during the seventeen years from 1864-65 to 1880-81.

RECEIPTS.

PROVINCES.	1864-65.	1865-66.	1866-67 (11 months).	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bengal ... ..	...	38,584	50,555	75,687	2,24,546	1,13,753	1,19,678	1,39,088	1,49,851	1,16,633	1,85,933	1,98,274	2,22,401	4,26,228	4,16,024	4,49,524	5,61,340
North-Western Provinces and Oudh	6,93,644	7,70,370	7,79,200	5,77,644	7,85,211	8,33,077	4,25,257	11,70,901	19,39,114	19,32,677	13,63,358	12,64,356	11,50,671	12,03,108	11,26,755	10,39,966	9,42,229
Punjab	2,95,730	2,08,050	2,31,470	2,79,297	3,45,164	3,94,132	10,40,368	7,35,002	6,52,994	7,32,540	8,34,874	9,05,742	5,98,754	6,83,710	5,00,620	6,49,819	6,71,679
Central Provinces	89,307	2,02,644	3,67,095	3,49,491	3,50,536	4,16,020	6,58,120	4,47,764	4,81,673	5,68,367	6,61,779	7,25,335	6,61,326	6,83,910	8,52,862	10,06,723	8,50,139
British Burma	9,36,233	8,98,629	4,24,053	6,47,590	8,16,171	9,84,773	8,18,124	7,72,399	8,27,469	10,68,621	10,74,802	17,79,020	15,51,468	16,03,023	11,37,562	11,80,190	15,16,613
Coorg	1,02,218	1,08,257	31,934	77,746	74,448	1,08,152	74,067	92,453	84,424	1,10,079	58,012	1,07,457	75,929	1,01,015	52,020	1,01,786	87,857
Ajmere ... ..	...	...	...	...	...	...	...	...	24	508	203	410	905	3,002	1,241	1,861	1,124
Assam ... ..	...	...	...	...	...	...	...	...	...	62,726	64,749	1,07,302	81,568	1,34,326	1,61,779	1,64,336	1,68,997
Surveys ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	63	38	272
Total	21,17,132	22,26,534	18,84,307	20,07,455	25,96,076	28,49,907	31,35,614	33,57,607	41,35,549	45,92,151	42,43,710	50,87,896	43,43,022	48,38,322	42,43,926	45,94,243	48,00,250
Madras	3,11,778	3,26,204	3,33,608	4,24,184	3,91,179	4,95,789	3,39,732	4,18,832	4,18,767	4,64,194	3,64,326	4,26,359	4,15,312	4,04,164	3,33,694	3,65,750	5,01,539
Bombay and Sind	10,70,210	10,07,610	8,21,268	8,84,245	12,13,432	12,35,257	11,77,425	11,50,210	11,46,404	11,88,090	12,23,995	12,43,672	12,26,658	12,61,529	11,81,893	15,24,712	15,22,807
TOTAL REVENUE (BRITISH INDIA)	34,99,120	35,60,348	30,44,183	33,15,884	42,00,737	45,80,953	46,52,801	49,26,699	57,00,720	62,44,485	58,32,031	67,62,927	59,84,992	65,04,015	58,14,513	64,84,705	68,24,896
Hyderabad Assigned Districts	2,368	15,106	43,574	53,446	84,556	1,45,481	1,77,329	1,55,544	2,59,861	2,63,256	2,60,674	2,32,817	2,53,136	2,79,231	2,85,670	3,07,501	2,66,556
Biluchistan " " ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	14,376
GRAND TOTAL OF REVENUE	35,01,488	35,75,454	30,87,757	33,69,330	42,85,293	47,26,434	48,30,130	50,82,243	59,60,581	65,07,691	60,92,705	69,95,744	62,38,123	67,83,246	61,00,133	67,92,206	71,05,823

STATEMENT II.—continued.

EXPENDITURE.

A.—On Conservancy and Works.

