

(1) East India wheat Papers relating to
the introduction into India of the system
of grain-elevators in vogue in the
United States of America and in Canada

X9(J38) 88. 20k73 ¹⁸⁹⁰⁻⁹¹ C4

(2) Estimates of area and yield of
principal crops in India 1924-25
(Dept. of Commercial Intelligence and Statistics, India)
(27th series)

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F5

(3) Annual Season and Crop Report
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X9(J). 231r F2

(4) Annual report of the Agricultural
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(5) Annual Administration report
of the Bombay Veterinary College
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Sind for the year 1907-1908

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(6) Fifty-ninth annual report of the
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(7) Sixtieth " " 1921-22

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EAST INDIA WHEAT.

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1

PAPERS

RELATING TO THE

INTRODUCTION INTO INDIA

OF THE

SYSTEM OF GRAIN-ELEVATORS

IN VOGUE IN THE UNITED STATES OF AMERICA AND IN CANADA.

1890—91.

Presented to both Houses of Parliament by Command of Her Majesty.



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EAST INDIA WHEAT.

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INDIAN WHEAT TRADE.

P A P E R S

RELATING TO THE

INTRODUCTION INTO INDIA OF THE SYSTEM OF GRAIN ELEVATORS
IN VOGUE IN THE UNITED STATES OF AMERICA
AND IN CANADA.

1.

The GOVERNMENT of INDIA, to LOCAL GOVERNMENTS and ADMINISTRATIONS, Circular
No. 122-127 C.—(Agri.), dated 6th January 1890.

I am directed to forward, for information and consideration, the accompanying copy of a despatch and of its enclosure, received from Her Majesty's Secretary of State for India, relating to the formation of a Company for the introduction of grain-elevators into India. Circular forwarding papers for opinion.

2. His Excellency the Governor General in Council will, in the first instance, be glad to be favoured with the views of _____ as to the encouragement which may properly be given to the Company, and I am to suggest that the opinions of the Directors of the Department of Land Records and Agriculture, the Chambers of Commerce and of other authorities, official or non-official, whom _____ may think it advisable to consult may be obtained and forwarded to the Government of India with as little delay as possible.

2.

GOVERNMENT of INDIA, Revenue and Agricultural Department, to the SECRETARY
to the GOVERNMENT of INDIA, Public Works Department, No. 129 C.,
dated 7th January 1890.

The undersigned is directed to forward, for information and consideration, a copy of a despatch,* and enclosure, received from the Secretary of State, relating to the formation of a Company for the introduction of grain-elevators into India, and to say that this Department will be obliged if the Public Works Department will obtain the opinion of the Railway Companies mentioned in page 3 of Mr. Smith's letter.

3.

From LORD CROSS, to the GOVERNMENT of INDIA, No. 116, dated 28th November 1889.

I forward herewith a copy of a letter, and its enclosure, of the 17th September last, received from Mr. James G. Smith, of the firm of Messrs. Ritchie, Stewart & Co., Bombay, relating to the formation of a Company for the introduction of grain-elevators into India. It is unnecessary for me to dwell upon the very great importance of this project; and I shall be glad to be furnished with the views of your Excellency's Government on Mr. Smith's proposal, for State assistance to the Company, and on the merits of his letter generally. It is clearly impossible that the Government should assist the present project to the extent suggested in Mr. Smith's letter, but some aid might perhaps be given, and if your Government is disposed, as I presume it will be, to promote Mr. Smith's undertaking, I shall be ready to consider any recommendation which you may think fit to make. Forwards Mr. Smith's proposals for introduction of grain elevators.

2. I enclose, for your Excellency's perusal, a copy of the Board of Trade Journal for October 1889, in which, at page 309, will be found an account of the steps taken by the Russian Government to promote the erection of elevators along the lines of a railway leading to Odessa.

* No. 116 (Revenue), dated 28th November 1891.

4.

JAMES G. SMITH, Esq., of Ritchie, Stewart & Co., Bombay, to the UNDER-SECRETARY OF STATE FOR INDIA, dated 17th September 1889.

I have the honour to inform you that I desire, in connexion with a few others, to form a "Grain Cleaning and Elevator Company" for India, and we beg the favour of your laying our representation before the Secretary of State in Council, who, we trust, may be pleased to afford us his support and assistance in the directions necessary.

We beg to invite a reference to the accompanying memoranda on the subject laid unofficially before you last month by Colonel Filgate, R. E., from which you will observe that our aim is to introduce into India a system of cleaning, grading, and handling wheat, based upon that universally adopted in the United States and Canada, and now being extended to other countries.

In putting the scheme before you we do not consider it necessary to recapitulate in detail the many valuable opinions recorded in favour of some such system, as we believe the Secretary of State to be fully acquainted therewith.

Objects of the scheme.

Our primary object is to clean and raise the grade of the grain received from the producer, and to prevent the subsequent adulteration of Indian wheat which now prevails. By this, among others, the following advantages should be gained:—

- (1.) The improvement of the reputation of India as a wheat-growing country.
- (2.) The extension and the improvement of the cultivation of wheat by the above and by putting the business on a more satisfactory footing.
- (3.) The improvement of the position of the producer by depriving others of the opportunities of mixing, carrying, and profiting by an adulterated or dirty sample which was subsequently, at considerable expense and trouble, to be brought to a clean state before it can be used.
- (4.) The reduction of the expense of carrying and handling, by sea and by land.
- (5.) Facilitating the storage, purchase, and sale of, or the borrowing and lending of money on, the grain crops.
- (6.) Opening the trade to all acquainted with the markets as opposed to the present state, under which it is confined to grain experts, and to those who can or will pass off an adulterated article.

Benefits to be expected

The effects which may be expected are:—

- (1.) Benefit to India as a wheat-producing country, in increasing the demand for, by removing the objections to, its produce.
- (2.) Benefit to all concerned by putting the Indian wheat trade on a firmer and more satisfactory footing.
- (3.) Benefit to the State and other railway owners from increased traffic due to a better demand for and extended cultivation of Indian wheat by relieving them of the custody of grain at stations, and by the more rapid loading, unloading, and release of their waggons.
- (4.) Benefit to the trade generally in reducing charges for handling, &c.
- (5.) Benefit to the Port Trusts in concentrating the traffic at the port storage elevators.
- (6.) Benefit to the shipping in increased traffic and the more rapid loading of vessels.
- (7.) Benefit to the trade by introducing more reliable samples of wheat.
- (8.) Benefit to the consumer in supplying a true and graded article.
- (9.) Increased facilities for storing grain.
- (10.) Increased facilities for dealings in wheat and documents.
- (11.) Improvement in the position of the producer from the increased value of product when cleaned and graded.

Concessions required.

That the proposed Company may start with reasonable prospects of success, it appears to us that the assistance of Government would be necessary in the following directions:—

- (1.) Arrangements for the countersignature of certificates by Government officials.
- (2.) The free provision of land for the Company's purposes, either within or adjacent to the railway and Port Trust premises, and connected with the lines by sidings.
- (3.) A guarantee that similar facilities will not be afforded to a competing Company or individual for a term of 25 years.

- (4.) That the grant of concessions as above extend to every grain-shipping port, and along every line of railway, built or to be built, through the grain-producing districts of the Indian Empire.
- (5.) A guarantee of interest at the rate of 4 per cent. per annum for the first 5 years of the Company's operations, such advances being, however, repayable, without interest, from half of surplus profits in excess of 6 per cent.

The rights for which we would ask are as follows?—

- (1.) To erect elevators, cleaning or other machines for the cleaning, grading, and storage of wheat at all ports and railway stations connected with the grain trade.
- (2.) To levy charges (which may be under the control of Government) for the cleaning, grading, loading, and storage of grain.
- (3.) To issue certificates for the grain under the Company's charge.
- (4.) To act as agents for producers and others for the disposal of their grain.
- (5.) To act as agents for merchants and others for the purchase of grain.
- (6.) To make advances of money against grain held in the Company's elevators.
- (7.) To advance money to the ryots on the security of their land, crops, &c.
- (8.) To act generally as warehousemen, forwarders, shippers, and agents in all matters connected with the grain trade.
- (9.) To charge for any or all of these conveniences to the trade according to usage, and subject to the control of Government.

The adoption of the scheme at starting in its entirety, even at a few stations, is we are inclined to think, a step too advanced for immediate consideration, and we would now propose that the first operations be conducted so as to disturb as little as possible the existing arrangements. In this view, we would propose to select a few stations on some of the principal grain-carrying railways, and to conduct thereat simple cleaning and grading operations, returning the grain into bags, properly secured, and covered by certificates as to the quantity and quality, thus discarding for the present the idea of the elevator proper.

In the English markets our efforts would be directed to securing a demand for the and graded article, and further development of the scheme would be dependent on the results obtained. We have reason to believe that in the English grain markets, accustomed to the American system, the certificates above referred to will receive the credit they merit, and so soon as they become recognised in the Indian markets and thus act to the benefit of the producer, the steady development of a scheme may be confidently anticipated.

The railways on which it is proposed to commence are—

- The Great Indian Peninsula Railway,
- The Bombay, Baroda, and Central India Railway,
- The Bengal and Nagpur Railway,

being contributory to the shipping centre of Bombay, between which place and Liverpool the trade is considerable, while Liverpool is a port already accustomed to the American system of clean and graded grain.

The authorities of the above-named railways have been addressed, and, so far as at present ascertained, the scheme will be favourably received and supported by them.

stations at which machines is proposed to be erected will be selected in consultation with the Companies.

It is probable that in all, some cleaning, grading, and weighing apparatus stations at the outset will be provided with which will have to be sheltered from sun and with some elevating machinery, all of stand the vibration of the machinery, other by buildings sufficiently strong to withstand the vibration of the machinery, constructed with some regard to their future uses.

The machinery may be worked by hand or steam power, as circumstances may require. It appears to us that the employment of qualified men to commence, control, and instruct in the operations, and desire to avail ourselves of the assistance of the Railway Company to the utmost extent possible.

	£
We believe that the whole of the machinery required in the first instance is readily obtainable in England, and including freight, railway charges in India and other expenses we estimate its cost at - - - - -	7,500
The buildings at fifteen stations, with cost of fittings and erecting machinery, would probably cost - - - - -	10,000
The pay and allowances of staff, preparatory to the commencement of work, may be taken at - - - - -	5,000
And preliminary and contingent expenses at - - - - -	2,500
Making a total of - - - - -	£25,000

Besides keeping the capital expenditure within the narrowest limits, it would be our object to keep down the working expenses and charges as low as possible. In the more advanced stages of the undertaking the charges to be made will, beyond doubt, be far more than covered by the saving in cost of handling, &c., but during the preliminary operations just described the charges for cleaning and grading must be reduced to a minimum, to be covered by the enhanced value of the clean grain, and still leave the ryot sufficient inducement to avail himself of the advantages afforded.

During this period of education and experiment, we can hardly expect the machinery to do more than pay the expenses of its working, but each subsequent step in advance should put our operations on a more satisfactory footing.

So soon as a demand for clean and graded wheat is secured in the United Kingdom a demand on the part of the producers or owners for the cleaning and grading of the wheat will certainly follow, and as this increases, so will the present scheme progress towards the erection of a complete system of elevators, and as success becomes assured on one or more lines of railway leading to one port, so will other lines of railway and other ports be supplied with similar advantages.

All extensions of operations involving expenditure beyond the amount of 25,000 referred to in this paper, would be submitted for the sanction of the Government for India in such manner as he may direct, and we can guarantee a firm and steady interest to a half-yearly payment, calculated on the 25,000L. already indicated and on the sum at the rate of 4 per cent. per annum on the sum of such sanction, for a period of five years from the date of the acceptance of the proposals which we have the honour to make.

The capital of a Company sufficiently important to our representation must necessarily be large, but it would be limited to 25,000L. and during the continuance of the guarantee, further calls must be restricted to amounts necessary to cover the extensions duly sanctioned.

5.

MEMORANDUM by Colonel FILGATE, R.E., on the proposed American Elevator system of production into India of wheat.

The proposal to deal with Indian wheat after the manner of the American Elevator System, is put forward in the belief that it will commend itself to those high authorities conversant with the present serious conditions of the trade and interested in remedying them.

The promoters of this scheme believe themselves to be cognizant with the Indian wheat trade as at present carried on, both in India and England, with the system of handling and adulterating the wheat, and its sale in England, and with the American Elevator System under which pure and graded wheat only is put upon the English market. They are of the opinion that their experience, supplemented by their study of the subject, both from the views of high authorities, Government of Bombay, and Irish Millers, Sir E. Mr. McDougall, and others), and from the views of others connected with the trade, puts them in a position to deal practically with

Before proceeding to describe the proposed undertaking, it is desired to represent the advantages to be derived therefrom—advantages which will be shared by all except the middlemen, whose presence is considered the worst feature in the trade as it now exists. How Government is interested.

The Government in this matter may be likened to a large American Railway Company whose object it is to render most valuable, by cultivation or reputation, the lands in its ownership. It is due to this interest in the land and its produce, in America that the Elevator System has not only come into existence but has become universal and indispensable along the railroads of the wheat belt of the American continent, and so highly do the railways value the advantages of the system that, where the grain crop is the principal commodity the Companies decline to carry grain which has not been passed through the elevator. The advantages here indicated are that, by means of the elevator a perfectly pure and reliable sample is obtained directly it leaves the farmer's hands, and the reputation of the district is not risked by the producer being allowed to place upon the market grain which has not been subjected to this recognised process of cleaning and grading.

It must not be imagined that the farmer suffers from this apparent restriction in the forwarding regulations, for as he has found in practice it works entirely to his advantage as the superior cleaning machinery in the elevator raises the grade of the sample.

The advantages to the Government, as the possessor of land, as interested in the principal Indian railways, may be considered under those claimed in connexion with the transport of the grain. The railways concerned would be relieved of the responsibility and cost of receiving and guarding the wheat at their stations; as this would be done for them by the elevators, they would be relieved of the cost of loading and unloading their waggons, their rolling-stock would be more rapidly freed, and the fact of their carrying only the pure article would doubtless lead to their securing higher freights than when compelled to charge also for the conveyance of dirt. It should be added that when the carriage of grain in bulk is arrived at, the existing closed waggons (invariably used for the purpose in America) can be loaded and emptied by means of elevators in the space of a few minutes, no change whatsoever being therefore necessary in the waggon stock of existing railways.

To the various Port Trusts the proposed undertaking presents the advantage of concentrating the export grain traffic at the port storage and shipping elevators. By means of sidings the railway cars are run into these and instantaneously unloaded, while the ship to be loaded, when brought alongside, can receive its complement of grain in a few hours. Port Trust and Shipping.

The shipping interest is secured, in the first instance, like that of all others concerned, by the improved footing on which the grain trade is to be placed, but also in the more rapid and less costly loading of the vessels and by their being enabled to carry a greater quantity of grain in bulk than in bags. For this purpose the Atlantic steamers are usually fitted with bulkheads, the addition of which is no inconvenience and of little expense, the divisions so made being capable, as a rule, of holding 1,000 quarters of grain each.

The advantages to the producer are as follows: on delivery of his grain to the elevator it is cleaned, graded, and weighed, and a receipt therefor at once granted to him. This receipt may be held, sold, or transferred by him at his pleasure, it being negotiable in all banking transactions just as is a bill-of-lading or railway or warehouse receipt, and possessing the additional security that it represents a certified quantity of pure grain of a certain grade or grades. By this system it is further secured to the producer (or other owner of the wheat) that the proper value for his grain will be obtained, as it remains in the custody of the Elevator or Railway Company (as his agents) until placed on board ship. Advantage to Producer.

Means are afforded to him of holding the grain so long as he likes until prices suit, the Elevator Company being responsible for its condition.

Grain ultimately deposited at the seaport storage elevator, is under this system, sold and resold on the American continent through the medium of the elevator receipts without delivery. The whole system as affecting the producer is one calculated to secure to him the maximum value of his product, and to encourage him to grow more and better grain year by year.

Turning to the trade generally, it is, on the face of it, a very unsound condition of things that a large per-centage of dirt should be carried from the Indian wheat fields to the English market, but what can be said of a policy which permits, in addition to Advantage to trade.

this, the existence of middlemen, who, for selfish ends, concoct mixtures which ruin the reputation of the country as one capable of producing good wheat? But this is not the only important evil done to the trade, for, under the existing circumstances, which lead to such mixtures becoming recognised samples, the business is necessarily confined to those who can or will pass off as Indian wheat upon the English markets a sample which just passes muster, and inflicts upon the miller a mixed and dirty article, tending to depress, year by year, the reputation of Indian wheat. That such men should oppose any such scheme as that suggested may of course be accepted at the start, but what is to their disadvantage in this matter reacts to the advantage of the producer, for the clean wheat, which is the basis of the trade, must necessarily suffer in price in proportion to the extent to which adulteration by middlemen is carried on.

As opposed to this, the Elevator System throws the trade open (thereby increasing competition) to all acquainted with the markets, although not necessarily grain experts, for they buy and sell on recognised certificates, which bear on the face of them the quality and quantity of the grain.

The trade also directly benefits by the saving of the charges which must necessarily be incurred in mixing and conveying dirt.

The proprietors of the proposed Elevator Company believe that, under certain favoured arrangements, which will be hereafter described, they can, by small charges for cleaning, grading, and storing wheat, secure to themselves a fair return on their outlay, and that the economy of the system will lead to their charges being covered many times over by the existing cost of handling, sampling, &c.

The undertaking may be commenced upon by selecting, in concert with Government, one line of railway for its operations, and these operations may be limited at the outset to a few favourable stations, at which wheat, after cleaning, might even be returned to the bags. In this manner the risk might be reduced to a minimum, until the demand for the pure article had been ascertained. In this connexion it must be borne in mind that, disregarding London for the moment, there are many important markets which demand clean wheat, and millers who protest against or refuse to take, except at low prices, the mixtures now offered to them, and so troublesome and expensive to them to clean and to separate.

If successful in finding a market for its cleaned and graded article (which success it has no reason to doubt), the Company would be prepared to extend its operations by the erection of elevators wherever deemed necessary, and to such a point as to secure that it will become a recognised institution as in America.

Government
assistance
and control.

The Company would be prepared to submit to the regulation of its charges by Government, and their first request would be that their cleaning and grading be so conducted to the satisfaction of Government that they would allow an officer, appointed by themselves, at each station to countersign the certificates issued by the Company, the Company undertaking to hold the Government harmless for the proper delivery of grain of the proper description. The promoters would stipulate for this, and be prepared to bear the cost of it, as at once placing them in a position above suspicion as to the value of their certificates. Possibly, this might be effected at first by local officers in addition to their duties.

The assistance required from Government in order to secure the formation of a Company of character and strength sufficient to deal with such a problem as this must take a form which will enable the Company safely to await the gradual development of the scheme. From the producer to the miller every one has, more or less, to be educated to the benefits of the system, and the proposed Company could not risk the undertaking of this education without some security that if so far successful, they would be freed from the immediate opposition of others who had not undertaken this initial trouble and expense, but were ready to take advantage of the opening secured.

The Company would require, as already stated, the assistance of Government officers in the matter of its certificates.

It would require land for the erection of its elevators both at the ports (on Port Trust land) and in or connected with the railway premises at each station where an elevator is to be erected.

The elevators would have to be connected with the railway lines by sidings. And it would require that similar facilities should not be afforded to a competing Company or to individuals for a term of say twenty-five years. These concessions to extend to every grain-shipping port, and along every line of railway built or to be built into or through the grain-producing sections of the Indian Empire.

The Company would also require that interest at the rate of 4 per cent. per annum be guaranteed by Her Majesty's Secretary of State for India on their paid-up capital during the first five years of their operations. Such advances to be repaid, without interest, from half of surplus profits earned by the Company in excess of 6 per cent. It is believed that the concessions asked for are reasonable and legitimate.

For over ten years now it has been recognized that the future of India, as regards its farming interests, depend upon the introduction of the Elevator System as applied to the American continent.

The grant of land by Government free to Companies calculated to work out a public benefit is not an unusual favour.

The grant of the exclusive privilege for a limited period is also similar to what has been secured to Railway Companies in the past by their contracts with Government.

The grant of a guarantee also, for so short a time as five years, is not unreasonable considering the State interests at stake.

The rights required by the Company would be much as follows:—

To erect elevators for the cleaning, grading, and storage of wheat at all ports and railway stations connected with the grain trade.

To levy charges, as authorized by Government, for the cleaning, grading, storage and loading of grain.

To issue certificates for the grain under their charge.

To act as agents for producers and others for the disposal of their grain.

To act as agents for merchants and others for the purchase of grain.

To make advances of money against grain held in the Company's elevators.

To advance money to ryots on the security of their land, crops, &c.

To act generally as warehousemen, forwarders, shippers, and agents in all matters connected with the Indian grain trade.

And to charge for any or all of these conveniences to the trade according to usage, and subject to the control of Government.

But the Company will not be permitted, under any circumstances, to act as merchants or owners of grain.

The details connected with the working of this scheme are numerous, important, and interesting, but it is probably not necessary that many of them should find a place here.

An elevator may be seen at work at more than one place in England. It consists of a building of considerable height, and of varying floor space according to its capacity, the length invariably increasing with the latter. The "handling elevators" at the railway stations in America usually possess a capacity of from 30,000 to 40,000 bushels, and occupy a ground space of about 30 feet × 40 feet, and run to a height of from 60 feet to 75 feet. The "port storage elevators" run from 250,000 up to 1,000,000 bushels and over. The ground space occupied by these would be, say, 50 feet to 60 feet in width, and from 100 feet upwards in length according to capacity. The "first Russian grain elevator" recently erected was for a capacity of 275,000 bushels, and measures 63 feet × 128 feet, and is 82 feet high to the roof. It cost 214,000 roubles, which is probably 30 per cent. to 40 per cent. more than it would have cost in America. Elevators described.

The machinery in connection with an elevator consists of steam or other motive power, together with weighing, elevating, conveying, cleaning, separating, and fanning machinery. A good deal of information, including dimensions and prices, can be obtained about these in this country. It is believed that the "elevator" machinery generally has been brought to such perfection that, in spite of its simplicity, it performs its work with great efficiency, expedition, and economy, and is not liable to get into any serious disorder with ordinary care. In many out-of-the-way places, on the American frontier settlements, the elevators are hundreds of miles away from foundries or mechanical workshops.

The elevator in America is usually made of wood, but there is no reason why the building should not be of any other material. The cost of an elevator in America is usually calculated at its bushel capacity, including all appliances, and ranges from 25 cents per bushel for the smaller elevators to as little as 18 cents per bushel for the largest size of storage elevators. Elevators are frequently built on an undeveloped plan, and added to in length as their capacity requires to be increased. Cost of working and charges.

The cost of working an elevator is comprised of the price of fuel, the salary of the manager, and the pay of a small number of "hands," varying from 2 to 12, according to the size of the elevator. The cost of fuel at the "handling" or up-country

elevators is considerably reduced by the fact that the weed seeds (often very abundant in oil) and other refuse, extracted in process of cleaning the grain, are made use of for this purpose.

The general rule for years past at the up-country elevators, has been to charge half a cent per bushel for cleaning, grading and weighing, and 2 cents per bushel for a minimum of one month's storage, weighing, and loading into cars. It seldom happens that grain is stored in these for so long as one month, for they are used for cleaning and passing on the grain to the port storage elevators.

At the latter, other storage charges are made for longer periods at reduced rates, a small specific charge being made, if it is necessary, during the storage of the grain, to pass it through the fanning machinery in order to secure its condition.

Experience on the American continent has shown the business to be a thoroughly safe one from the fact that the Elevator Company takes no risk in connection with the grain market, but merely acts as warehousemen and agents for farmers or grain merchants, the charges being a first claim upon the grain passing from the Company's hands. It is very necessary so to locate and construct each elevator that it shall, as nearly as possible, equal the demands at the point, but provided this is seen to, every elevator should necessarily return a fair dividend upon the cost of construction and the yearly cost of working.

If the proposed Company's operations be restricted, at the start, to up-country operations at a few stations, it is believed that a sum of 50,000*l.* would suffice, to be increased by a similar sum so soon as circumstances justify and Government permit extensions to some other stations, and to a storage elevator at the port concerned. It is hardly likely that the Company's expenditure, during the first five years of its existence will exceed 100,000*l.*, but thereafter, presuming that the benefits of cleaning will then be thoroughly appreciated, both in England and in India, the capital expenditure will increase to a large figure.

6.

GOVERNMENT OF INDIA, Public Works Department, to GOVERNMENT OF INDIA, Revenue and Agricultural Department, No. 104 R. T., dated 1st May 1890.

With reference to correspondence ending with Revenue and Agricultural Department endorsement No. 226 C., dated 31st January 1890, the undersigned is directed to forward, for information, a copy of a letter No. 477 T., dated 13th March 1890, and enclosures, from the consulting engineer to the Government of India for Railways, Central Division, regarding the formation of a "Grain Cleaning and Elevator Company for India."

2. A further communication on the subject is expected from the Government of Bombay and will be forwarded on receipt.

7.

OFFICIATING CONSULTING ENGINEER TO THE GOVERNMENT OF INDIA FOR RAILWAYS, Central Division, to GOVERNMENT OF INDIA, Public Works Department, No. 477 T., dated 13th March 1890.

In reply to Public Works Department No. 0189 R. T.* of 4th February 1890, I have the honour to forward copies of a letter, No. 2166 of 8th March, from the Agent and Chief Engineer, Bengal-Nagpur Railway enclosing copies of a letter from Major W. T. LeBreton, Retired List, a promoter of the Cleaning and Elevator Company, to the Bengal-Nagpur Railway Company, and of the reply to it, by the Board.

2. The requests for assistance made by Major LeBreton appear reasonable and such as the Bengal-Nagpur Railway might grant on its own interest.

3. The proposals of the New Company embrace two perfectly distinct things, viz. :—

- (a) a system of receiving dirty or adulterated grain, cleaning, bagging, and storing it, and issuing it again under a system of certificates signed by a Government official; and
- (b) the introduction of the American Elevator System.

* R. T., March 1890, Nos. 99 to 110 A.

4. To take the second first, the American Elevator System is a mechanical system of loading and unloading and weighing grain in bulk by the action of gravity and is the outcome of the peculiar conditions of the grain trade in parts of the United States of America, where manual labour is costly and where very large quantities have to be received or delivered at great centres like Chicago in the shortest time and at the smallest cost possible. A sketch of the mechanical part of the system will be found in the Proceedings of the Institute Civil Engineers, Volume LXXXVII, page 237. The system is only adapted for dealing economically with very large quantities of grain in bulk, not in bags, and where the grain is carried both by rail and by ship, in bulk and not in bags.

The American system.

These conditions do not exist in India. Here manual labour is cheap. The quantities to be dealt with at any up-country railway station cannot be called very large; they are necessarily brought to the railway station in bags, not in bulk, and neither the rolling stock of Indian railways, nor, I believe, the ships frequenting Indian ports are adapted for carrying grain in bulk. However, as the Company do not propose at first to adopt the Elevator System, it is unnecessary to say more here than to observe that the Government of India could not give them a monopoly to use any kind of machinery in which the Company did not possess a patent right of invention obtained in the usual way under the Patent Laws.

Indian conditions.

5. As regards the other proposal of the new Company to establish cleaning machinery at several centres, as set forth in Messrs. Ritchie Stewarts' letter to the Under-Secretary of State for India, the advantages and beneficial effects will be disputed by no one.

6. As regards the countersignature by Government officials of certificates of the quantity and quality of the grain bagged by the Company, it is not apparant how any arrangement could be made. No Government official could be held responsible for his signature to the certificates unless he had complete means, in time, opportunities and technical knowledge, of verifying their correctness, and without such responsibility his signature would be of no value.

7. To carry out the proposal, it would be necessary to appoint special experts to the depôts, who would have to reside constantly on the premises and see all the grain cleaned, bagged and weighed. They would fill a position and perform duties closely analagous to those of the Excise officers attached to breweries and distilleries in the United Kingdom. Government could not thus accredit the certificates without becoming responsible for their contents. Were the experts paid by the Company, they would not be Government officials even if they were appointed and dismissed by Government, and there appears to be no reason why the State should assume any responsibility or incur any expense to further the objects of a private mercantile company.

Inspectors and certificates.

8. It would probably be expedient in most cases in the interests of the railways to allow the Company the use of land and sidings at some of the principal stations, but this could not be promised to the Company free of cost, and each case should be dealt with on its merits.

9. It would not seem expedient, even if possible, to grant a monopoly to any Company of any advantage or assistance which Government could properly give. It is not clear how the State could guarantee any interest on capital to a Company over whose operations they could exercise no control, and if the great and wealthy firms now engaged in the wheat trade in India and who ostensibly clean their wheat at the railway stations do not really clean it, it is not clear why it should be expected that they would make it over to another Agency to clean for them.

10. The nine rights for which the Company ask appear to be rights already possessed by all British subjects without any control from Government.

11. I do not think the staffs of the railways could be properly employed in erecting buildings to be the property of the grain Company, and the Company should not look to the railways for other assistance than what the railway workshops could give on the usual terms of payment.

12. The proposed Company would no doubt have to contend with the most formidable opposition from all those people who at present find it more to their interest to deal in adulterated rather than in clean grain, but I think they could and should rely for success, not on Government patronage, but on their own just dealing, like any other commercial firm who propose to succeed by producing and selling a better article than their competitors, and by establishing a reputation for doing so.

8.

AGENT AND CHIEF ENGINEER, Bengal-Nagpur Railway, to CONSULTING ENGINEER FOR RAILWAYS, Central Division, No. 2166, dated 8th March 1890.

In reply to your No. 307 T., dated 17th February 1890, enclosing copy of Government of India No. 0189 R. T., dated 4th February 1890, I have the honour to forward copies of correspondence sent me by my Board with their general letter No. 66 of 1st November last.

The letters contain all I know on the subject at present, but I understand the Board to mean that they are quite prepared to give any facilities in their power that the Government of India would agree to.

9.

MAJOR W. T. LEBRETON, to MANAGING DIRECTOR, Bengal-Nagpur Railway Company, dated 17th September 1889.

Some friends with whom I am associated in the matter have under consideration a scheme for placing the Indian grain trade upon a more satisfactory footing than at present.

We purpose ultimately to establish in India a system very similar to that known in America as the Elevator System, and we believe that one of its most important advantages will be that which will accrue to the railways carrying on the operations in the grain-producing districts.

Objects and advantages of the scheme.

You will be well aware that the existing system is detrimental to the reputation of India as a wheat producing country, and to the extended cultivation of this product, in placing upon the English market adulterated and inferior samples hampered with charges and illegitimate profit, and depressed in value to the consumer by his expenses and trouble in rendering it fit for milling purposes. These circumstances necessarily re-act upon the producer and discourage him from improving and extending his operations, the result being that the areas under cultivation show a tendency to diminish rather than to increase.

With a proper system of cleaning, grading, and storing and handling, we believe that we may calculate on results the opposite of this, and when our ulterior object is arrived at, the railways concerned should benefit in an improved traffic and reduced expenses in handling and in the provision of waggon stock.

A system of elevators properly equipped and situated would relieve the railways of much of the detail and expense of receiving and dealing with grain consignments, and would free the waggons much more expeditiously than under the present system. Even where a break of gauge or necessity for transshipment occurs, a transfer elevator will perform the necessary duty more advantageously than the employment of manual labour. The present intention of my friends is, however, to approach this end gradually, and, as a commencement, their purpose is to establish cleaning operations at a few of the principal stations on some of the most important lines of railway, returning the grain, after cleaning and grading, into its own bags, to be handled by the Railway Companies in the usual way.

In the representation to the India Office it is provided that the clean and graded grain be covered by a certificate countersigned by a Government official, and it is beyond doubt that in European grain centres accustomed to the American system such certificates will receive the credit they deserve, and so soon as they become recognised in the English market, a steady development of the scheme may be confidently anticipated.

We have every reason to believe that the scheme will receive the support of the Indian Government, and my object in now addressing you is to inquire to what extent we may hope for the valuable assistance of your Company.

We would desire to be informed if your Board would desire to see our operations extended to your line of railway, and, if so, would ask the favour of your naming two or three of the most important grain centres which you would suggest for our preliminary cleaning operations.

Assistance required from the Railway.

It is important that the cleaning should be carried on as near as possible to the existing goods-sheds and sidings, and it would be a great assistance to us if your Company would allow us to carry on the work within its own premises. The cleaning

machinery proposed in the first instance would occupy but little ground space, and might be sheltered by an extension of, say, 25 feet of any existing goods-shed.

The other directions in which the assistance of your Company would be valuable may be denoted as under :—

- (1.) The hearty co-operation of your staff, especially at stations concerned, in affording such assistance that lay in their power.
- (2.) Possibly some extra care at the outset in the handling and conveyance of certificated consignments.
- (3.) A favourable rate for the conveyance of the necessary plant and machinery.
- (4.) The assistance of your engineering staff in the erection and construction of any buildings.
- (5.) The supply to us of any old engines, material or fuel required for our purposes.

For all such services and supplies we would of course be prepared to pay. At this moment I can but ask you kindly to lay before your Board this general sketch of our plans and wants, and should it meet with a favourable reception, a few of us will be happy to meet you for the purpose of discussing details.

10.

MANAGING DIRECTOR, Bengal-Nagpur Railway Co., Ltd., to Major W. T. LeBRETON,
dated 11th October 1889.

I have submitted to the Board of Directors your letter of the 17th September, relative to a scheme for placing the Indian grain trade upon a more satisfactory footing than it is on at present, by the establishment of a system of cleaning, grading, storing, and handling grain in India similar to that known in America as the Elevator System.

The Board fully recognize the probable beneficial results of a system which would effect the improvements you contemplate.

When your friends are in a position to commence operations, the Board will be glad to place them in communication with our Agent in India, at the same time forwarding him a copy of your letter and instructing him to afford them facilities for giving your system a fair trial.

Co-operation
promised.

11.

GOVERNMENT OF MADRAS to the GOVERNMENT OF INDIA, No. 1323, dated
24th February 1890.

With reference to Mr. Under-Secretary Muir-Mackenzie's Circular, dated the 6th ultimo, No. 122-227 C. (Agri.), I am directed to forward copies of the papers noted below,* and to state that His Excellency the Governor in Council concurs in the opinion expressed by the Board of Revenue, that the proposals do not call for consideration in this Presidency, as the area of wheat cultivation is very small and is not likely to increase materially.

12.

CHAMBER OF COMMERCE, Madras, to GOVERNMENT, Madras, dated 7th February 1890.

I have the honour to acknowledge receipt of the order of the Madras Government, dated the 21st ultimo, Mis. No. 445, forwarding to the Chamber for remarks, copy of a despatch and its enclosures, from Her Majesty's Secretary of State for India, relating to the proposed formation of a company for the introduction of grain elevators into India.

In reply, I am desired to say that it seems to the Chamber that, when those concerned in the wheat trade of India are satisfied that an elevator system would be beneficial, there would be sufficient enterprise in Bombay and elsewhere to introduce that system without the elaborate guarantees that are asked for by Mr. James G. Smith. The need for official interference in the matter has yet to be made out, and the Chamber especially deprecates the creation of a semi-official monopoly, but it is right to add that the scheme does not directly concern the Presidency of Madras.

Official
interference
deprecatd.

* From the Board.—Proceedings dated 29th January 1890, No. 411 Mis. From the Chamber of Commerce—Letter dated 7th February 1890.

13.

PROCEEDINGS of the BOARD of REVENUE, Madras (Revenue Settlements, Land Records and Agriculture),—No. 411 Mis., dated 29th January 1890.

Scheme not
required in
Madras.

RESOLUTION.—With their letter communicated in the G. O. read above, the Government of India forward papers detailing a scheme for providing grain elevators at certain stations in India in order to clean and raise the grade of the wheat at present exported. As the area of wheat grown in Madras is very small, and as it does not appear likely to increase materially, the Board is of opinion that the proposals do not call for consideration in this Presidency. Nor is there sufficient information available here to admit of their forming an opinion on the merits of the proposal generally.

14.

GOVERNMENT OF BOMBAY to GOVERNMENT OF INDIA, No. 7197, dated 9th October 1890.

I am directed to acknowledge the receipt of Mr. Muir-Mackenzie's Circular letter No. 122—127 C. (Agri.), dated 6th January 1890, and memorandum No. 221 C., dated 31st idem, with their accompaniments, on the subject of the formation of a Company for the introduction of grain elevators into India.

2. In reply, I am directed to forward herewith, for the information of the Government of India, copies of the reports received from the Chambers of Commerce, Bombay and Karachi, the Director of Land Records and Agriculture, and the other officers, &c., mentioned below,* who were consulted by this Government on the subject, and to communicate the following observations of His Excellency the Governor in Council.

3. It will be observed that the majority of the officers, &c., consulted are either opposed to the scheme propounded by Mr. Smith, or support it in a very lukewarm manner when shorn of the onerous conditions stipulated for by that gentleman.

State aid not
required.

4. As it is not proposed, for the present at least and for some time to come, to construct elevators, the operations of the projected Company would be limited to cleaning and grading wheat at some few principal trading and railway centres. For such an undertaking no State aid is needed, no monopoly should, or indeed, in the opinion of His Excellency the Governor in Council, without special legislation, could be granted, and no concessions in the form of free land and guaranteed interest on capital should be given. The matter is one purely of private enterprise; it is a mere trading venture, and has no special claim on direct Government assistance.

5. That the wheat grown in the corn-producing tracts of India should reach Europe clean and free from adulteration and admixture of dirt and impurities is indeed a circumstance much to be desired. His Excellency in Council, however, greatly doubts whether the scheme now propounded would secure this desideratum.

Want of in-
ducement to
clean wheat.

6. That Indian wheat is despatched from this country with a considerable admixture of substances which are not wheat is the result of the action of the middleman and the merchant quite as much as, if not more so than, it is the consequence of the negligence or dishonesty of the actual grower. It is clear that the grower cannot be compelled to take his grain to the cleaning and grading depôts of the proposed Company; and he is not likely to do so if he finds that he has to pay for having it cleaned and graded, and that at the end of the process he has returned to him as genuine wheat a less quantity than the produce he brought to the depôt. It is also clear, in the opinion of the Governor in Council, that in the existing circumstances of the trade, the middleman and the exporter will put no pressure on the grower to induce him to have his wheat graded and cleaned. The probabilities, therefore, are that if the Company established its depôts it would find that they remained idle and unused.

Certificates:
objections to.

7. The Governor in Council also considers that it is obviously most undesirable that any certificates concerning wheat which has been cleaned and graded at a station or depôt should be countersigned by Government officials. There is nothing whatever to

* The Political Agent, Kolhapur and Southern Maratha Country. The Political Agent, Kathawar. The Commissioner, Northern Division. The Commissioner, Central Division. The Commissioner Southern Division. The Commissioner in Sind. The Public Works Department, Railway Branch.

prevent wheat so cleaned and graded from being adulterated and mixed with inferior wheat, or weighted with dirt and weed seeds in Bombay or elsewhere after it left the depôt, and the certificate would then be rendered false and misleading.

8. The project now brought forward appears to the Governor in Council to be very different from such a scheme as one for the construction of a railway. It practically is a project for obtaining Government assistance in lending money to cultivators in competition with the local banker. The latter, however, at present holds the field, and would take every care to prevent the proposed Company from interfering with his business and securing his clients.

15.

CHAMBER OF COMMERCE, BOMBAY, to GOVERNMENT OF BOMBAY, dated 19th February 1890.

I have the honour to acknowledge the receipt of your letter, No. 748 of 29th ultimo, giving cover to a letter from the Government of India, Revenue and Agricultural Department, with accompanying papers relating to the formation of a Company for the introduction of grain elevators into India, respecting which you request the opinion of this Chamber. Opinions adverse.

2. The subject has received the most careful consideration of the Committee, who have also obtained, in addition, the views of other members of the Chamber largely interested in, and conversant with, the wheat trade of India, both as up-country buyers and exporters; and I am directed to say that the opinions expressed are unanimously adverse to the proposed scheme as being unsuited to the requirements of the country, and impracticable financially.

3. In America, where large tracts of land are under cultivation with the same description of wheat, which can be graded according to the quality of the season, as No. 1 or No. 2, elevators situated at suitable centres of rail and water communication afford to growers, dealers, and speculators a safe, cheap, and convenient means of marketing and storing their produce, which is practically a necessity in an uncertain and rigorous climate. Similar requirements and conditions, however, do not exist in this country. The descriptions and qualities of wheat produced are far too numerous and varied to admit of the system of classification and grading prevailing in America, while the absence of transit facilities prevents the trade concentrating at interval centres in sufficient volume to afford employment for elevators. No doubt, this latter difficulty will be materially lessened as railway communication is extended and improved; but the climatic objections for the use of elevators are permanent and apparently insuperable. For seven or eight months of the year grain can be safely kept in the open air without expense for either rent, fire insurance, or other charges incidental to warehousing; while, during the other four or five months, the native system of storage in pits is not only inexpensive, but gives immunity from weevils which no mode of warehousing ensures. The loss in weight from this cause alone, during the monsoon, would probably not be less than 5 per cent., not to speak of the still more serious damage to quality which results, and for this reason alone, if no other objection existed, the members of the Chamber consider that elevators would prove unsuitable and impracticable. The low cost of manual labour in India, moreover, is an important factor in estimating the working prospects of such a scheme; and except in the mere process of cleaning, where possibly mechanical appliances would be an advantage, little, if any, economy could be obtained in handling wheat by means of elevators. American conditions different.