PROVINCES.	1864-65.	1865-66.	1866-67 (11 months).	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bengal	2,092	19,480	89,326	1,41,382	95,581	61,004	26,272	43,907	28,526	28,552	39,062	68,255	90,172	1,46,857	2,10,914	1,50,295	1,89,619
North-Western Provinces and Oudh.	3,82,780	2,45,158	2,66,187	2,74,818	3,69,869	3,59,149	5,94,829	8,95,931	9,54,515	9,72,991	8,75,039	5,40,335	6,50,002	5,09,798	5,72,065	4,63,591	4,15,418
Punjab	1,62,120	1,94,110	1,76,950	1,75,920	1,93,516	5,55,375	10,30,005	4,78,003	5,45,068	3,54,457	4,19,305	3,18,498	3,70,330	2,58,949	2,58,952	2,20,827	2,25,277
Central Provinces	35,610	38,504	46,817	1,13,068	1,86,925	3,65,801	1,95,251	1,24,621	1,32,866	1,67,010	1,73,513	2,40,523	1,67,334	1,78,401	2,36,029	3,58,380	3,40,386
British Burma	1,77,158	2,21,739	2,04,591	2,25,049	3,22,981	3,11,404	2,89,445	2,45,514	2,03,929	3,32,391	5,31,841	6,60,515	8,22,064	6,40,062	5,00,783	5,29,692	4,77,866
Coorg	4,688	3,995	4,425	5,354	7,175	22,851	14,822	20,714	18,324	23,001	23,773	25,991	18,493	16,453	14,871	30,542	29,956
Ajmere ... ..	...	...	...	...	...	...	...	...	4,878	15,777	17,753	12,963	11,433	6,901	5,182	5,280	4,755
Assam ... ..	...	...	...	...	...	...	...	...	...	18,901	31,138	33,187	42,005	48,954	64,519	72,157	69,209
Surveys ... ..	...	...	...	...	...	...	...	...	8,303	7,420	3,906	5,134	7,684	10,024	10,663	8,655	7,700
Total	7,64,448	7,22,986	7,88,206	9,35,591	11,76,047	16,75,584	21,50,624	18,08,690	18,97,209	19,20,500	21,20,330	19,05,401	20,79,517	18,16,459	18,73,798	18,89,419	17,60,186
Madras	94,657	1,36,528	1,14,251	1,62,037	1,32,693	1,46,821	1,56,779	1,94,814	3,03,735	1,75,370	2,21,864	2,39,945	1,94,943	1,59,867	1,24,406	1,63,367	1,32,206
Bombay and Sind	3,17,699	5,63,067	4,36,470	3,32,175	3,87,412	3,28,985	3,84,638	3,27,729	4,34,612	4,11,547	5,20,049	4,80,801	5,30,394	5,36,477	6,37,117	6,59,701	6,93,935
TOTAL (BRITISH INDIA)	11,76,804	14,22,581	13,39,017	14,29,803	16,96,152	21,51,390	26,92,041	23,31,233	26,35,556	25,07,417	28,62,243	26,26,147	28,04,854	25,12,808	26,35,321	26,62,467	25,86,327
Hyderabad Assigned Districts ... ..	...	...	...	2,184	6,552	22,018	43,034	62,759	45,062	44,117	45,514	42,287	40,506	49,715	39,544	42,352	57,356
Biluchistan ... ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	6,015
GRAND TOTAL	11,76,804	14,22,581	13,39,017	14,31,987	17,02,704	21,73,408	27,35,075	23,93,992	26,80,618	25,51,534	29,07,757	26,68,434	28,45,360	25,62,518	26,74,865	27,04,839	26,49,698

STATEMENT II—continued.

B.—On Establishments.