4. To the cleaning and improving the quality of Indian wheat, this Chamber has always attached the utmost importance; and any means of a practical character likely to attain or further that end would be welcomed by those interested in the trade of Bombay. It is not apparent, however, how the introduction of another intermediary between the grower and the exporter is likely to give any beneficial results. This Chamber has always contended, and still maintains, that given proper conditions of sale in the consuming markets, no difficulty exists in obtaining sufficiently clean wheat at present; but if that were not so, it is evident that the measures to obtain greater cleanliness and freedom from impurities must be taken at the time of threshing, as adulteration or dirt once introduced is beyond a certain point irremediable. Clean wheat should and can come from threshing floors.

16.

KARACHI CHAMBER OF COMMERCE TO GOVERNMENT OF BOMBAY, dated 28th February 1890.

I have the honour to acknowledge receipt of your Revenue Department letter No. 743, dated 29th ultimo, forwarding copy of a letter from the Government of India, No. 122 Agriculture, dated 6th January 1890, with accompaniments, on the subject of the "introduction of grain elevators into India," and asking the views of this Chamber on same.

In reply, I am directed to say that, in the opinion of this Chamber, while they consider the scheme is a desirable one, the guarantees required seem to them to be unduly advantageous to the Company, and they think that when the time for its execution arrives it will probably be on more favourable terms to Government.

17.

POLITICAL AGENT, Kolhapur and Southern Maratha Country, to GOVERNMENT OF BOMBAY, No. 141, dated 2nd April 1890.

Scheme unsuitable.

With reference to Government Resolutions Nos. 747 and 1269, dated respectively, the 29th January and 18th February last Revenue Department, I have the honour to state that, although the scheme of introducing grain elevators into India is doubtless an excellent one, where wheat is grown in large quantities, it is, in my opinion, unsuitable to the present condition of the Kolhapur and Southern Maratha Country States. In none of these States is wheat cultivated in large quantities, and the grain elevators would find little, if any, work.

18.

POLITICAL AGENT, Kathiawar, to GOVERNMENT OF BOMBAY, No. 367, dated 10th April 1890.

With reference to Government Resolution No. 747 of 29th January last (Revenue Department), and accompaniments, I have the honour to forward copy of a note* by Mr. A. Whittle, an expert, resident in Kathiawar.

Kathiawar not a great wheat-producer.

2. Kathiawar is not one of the great wheatfields of India, though the production for export is believed to be increasing. Most of the grain goes by country boat to Bombay—a fact which would somewhat complicate the introduction of the proposed elevator system.

The chief practical difficulty.

3. The chief practical difficulty at the outset would be the local **bunya*, who almost always has a lien on the crop, and who would recognise the new system as fatal to his position and oppose it accordingly. Over the greater part of Kathiawar he is the master of the ryot, and would probably be strong enough to upset the scheme.

4. It can scarcely be expected that the States owning the Kathiawar Railways will share in the initiative of the scheme; but if it succeeds on the great British lines of rail, it is probable that a progressive State like Bhavnagar might take it up, and grant land for buildings, though it could perhaps scarcely be asked to guarantee interest on the capital invested.

5. The limited quantity of wheat grown in the province for the European market, and the general helplessness of the cultivators make the subject of less importance in Kathiawar than elsewhere.

**Grain-cleaning and Elevator Companies, Limited.*

A Company with the objects proposed above has become a necessity to enable the Indian grain trade to compete with America, Russia, and other grain-producing countries.

The long leads and frequent handling, as well as the bagging of all Indian wheat seriously impede the trade; and the obstructions can only be removed by proposals somewhat similar to those set forth in Mr. Smith and Colonel Filgate's memoranda.

The system of conveying in bulk and ready handling in all shifts from the district market to the ship's hold, I estimate, would effect a saving of at least 18 per cent. on the net cost value of all wheat and grain.

The difficulties in face of the Company would be the middlemen and the rolling-stock of the main lines of railways, which are utterly unsuited to carry grain or seed in bulk.

Elevators could not profitably be applied in Kathiawar save at the proposed sea terminals of the Bhavnagar-Gondal, and Ahmedabad-Dholera Railways, simply because Kathiawar is neither a seed nor a wheat-producing country.

19.

ACTING COMMISSIONER, Southern Division, to GOVERNMENT OF BOMBAY, No. 1268, dated 20th April 1890.

Referring to Government Resolutions, Nos. 747 and 1269, dated respectively, 29th January and 18th February last, I have the honour to submit that the officers consulted in this Division, while unanimously of opinion that, were it possible to induce the people to use grain elevators, it would be an undoubted improvement to the trade of the country, are opposed to granting such exclusive concessions as are asked for by the Company, and deprecate any Government interference with the course of trade.

2. Mr. Fleet, Collector of Bijapur (the district with a very large wheat-growing area), would limit any monopoly, if any be given, to ten years. Mr. Muir makes the sensible suggestions that the Railway Companies being chiefly interested, any concession should be made to them, and that if any such system as that proposed be introduced, Government should leave it to them to work it, giving them every facility and guaranteeing interest on the additional capital. Such native officers as have been consulted are opposed to the whole scheme, as being in advance of the intelligence and wishes of the people.

3. My own opinion can be of little value. I think it would be a mistake to give any Company a monopoly which might practically place the whole wheat trade of the country in its hands; but should it be thought necessary to do so, Government should reserve to itself the option of buying the Company's plant and business at the end of a limited number of years. I agree with Mr. Muir that the Railway Companies should be the corporations with whom the proposed Company should deal rather than with Government, and that any land required and subsidiary work in the way of sidings, &c., in connexion with their lines, should be acquired or executed through their agency.

Government
interference
deprecatd.

4. I am averse to Government servants being mixed up directly in the management of any business, and it would be better that Railway, and not Government, officials should countersign or guarantee any certificates.

5. I observe it is not proposed at present to erect any elevators on the Southern Maratha Railway, so that local opinion has really little bearing on the question.

20.

COMMISSIONER, Northern Division, to GOVERNMENT OF BOMBAY, No. 1246, dated 22nd April 1890.

With reference to Government Resolution No. 747, dated 29th January last,* on the subject of the introduction of grain elevators, I have the honour to forward the reports, as per footnote, of the Collectors of Ahmedabad, Kaira, Panch Mahals, (including Mr. Maconochie's), and Broach, and for my own views to refer to my report as Collector of Ahmedabad. Beyond assisting the first Elevator Companies to a grant of land as they do to railways, I think Government should not interfere.

* Ahmedabad, No. 478, dated 24th February 1890. Kaira, No. 1479, dated 19th March 1890. Panch Mahals, No. 681, dated 24th March 1890, with Mr. Maconochie's No. 161, dated 24th February 1890. Broach, No. 543R., dated 10th March 1890.

21.

COLLECTOR OF AHMEDABAD to COMMISSIONER OF THE NORTHERN DIVISION, No. 478,
dated 24th February 1890.

Scheme
valuable, . In reply to your No. 482, dated 18th instant, I have the honour to state that I believe the establishment of the grain elevators would be very valuable and material; assist the wheat trade of India.

2. But it seems to me that Government should not be called upon to assist in establishing them either by money or by the service of their officers. Government, at the instance of the Export Cotton Firms, Bombay, some years ago, did irreparable injury to the ryot by abolishing the Cotton Frauds Act, which prevented good cotton being adulterated with bad, and the repeal of which at this moment is deplored by many of the soundest merchants. The same Government could not consistently lend their officers' services to countersign grain certificates. Why should the quality of grain be certified to any more than cotton? The exports of wheat from Bombay only are 6 crores, as against 12 crores the value of the cotton.

but not the
business of
Government.

3. The construction of grain elevators, again, seems to me no more the duty of Government than of spinning mills. Government might, perhaps, as an encouragement, give the first Company a grant of land, if they need it, as they do to railways. But even that seems superfluous. If the management of the Port Trust, or the East India or the Great Indian Peninsula Railways, or the private enterprise of European merchants are not equal to constructing and managing grain elevators without assistance from the State, the matter might as well be left alone. In former days, before the extension of railways, Government started gins in Dharwar, and they have aided in starting the tea industry. But these precedents do not apply to the construction of mere magazines for the storage of produce. I should have thought that European mercantile enterprise could and would provide for such a thing without coming to the State for assistance. As, however, it pays apparently the great grain-exporting firms deliberately to adulterate their wheat, I can only assume that they prefer not to use elevators, just as cotton exporters prefer adulterated cotton to cotton kept pure by the interference of the State. If that is the case, why should Government assist in constructing buildings where purification and not adulteration is the object? I note that only 25,000% is needed to commence with. Surely a syndicate could provide such a flea-bite as this.

4. In conclusion, I am quite of opinion that grain elevators are needed and would be most useful; but at this time of day private enterprise should supply them. I admit that our paternal Government ought in some respects to help trade. It ought, in the interests of the cultivators and the owner of the land (the State), to prevent adulteration or mixing, either of wheat or cotton, and enable a pure article to be obtained. But it has no more to do with the classification or the storage of wheat than with that of piece goods; at least that is my humble opinion.

22.

COLLECTOR OF KAIRA to COMMISSIONER, Northern Division, No. 1479, dated
19th March 1890,

Elevator not
required at
Kaira. With reference to your No. 482, dated the 18th ultimo, forwarding, for opinion, Government Resolution No. 747 of the 29th January last, Revenue Department, on the subject of introduction of grain elevators into India, I have the honour to report that there is no sufficient production of wheat in this neighbourhood to justify the establishment of a wheat elevator anywhere in Kaira Collectorate, otherwise than as an experiment on its own merits. I do not think it will pay, and I deprecate any encouragement being given to it other than perhaps free use of a site for a short term of years.

23.

COLLECTOR, Panch Mahals, to COMMISSIONER, Northern Division, No 681,
dated 24th March 1890.

With reference to your endorsements Nos. 482 and 803, dated, respectively, the 18th ultimo and 15th instant, forwarding for opinion correspondence regarding

the introduction of grain elevators into India, I have the honour to forward the accompanying letters containing the views of my Assistant and District Deputy.

2. In such matters one chief object of the State as landlord is to secure that the best and most carefully grown produce gets its full special price. And though I cannot admit that the history either of the cotton or wheat trade shows that European merchants have been in any way less unscrupulous adulterators than native merchants, I think that the balance of the effect of introducing the proposed system of cleaning and grading may help the more skilful and scrupulous wheat-grower, and perhaps benefit the wheat trade of India as a whole.

3. At the same time I incline to agree with Mr. Pranal that the proposed change, if suddenly introduced on any considerable scale, would cause serious loss and distress to large classes of local traders. If Government see fit to encourage the Company's proposals by granting certain of the concessions asked for, I trust care will be taken that, in the first instance, the proposed system is introduced into only a few of the largest centres of the wheat trade. To establish elevators in outlying places would dislocate the present system of trade, and, so far as I can judge, cause greater local loss than gain. I think also that, as has happened to a great extent with cotton presses, elevators in outlying places are not likely to be able to bear the heavy charges for machinery and for European management. As regards the Company's proposal to make advances to cultivators, I would deprecate the grant of any concession that would place the Company in a specially favourable position as a creditor. Any interference with the present system of money-lending, specially when such interference has the object of aiding a Company of English merchants at the expense of local traders and money-lenders, seems to me an injustice which Government cannot too jealously guard against. In its present condition, and, so far as I can judge, for several years to come, I think that the introduction of an elevator into any part of the Panch Mahals is likely to cause more evil than good.

Disturbance
of trade.

24.

ASSISTANT COLLECTOR, Panch Mahals, to COLLECTOR, Panch Mahals, No. 161, dated
24th February 1890.

In reply to your reference No. 423 of 21st instant, I have the honour to say that I should regard the establishment of such a Company as one of the greatest benefits which could be conferred upon India. Hampered and injured as it is by the present absurd system of deliberate adulteration, the wheat trade of this country has in a few years attained such enormous dimensions that its exports already exceed those of Russia, and dispute, not unsuccessfully, the hitherto uncontested supremacy of America. Under a system which will ensure the delivery of perfectly clean wheat at a minimum of cost and trouble to all concerned, the trade must advance by leaps and bounds, and at no distant day place India in the proud position of the chief wheat-exporting country in the world. It is a notorious fact that the virgin soils of America are rapidly becoming exhausted. Tens of thousands of acres in the Western States, which a few years ago bore heavy annual crops of wheat, are now devoted to inferior kinds of cultivation—it does not pay to grow wheat on them any longer. Now then is the time by freeing the Indian wheat trade from all disadvantageous conditions to enable it to strike a deadly blow at the already tottering predominance of the wheat trade of America.

Scheme
supported.

2. Government no doubt will do all in reason that it can to assist such an immensely important undertaking. At the same time it will probably consider that it is not advisable to grant all the privileges asked for by Mr. Smith. The assistance of the local officers of Government in the matter of the Company's certificates, for instance, is unnecessary and inadvisable. In the first place, the local officers have more to do already than they can well get through; in the second, Government superintendence would have absolutely no effect in inducing the ryot and the trader to take advantage of the Company's system. Both the ryot and the trader think, very naturally, that they know better than Government what is good for them, and I am certain that a Government certificate would be practically inoperative. As soon as these classes realise the advantages of better prices and less trouble afforded them by the Company, they will hasten to avail themselves of them without any Government interference, and may safely be left to do so. The free grant of land at ports and railway stations and

Undesirable
concessions.

the monopoly of twenty-five years are, in view of the vast importance of the scheme and its initial difficulties, reasonable. There remains the guarantee of interest for five years. About this some doubt may be felt. Yet, if absolutely necessary for the floating of the Company, this too, should be conceded. As is very justly remarked by Mr. Smith, it is not only the Company, but also the State, which is interested in the success of the scheme; five years is not a long time; 4 per cent. is not a high rate of interest; while there is a good prospect of the profits being eventually so largely in excess of 6 per cent. that the Company will easily be able to repay any money Government may have advanced, which can in no case exceed 20,000l. Is the prospect worth the outlay? I feel sure that it is, and that Government will never have occasion to regret having generously aided the inception of an undertaking so important to the welfare of the people of this country.

25.

COLLECTOR OF BROACH to COMMISSIONER, Northern Division, No. 543R., dated 10th March 1890.

I have, in reply to your No. 482 of the 18th ultimo, the honour to inform you that I have had those interested in the wheat trade in Broach consulted, and the opinion seems to be that, though the introduction of grain elevators would eventually be profitable to the country, the cultivators and the men who deal in wheat in this district would not take advantage of them; that the dealings are not extensive, and that they would not subject themselves to the extra risks and detention in taking the wheat to stations where there were grain elevators and obtain the requisite certificates; that it would be well, in the first instance, to try the experiment in Bombay.

2. My opinion differs, and I think that if one or two dealers began to use the elevators, all would before long be practically compelled to use them, and if a monopoly for a long term to be given, strict precautions would have to be taken to prevent exorbitant charges being possible or a serious damage might be done to the growing wheat trade of the whole country.

26.

MEMO. by ACTING COMMISSIONER in SIND, No. 1486, dated the 7th May 1890.

Government intervention not wanted. With reference to Government Resolution, No. 747 of the 29th January, on the subject of certain proposals for the establishment of a State-aided Grain Elevator Company, the Acting Commissioner in Sind has the honour to observe that, in his opinion, no sufficient reasons at present exist for the intervention of Government in a matter which belongs properly to the domain of ordinary trade enterprise.

2. The dirty condition in which the bulk of the wheat exported from India, and especially from Karachi, is at present shipped, is no doubt a matter for regret, and the influence of speculators who have an interest in maintaining conditions of trade which make it unprofitable to ship wheat cleaner than the season's average has for some time delayed the application of a remedy.

Question of clean wheat may be left to the trade. 3. It is the interest of the exporters, however, to develop the trade, and of the consumers, on whom its development ultimately depends, to get clean wheat suited to their needs, and these two interests working together may safely be trusted in due course to bear down opposition and find a way out of the difficulty for themselves. Indications are not wanting that an earlier and more natural solution will be found than the establishment by Government aid of a Company which aims at forcing an enormous existing trade into new channels. From the correspondence printed as Appendix H. H. to the Report of the Bombay Chamber of Commerce for 1889, it appears that the opposition to a substantial reform in the standard which forms the basis of shipping and delivering contracts is now practically limited to the London Corn Trade Association. All other bodies concerned, notably the Liverpool Corn Trade Association, which deals with two-thirds of the import of Indian wheat, are in favour of a fixed refraction of 2 per cent. as a maximum of impurity to be accepted without allowance. The London Association has itself come round to the view that a fixed standard should be substituted for the average of the season, and the only question

now is the percentage to be fixed as the standard, which was still under discussion between the Bombay Chamber of Commerce and the London Corn Trade Association when the report was issued. Apart from this, successful attempts have been made during the past year in Karachi to establish direct relations between the shippers and the millers. Several large consignments of clean wheat have been shipped and sold direct or through factors acting for the millers *on sample*, and this system of business seems likely to extend and prove the best possible solution of the difficulty.

4. The elevator system is admirably adapted to the needs of countries where, as in America, it can keep pace with railway development and the colonisation of new tracts, the produce of which would be unable without it to find a market. Whether it is equally well suited to the conditions generally obtaining in India, is not quite so clear. The Collector of Hyderabad, however, whose long experience of Sind and its people entitles his opinion to some weight, thinks that "the establishment of elevators would, in a very short time, be thoroughly appreciated, and the whole of the wheat produced be brought to the elevators to be cleaned, stored, and despatched, and that it would be worth while for a Company to start business in Sind and the Punjab alone with more moderate assistance than Ritchie, Stewart & Co. ask for, for all India." He adds that "it would be essential that merchants should at first have agents at the stations where the elevators are established to purchase the grain, as a system of certificates would not be understood for a little while."

5. These remarks appear to the Commissioner practically to contain the key to the situation. The merchants at present buy direct from the cultivators and arrange as suits themselves for cleaning, sorting and despatching what they buy. If elevators were established, the cultivators would probably soon find it to their interest to interpose the Elevator Company between themselves and the merchants, whose functions would thereby be reduced to buying and shipping such wheat, ready clean and graded, as the cultivators might not choose to ship on their own account through the agency of the Elevator Company. It might suit the merchants to accept this system of doing business, and the success of any Elevator Company which had their support and good will would be reasonably certain, without any assistance at all from Government. Without that support and good will, however, its success would be long deferred, if it succeeded at all, and would involve a struggle which it would hardly be fair to determine by the weight of Government influence.

6. When the trade is ripe for them, persons will no doubt come forward to establish elevators wherever there is a prospect of their success, and it may then be politic to encourage their establishment by the grant of free sites and such general countenance as is given to other private attempts to introduce improved methods to the notice of the public concerned in them. But, in the opinion of the Commissioner, it would be very undesirable for Government, at the present stage of the question, to enter into engagements which would certainly hamper the free development of the system when need for it really arises, should that day ever come.

27.

DIRECTOR, Department of Land Records and Agriculture, Bombay, to GOVERNMENT
OF BOMBAY, No. 755, dated 12th May 1890.

With reference to Government Resolutions noted below* on the subject of the introduction of grain elevators into India, I have the honour to submit the accompanying memorandum and copy of an interesting letter received from Mr. E. R. Calthrop.

MEMORANDUM by E. C. OZANNE, Esq., Director, Land Records and Agriculture, Bombay,
dated the 12th May, 1890.

I fully appreciate any attempt to improve the wheat trade and to assist the cultivator to obtain the price which he deserves for his produce. I think, too, that it is the duty of Government to give ready assistance to any person whose object is to remove the obstacles which prevent the producer from securing the shipment of his grain in as

Scheme
deserves en-
couragement.

* 1. Government Resolution No. 747, dated 28th January 1891. 2. Government Resolution No. 126F, dated 18th February 1890.

clean a state as that in which he sells it, and to help the producer to obtain a cleaner sample than that which his rude methods of threshing and winnowing enable him to show. It is gratifying to find that the producer is no longer charged falsely with wilfully sowing mixed seed or with mixing dirt to increase the bulk of his outturn, but that it is recognized that the middleman and the merchant and the home buyers are responsible for nearly all the impurities in Indian wheat.

Experience
of steam-
thresher
periments.

It cannot be forgotten that a few years ago an enterprising firm sought to obtain all the desired benefits and improvements by introducing steam wheat threshers. That firm did not ask for any concessions or guaranteed interest or for a monopoly; and yet it proved that its method of improving the wheat trade was suited to the conditions of the country, and indeed, it must be admitted, that it not only showed how a pure sample can be secured, but further how the cost of production can be diminished by eliminating the existing expensive manner of preparing the crop for the market. I need not detail the results of the steam-thresher trials carried out at their own cost by Messrs. Marshall and Sons of Gainsborough, for they were fully reported and are on record. I refer to that trial more to show that the reasons why steam threshers did not succeed are just the reasons why grain elevators will not easily succeed, *viz.*, the absence as yet of a real demand for pure wheat, the greater profit to others than the cultivator as long as the manipulation of the comparatively pure sample sold by the producer can be secured, and the total inability of the cultivator to get a higher price for fairly clean than for very dirty wheat.