PROVINCES.	1864-65.	1865-66.	1866-67 (11 months).	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Bengal	6,604	16,292	14,881	24,223	30,676	34,870	60,186	64,429	71,090	56,936	60,341	70,831	1,21,517	1,14,854	1,27,757	1,25,453	1,45,762
North-Western Provinces and Oudh	92,893	1,06,125	1,05,282	1,08,204	1,31,090	1,69,531	1,81,047	2,01,020	2,07,917	1,92,949	1,85,663	1,95,994	2,10,247	2,18,427	2,37,892	2,53,003	2,64,156
Punjab	84,665	77,968	78,680	97,955	1,15,828	1,58,279	2,03,951	2,27,321	2,50,874	2,42,705	2,27,175	2,35,728	2,52,153	2,58,217	2,64,602	2,59,849	2,70,091
Central Provinces	61,946	74,994	81,041	99,081	1,07,730	1,08,445	1,12,182	1,07,059	1,14,171	1,16,546	1,15,726	1,30,240	1,21,306	1,39,277	1,57,686	1,64,193	1,55,127
British Burma	86,081	90,327	80,544	1,03,339	99,191	1,10,058	1,11,293	1,32,935	1,32,095	1,42,140	1,30,797	1,54,235	1,82,980	2,15,754	2,17,618	2,23,798	2,34,702
Coorg	4,201	8,654	7,127	8,610	9,301	10,231	9,777	10,267	11,340	11,708	14,226	11,688	14,836	19,814	20,158	24,622	26,531
Ajmere ... ..	...	...	...	...	...	...	...	...	8,177	8,563	8,813	14,383	11,025	7,965	8,263	8,470	7,668
Assam ... ..	...	...	...	...	...	...	...	...	...	31,721	28,385	28,697	47,915	51,333	61,508	60,673	73,516
Surveys ... ..	...	...	...	...	...	...	...	...	12,875	42,852	57,614	53,859	49,820	49,684	49,662	38,222	32,635
Total of Establishment Charges ...	8,96,390	8,74,360	8,67,555	4,41,362	4,93,816	5,91,414	6,78,436	7,43,031	8,08,539	8,46,120	8,28,740	8,95,655	10,11,799	10,74,825	11,45,146	11,58,283	12,10,188
TOTAL OF ALL CHARGES ...	11,00,838	10,97,346	11,55,851	13,76,953	16,69,863	22,66,998	28,29,060	25,51,721	27,05,748	27,66,620	29,49,070	28,01,056	30,91,316	28,91,284	30,18,944	29,97,702	29,70,374
Madras	95,300	1,17,054	1,02,920	1,26,223	1,37,779	1,39,870	1,38,081	1,50,902	1,74,412	1,77,814	1,76,008	1,90,138	2,19,027	2,22,626	2,17,398	2,17,861	2,19,798
Bombay and Sind	2,10,352	2,11,987	2,10,973	2,14,962	2,39,711	2,15,811	2,33,125	2,57,035	2,78,430	2,93,990	2,96,071	2,97,676	3,01,548	3,20,467	3,62,044	3,96,612	4,21,161
Total of Establishment Charges (British India).	6,42,042	7,03,401	6,81,448	7,82,547	8,71,306	9,47,095	10,54,642	11,50,968	12,61,381	13,17,924	13,00,819	13,83,469	15,32,374	16,17,918	17,24,588	17,72,756	18,51,147
TOTAL OF ALL CHARGES (BRITISH INDIA).	18,18,846	21,25,982	20,20,465	22,12,350	25,67,458	30,98,485	37,46,683	34,82,201	38,96,937	38,25,341	41,63,062	40,09,616	43,37,228	41,30,721	43,59,909	44,35,243	44,37,474
Hyderabad Assigned Districts ...	478	8,991	13,718	16,157	27,553	58,692	38,938	38,071	37,994	41,523	45,875	48,586	54,146	69,253	67,806	68,162	71,613
Biluchistan " " ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10,401
GRAND TOTAL OF ESTABLISHMENT CHARGES.	6,42,520	7,12,392	6,95,166	7,98,704	8,98,859	10,05,787	10,93,580	11,89,039	12,99,375	13,59,447	13,46,694	14,32,055	15,86,520	16,78,171	17,92,394	18,40,918	19,33,161
GRAND TOTAL OF ALL CHARGES.	18,19,324	21,34,973	20,34,183	22,30,691	26,01,563	31,79,195	38,28,655	35,83,031	39,79,993	39,10,981	42,54,451	41,00,489	44,31,880	42,40,689	44,67,259	45,45,757	45,82,859

STATEMENT II—concluded.

SURPLUS REVENUE.

PROVINCES.	1864-65.	1865-66.	1866-67 (11 months).	1867-68.	1868-69.	1869-70.	1870-71.	1871-72.	1872-73.	1873-74.	1874-75.	1875-76.	1876-77.	1877-78.	1878-79.	1879-80.	1880-81.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
British India, excluding Madras and Bombay.	10,16,294	11,20,188	7,23,456	6,30,502	9,26,213	5,82,909	3,06,554	6,05,886	14,29,801	18,25,531	12,94,640	22,86,840	12,51,706	19,47,038	12,20,982	15,96,541	18,29,876
The Presidency of Madras ...	1,21,821	72,622	1,21,437	1,35,924	1,20,707	2,09,008	44,903	73,166	(Deficit 50,380)	1,11,010	(Deficit 83,540)	(Deficit 8,724)	1,842	21,071	41,890	(Deficit 15,478)	1,40,835
.. of Bombay ...	5,42,150	2,32,556	1,73,825	3,37,108	5,83,359	6,00,401	5,54,602	5,65,446	4,33,362	4,82,553	4,07,875	4,70,195	3,94,716	4,04,585	1,82,732	4,63,399	4,07,711
TOTAL NET REVENUE (BRITISH INDIA).	16,80,274	14,34,366	10,23,718	11,03,534	16,33,279	14,82,468	9,06,118	14,44,408	18,03,783	24,19,094	16,68,969	27,53,311	16,47,764	23,73,294	14,54,604	20,40,402	23,87,422
Hyderabad Assigned Districts ...	1,800	6,115	29,856	85,105	50,451	64,771	95,357	54,714	1,76,805	1,77,616	1,69,285	1,41,944	1,58,464	1,69,263	1,78,320	1,96,987	1,37,587
Biluchistan " " ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	(Deficit 2,040)
GRAND TOTAL OF NET REVENUE.	16,82,164	14,40,481	10,53,574	11,38,639	16,83,730	15,47,239	10,01,475	14,99,212	19,80,588	25,96,710	18,38,254	28,95,255	18,06,249	25,42,557	16,32,924	22,46,449	25,22,969