2. I am saved from the necessity of giving a detailed opinion on the question by the enclosed letter from Mr. Calthrop. That gentleman took an intense interest in the steam wheat-thresher trials, and saw personally the difficulties with which any improvement of the kind has to contend. He has for years studied the wheat trade and the means for improving it. His experience makes his opinion valuable. His views are in accord with my own, and I agree in detail with the comments he has made on the various concessions asked for by the Grain Elevator Company, *viz.* :—

Extent of
Government
assistance.

- (1) that to give confidence to the people the certificates should be countersigned by Government officers for a limited time;
- (2) that Government should provide the land required for the operations of the Company, even if such land has to be acquired under the Land Acquisition Act;
- (3) that the guarantee to the Company that similar concessions should not be given to any other Company should certainly not be for so long a period as twenty five years, but that the guarantee, as far as Government is concerned, may be allowed for, say, five years;
- (4) that no guarantee of interest on the capital outlay should for a moment be granted.

Scheme to be
tried first at
shipping
ports.

3. The elevator system, in my opinion, ought to be tried first at the shipping ports and nowhere else till it has secured success there. It is true that the alleged advantage of reduced freights by rail by the elimination of dirt before loading would be diminished; but I am sure that this diminution would practically be inappreciable. If the middlemen know that at the port the dirt will be taken out, the temptation to add to the impurities will no longer exist. This is a point for the consideration of the Grain Elevator Company.

28.

From E. R. CALTHROP, Esq., Agent, Indian Light Railways, Limited (London), &c., &c.,
to DIRECTOR, Land Records and Agriculture, Bombay, dated the 7th April 1890.

I have the honour to reply to your letter No. 215 of 6th February 1890, enclosing, with accompaniments, Government Resolution No. 747, dated 29th January 1890, B.D., requesting my opinion relative to the introduction of grain elevators into India, and also to your subsequent communication No. 297 of 20th February 1890, forwarding copy of Government Resolution No. 1269 of 18th February, and accompaniments. I must apologise for the lateness of my reply, but extreme pressure of business prevented me from dealing with this matter earlier.

^a With reference to Mr. Smith's letter, dated 17th September 1889, I am completely in accord with the views expressed by Mr. Smith as regards the advantages (numbered 1 to 6 inclusive) claimed for the system of cleaning and storing grain in grain elevators, and also as regards the effects (numbered 1 to 11 inclusive), which may be expected after the introduction of the system into India.

^b With reference to the proposals (numbered 1 to 5 inclusive) as to the nature of the assistance which Government should bestow on the proposed Company, I beg to offer the following remarks:—

(1.) Arrangements for the countersignature of certificates by Government officials.

This seems to me to be a reasonable request, and the assent of Government would confer the advantage to the public of local inspection by Government officers, and the consequent additional security of the maintenance, locally, of grades to certificated standards; while, at the same time, it would be of assistance to the proposed Company in overcoming the prejudice and distrust with which its operations at the commencement of its business are certain to be regarded by the uninitiated Government inspection and the countersignature of certificates would be necessary only for a limited period, as full confidence in the Company would be established as soon as the character and scope of its business came to be generally understood.

Government certificates.

(2.) The free provision of land for the Company's purposes either within or adjacent to the Railway and Port Trust premises, and connected with the lines by sidings.

I would advocate all possible assistance being given in this direction. Unoccupied land should be given free of cost. Where that is not available, occupied Government land or private property should be acquired and made over under the terms of the Land Acquisition Act. As regards land belonging to State and Guaranteed Railway Companies, the land might be leased at a pepper-corn rent, provision being made for reoccupation in the event of its being unavoidable for the extension of sidings, station buildings, &c., &c., the cost of removal being borne by the proposed Company.

Provision of land.

(3.) A guarantee that similar facilities will not be accorded to a competing Company or individual for a term of twenty-five years.

Monopoly.

From the point of view of public advantage, the grant of guarantee that this Company should be free from any form of competition for a term of twenty-five years would be most undesirable. In my opinion, if a monopoly of the whole country for such a long period were to be conferred on an individual Company, it would be little short of a calamity to the trade. The modification of the practice and customs of trade, in response to external and internal pressure, is at the present moment so much more rapid than it was even five years ago, that, taking into consideration with the fact that capital for investment in industrial enterprises is also much more readily forthcoming, both from England and in India, it is rendered a certainty to my mind that such terms, if granted now, would appear in another five years to be altogether unreasonable. Every indication tends to support the view that, before the close of the century, opportunities for the remunerative investment of capital in India will be as eagerly sought for as they are now unreasonably disregarded. Year by year the accumulating wealth of England is compelled to go further afield for remunerative investment, and India cannot expect to escape for long the scrutiny that her undeveloped resources are courting.

It may be reasonably expected that in a short time the system of grain elevators, gaining ground as it is everywhere and becoming daily more indispensable, would be brought forward as regards India on terms which, as they would admit of free competition, must be much more favourable to the trade than the proposals under discussion.

The conferring upon this Company a guarantee of the monopoly of the whole country will have much the same effect as the granting of such a guarantee to a Railway Company for the same period would have on the construction of railways in a country where railways did not previously exist. It would result in an undesirable restriction of operations. If the Company, from lack of capital or through being guided by too cautious a policy of extension, did not act up to the legitimate needs of development, the result would be that certain localities possessing no elevators would be placed at a disadvantage to those so provided, nor when the system became almost indispensable, would it be in their power to secure the advantages of the system to themselves by local enterprise, if the directors deemed it undesirable to extend their

business, since, under the terms of a monopoly, none but the Company could provide the elevators and carry on the business.

I would not at all desire, however, that no protection whatever should be given to the promoters of the undertaking. All new enterprises of public welfare in India are deserving of, and most need, assistance to secure a foot-hold; but I consider that a period of five years, certain, with leave to apply for an extension for a further period of five years, should Government then deem it advisable, in the interest of the trade and the public to entertain such an application, would be reasonable and sufficient to give the Company a start, which would enable it to maintain a predominating position over all succeeding competitors, provided that in the meantime its business were to be conducted with ordinary energy and acumen.

- (4.) That the grant of concessions as above extend to every grain-shipping port and along every line of railway, built or to be built, through the grain-producing districts of the Indian Empire.

It would be reasonable to grant this concession for a term of five years, with liberty to apply for an extension over a further period of five years, due cause being shown; but no Railway or Port Trust should be permitted to make any agreement for any longer term, for the exclusive right to construct elevators on its premises, with this Company.

Interest
guarantee.

- (5.) A guarantee of interest at the rate of 4 per cent. per annum for the first five years of the Company's operations, such advances being, however, repayable without interest from half of surplus profits in excess of 6 per cent.

A guarantee in India of interest on capital almost invariably results in a diminution of activity, and I am, therefore, opposed to it in this case on principle; any assistance given to the Company should take, therefore, another form. Coming from a Company which proposes to maintain a grasp of the entire wheat trade from Bombay to Calcutta and from Peshawar to Tuticorin, this application for a guarantee of interest appears to me to betray a singularly slender confidence in its ability to deal successfully even with the picked portions of it; and if the promoters lack the courage to cast such a morsel as 25,000*l.* upon the waters, in view of the great advantages a monopoly of this extensive character would confer upon the Company, it does not bode very well for their enterprise or ability to provide the enormous capital which would be necessary to keep pace with the legitimate demands for the full development of the system throughout the entire country.

At the present moment the conditions of the grain trade are changing. One firm at least is engaged in the shipment of perfectly pure graded wheat to Liverpool, and care should be taken in granting any concessions to this Company; those who are already engaged in a portion of the same business should not be dispossessed of the advantages they have earned by their enterprise and foresight in breaking through, at their own risk, the trade restrictions which have acted so unfavourably on the power and the trade in general.

As regards the grant of rights to the Company, those asked for are the terms usual to the business, and are in accordance with the requirements of the trade in India.

In conclusion, I may state that it would give me great satisfaction on public grounds to see this Company brought into existence and at work, provided that the terms of their contract were in accordance with the views expressed in this letter. I have confidence that the Company would be a success commercially, and that, under an enterprising management and with adequate capital, it would obtain a predominance in five years that would render competition by any separate agency impossible, except under the circumstances of subsequent mismanagement, gross inefficiency, or continued inability to meet the reasonable requirements of the trade.

29.

From COMMISSIONER, Central Division, to GOVERNMENT OF BOMBAY, No. 2411R.,
dated 31st May 1890.

With reference to Government Resolution, No. 747, dated 29th January last, I have consulted the Collectors in this Division. Those of Poona, Nasik, Khandeish, and Ahmednagar are all of opinion that the concessions asked for from Government, or some of them, could not be made, and right No. 7 of those asked for is also objected to in more than one quarter.

2. I think it sufficient to append a copy of Mr. Loch's letter, as I concur, generally, in his views. So far, however, as my own knowledge goes, and with reference to his last paragraph, I should very much doubt the expediency of guaranteeing any interest. The question is, no doubt, one to be considered by the Government of India with reference to large wheat-growing tracts such as do not exist in our Presidency. It is probably in such tracts that this business pays, but Western India has no such feature in common with the United States and Canada, nor is it likely to have, even under such encouragement as might result from increased demand for Indian wheat. Concessions should be reduced.

3. The inexpediency of making concessions (1), (2), and (3) is sufficiently shown by Mr. Loch. As to right (7), the Company would possess it in common with all capitals; but if successful in that branch of business, they would undoubtedly become dealers in grain, whether that be a primary object with them or not.

30.

From COLLECTOR OF KHANDAIS, to COMMISSIONER, Central Division, No. 1267,
dated 22nd February 1890.

With reference to your memorandum, No. 551 R. of the 5th instant, forwarding papers regarding the establishment of a Grain Elevator Company, I have the honour to state that, though the operations of the Company will no doubt be eventually very useful, and though it will, in all probability, be at first difficult to make the venture a paying one, still the demands for assistance from Government appear to me to be excessive. If the Company were to confine itself to what I may call its proper functions of cleaning, grading, and giving certificates for wheat, there would not be much harm in a connexion between it and Government; but from the list of rights for which the promoters ask it is clear that the operations of the Company will be much more extensive; that it aims at supplanting the existing middlemen, and though Colonel Filgate, in his memorandum, says that it is not to act as a merchant or owner of grain, still, if it is not to make advances to ryots on the security of their land and crops, it will inevitably have to deal in grain. It must also come in contact with the present small traders, and the question arises whether it is desirable for Government actively to support a body which has these aims. I think that it is not desirable for Government to support a trading and money-lending society against other classes of its own subjects. Concessions demanded excessive

2. I will now deal with the different points on which assistance is asked, and first, with the request that Government officials should countersign the Company's certificates. The officials in this Presidency would no doubt be the long-suffering mamedars, and they would have to countersign in the dark; they would have to take the assertions of the certificate to be true, for they could not possibly check them, and in this case their signatures would be a fraud on the public; for the public would believe that the signatures meant that Government officers had themselves ascertained that the certificates were correct, whereas they have done nothing of the sort. If special Inspectors were appointed the case might be different, but I presume that Government do not contemplate the establishment of a new class of officials for the benefit of the Elevator Company. Certificates.

3. As regards the provision of land for the elevators, Government would have to buy it at a considerable cost in most cases, and I cannot see why the Company should expect to have the public money spent for them. There is very little unoccupied land near the larger railway station, and the occupied land is very valuable. The holders of it might not be willing to part with it, and it would not be possible to take it up under the Land Acquisition Act. Provision of sites.

4. Clauses 3 and 4 of the suggestions for assistance refer to a monopoly to be granted to the Company for 25 years, for this is what their object is. It appears to me that if the benefits to be derived from the elevator system are so great, this assistance ought not to be required, and that competition would be for the benefit of the country. Monopoly.

The last request is for assistance in the way of a guarantee of interest. I think that some such guarantee might be made to a Company which, as I remarked above, confined itself to the elevator business alone; but the propriety of giving such a guarantee to a Company, which is also to be a money-lending Company, appears to me doubtful. Interest.

31.

MEMORANDUM by ACTING SECRETARY to the GOVERNMENT of Bombay, Public Works, Department, No. 1690, dated 16th July 1890.

With reference to resolutions Nos. 747 and 1269, Revenue Department, of 29th January and 18th February respectively, the undersigned has the honour to remark that the question of the formation of a "Grain-cleaning and Elevator Company" for India, and the amount of encouragement and concessions the Indian Government might give to it, may, as far as this Department is concerned, be considered under the following heads:—

- (1.) The benefit to the Railway Companies and the State consequent on its introduction.
- (2.) The concessions and assistance the Railway Companies may fairly be expected to make or can make.
- (3.) The encouragement and concessions the Government may reasonably be asked to give in the provision of land within or adjacent to railway station premises.

It must be noticed that the ultimate aim of the Company is a grand one, involving large capital expenditure, but that a very modest commencement is proposed, viz., to conduct at a few selected railway stations simple cleaning and grading operations, returning the grain into bags, thus discarding for the present the idea of the elevator.

The opinions of the agents of the railways under this Government on the first two points, and the question generally, were invited; their replies, together with a letter from the Secretary of the Bombay Port Trust, have been printed and accompany this memorandum.

Scheme desirable.

The railway agents generally agree in the desirability of any measures tending to improve the quality of Indian wheats, and express willingness to give all reasonable facilities to the projected Company; but when the practical side of the question is taken up, the agent of the Great Indian Peninsula Railway states his reasons for thinking it impracticable at present in this country, and he does not think a place for such a business could be conveniently provided within station limits. The traffic managers of the Bombay, Baroda, and Central India state that the establishment of grain elevators or warehouses is unlikely to prove profitable on the Bombay, Baroda, and Central India Railway proper, that is, on the broad-gauge section of the undertaking; and that on the Rajputana-Malwa or metre-gauge section there are no stations where the scheme would have much chance of success; but that as an experiment could do no harm; Sirsa, Hathras City, and Delhi are suggested as stations most suitable for a trial.

The Bombay Port Trustees confine their remarks to the question of erecting elevators at the docks, and they think they are not required on their property.

At a meeting held at Agra a side issue was raised in regard to the preferential aspect of the question of giving a private Company facilities on railways which were not or could not be given to other undertakings, and it was concluded that the intervention of Government in the form of a private Bill, entitling the Grain Elevator Company to certain privileges, as an undertaking for the public benefit, would be necessary in dealing with this matter.

Prospects of success.

A perusal of the printed correspondence will show that the project is not warmly received and its prospects are not considered very promising. The matter has been treated more in regard to the scheme in its entirety than to the simple commencement proposed, and should possibly be so treated, for any concessions made by Government in the matter of the small beginning would necessarily be demanded as the scheme enlarged.

Many of the objections made in the printed correspondence are based on the final intention of carrying grain in bulk; it is only proposed at the start to clean and grade and return the grain into bags. No Railway Company could have the slightest objection so far. The places of business for such operations could possibly be conveniently situated outside station limits, and the construction of sidings, whether at the railway or the Elevator Company's expense, would follow when the traffic in grain demanded it.

Government concessions.

There seems no reason why Government should be asked to countenance an enterprise such as is proposed, except the statement of the projectors that it cannot be undertaken without certain concessions.

The amount, if any, of assistance of Government officers in the matter of its certificates will be considered in other Departments. The matter has, however, been touched upon in the last letter of the printed correspondence. It is doubtful whether Government should be expected to give land free to a trading Company of this description when it is not given to other undertakings, also serving to develop trade and improve the country; but, perhaps, an arrangement might be made by which Government would get some share of the profit after the first five years as a set-off against the value of the land supplied. The land, if supplied, should not be in the railway limits of a Government Railway Company, to whom land for railway purposes has been given free by its contract; but if any land can be spared within railway limits it should be relinquished by the Railway Company and connected, if necessary, by sidings as in the case of cotton mill and other companies.

The opinions of large companies, such as Messrs. Ralli Brothers, to whom allusion has been made in the printed correspondence on the general question, would be of great value.

32.

From AGENT AND CHIEF ENGINEER, Southern Maratha Railway, to CONSULTING ENGINEER FOR RAILWAYS, Bombay, No. 6284—1764, dated 3rd March 1890.

Replying to your No. 1184, dated 10th February 1890, I have the honour to forward copy of letter No. G—78536, dated 25th idem, from the Traffic Manager on the subject of grain elevators.

The advantages that must accrue from any measures tending to promote the reputation of Indian wheat, both at the centres of the export trade and in the European markets, are so well known that it is not necessary to discuss them here, and a system of cleaning and grading up-country with unquestionable certificates of standard of purity would in my opinion fully secure that very desirable object. Scheme should be assisted.

The introduction of the elevator proper is but a secondary consideration. By its means much of the labour and expense connected with the operations of handling and bagging would be obviated, and to me it seems that such facilities must inevitably result, when once confidence in Indian wheat is established, to such an extent as to create a steady demand in the European markets.

The concessions asked for by the promoters are no doubt very great, but considering the vital importance of the subject, I should be inclined to assist them, so far as possible, within reasonable limits.

33.

From TRAFFIC MANAGER, Southern Maratha Railway, to AGENT AND CHIEF ENGINEER, Southern Maratha Railway, No. 78536 G., dated 25th February 1890.

In returning the original papers received from you on this subject, I beg to inform you that I highly approve of the proposal to introduce grain elevators into India. The competition between Indian wheat and that grown in America and Russia is not unlikely to be exceedingly keen in future, and everything which can be done to promote a demand for Indian wheat should be done in the interests of the country at large. The quality of Indian wheat would be greatly improved by the cleansing process to which it would be subjected in the elevators, and facilities for dealing in wheat of known grades would be much increased. It is to be hoped that the Government will countenance the proposal and so help in placing the grain trade, on which the prosperity of Indian railways so much depends, upon a sound and satisfactory footing.

34.

From AGENT, Great Indian Peninsula Railway Company, to CONSULTING ENGINEER FOR RAILWAYS, Bombay, No. 24 I—3082, dated 18th March 1890.

I am desired to acknowledge receipt of your No. 1182 of the 10th ultimo, covering papers regarding the introduction of grain elevators into India.

The object of the promoters is stated to be the cleaning, grading, and handling of wheat, based upon the system adopted in the United States.

The conditions attending the growth and export of wheat from India are so entirely different from anything in America that the success of elevators in the States is worthless as an argument for their success here.

The Agent does not consider the grading of wheat by a public Company is the simple thing suggested; to his mind the scheme is at present impracticable; in this country the various qualities, small parcels, and want of large trade centres would, owing to present difficulties of transit, present insuperable difficulties.

Unsuit-
ability of
American
system.

The elevator system in America is connected with owning, selling, and speculating in grain. unsuited, the Agent would think, in every sense to the wants of trade here, and the inducements would certainly have to be considerable before the ryot stored grain with an Elevator Company. At present he can do it himself without cost in fine weather, and in the rains he pits it and preserves it; while a Company, such as is suggested, would find a large loss at the end of the wet season from weevils; but on this the opinion of the Chamber of Commerce will be far more valuable.

Regarding the railway, a place for such a business could not be conveniently provided within station limits; beyond that the railway is glad to receive produce from all for transhipment, and willing to do all in its power to facilitate business with this port.

35.

From SECRETARY, Bombay Port Trust, to CONSULTING ENGINEER FOR RAILWAYS, Bombay, No. 2021, dated 7th May 1890.

Your letters of 10th and 27th February last (Nos. 1185 and 1645) and their accompaniments have been submitted to the Trustees, and I have been directed to forward the accompanying copy of the Docks Superintendent's report on the question of erecting grain elevators at the Trustees' Wet Docks, and to intimate that in the opinion of the Trustees grain elevators are not required on their property.

36.

From DOCKS SUPERINTENDENT to SECRETARY, Bombay Port Trust, No. 165, dated 7th April 1890.

Existing
facilities at
Bombay
docks.

In considering the question of introducing the elevator system at this port, it seems necessary, in the first place, to notice that some portion of the facilities that the proposed scheme is expected to provide for the trade, already exists at the docks.

Sidings connect the docks with the railway lines, warehouses are provided for the storage of goods, and warrants are issued for goods deposited in the Trustees' charge, by means of which, like the certificates of the elevator system, goods may be transferred from hand to hand and advances obtained.

The facilities might have been extended and improved to meet the further needs of the trade had there been any indication on the part of the trade to take advantage of them.

But so far as the grain trade is concerned the facilities referred to have never been used. The same cause that has hindered their use will also hinder the introduction of elevators, namely, that the common practice is not to ship grain direct as it arrives at the railway terminus or boat wharves by land or by sea, but to remove it into the town to be there stored, sold, cleaned or repacked, and at the time of shipment it returns to the docks in the shape of complete consignments.

All the grain dealt with at the port is also, as is well known, received in bags and shipped in bags. Under the elevator system it is intended to deal with grain in bulk.

With regard to the shipment of grain in bulk it has to be pointed out that in Bombay shipments are made to a dozen different ports in Europe, and that a number of different consignments of various descriptions of grain, seed, &c., are nearly always carried in the one vessel. It may be practicable, when comparatively large parcels are carried, to take it in bulk, but a number of small consignments must be bagged in order to keep them separate.

A large number of vessels that take exports have come with coal, and the cleansing of the holds for the reception of grain in bulk will take longer than the simple process of sweeping them out when grain is being carried in bags.

The means are also already provided for the rapid loading of vessels in an abundant supply at the docks of the most improved style of hydraulic cranes, by the use of which vessels may easily be loaded well within the number of lay days that it is customary to allow in the charter-parties at this port.

The expenses of the vessel would be increased by the provision of the various fittings, such as cross bulkheads, shifting and covering boards, feeders, &c., that are required in the conveyance of grain in bulk, and would have more or less to be renewed on each voyage.

The Trust is mostly concerned with the part of the scheme that refers to the establishment of port storage elevators, for which it is expected that land will be provided free and connected with the lines by sidings.

It is supposed that the Trust will benefit from the concentration of the traffic at the proposed elevators; but if elevators be provided at all it would be at the docks, and the whole of the export traffic to Europe now goes there.

The intervention of a private company in the arrangements for dealing with goods at the docks is so obviously undesirable as to require no remark. There has been no hesitation on the part of the Trust in providing whatever facilities the trade may require, and if the elevator system of cleaning and grading wheat be generally adopted by the trade, any alteration that might in consequence have to be made in the arrangements at the port would be carried out by the Trust.

37.

From AGENT, Bombay, Baroda, and Central India Railway, to CONSULTING ENGINEER FOR RAILWAYS, Bombay, No. 6,663 T., dated 29th May 1890.

In reply to your letters Nos. 1,183 and 1,643, of 10th and 27th February last, respectively, I have the honour to forward herewith copies of reports submitted by the General Traffic Manager of this Company regarding the proposed introduction of grain elevators in India. This Company fully recognises the necessity of improving the condition of grain as it is at present exported from India, and will be prepared to give all reasonable facilities that lie in its power for the establishment of elevators at stations on this Company's system.

38.

From GENERAL TRAFFIC MANAGER, Bombay, to AGENT, Bombay, Baroda, and Central India Railway Company, No. 7,050, dated 18th February 1890.

Anything calculated to lay down Indian grain in the home market in a clean and creditable condition would no doubt increase its value and help to establish the reputation of India as a grain-growing country.

2. I am not, however, sure that the establishment of grain elevators or warehouses would prove a profitable undertaking on the broad-gauge section of our railway, and it is to this district that I desire to confine my remarks.

3. There are no large grain-growers or persons largely engaged in agriculture, but on the contrary, all are on a small scale, and grain is almost invariably brought from the producers by middlemen and is packed off to market in the state in which it is purchased; any cleaning that takes place being done by the retail dealer. Practical difficulties.

4. Very little grain grown in the districts through which our line passes finds its way seaward, as nearly the whole of it is consumed locally or within the districts served by our line.

5. So far as the railway is concerned, elevators or bonded warehouses could not, I think, help our arrangements, but on the contrary they might be found inconvenient for the following amongst other reasons:— Possible inconvenience to railways.

(a.) If grain is brought to our stations in bags it can be loaded wherever waggons happen to be standing, and a cart can get near them, or bags can even be

carried from carts if waggons cannot be placed where carts cannot approach them.

- (b.) In like manner on arrival at destination the bags can be easily treated, and if required to remain in our custody for some time, waggons can be readily unloaded and the bags stacked.
- (c.) If elevators were used there would be trouble in shunting waggons to them, and a siding or sidings would have to be set apart for easy access to where they were.
- (d.) If grain was loaded in waggons in bulk, a particular class of waggons would be necessary, and such waggons might not be eligible for the general purposes, or to convey the class of traffic going to grain-sending districts. Open waggons, of which we have a considerable number, would not be suitable to carry loose grain.
- (e.) On arriving at destination grain would have to be, for ready transit in carts, loaded in bags, which would be a great tax upon our station resources on account of the time occupied and the extra area necessary, and wastage would ensue. We at present find it necessary to charge grain, when sent loose, a higher rate than when sent in bags for these reasons.

Shipping
difficulties.

6. I do not see how benefit can be derived when grain has to be shipped in docks, as it would be a difficult matter where there are several miles of wharves to get ships alongside a particular elevator, and they are not generally unmoored from the time they commence unloading cargo until they finish taking in their return cargo, nor will it be convenient for a ship to load grain in bulk only, or to confine its load to a particular class of goods, or with cargo for a particular firm.

- (a.) Any attempt to shunt waggons containing general merchandise alongside a particular ship, even if rails were placed along each wharf, would be attended with much inconvenience, as where ships, thirty or forty or more in number, alongside wharves were giving out or taking in goods, it would be next to impossible to get to each or any particular one with waggons. One ship might load or unload forty or fifty waggons daily, another might load two or three, another might contain goods for Bombay City only.
- (b.) We can, and do occasionally get near ships with waggons when there are heavy consignments of, say, railway material, but we never or rarely ever get alongside them.
- (c.) Our docks in Bombay are, I think, as well suited for trade as most docks, but we could not make a distribution or collection of goods to and from ships even if there were two lines of rails and numerous turntables for which there is not space along the wharves.
- (d.) Most of the grain that arrives in Bombay is sent by men who purchase from the grower to middlemen or agents in Bombay who sell to merchants who export it.

There is at least one firm of merchants, the largest to be found anywhere, who have salaried agents throughout India who purchase grain, cotton, and other produce to a very great extent. Such a firm might carry out grain-cleaning arrangements at stations where goods are first placed on the railway; but whether or not they could command a higher price for their purified article so as to cover expenses is somewhat doubtful. If this colossus firm who have the means of getting as near the grower of grain as it is possible, have unlimited capital, and their own houses in England and on the Continent of Europe and elsewhere do not think it worth their while to try and improve the quality of Indian grain, and adopt the very best means for its transit; I cannot imagine anyone else, or any Company of persons making a successful experiment.

FROM TRAFFIC SUPERINTENDENT, Rajputana-Malwa Railway, to GENERAL TRAFFIC MANAGER,
B. B. and C. I. Railway, Bombay, No. 757 H., dated 6th February 1890.

It is difficult for an Executive Officer whose time is very fully occupied, to form an opinion worth having upon the very complex problem presented in these papers. Personally I have no experience whatever of the grain elevators which are said to be so successful in Russia and America; it seems to me, however, that the conditions of

production in India are so entirely different to those in America, that any calculation based upon comparison of the two countries will be apt to lead one astray.

2. The great bulk of our export trade in wheat and seeds is in the hands of a few large merchants of Bombay, Karachi, or Calcutta; these have their agents in all the districts of India. Ralli Brothers, for example, are met with by their agencies all over the Continent, wherever grain is produced; they have their own cleaning yards at important centres, as at Nagpur, &c., and have a firm hold upon produce as ready purchasers, that would not be easily shaken.

3. The idea of the promoters of the present movement seems to be to introduce a system of central mart to which producers should send their produce in exchange for negotiable receipts of the same utility as bills of lading, and it is probable something of this kind may eventually come to pass; but until the Gujarat cultivator is educated up to something like the standard of intelligence of the Yankee farmer, the Government of this country more nearly approaches the Russian system of administration, I doubt if much will be done. Obstacles.

4. The Indian ryot deals with his village *bunya*, without whose advances for seed and current expenses he would be powerless; and the *bunya* again deals with the agents of the large exporting firms, and these latter could hardly be expected to view the introduction of a kind of third class of middleman in the Grain Elevator Company with very much favour.

5. In the language of a cultivator I should say grain elevators will answer when they are a product from the plant of "Indian Export," but as a graft they will be a failure.

6. It seems to me in any case that if these elevators are to have much chance of success, they must be located in the very heart of wheat-growing centres; neither Hathras nor Agra are exactly the places where wheat may be termed the staple commodity of the surrounding district; whereas Gujranwala on the North-Western line and Raipur on the Nagpur-Bengal Railway are exactly the places adapted to the purposes of this experiment. Both Hathras and Agra are rail centres of importance, but are both too far from the home of production to quite meet what is required. I shall be glad to meet Mr. Holderness at Agra if you wish me to do so. Director, Land Records' No. L.S.—5 of 1st February 1890, with accompaniments, are enclosed. Please return with instructions.

40.

From TRAFFIC SUPERINTENDENT, Rajputana-Malwa Railway, to GENERAL TRAFFIC MANAGER, B. B. and C. I. Railway, Bombay, No. 1,679 H., dated 26th March 1890.

With reference to your memorandum No. 933 of 12th February, and to your subsequent memorandum No. 1,297 of 4th instant, both of which, with accompaniments, are returned herewith, I beg to inform you that I met Mr. Holderness at Agra on the 22nd instant; Mr. Finlay, the collector, and also the municipal secretary, were present at the interview.

2. It was considered that the view taken of the position in my memorandum 757 H. of 6th February referred more particularly to the financial prospects of the Grain Elevator Company, and that we were desired to consider the question of concessions to such a Company, which the Government or the Railway might be expected to give; I said that the railway would, I believed, be disposed to assist at well-selected stations, under certain conditions, in the matter of sidings and sites for cleaning sheds, but that a serious difficulty arose in regard to the preferential aspect of the question. Mr. Finlay was doubtful whether the railway could give to any one private undertaking facilities it was unwilling or unable to give to others, and instanced cotton presses, &c., as undertakings worked with a view to profit, which had not hitherto been specially assisted either by Railway Companies or Government. It was concluded that the intervention of Government would be necessary in dealing with this matter, and that such intervention might have to take the form of a private Bill, entitling the Grain Elevator Company to certain privileges as an undertaking for the public benefit. Agra conference.

3. Mr. Holderness considered that a monopoly might be conceded on certain lines of railway for a term not exceeding 10 years, and that where such monopoly existed, it should be held that the Grain Elevator Company must construct cleaning and storage go-downs when required by Government, or in default should have no right to prevent other people from doing so.

4. He further held that Government from its position and multifarious duties would be unable to undertake this work of grading and classifying wheat; that the railway companies would be travelling beyond the limits of their legitimate work if they were to undertake it; and that the only persons who could do it would be an assisted firm or private company, working somewhat on the lines of that suggested by the promoters of the present movement.

5. There were other details of concession referred to in more or less undecided terms which did not concern me, but I think Mr. Holderness will be inclined to recommend his Government to support the movement to a certain extent.

6. As an experiment no harm would be done, and I was asked to suggest three stations on this line which seemed most suitable for a trial; I thought Sirsa, Hathras City, and Delhi appeared to be about the best; the latter might, I considered, be an adjunct of the new line to the Gunj near Lahore Gate.

7. Nothing very definite was recorded and on the general question it was, I think, felt to be a doubtful point whether anything was really needed. I was able to tell the meeting that Ralli Brothers' agent at Ferozepore had informed me that in London, before coming out to this country, he had contracted on behalf of the firm to deliver Bombay wheat with 94 per cent. white, 4 per cent. red, and 2 per cent. *only of extraneous matter*; these figures, it will be seen, fall very short of the standard arrived at by Mr. Cradock, Secretary of the London Corn Trade Association (*vide* papers which accompanied your memorandum 1,297 now gone on to the Engineer-in-Chief as desired).

41.

GOVERNMENT OF BENGAL TO GOVERNMENT OF INDIA, No. 2,713-279 Agri., dated 31st July 1890.

With reference to Mr. Muir-Mackenzie's circular letter No. ^{122-127C.} Agriculture, dated the 6th January 1890, and subsequent communications, I am directed to submit, for the information of the Government of India, the accompanying copy of a letter from the Director of the Department of Land Records and Agriculture, Bengal, No. 1,603 Agri., dated the 14th July 1890, and of its enclosures, reporting on the proposed formation of a company for the introduction of grain elevators into India.

2. The Lieutenant-Governor agrees with Mr. Finucane in the conclusions at which he has arrived. The creation of a market for pure Indian wheat in England is most desirable, and very favourable terms may properly be granted to any company which can operate effectively in that direction. But the alteration of the methods by which wheat is cleaned is not shown to be an enterprise meriting special support at the cost of the State. It is a matter which in the Lieutenant-Governor's opinion, may very properly be left to private enterprise.

42.

DIRECTOR OF THE DEPARTMENT OF LAND RECORDS AND AGRICULTURE, Bengal, to the GOVERNMENT OF BENGAL, No. 1,603 Agri., dated the 14th July 1890.

I beg to acknowledge the receipt of your No. 386-48, dated 23rd January 1890, calling for report on certain proposals made by Mr. James G. Smith of Bombay, relative to the formation of a Company for the introduction of grain-elevators into India. In reply, I have the honour to report that I have consulted the public bodies, firms, and individuals, named below,* on the subject, and now forward their reports.

* 1. Secretary, Bengal Chamber of Commerce; 2. Secretary, Agri-Horticultural Society of India; 3. Vice-Chairman of the Port Commissioners; 4. Shipping Master, Calcutta; 5. Collector of Customs, Calcutta, 6. Managers of State Railways; 7. Messrs Ralli Brothers; 8. Messrs. Moran & Co.; 9. Secretary, Brokers' Exchange; 10. Messrs. Anderson, Wright & Co.; 11. Messrs. Gladstone, Wylie, & Co.; 12. Messrs. Balmer, Lawrie & Co.; 13. Messrs. Lorraine, King & Co.

2. It will be seen that the preponderance of opinion is much against the proposals made by Mr. Smith. The Bengal Chamber of Commerce write thus—

The Committee of the Chamber of Commerce have given their best attention to the papers forwarded with your docket No. 463-Agri., dated 4th March, and I am now directed in reply to state that in their opinion any attempt to introduce the grain elevator system into this country would be at least premature. Mr. James G. Smith, in his letter to the Secretary of State, dated 17th September 1889, after enumerating the benefits that would result from the system, and pointing out directions in which the assistance of Government would be necessary, suggests a tentative commencement of operations by the "Grain Cleaning and Elevator Company," pending which the efforts of the promoters would be directed to securing a demand for the clean and graded wheat. Bengal Chamber.

The result of the agitation of last year in favour of clean Indian wheat does not encourage the Committee in the belief that the efforts alluded to by Mr. Smith would meet with any great amount of success. But should a real demand arise for clean Indian wheat, they are of opinion that private enterprise will be equal to the occasion without requiring either the assistance of or a guarantee from Government.

It is not necessary to discuss the suitability of the elevator system to the conditions of the grain trade, at least on two sides of India, further than to say it is open to doubt whether, considering the heavy expenses which the proposed Company would incur, such a Company could successfully compete with the simple but effective methods of cleaning already known to those who deal in grain. The committee, moreover, consider that the proposal that the Company should hold grain for the owner for an indefinite time, and accept the responsibility for its condition, is scarcely one suited to India, owing to the risks attending keeping wheat in this country for any length of time.

The Committee would point out that the scheme contemplates concentrating the grain trade at a few important stations on the principal wheat-bearing railways, and to this extent is diametrically opposed to the policy pursued for the last eight or ten years by Government, a policy which, by abolishing the special reduced rates allowed by the railway administration, for large consignments, aimed at giving petty stations equal facilities with the larger depôts for sending produce to the coast ports. The Committee understand from the principal exporters of wheat that the opening up of these petty stations is largely responsible for the deterioration in the cleanliness of the wheat brought to this port, for whereas this produce was formerly concentrated at some few important stations, there piled and rebagged, it is now forwarded direct, without any piling, handling, or cleaning, to the coast port. While the Committee are of opinion that it is now impossible to nullify the results of this policy and revert to the old system of special rates for consignments of 200 tons, they would urge most strongly upon Government the necessity of permitting the railways to raise the limit for special class consignments of wheat and seeds intended for export, from the present limit of a wagon load to a minimum load of 50 tons.

This will have the effect of making a broad line between wheat intended for export and that for local consumption.

It would assist in raising the standard of cleanliness.

It would place the trade in the hands of men of some little means, instead of opening it up, as at present, to impecunious gamblers.

It would lessen the work needful to be done at the shipping port, and permit of the grain being properly sampled and examined, and so put a check to the false packing and swindling which is encouraged by the system of petty consignments.

The Committee have reason to believe that if this slight reform were introduced, the benefit resulting to the trade would be so great as to leave little to be desired in the condition in which rail-borne wheat would reach the home market.

2. The Agri.-Horticultural Society say—

As the different Chambers of Commerce have been consulted, and as the views of the commercial community will thus be laid before Government, the Society deals with the question wholly in its relation to the cultivators. Agri-Horticultural Society.

The establishment of the elevators for the purpose of cleaning grain for export is, the Society consider, not likely to be of any direct benefit to the grower, for the reasons set forth in the following paragraphs.

The conditions under which wheat is grown in India, the small quantities each grower places on the market, the poverty of the people necessitating their selling

their produce without delay, and other causes, preclude any chance of their being able to avail themselves of the facilities for cleaning offered by the system.

As a rule Indian wheat is not purposely adulterated by the growers. The impurities which exist in it when it leaves their hands are due to the system of cultivation and thrashing which are too well-known to need description here.

The growers winnow and clean their wheat to the extent their crude appliances will admit, and undoubtedly some of the earth from the threshing-floor and an admixture of other grains must remain in the crop. This is estimated at 2 to 3 per cent. of earth, peas, and barley. But as the Calcutta contract is for 5 per cent. up to August and 6 to 7 per cent.* after that, it therefore pays the seller to adulterate his batch up to 2 per cent. over the guarantee, or he will lose on the average. This is such a well-established custom that a regular market price for suitable adulterants exists in the exporting districts, and the seller purchases such materials and mixes it with his wheat. The shipper has the lot examined and makes the best bargain he can as to allowance with the seller and sells "fair average" at home; practically his profit is what he gets in this way.

It is probable that even the buyers who collect grain, buying the small quantities sold by individual growers at *hâts* and bazars, and selling again to dealers and merchant's agents, are not likely to be able to deal directly with exporters through the elevators.

There is one feature in what is known as the elevator system which would probably affect the grower prejudicially.

The system is that all grain passing into the elevator is graded and bulked, and a receipt given to each constituent, who, when he requires his grain, receives his quantity from the bulk.

The bulking of such large quantities gives a more even standard than at present exists in India, and these recognised standards again being fixed, their relative prices are fixed.

As a matter of partial convenience, the number of standards or grades will have to be limited, and the present elasticity done away with, so that a superior sample falling into a given class will fetch no more than an inferior sample which is just good enough to pass the standard.

There will therefore be no incentive to buy the best quality of a certain class; the endeavour will be to get the cheapest grain which will pass the standard. This may not matter to the merchant, but the grower who produces a better sample of grain of the same class as his neighbour's, will be no gainer.

I am directed to say that for the reason already given this Society does not enter into the question of the effect which the introduction of elevators would have on the trade in wheat. The Society is aware that there is much to be said from a commercial point of view for the establishment of fixed grades of clean wheat, and for other results of the elevator system. Without offering an opinion on these points or on the system as a whole, I am to point out that in India the existence of the weevil pest would have to be taken into consideration as a factor against the collection and storing of grain in the manner proposed, and special means would have to be contrived to guard against its ravages, more especially where wheat held over for any time.

The Society is aware that the papers before them contain merely an outline of the scheme proposed. They think, however, that there being no allusion to one of the greatest evils with which Indian wheat has to contend is a serious omission.

I am to submit that, if the object of the Government in entertaining the scheme under consideration is to put a stop to the intentional adulteration of wheat in India, a simple remedy exists, viz., to enact that no contract for purchase or sale of wheat will be considered valid unless the price agreed upon is held to be for pure grain. As long as sellers can go into Court and enforce a contract for wheat with 5 per cent. to 10 per cent. adulteration, the evil cannot be stopped. If the price paid was for pure wheat only, no one would expend money on the railway carriage of adulterants which would be deducted from the price, and no exporter would pay freight and charges, unless he got from the seller the full equivalent of what he would lose for any adulterations.

Port Com-
missioner.

3. The Port Commissioners are of opinion that "the scheme contemplated is not one which is suited to this country, or one which should have the support of Government of the kind asked for." It, however, seems to them that if the requirements

* Should be 5 per cent. up to 30th June, afterwards 6 per cent.—M.F.

of trade necessitated the introduction of such a system, and there was a prospect of its proving remunerative, it would be taken up by private enterprise.

Messrs. Anderson, Wright and Company, remark—

The application of the American system to India is, in our opinion, not what is wanted. Indian wheat is all shipped in bags, whilst American goes to a large extent in bulk, and the elevator is of no use where the bagged article is the rule. This Messrs. R. S. and Company really concede when they come down to proposing to open at a few stations, and conduct thereat simple cleaning and grading operations, returning the grain into bags properly secured.

Anderson,
Wright, &
Co.

We think most firms having up-country connections have tried this, but home buyers and brokers are too poor and will not allow settlement to be made based upon the clean wheat. With an ordinary graded netting and a few coolies, 100 tons daily can be turned out in any godown at a nominal expense without a Government guarantee, and up-country firms, both Native and European, would gladly see a market for clean wheat forced on exporters. This can be accomplished by Government enacting, both here and in England, that no contracts will be recognised in a court of law unless based on a price for the pure wheat. We have pointed out again and again that there is no justification for the acknowledgment in Court of a contract for wheat with 5 per cent. or 10 per cent. adulteration. The only basis of sale recognised by law should be that of pure wheat, and were this the case, no up-country dealer would risk paying railway carriage on five tons of dirt for every 95 tons of pure wheat, and no buyer would accept of wheat without getting the full equivalent of the loss he would sustain on the refraction by sending the parcel to Europe. As long as the law recognises contracts for adulterated wheat, so long will the trade in it continue.

4. Messrs. Ralli Brothers have no experience of the working of elevators in America, and they are not in a position to express a decided opinion on the subject, further than to say in a general way that, viewing the distinct nature and diversity of quality of the Indian grain compared with American, they very much question whether the introduction of any such system in the handling of Indian grain would be successful.

Ralli Bros.

Of the agents and managers of railways, the agent of the East Indian Railway says that until the elevators are introduced, the purity of Indian wheat and seeds for export cannot be guaranteed. At the same time, he remarks that until a proper understanding is arrived at between seller and buyer, it would be useless to attempt to introduce them.

The manager of the Eastern Bengal State Railway states that the railway traffic in wheat and seeds on that line is small, and it is unlikely that an elevator would be required at any of the up-country stations on the Eastern Bengal State Railway. He adds that if higher railway freights could be obtained for wheat dealt with in elevators, the consignor would consider that he paid the Elevator Company the cost of handling his grain, and would probably call for a corresponding reduction in the rates. The railway would effect no practical saving in being relieved of the cost of receiving and watching the grain. He further says that the free grant of land at metropolitan stations and on Port Trust property is a very large concession, but the demands of the promoters appear to him generally to be exorbitant. If they have any real belief in the effects to be produced from the introduction of the elevators, on which so much stress is laid, the Company should be assured of the success of the project on its own merits without calling on Government to guarantee interest and to grant free land. He further adds that the venture is a novel one in this country, and if the promoters were prepared to erect elevators on one railway, and at one port, they might reasonably be given a monopoly for 25 years, and land free of rent until such time as the undertaking paid over a certain per-centage, when arrears could be made good. But as regards the proposals for cleaning, grading, and storing wheat without incurring expenditure on elevators, it seems to him that if such a course could be commercially undertaken at a profit, it would have been introduced long ago without any company or guarantee.

E. B. Rail-
way.

5. The manager of the Tirhoot State Railway is strongly in favour of the scheme of having elevators at large and important stations, but he doubts very much their giving any return on the capital outlay on a line like the Tirhoot State Railway, where the stations are situated so closely together. He is of opinion that the railway staff should not have anything to do with the working of the elevators from a mercantile point of view, such as sampling, &c. The railway might give lands and sidings, but he is opposed to giving any guarantee or granting a monopoly to any one firm or Company.

Tirhoot
Railway.

Nalhati
Railway.

The manager of the Nalhati State Railway is of opinion that the scheme is one which deserves the encouragement and support of Government.

Scheme as
described
cannot be
entertained.

6. My personal opinion is that the general scheme described in paragraph 1 of Mr. Smith's letter, dated 17th September 1889, is one which cannot be seriously entertained, and need not be considered or criticised in detail. It would be obviously out of the question to provide land free of cost for the Company's purposes at or near every railway station on every line "built or to be built" in the grain-producing districts, or to guarantee that similar facilities will not be afforded to competing Companies, or to guarantee interest at 4 per cent. on any amounts which the Company may deem it desirable to expend, and it is very doubtful whether arrangements can be made in India for countersignature, by Government officials, of certificates of the grading of wheat. As pointed out by Viscount Cross, it is clearly impossible that Government could assist Mr. Smith's project in these matters to the extent suggested, and the only practical question for consideration, at present, is, whether any, and, if so, what support should be given to the specific proposals described in the latter part of Mr. Smith's letter thus—

"In this view, we would propose to select a few stations on some of the principal grain-carrying railways, and to conduct thereat simple cleaning and grading operations, returning the grain into bags properly secured and covered by certificates as to the quantity and quality, thus discarding for the present the idea of the elevator proper.

In the English markets our efforts would be directed to securing a demand for the clean and graded article, and further development of the scheme would be dependent upon the results obtained. We have reason to believe that in the English grain centres, accustomed to the American system, the certificates above referred to will speedily receive the credit they deserve, and so soon as they become recognised in the English markets, and thus act to the benefit of the producer, the steady development of the scheme may be confidently anticipated.

The railways on which it is proposed to commence are—

The Great Indian Peninsula Railway,
The Bombay, Baroda, and Central India Railway,
The Bengal-Nagpore Railway,

these being contributory to the one shipping centre of Bombay, between which place and Liverpool the trade is considerable, while Liverpool is a port already accustomed to the American system of clean and graded grain.

The authorities of the above-named railways have been addressed, and, so far as at present ascertained, the scheme will be favourably received and supported by them.

The stations at which machinery is proposed to be erected will be selected in communication with the Companies.

It is probable that in all some 15 stations at the outset will be provided with cleaning, grading, and weighing apparatus and with some elevating machinery, all of which will have to be sheltered from weather by buildings sufficiently strong to withstand the vibration of the machinery, and constructed with some regard to their future uses.

The machinery may be worked by bullock or steam power, as circumstances may require. It appears to us that the undertaking will necessitate the sending to India of a few qualified men to commence, conduct, and instruct in the operations, but we would desire to avail ourselves of the assistance of Railway Companies' staffs to the utmost extent possible.

We believe that the whole of the machinery required in the first instance is readily obtainable in England, and, including freight, railway charges in India, and other expenses we estimate its cost at	£
	7,500
The buildings at 15 stations, with cost of fittings and erecting machinery, would probably cost	10,000
The pay and allowances of staff, preparatory to the commencement of work, may be taken at	5,000
And preliminary and contingent expenses at	2,500
Making a total of	<u>25,000</u>

Besides keeping the capital expenditure within the narrowest limits, it would be our object to keep down the working expenses and charges as low as possible. In the more advanced stages of the undertaking, the charges to be made will, beyond doubt,

be far more than covered by the saving in cost of handling, &c., but during the preliminary operations just described the charges for cleaning and grading must be reduced to a minimum, to be covered by the enhanced value of the clean grain, and still leave the ryot sufficient inducement to avail himself of the advantages offered.

During this period of education and experiment, we can hardly expect the machinery to do more than pay the expenses of its working, but each subsequent step in advance should put our operations on a more satisfactory footing.

So soon as demand for clean and graded wheat is secured in the United Kingdom, a demand on the part of the producers or owners for the cleaning and grading of their wheat will certainly follow, and as this increases so will the present scheme progress towards the erection of a complete system of elevators, and as success becomes assured on one or more lines of railway leading to one port, so will other lines of railway and other ports be supplied with similar advantages.

All extensions of operations involving expenditure beyond the amount of 25,000*l.* referred to in this paper would be submitted for the sanction of the Secretary of State for India in such manner as he may direct, and we confine our present request for a guarantee of interest to a half-yearly payment, calculated at the rate of 4 per cent. per annum on the 25,000*l.* already indicated, and on the subsequent sums sanctioned from date of such sanction, for a period of five years from that of the acceptance of the proposals which we have the honour to make.

The capital of a Company sufficiently important to deal adequately with the subject of our representation must necessarily be large, but at starting the amount to be called up would be limited to 25,000*l.*, and during the continuance of the guarantee further calls must be restricted to amounts necessary to cover extensions duly sanctioned."

7. It will be observed that the proposal here is to abandon at first the American principle of the grain elevator, to return the grain in bags, after cleaning, to the owners, and let them dispose of it as best they can. But if, as is alleged, an adequate price cannot now be obtained for clean grain, and if it pays, as it certainly does, to have the grain as produced from the threshing-floors, mixed with dirt, the question arises why should the owners bring their wheat to the elevators to be cleaned, and if they did bring it, why should the fact of its having been cleaned secure for it an adequate price, seeing that clean grain does not fetch an adequate price? Wheat can now be cleaned at a very low cost, and machinery was introduced for the purpose by Messrs. Ralli Brothers and others, but it was found that the clean grain, when exported, did not realise a relatively better price, and it is not clear how the fact of its having been cleaned by an elevator will cause it to do so, especially as the process of cleaning by elevators will, according to Messrs. Ralli Brothers and others, be more expensive than cleaning by native agency with sieves. For these reasons I am of opinion that ryots and traders will not bring their grain to the elevators to be cleaned, if the grain, when cleaned, is to be returned to them, and they are left to do the best they can in obtaining an adequate price for it. But if Mr. Smith's Company were to buy the grain from the cultivators and traders on the best terms they can, and were then to clean, grade, and export it at their own risk, and were thus to endeavour to create a market for clean grain at home, it is a question for consideration whether Government would not, in that case, be justified in giving land for the buildings free of cost at or near 15 selected railway stations on the lines named, and in guaranteeing interest at 4 per cent. for five years on the outlay for buildings and machinery, up to a maximum of 1,000*l.* per annum. On this point I have consulted, at a meeting (the record of proceedings of which is annexed), Messrs. Ralli and Petrocochino, who as merchants are largely interested in the wheat trade, and Mr. Pallachi, who is one of the principal brokers interested in the trade from the point of view of Native dealers. It will be seen that Messrs. Ralli and Petrocochino are of opinion that Government even in the case supposed would not be justified in giving to the Company the limited assistance suggested, because the scheme of grain elevators has, in their opinion, no chance of success. Mr. Pallachi thinks that this plan is worth a trial, provided that no monopoly is given to the Company. If the Company believes in the efficacy of their elevators in reducing the cost of cleaning grain, and if they believe they can get an adequate price for clean wheat, then they should, he thinks, be prepared to try the experiment on these terms. Mr. Pallachi does not, however, himself believe that the elevators will pay or that the promoters will be able to obtain a remunerative price for clean grain.

8. I am of opinion that if any assistance is to be given to the Company it should be in the way above suggested. If the Company are willing to run the risk of erecting elevators at 15 railway stations, at a maximum cost of 25,000*l.*, and if they will

Inducement
to clean
wheat.

Company
must buy
clean and
Export.

Limits of
Government
assistance.

make their own arrangements for the purchase and disposal of their wheat, and thus endeavour to create a market for clean grain in Europe, Government may, I think, having regard to the importance of the object in view, encourage them to the extent of guaranteeing interest of 1,000*l.* a year for five years, and of giving free sites for their buildings. If the Company succeed in creating a market at home for clean grain at remunerative prices, they may be left to extend their operations without Government interference, and if they fail, the loss to Government can in no case be more than 5,000*l.*, and would probably be less.

9. It will be observed that the Chamber of Commerce (which originally moved Government to impress on cultivators the necessity of producing clean grain) hold that the system of elevators is unsuited to India, and from what has been said it is clear that the introduction of them cannot, at best, have much effect for some time to come

Legislation
against
adulteration.

10. The question then arises, can nothing be done towards stopping the system of deliberate adulteration now practised, and towards securing a supply of clean grain for export? Messrs. Anderson, Wright, and Company, and the Council of the Agri-Horticultural Society suggest that the only basis of sale recognised by law should be that of pure wheat, and were this the case, no up-country dealer would, they say, risk paying railway carriage for five tons of dirt for every 95 tons of wheat, and no buyer would accept dirty wheat without getting the full equivalent of the loss he would sustain by sending the parcel to Europe. They propose that an enactment be passed, both here and at home, to the effect that no contract will be recognised in a Court of law unless based on a price of pure wheat. The result of such an enactment would be, that not only would there be no inducement to adulteration left, but growers would have an incentive to produce clean grain, which they now have not, and in a short time they would probably do so. Mr. Ralli says the Calcutta merchants would have no objection to such an enactment if the home merchants have none. The Calcutta merchants are, he says, the servants of the home merchants, they can and will send pure grain if it is wanted and paid for; it is because it is not wanted that it is not sent. Mr. Ralli is, however, at the same time of opinion that the proposed enactment would be objectionable on general grounds as being an unnecessary interference on part of Government with trade.

11. The Chamber of Commerce are also of opinion that there is no need for legislation on the subject, and regard the enactment of a law on the terms proposed as a most undesirable interference with freedom of contract. I also am of opinion that the time has not yet come for legislation of this kind, which should not be had recourse to unless and until the evil complained of is clearly shown to be injurious to the public interests, and until all other remedies have been tried and failed.

12. The question then is what other remedies are possible? In my letter No. 1,265, dated 18th August 1887, paragraph 10, it was suggested that wheat might, like oil-seeds, be sold on analysis at home. This proposal was discussed at the conference between Viscount Cross and the gentlemen interested in the wheat trade, held at the India Office on the 8th May 1889, and it was stated by Mr. Todd, on behalf of the London Corn Trade Association, that the proposal was impracticable for the following reasons:—

“That wheat might be sold at home on analysis like seeds (Mr. Finucane's report, page 13). That the Corn Trade Associations might be asked to fix the refraction on all sale contracts of wheat at not over two per cent. (Mr. Forbes Adam's letter to His Excellency the Governor of Bombay, paragraph 26).

“This question of selling wheat on a per-centage rate of refraction has on various occasions occupied the attention of the Sub-Committee (Indian section) of the London Corn Trade Association, and had also been discussed by the General Committee of the London Corn Trade Association, but the principle so far has been considered impracticable.

“There is a great difference between selling seeds and wheat on analysis.

“1st. The quantity of any description of seeds sold is very considerably smaller than that of wheat.

“2nd. Seeds, especially linseed (by far the largest trade in seeds), show little variation in quality, and hence it is practicable in large parcels of linseed to have the analysis made on one average sample to determine the whole shipment. This, with the variations in quality, admixture, &c., &c., in wheat, almost from bag to bag, is

impossible, and therefore it would be necessary for every small parcel of 50 tons or 100 tons to have separate average samples drawn, and have them analysed.

"3rd. In seeds, owing to the above slight variation in quality, a comparatively small sample is analysed; whilst in wheat a considerably larger sample will have to be analysed, and thus the cost will be greatly increased.

"The charge for analysing a sample of linseed is 5s., whereas on wheat we believe it has not yet been done under 2l. 2s., a very heavy charge on 50 tons or 100 tons of a poor article like wheat.

"4th. The quantity analysed, being larger, it naturally will take much longer to analyse, and when in a large parcel of 2,000 to 2,500 tons of wheat, something like 20 or 25 analysis will have to be made, it can easily be understood that delay must follow, rendering the final settlements protracted and unsatisfactory.

"5th. Lastly and chiefly, seeds are not liable to weevil. Wheat is, and sometimes it suffers most severely from this inherent defect. How would the advocates of analysis deal with the weevil flour dust? If they take it as refraction it would be very unjust to the shippers, who, although they may have cleaned down and shipped in India a parcel containing only two per cent. refraction, may be called upon through the wheat being attacked by weevil during the voyage to allow on final settlement 5 per cent., and even 6 per cent. or 7 cent. on refraction, besides making an allowance for quality in consequence of the excessive weeviled condition of the said parcel. If, on the other hand, weevil flour dust is admitted *not* to be an heterogeneous substance, how is it to be separated from the fine earth, sand, or other impurities? *

"Seeing, therefore, that the natural condition at present of Indian wheats is to contain about 4 per cent. of admixture on the Bombay side, and 5 per cent. on the Calcutta side; that under the circumstances it is not practicable to induce the Indian shippers to change their system of purchasing, and instead of buying on the above natural refractions to introduce an artificial basis of a 2 per cent. refraction; that buyers practically are not prepared to pay a proportionately higher price for cleaner wheats; that the system of selling on analysis here is altogether impracticable and unadvisable; that the conditions of the Indian wheat trade, although slowly, are gradually improving; that India ships and sells all her wheat available for export year by year, and that her development, in this branch at least, is not prevented by the present condition of her wheats; that the interference of Government in questions of contract as between seller to buyer is inadvisable,—our opinion is that it is not advisable or desirable to try and force sudden and radical changes in the natural condition of a trade, but that it is preferable to let the improvement come gradually out of the trade itself, taking it for granted that merchants, sellers, and buyers, shippers and consumers, &c., are too keenly alive to their interests to allow any opportunity for improvement in their trade, when such becomes advisable, to pass by."

13. In answer to these objections it may be stated that Indian wheat is, as a fact, now bought on analysis in Marseilles, and it appears reasonable to believe that what can be done on one side of the English Channel can also be done on the other. Messrs. Ralli and Petrocochino, who can speak with authority on the subject, say that, so far as they can judge, what is done in Marseilles can also be done in London. The difficulties connected with weeviling are not, they say, insuperable, while Mr. Pallachi says there are no such difficulties. Assuming there are such difficulties, it appears reasonable to suppose that if they can be surmounted on the system of purchasing by fair average quality, they can be also got over if contracts are made on the basis of pure grain. I am informed by competent authorities that it is far easier to refract wheat than oilseeds, and that the process is less expensive and more expeditious. Again, to the statement that wheat, on the Calcutta side, in its normal condition, contains 5 to 7 per cent. of admixture, and that for this, among other reasons, it is not desirable to force sudden and radical changes on the normal condition of a trade, it may be answered that it is not a fact that the normal condition of wheat, on the Calcutta side is to contain 5 per cent. of admixture. If it were a fact, there would be no place for wilful and deliberate adulteration. It is only with a view to degrade wheat, as produced from the threshing floors, from its normal condition down to the required standard of refraction, that adulteration is practised or has any object. "The growers," the Agri-Horticultural Society point out, winnow, and clean their wheat to the extent their crude "appliances will admit, and undoubtedly some of the earth from the threshing-floor and an admixture of other grains must remain in the crop. This is estimated at 2 or 3 per cent. of earth, peas, and barley. But as the Calcutta contract is for 5 per cent. up to August, and 6 to 7 per cent. after that, it therefore

Trade in adulterants.

"pays the seller to adulterate his batch up to 2 per cent. over the guarantee, or he will lose on the average. This is such a well-established custom that a regular market price for suitable adulterants exists in the exporting districts and the seller purchases such materials and mixes them with his wheat. The shipper, it is added, has the lot examined and makes the best bargain he can as to allowance with the seller and sells fair average at home; practically his profit is what he gets in this way. In Calcutta, where there are no threshing-floors, the refuse fannings and screenings from merchants' godowns and millers' works are bought by regular dealers whose head-quarters are at Hatbagan.* This is sold as pigeon food, and is the basis of such adulterants as are used in Calcutta. In the mofussil the adulterants used include refuse, small bits of brick, cow-dung, and a large proportion of earth. The adulteration thus consists in putting back into the grain a given quantity of what has been previously removed, so as to degrade it to a low standard. In my report, No. 391 T., dated 7th July 1886, paragraph 5, it was shown that the Manager of the Dumraon Raj "had a golah at Itari near Buxar, from which he used to sell wheat on rather a large scale to the Agent of Ralli Brothers at Buxar. The wheat as he got it did not contain 5 per cent. of foreign matter. Accordingly the Manager's servants were directed to mix two maunds of earth with every hundred maunds of grain, so as to bring the adulteration up to the required standard. This earth was treated with water, and specially prepared for purposes of adulteration."

Major Boileau, then Sub-divisional Magistrate of Dinapore, wrote:—

The grain-dealers wilfully adulterate their grain, adding about two maunds and thirty seers of dry clay, *bhusee*, and other grains to every hundred maunds of wheat, and Mr. Carnduff, Sub-divisional Officer of Hajepore, said, "In the hands of the middlemen the grain is lodged in golahs, and such grains as *akla pipra* are intentionally added with a view to adulteration." Again, so competent an authority as Mr. J. Ralli, the head of the firm of Messrs. Ralli Brothers, in Calcutta, says that in his opinion, "relatively pure wheat can be supplied from India. It is a question of price."

Normal impurity.

14. How then in the face of all this evidence is it possible to assert that the normal state of Indian wheat on the Calcutta side is to contain 5 to 7 per cent. of foreign matter? It may be admitted that its normal state is to contain 2 to 3 per cent. of other grains and dust, but the deliberate adulteration with refuse, bits of brick, and prepared adulterants is the result of the abnormal, factitious, and unhealthy system of having a fixed standard of 5 to 7 per cent. of refraction, a system which obviously holds out a direct and powerful incentive to adulteration up to that standard, and makes it positively wrong for Government officers to advise or encourage cultivators to produce pure grain. Neither can it be correctly said, as far as the Calcutta trade is concerned, that the conditions of it are gradually and slowly improving. On the contrary there has, the Calcutta Chamber of Commerce remark, been a deterioration in the quality of wheat brought to this port in recent years. Wheat has, it has been stated, been shipped from Calcutta in the present year in a dirtier condition than ever before, containing admixture of foreign substances up to 12 per cent., while the total quantity exported fell from 217,000 tons in 1887-88 to 147,000 tons in 1888-89 and to 78,000 tons in 1889-90.

Purchase on analysis.

15. If wheat were bought on analysis in London, as is done in Marseilles, there would be no motive for adulteration and no object in exporting dirt, while the normal condition of Indian wheat, to which the London Corn Trade Association attach so much importance, would not be in any way affected. As to the question of weevilling, on which so much stress is laid in this connexion, it is to be remarked that Mr. Charles Whitehead, Agricultural Adviser to the Lords of the Committee of Council for Agriculture, holds that "the foreign matter annexed with wheat imported from India serves as a medium for the wholesale transportation of insects injurious to crops; that the admixture of dirt, seeds, and rubbish causes the wheat to heat, which is detrimental to its quality, and at the same time causes the weevils to propagate unusually, and to materially damage it. Besides the actual money loss occasioned by these weevils, it is stated that the flour made from wheat much infested by them is injurious to health."† Whatever, then, the evils arising from weevilling may be, it is evident that they are aggravated by a system which encourages and even necessitates admixture of dirt, which causes the weevils to "propagate unusually," and thereby renders "the flour injurious to health." For these reasons I agree in the

Weevil injurious.

* Agri-Horticultural Society's letter, dated 5th June 1890.

† Board of Trade's Journal, No. 35, for June 1889, page 687

opinion expressed by the Bombay Chamber of Commerce in their letter, dated 14th June 1889, to His Excellency the Governor of Bombay, that the reasons given by the London Corn Trade Association for adhering to the present system are either incorrect in fact or irrelevant, and I am of opinion that no improvement in the purity of Indian wheat will be brought about by grain elevators, threshing machines, or by other means, unless and until that system is changed either by—

Essential reforms.

- (1) reducing the standard of refraction to 2 to 3 per cent., which is the normal per-centage of admixture of foreign matter; or
- (2) by making pure wheat the basis of contract, thus refracting only the actual quantity of foreign matter found on analysis.

It is open to the London Corn Trade Association to adopt either of these courses, and it is difficult to see what the objections to them are, assuming that the exporters and importers do not, as alleged by the Agri-Horticultural Society, derive their profits from the present admixture of dirt.

16. A further question remains for consideration, namely, whether wilful adulteration in this country should be put down by legislation. Mr. John McDougall in a letter, dated 25th March, to the Under-Secretary of State, strongly advised that, failing the adoption of the other measures suggested, it should be made penal to deal in or export grain to be used for human food in any way adulterated. Mr. Seth Taylor, the President of the London Corn Trade Association, at the conference held in the India Office, remarked on this point as follows:—

“ We accept your Lordship’s disclaimer that you are not going to dictate between the buyer and seller which, I think, would be beyond the scope of our legislature, whatever may be done in other countries; but I think that the limit to which the Government might interfere with advantage would be the prevention of wilful admixture of foreign substances in wheat in India. We must discriminate between what is naturally grown and is necessarily harvested with the wheat, and the system of mixing dirt with the wheat to bring it down to a standard below that which should come here. That, of course, one feels is a practice which might very fairly be made a penal offence. But that rests with your Lordship and the Government. I am quite sure that it would be to the interest of everyone if such an enactment could be passed. The difficulty there is in fixing a limit of 2 per cent. refraction is owing not only to dirt, but to the seeds of various kinds that are grown amongst the wheat. We have not only from India but from other countries foreign elements grown in the wheat, and to have a system of cleaning wheat at the port of shipment would add more to the cost of wheat than the buyer would give on the other side.”

17. It thus appears that the London Corn Trade Association as represented by their President would be in favour of legislation with a view to stop deliberate adulteration, as such legislation, it is said, would be in the interest of everyone. I would not, however, recommend recourse to such legislation. It is evident as long as contracts are made on the basis of 5 per cent. of foreign matter, that if wheat is produced from the threshing-floors with only 2 per cent. of foreign substances, and wilful admixture of foreign matter be not allowed, the gainers would be the merchants at home, for they would secure grain with only 2 per cent. of dirt, when they had contracted and paid for grain with 5 per cent. of dirt, and the losers would be the ryots and petty dealers in India, who would obtain for comparatively pure grain the same price as for wheat with 5 to 7 per cent. of mixture. If, then, legislation is to be had recourse to at all, it should be designed not alone with a view to punish deliberate adulteration, but also with a view to punish trading or dealing in grain which has been adulterated. It cannot be said that the practice of adulterating wheat at present followed is punishable under the Indian Penal Code, for it is not certain that the adulterants are deleterious to human health, inasmuch as it is said that the dirt and adulterants are removed by millers in England before flour is consumed, nor can the practice be considered fraudulent, inasmuch as the purchasers of adulterated wheat contract for and purchase the dirt, and know what they are buying. The persons who to some extent suffer from the present system are the consumers of flour in England, who have to pay unnecessarily for cost of five to seven maunds of dirt for every hundred maunds of wheat, then to pay for the extra cost of separating the wheat from the dirt in England, and at the same time obtain for consumption, at a needlessly high rate, flour which must be less wholesome than if it were made from wheat imported in a pure state. But the class which chiefly suffers are the Indian ryots, who are placed by the system in an unfavourable position to compete with foreign markets, and may in time, in consequence of the system, be driven out of the market altogether.

Legislation to penalise adulteration

Railway
rules as to
export con-
signments

18. The proposal made by the Chamber of Commerce to allow Railway Companies to raise the limits of special class consignments of wheat and seeds intended for export from the present limit of a waggon load to 50 tons (these special class consignments are carried at specially low rates) is one which cannot, in my opinion, be supported. It is not clear how the adoption of this proposal could affect the cleanliness of wheat, while the proposal is obviously objectionable on other ground as tending to unduly favour exporters at the expense of the growers and petty dealers. The adoption of the proposal would, it is said, draw a sharp line between wheat intended for export and that intended for local consumption. The latter is now adulterated even more than the former, and consignments originally intended for local consumption, with admixture of 10 to 12 per cent. of dirt, are sometimes bought up by exporters and shipped as they stand, but the same thing would happen supposing the Chamber's proposal to be accepted.

Summary of
recommendations.

19. To sum up: I am of opinion that the elevators may be tried in fifteen selected stations as proposed, provided that the Company make their own arrangements for the purchase and sale of their grain, without the interference of Government officials; that a guarantee of interest at 4 per cent. on a maximum outlay of 25,000*l.* per annum may be given for five years, and free sites for buildings; but I doubt whether the elevators will have any appreciable effect in causing clean grain to be exported from India as long as the present system of 5 to 7 per cent. refraction continues; that this system renders the admixture of dirt and foreign substance up to that standard inevitable; that the reasons given by the London Corn Trade Association for adhering to the present system, so far as Calcutta is concerned, are founded on misapprehension of facts; that their conclusions ought to be reconsidered; that special legislation should not at present be had recourse to; but, if other remedies fail, that it will then be a question for consideration whether, as suggested by Mr. McDougall of London, it should not be made penal to deal in or export wheat, intended for human food, which there is reason to believe has been wilfully adulterated or contains substances deleterious for human consumption.

43.

PROCEEDINGS of a MEETING held in DARJEELING on 28th May 1890.

PRESENT :

Mr. J. A. RALLI,	} Merchants,
„ PETROCCHINO,	
„ PALLACHI, Broker,	
„ FINUCANE, Director of Agriculture, Bengal.	

The following questions connected with the subject of erection of grain elevators in India and the impurity of Indian wheat were discussed:—

Questions.—Is the scheme described in Mr. Smith's letter, dated 17th September 1889 (which was read), one which is suitable for India?

Messrs. Ralli, Petrocchino, and Pallachi consider that the system is not suited to India, and, if it were, they think that the concessions and privileges which Mr. Smith asks for are so impracticable that they need not at present be considered *Seriatim*. It would be obviously out of the question to provide land for the Company's purposes free of cost in every railway station from which wheat is exported; or to guarantee that similar facilities will not be afforded to a competing Company; or to guarantee interest at 4 per cent. on any amount which the Company may deem it desirable to expend.

2. Apart from the general scheme, is it desirable, as an experiment, to give the facilities asked for to enable the Company "to select a few stations on some of the principal grain-carrying railways, and to conduct thereat simple cleaning and grading operations, returning the grain into bags properly secured, and covered by certificates as to the quantity and quality, thus discarding for the present the idea of the elevator proper"?

2. Mr. Finucane said that as Mr. Smith proposes to return the grain to the bags, and to let the owners dispose of it as best they can, the advantage of the elevators was not apparent. If an adequate price cannot, as is alleged, be now got for clean grain, and if it pays people to have the grain as produced from the threshing-floors mixed

with dirt, why should they bring their grain to be cleaned to the elevators? If they did bring grain to be cleaned, why should the fact of its being cleaned in the elevators secure for it an adequate price if, as is asserted, clean grain does not now fetch an adequate price?

Mr. Ralli said people would not bring their grain to the elevators to be cleaned. Wheat can now be cleaned at a very low cost. Machinery was introduced by his own firm for cleaning grain; and grain was cleaned; but it was found that it did not fetch a relatively higher price. It is not clear how the fact of its being cleaned in the elevators could secure an adequate price for it. The process would probably be more expensive than cleaning by native agency with sieves. Therefore the elevators must be financial failures. Messrs. Pallachi and Petrocochino agreed. In this connexion Mr. Ralli adds that he understands the Elevator Company will charge on all certificates granted an uniform wastage of a certain per-centage, perhaps $\frac{1}{2}$ per cent. per month. This would, in his opinion, be most objectionable, because it would place the man who delivers a parcel of wheat in good condition on the same footing as one who delivers badly weevilled wheat, which will go on deteriorating in weight to a much greater extent than good conditioned parcels. The one man will thus benefit at the expense of the other.

3. How would a plan work of having the owners of the elevators buy and sell the grain at their own risk, i.e., suppose Mr. Smith's Company were to buy the grain from cultivators, traders, or others on the best terms they can, then bundle, clean, and export it themselves at their own risk, and thus endeavour to make a market for clean grain at home? Would Government in this case be justified in giving land for the buildings on State Railways, and guaranteeing interest on the outlay on buildings and machinery, as proposed by Mr. Smith, up to a maximum outlay of 25,000*l.* for five years? This would involve a guarantee of only 1,000*l.* a year for five years. If the Company succeeded, they might then be left to extend their operations without Government interference; if they failed, the risk, so far as Government is concerned, would not be great. No monopoly should, of course, be given to them, and no guarantee as against other Companies or firms. Inasmuch as they would be pioneers in trying the experiment of procuring clean grain and obtaining a market for it, might they be encouraged to the extent of giving them free sites for their elevators at the selected railway stations where they propose to begin their operations, and might they be guaranteed 4 per cent. interest on an outlay on buildings and machinery up to a maximum outlay of 25,000*l.* for five years, being, after that term, left to work on purely commercial principles?

4. Messrs. Anderson, Wright, and Co. say that the grain elevator system is unsuited to India, and urge that there is no justification for the acknowledgement in Court of a contract for wheat with 5 per cent. or 10 per cent. adulteration. Up-country firms, both native and European, would, they say, gladly see a market for clean grain forced upon exporters. This can be accomplished by Government enacting, *both here and in England*, that no contract will be recognised in a court of law unless based on a price for pure wheat. Were this the case, no up-country dealer would risk paying railway carriage on 5 tons of dirt for every 95 tons of pure wheat, and no buyer would accept of wheat without getting the full equivalent of the loss he would sustain on the refraction by sending parcels to Europe.

The Agri-Horticultural Society urge the same view, and say "there is a well-established custom of deliberate adulteration, that a regular market price for suitable adulterants exists in the exporting districts, and that sellers purchase these materials and mix them with their wheat. The skippers make the best bargain they can as to allowances (for dirt) with the sellers, and sell fair average at home. Practically their profit depends on what they get in this way."

QUERIES.

- (a.) What would be the objections to such an enactment as Messrs. Anderson Wright and Company and the Agri-Horticultural Society propose?
- (b.) Are these objections outweighed by the advantages to the trade and public which would be attained?
- (c.) Is it true that the profits of exporters practically depend on adulteration?

5. Will the alterations made as to forming the standards in which deliveries will be compared in case of need by the London Corn Trade Association have any effect in causing cleaner grain to be exported than heretofore?
6. As the elevator system is not believed to be likely to afford a remedy, and as the London Corn Trade Association have done practically nothing, and as legislation is not approved, then nothing can be done in order to secure export of clean grain.

The Calcutta Chamber of Commerce have urged on Government the desirability of impressing on cultivators the necessity of producing clean grain. It has been shown that it would, under present conditions, be wrong to impress anything of the kind on cultivators, and that nothing can be done in that direction towards securing export of clean grain. Is nothing then to be done in any direction?

Can wheat be sold on analysis?

Is it sold anywhere on analysis?

7. How would the recommendation of the Bengal Chamber of Commerce operate towards securing exports of cleaner grain?

Their recommendation is that Government should permit railways to raise the limits for special class consignments of wheat and seeds intended for export from the present limit of a wagon-load to a minimum load of 50 tons.

8. Where there is a deliberate adulteration of wheat going on in the manner described by the Agri-Horticultural Society, should it be stopped by police interference under the Penal Code, if that be possible, and if not possible under the Penal Code, should an Act be passed to make the practice penal?

3. Mr. Pallachi thinks that this plan is worth a trial, provided that no monopoly is given in any shape. If the Company believe in the efficacy of their elevators in reducing the cost of turning out clean grain, and if they believe that they can get an adequate price for clean wheat, they should be prepared to try the experiment on these terms. But Mr. Pallachi himself thinks the elevators will be financial failures, because the increase of cost of cleaning the grain will be more than the increase in price which will be obtained for the cleaned grain at home.

Mr. Ralli does not think that the Government would be justified in offering any guarantee, because he thinks the scheme has no chance of success. He would not himself invest a pice in elevators on this or any other plan. Mr. Petrocchino agreed with Mr. Ralli.

Mr. Ralli adds that basing oneself on the experience of firms long established, the necessary staff and organization for carrying out such a scheme would be so costly as to prejudice any reasonable chance of success. It would be tantamount to constituting the Grain Elevator Company into a mercantile concern to which one season's unfavourable experiment would be disastrous, especially with so limited a capital.

4. Mr. Ralli says the objections to such an enactment are the following:—

1st.—The general objection to Government interference in trade.

2nd.—Such an enactment would result in an evasion of the letter of the contract. The Calcutta merchants would have no objection to such an Act if the home merchants have none. The Calcutta merchants are the servants of the home consumers. It is because the home markets pay relatively better prices for unclean wheat that shippers find it better to export it.

It is not because of difficulty in procuring clean grain that it is not exported, but it is because there is a better demand for dirty wheat that dirty wheat is exported. Mr. Pallachi entirely agrees in this view; so does Mr. Petrocchino. The statement is not correct that the profits of the shippers depend on the system of refraction, the home buyer pays a price knowing what he has to get. In case of excess admixture the shipper is mulcted in heavy allowances.

With reference to the statement in No. 4, Anderson, Wright and Company, to the effect "that no up-country dealer would risk paying railway carriage on 5 to 10 per cent. of dirt," Mr. Ralli remarks that sellers send down seeds ordinarily containing a greater amount of admixture than the one contracted for. Although, for instance, a contract of linseed stipulates that in the event of the admixture exceeding a certain per-centage buyers (besides several other options) have also that of rejection, it has been found impracticable to enforce it.

5. Mr. Ralli says the alteration made is one in the right direction, and will probably check any tendency for future increase in the admixture of wheat shipped from India. Messrs. Pallachi and Petrocochino agree.

6. Mr. Ralli says the only remedy is to be found in the consumer in England paying an enhanced price for a superior article. If he does the article can be supplied. He believes that relatively pure wheat can be supplied from India. It is a question of price. As to the question of selling on analysis, wheat in Marseilles is sold, he believes, only by his firm (Ralli Brothers) on the basis of analysis, *i.e.*, fixing a percentage of the components. Usually any differences arising in the deliveries in Marseilles as to analysis are judged by the eye, but of course the buyer has the right of proceeding to analysis. The basis of admixture on which his firm sells guides the general deliveries of Indian wheat in Marseilles. This change, however, has not, he believes, increased the imports of Indian wheat into Marseilles.

As to the basis of selling on analysis in other countries, he supposes the same might be done in England if buyers are prepared to pay the difference of price, which is very doubtful; but of course it will enhance the cost.

Mr. Petrocochino agrees with Mr. Ralli.

Mr. Pallachi says that, so far as he can judge, there are no difficulties so far as weevilling is concerned, in selling by analysis. It is done in Marseilles; why not elsewhere?

7. Mr. Ralli says that there would be greater uniformity, as the tendency would be to throw the export trade from the districts into the hands of larger dealers.

Mr. Pallachi says the adoption of the recommendation of the Chamber would have no effect whatever in the direction of securing export of clean grain, and would be injurious to the interests of petty dealers.

Mr. Finucane said it would also appear to be injurious to cultivators, as throwing additional obstacles in the way of sale and export of small quantities of grain.

8. This is a question of law on which it is preferred not to express an opinion.

The 28th May 1890.

M. FINUCANE,
Director, Department of Land Records and
Agriculture, Bengal.

44.

From BENGAL CHAMBER OF COMMERCE, to DIRECTOR, Department of Land Records and
Agriculture, Bengal, No. 386—90, dated 7th May 1890.

The Committee of the Chamber of Commerce have given their best attention to the papers forwarded with your docket No. 463 Agri., dated 4th March, and I am now directed in reply to state that in their opinion any attempt to introduce the grain elevator system into this country would be at least premature. Mr. James G. Smith, in his letter to the Secretary of State, dated 17th September 1889, after enumerating the benefits that would result from the system, and pointing out the directions in which the assistance of Government would be necessary, suggests a tentative commencement of operations by the "Grain Clearing and Elevator Company," pending which the efforts of the promoters would be directed to securing a demand for the clean and graded wheat.

The result of the agitation of last year in favour of clean Indian wheat does not encourage the Committee in the belief that the efforts alluded to by Mr. Smith would meet with any great amount of success. But should a real demand arise for clean Indian wheat, they are of opinion that private enterprise will be equal to the occasion, without requiring either the assistance of, or a guarantee from, Government.

It is not necessary to discuss the suitability of the elevator system to the conditions of the grain trade, at least on two sides of India, further than to say it is open to doubt whether, considering the heavy expenses which the proposed Company would incur, such a Company could successfully compete with the simple, but effective, methods of cleaning already known to those who deal in grain. The Committee, moreover, consider that the proposal that the Company should hold grain for the owner for an indefinite time, and accept the responsibility for its condition, is scarcely one suited to India owing to the risks attending keeping wheat in this country for any length of time.

No opening
for elevator
under pre-
sent condi-
tions.

Special class consignments.

The Committee would point out that the scheme contemplates concentrating the grain trade at a few important stations on the principal wheat-bearing railways, and to this extent is diametrically opposed to the policy pursued for the last eight or ten years by Government—a policy which, by abolishing the special reduced rates, allowed by the Railway Administration for large consignments, aimed at giving petty stations equal facilities with the larger depôts for sending produce to the coast ports. The Committee understand from the principal exporters of wheat that the opening up of these petty stations is largely responsible for the deterioration in the cleanness of the wheat brought to this port, for whereas this produce was formerly concentrated at some few important stations, there piled and re-bagged, it is now forwarded direct, without any piling, handling, or cleaning, to the coast port. While the Committee are of opinion that it is now impossible to nullify the results of this policy and revert to the old system of special rates for consignments of 200 tons, they would urge most strongly upon Government the necessity of permitting the railways to raise the limit for special class consignments of wheat and seeds intended for export, from the present limit of a waggon-load to a minimum load of 50 tons.

This will have the effect of making a broad line between wheat tended for export and that for local consumption.

It would assist in raising the standard of cleanliness.

It would place the trade in the hands of men of some little means, instead of opening it up, as at present, to impecunious gamblers.

It would lessen the work needful to be done at the shipping port and permit of the grain being properly sampled and examined, and so put a check to the false packing and swindling, which is encouraged by the system of petty consignments.

The Committee have reason to believe that if this slight reform were introduced, the benefit resulting to the trade would be so great as to leave little to be desired in the condition in which rail-borne wheat would reach the home market.

45.

CALCUTTA WHEAT AND SEED TRADE ASSOCIATION, to BENGAL CHAMBER OF COMMERCE, No. 41 H., dated 6th June 1890.

Legislation undesirable.

Mr. Finucane's letter of the 28th ultimo to your address, with its annexures, regarding a proposal that the only basis of sale of wheat which should be recognised by law should be that of pure wheat, was duly considered by the Committee of the Association at their meeting held yesterday, when I was desired to let you know, for the information of Mr. Finucane, that in the opinion of the Committee it is useless to try to compel people to clean wheat as long as the Home Trade is indifferent about it, and is satisfied with what it now receives. The Committee further consider that there is no need for legislation on this subject, and they regard the enactment of a law on the terms proposed as a most undesirable interference with freedom of contract.

As regards Mr. Finucane's inquiry with reference to the other proposal, that the limit for special class consignments of wheat intended for export should be raised by the railways from the present limit of a waggon-load to a minimum of 50 tons, the Committee do not think it necessary to express any opinion, as this point will no doubt be dealt with by the Chamber from whom the proposal emanated.

I return the papers herewith.

46.

AGRI-HORTICULTURAL SOCIETY OF INDIA to DIRECTOR, Department of Land Records and Agriculture, Bengal, dated 3rd April 1890.

I have the honour to acknowledge receipt of your endorsement No. 464, dated the 4th ultimo, forwarding, for the expression of this Society's opinion, correspondence accompanying Revenue Department endorsement No. 516—63 Agri., dated 11th February 1890, in connexion with establishing grain elevators in India.

2. I am to say that as this Society understands that the different Chambers of Commerce have been consulted, and as the views of the commercial community will thus

be laid before Government, the Society deals with the question wholly in its relation to the cultivators.

3. The establishment of the elevators for the purpose of cleaning grain for export is, the Society consider, not likely to be of any direct benefit to the grower, for the reasons set forth in the following paragraphs.

4. The conditions under which wheat is grown in India, the small quantities each grower places on the market, the poverty of the people necessitating their selling their produce without delay, and other causes, precludes, there being any chance of their being able to avail themselves of the facilities for cleaning offered by the system. Reasons against the scheme.

As a rule Indian wheat is not purposely adulterated by the growers. The impurities which exist in it when it leaves their hands are due to the system of cultivation and thrashing, which are too well known to need description here.

The growers winnow and clean their wheat to the extent their crude appliances will admit, and undoubtedly some of the earth from the threshing-floor, and an admixture of other grains, must remain in the crop. This is estimated at 2 to 3 per cent. of earth, peas, and barley. But as the Calcutta contract is for 5 per cent. up to August, and 6 to 7 per cent. after that; it therefore pays the seller to adulterate his batch up to 2 per cent. over the guarantee, or he will lose on the average. This is such a well-established custom that a regular market price for suitable adulterants exists in the exporting districts, and the seller purchases such materials and mixes it with his wheat. The shipper has the lot examined and makes the best bargain he can as to allowance with the seller, and sells "fair average" at home; practically his profit is what he gets in this way.

It is probable that even the buyers who collect grain, buying the small quantities sold by individual growers at *hats* and bazaars, and selling again to dealers and merchants' agents, are not likely to be able to deal directly with exporters through the elevators.

4. There is one feature in what is known as the elevator system which would probably affect the grower prejudicially. Loss to cultivator.

The system is that all grain passing into the elevator is graded and bulked, and a receipt given to each constituent, who, when he requires his grain, receives his quantity from the bulk.

The bulking of such large quantities give a more even standard than at present exists in India, and these recognised standards again being fixed, their relative prices are fixed.

As a matter of practical convenience, the number of standards or grades will have to be limited, and the present elasticity done away with, so that the superior sample falling into a given class will fetch no more than an inferior sample which is just good enough to pass the standard.

There will therefore be no incentive to buy the best quality of a certain class; the endeavour will be to get the cheapest grain which will pass the standard. This may not matter to the merchant, but the grower who produces a better sample of grain of the same class as his neighbour's will be no gainer.

5. I am directed to say that, for the reason already given, this Society does not enter into the question of the effect which the introduction of elevators would have on the trade in wheat. The Society is aware that there is much to be said from a commercial point of view for the establishment of fixed grades of clean wheat, and for other results of the elevator system. Without offering an opinion on these points, or on the system as a whole, I am to point out that in India the existence of the weevil pest would have to be taken into consideration as a factor against the collection and storing of grain in the manner proposed, and special means would have to be contrived to guard against its ravages, more especially were wheat held over for any time. Danger of weeviling increased.

The Society is aware that the papers before them contain merely an outline of the scheme proposed. They think, however, that there being no allusion to one of the greatest evils with which Indian wheat has to contend is a serious omission.

6. I am to submit that, if the object of the Government in entertaining the scheme under consideration is to put a stop to the intentional adulteration of wheat in India, a simple remedy exists, viz., to enact that no contract for purchase or sale of wheat will be considered valid unless the price agreed upon is held to be for pure grain. As long as sellers can go into court and enforce a contract for wheat with 5 per cent. to 10 per cent. adulteration, the evil cannot be stopped. If the price paid was for pure wheat Legislation for adulteration.

only, no one would expend money on the railway carriage of adulterants which would be deducted from the price, and no exporter would pay freight and charges unless he got from the seller the full equivalent of what he would lose for any adulterations.

47.

AGRI-HORTICULTURAL SOCIETY OF INDIA to DIRECTOR, Department of Land Records and Agriculture, Bengal, dated 5th June 1890.

I received your demi-official No. 173, dated the 29th ultimo, on the 2nd instant, and though it was marked urgent, I have had to delay replying a couple of days to collect the samples sent herewith.

And nature,
value, &c. of
adulterants.

You ask (1) the value of adulterants, (2) the districts where they trade in them, (3) if they are of such a nature as to be deleterious for human consumption, (4) whether in the opinion of this society the deliberate adulteration of wheat, if not already penal, should be made so.

(1.) The value of the adulterants vary: those which are not added intentionally, such as gram and oil-seeds, having a distinct value, in some cases exceeding that of wheat; these, with a small per-centage of earth and chaff, compose what may be called the natural adulteration. The adulterants which are added purposely include most of the foregoing taken from the general threshing-floor, and other refuse, small bits of brick, cow-dung, and a large proportion of earth. The adulteration thus consists of putting back into the grain a given quantity of what has previously been removed, so as to degrade it to the low standard.

In Calcutta, where there are no threshing-floors, the refuse, fannings, and screenings from merchants' godowns and millers' works are bought by regular dealers whose headquarters are at Hatibagan. They hand-clean and divide out the gram, oil-seeds, &c., into the quantities sent herewith. The bulk remaining consists of light and weevilled wheat, earth, and a proportion of oil-seeds. This is sold as pigeons' food, and is the basis of such adulterants as are added in Calcutta. There is comparatively little done in this way here, as the wheat with the given per-centage of refraction comes down from the districts. The price of this material is from 12 annas to Rs. 1-2 per maund, according to quality, and to it is added the earth which has been separated. The samples are marked B 1, 2, and 3 and E.

The gram and chaff is bought by carters to feed their bullocks, by grain parchers, &c., and the oil-seed is readily sold. This brings us to the (3) question as to whether the adulterants are deleterious. The proportion of foreign matter of every sort not being 8 per cent. in extreme cases, there does not seem much danger, particularly when it is considered that the grain is professedly dirty, and that it is cleaned before being prepared for human food.

(4.) As your letter is urgent, and the members of the committee who would deal with such a reference as yours are absent from Calcutta, I cannot reply to the question of penalising deliberate adulteration. Should you desire it, I can write you on this point hereafter. I believe my committee think that the remedy suggested in the sixth paragraph of my official letter to you would be quite sufficient, but, for the reasons given, I have not been able to again consult them on this point.

And samples
& impurity.

In addition to the samples I send, got from Hatibagan, and lettered according to the enclosed list, I send a collection of twelve samples kindly given to me by Mr. W. W. Duncan. They are from the firm's flour-mill, which has the best machinery for cleaning and sorting grain, as well as for milling, on this side of India. The samples are drawn this morning from the separator, and you will observe that some of the foreign matter could have easily been cleaned out in the exporting district. I have not seen such a collection elsewhere, and think that you will find them of interest.

P.S.—Since writing the foregoing, I have obtained the following additional samples:—

G.—The sweepings collected by the dealers, with the dust taken out. This sample contains wheat of bad quality, oil-seeds, &c. The price in this condition is Rs. 1-12 per maund to Rs. 2.

H.—The dust taken out of the above sample, Rs. 9 per cart

I.—A sample prepared for adulterating wheat, called technically *hatka*—

- No. 1. Uncleaned wheat.
- „ 2. Refuse from fan-valve of separator before going on to sieve.
- „ 3. Fannings from first sieve of separator.
- „ 4. Gram from second sieve of wheat separator.
- „ 5. Screenings from third sieve of wheat separator.
- „ 6. Fourth sieve of wheat separator.
- „ 7. Refuse from fan-valve of separator after passing through the sieves.
- „ 8. Screenings from Cockle cylinder.
- „ 9. Refuse from first valve of smutter.
- „ 10. Refuse from second valve of smutter.
- „ 11. Fan-valve of brush machine.
- „ 12. Clean wheat.

SAMPLES FROM HATIBAGAN.

- A. Grain and barley, price at Rs. 1-8 per maund.
- B¹. } Light and shrivelled grains of wheat, oil-seeds, and earth, at Rs. 1-2 per maund.
- B². }
- B³. }
- C. Oil-seeds at Rs. 1-8 per maund.
- D. Oil-seeds at Rs. 1-4 per maund.
- E. Earth at Rs. 0-8 per maund, or Rs. 10 per cartload.
- F. A sample prepared to show the sweepings purchased, none remaining uncleaned.

48.

CHAIRMAN, CALCUTTA PORT COMMISSIONERS, to DIRECTOR, Department of Land Records and Agriculture, Bengal, No. 318, dated 6th May 1890.

I have the honour to acknowledge the receipt of your endorsement No. 463-71 Agri, dated the 4th March 1890, forwarding, for an expression of the Commissioner's opinion, copy of correspondence which has passed between the Government of India and the Secretary of State on the subject of the formation of a company for the introduction of grain elevators into India.

2. In reply I beg to state that the papers were carefully considered by the Commissioners at a meeting held on the 30th April 1890, and in pursuance of a resolution then passed, I have to state that the Commissioners are of opinion that the scheme contemplated is not one which is suited to this country, or one which should have the support of Government of the kind asked for. It, however, seems to them that if the requirements of trade necessitated the introduction of such a system and there was a prospect of its proving remunerative, it would be taken up by private enterprise. Scheme unsuitable.

49.

MANAGER, EASTERN BENGAL STATE RAILWAY to the DIRECTOR, Department of Land Records and Agriculture, Bengal, No. 839M., dated 26th April 1890.

In reply to your letter No. 469 Agri., dated 4th March 1890, I have the honour to make the following remarks regarding the proposed Company for the introduction of grain elevators in India. Concession exorbitant.

2. As regards this railway the traffic in wheat and seeds is small, and it is unlikely that an elevator would be required at any of our up-country stations. If however, it should hereafter at any time be considered expedient to erect one, we have no employé at such stations who would be qualified to issue certificates of quality.

3. It is, I think, doubtful if higher railway freights would be obtained for wheat dealt with in elevators; the consignor would consider that he paid the Elevator Company the cost of handling his grain, and would probably call for a corresponding reduction in the rates. The railway would effect no practical saving in being relieved of the cost of receiving and watching the grain.

G 3

4. The free grant of land at metropolitan stations and Port Trust property is a very large concession, but the demands of the promoters appear to me to be generally so exorbitant that this point does not perhaps call for special remark. If they have any real belief in the effects to be produced from the introduction of the elevators on which so much stress is laid on page 2 of the printed papers, they should be assured of the success of the project on its own merits without calling on Government to guarantee interest and to grant free land.

5. The venture is of course a novel one in this country, and if the promoters were prepared to erect elevators on one railway and at one port, they might reasonably be given a monopoly for 25 years and land free of rent until such time as the undertaking paid over a certain per-centage, when arrears could be made good. But as regards the proposals for cleaning, grading, and storing wheat without incurring expenditure on elevators, it seems to me that if such a course could be commercially undertaken at a profit it would have been introduced long ago without any company or guarantee.

6. In conclusion I may add that I have no practical acquaintance with the details of dealing with grain on the elevator system as worked in America or elsewhere, and I therefore give my opinion on the subject with some diffidence.

50.

OFFICIATING MANAGER AND ENGINEER-IN-CHIEF, Tirhoot State Railway, to the DIRECTOR OF LAND RECORDS AND AGRICULTURE, Bengal, No. 2,507, dated 19th April 1890.

In reply to your endorsement No. 470 Agri., dated 4th ultimo, I have the honour to state that I am strongly in favour of the scheme of having elevators at large and important stations, but I doubt very much their giving any return on the capital outlay on a line like the Tirhoot State Railway, where the stations are situated so closely together.

Success of
scheme
problematical.

I should oppose the railway staff having anything to do with the working of the elevators from a mercantile point of view, such as sampling, &c., &c. The railway might give lands and sidings but I should be opposed to giving any guarantee or granting a monopoly to any one firm or company.

51.

MANAGER, NALHATI STATE RAILWAY to the DIRECTOR OF THE DEPARTMENT OF LAND RECORDS AND AGRICULTURE, Bengal, No. 1,812, dated Nalhati, 3rd May 1890.

With reference to your No. 471 Agri. of 4th March 1890 regarding the introduction of grain elevators in India, I have the honour to state that I am of opinion that the scheme is one which deserves encouragement and support from Government.

52.

AGENT, EAST INDIAN RAILWAY COMPANY, to the DIRECTOR OF THE DEPARTMENT OF LAND RECORDS AND AGRICULTURE, Bengal, No. 5,862, dated 14th May 1890.

With reference to your docket No. 468 A., dated the 4th March last, regarding the introduction of grain elevators in India, I am of opinion that until they are introduced the purity of Indian wheat and seeds for export cannot be guaranteed. At the same time I beg to point out that until a proper understanding is arrived at between seller and buyer it would be useless to attempt to introduce them.

Proposal
deserves
encouragement.

Doubtless in course of time a better and purer description of wheat will lead to a larger demand and the country would benefit by increased exports.

On the whole I am in favour of the introduction of elevators, but I would deprecate any attempts to create a monopoly in favour of any port or railway in India.

53.

TRAFFIC MANAGER, EAST INDIAN RAILWAY, to ACTING AGENT, EAST INDIAN RAILWAY,
No. 2,937, dated 25th June 1890.

The question does not appear to have been quite clearly stated in the letter from the Chamber of Commerce. We have not abolished the special reduced rates formerly only given for large consignments, but we have removed the condition that the lowest rate shall be subject to a minimum of a train-load or other large quantity. Our charge for wheat and seeds in waggon-loads is now lower than the specially reduced rates formerly quoted for large consignments.

Rule as to
minimum
weight for
produce.

The train-load minimum was withdrawn fourteen years ago under instructions from the Board of Directors, and I cannot find that since then there has been any desire to re-introduce it, or any other minimum which would be likely to affect traffic from the small stations which we have opened from time to time.

At present, owing to the tonnage of our wagons, it would be to our detriment to introduce a minimum of 50 tons (irrespective of other considerations). Of 50 tons say 46 could be loaded in four wagons, and the fifth must be reserved entirely for the remaining four tons to prevent confusion with mixed consignment, &c.

Enclosure returned.

54.

MESSRS. RALLI BROTHERS to the DIRECTOR, Department of Land Records and
Agriculture, Bengal, dated 12th March 1890.

We beg to acknowledge receipt of your letter, dated 3rd March, requesting our opinion regarding the introduction of grain elevators into India.

Success of
scheme
doubted.

We have carefully perused the documents attached to this letter, and regret to inform you that, as we have no experience of the working of elevators in America, we are not in a position to express a decided opinion on the subject further than to say in a general way that, viewing the distinct nature and diversity of quality of the Indian grain compared with American, we very much question whether the introduction of any such system in the handling of Indian grain would be successful.

55.

MESSRS. WILLIAM MORAN & Co., to the DIRECTOR, Department of Land
Records and Agriculture, Bengal, dated 12th March 1890.

We have to acknowledge your letter No. 1,060 of yesterday's date, forwarding the papers relative to the introduction of grain elevators into India.

We have given the papers very careful consideration, and are of opinion that the measure is one worthy of support and encouragement.

56.

MESSRS. ANDERSON, WRIGHT, & Co., to the DIRECTOR, Department of Land
Records and Agriculture, Bengal, dated 12th March 1890.

In reply to your favour of 3rd instant, *anent* Messrs. Ritchie, Steuart, & Co.'s scheme for the introduction of grain elevators.

Elevators
unsuitable.

The application of the American system to India is, in our opinion, not what is wanted, Indian wheat is all shipped in bags, whilst American goes to large extent in bulk, and the elevator is of no use where the bagged article is the rule.

This Messrs. Ritchie, Steuart, & Co. really concede, when they come down to proposing to open at a few stations and "conduct thereat simple cleaning and grading operations, returning the grain into bags properly secured."

Legislation
advocated.

We think most firms having up-country connexions have tried this, but home-buyers and brokers are too powerful, and will not allow settlement to be made based upon the clean wheat. With an ordinary graded netting and a few coolies 100 tons daily can be turned out in any godown at a nominal expense without Government guarantee, and up-country firms, both native and European, would gladly see a market for clean wheat forced on exporters. This can be accomplished by Government enacting, both here and in England, that no contracts will be recognised in a court of law unless based on a price for pure wheat. We have pointed out again that there is no justification for the acknowledgment in Court of a contract for wheat with 5 per cent. or 10 per cent. adulteration. The only basis of sale recognised by law should be that of pure wheat, and were this the case, no up-country dealer would risk paying railway carriage on 5 tons of dirt for every 95 tons of pure wheat, and no buyer would accept of wheat without getting the full equivalent of the loss he would sustain on the refraction by sending the parcel forward to Europe. As long as the law recognises contracts for adulterated wheat, so long will the trade in it continue.

57.

Messrs. BALMER, LAWRIE, & Co., to the DIRECTOR, Department of Land Records and Agriculture, Bengal, dated 7th May 1890.

In reply to yours of 2nd instant, we think the proposed alteration deserving of the support of Government, as from the correspondence we gather that it will benefit the wheat industry.

We shall be glad to know whether we can be of any assistance to the proposed Company in Calcutta.

58.

FROM GOVERNMENT, NORTH-WESTERN PROVINCES and OUDH, to GOVERNMENT OF INDIA, No. 149—1-590 A., dated 6th June 1890.

I am directed to acknowledge the receipt of your communications noted below,* forwarding certain papers connected with the formation of a Company for the introduction of grain elevators into India, and asking for the views of this Government as to the encouragement that should be extended to the Company.

2. In reply, I am to state, for the information of the Government of India, that the papers were forwarded for opinion to the Director of Land Records and Agriculture, North-Western Provinces and Oudh, and to the Chamber of Commerce for Upper India, Cawnpore. Their replies† accompany this letter.

Elevators
unnecessary
up-country.

3. From the papers accompanying your letter it appears that the company do not at present propose to introduce into India the grain elevator system on the scale on which it exists in America. They propose to restrict their operations to a few towns on important lines of railway and to there conduct simple cleaning and grading operations, returning the grain into bags properly secured and covered by certificates as to quality and quantity. The Lieutenant-Governor agrees with the opinion expressed by the Director of Land Records and Agriculture, that all that the company thus propose to do for the ryot of India the ryot is well able to do for himself. The cultivator of the provinces thoroughly understands the cleaning of wheat, and as with him labour is cheap, there would be no inducement for him to take his grain to the elevators. The first thing to be done is to establish the demand for clean grain which the present conditions of the wheat trade have not yet introduced, and this the company can best do by establishing their elevators at the ports and not in the interior. If the company erect their elevators at inland towns, it will not be sufficient for them to clean the grain; they will be compelled to undertake, as grain merchants, the carriage of cleaned grain to the ports.

4. The Lieutenant-Governor considers it would be inexpedient to extend special privileges to a company which would enable it to monopolise the export grain trade of the country.

* No. 122-127C.—Agri., dated 6th January 1890; No. 223C., dated 31st January 1890

† From Director of Land Records and Agriculture, No. 1432, dated 5th April 1890; From Secretary to the Upper India Chamber of Commerce, dated 15th April 1890.

59.

FROM DIRECTOR OF LAND RECORDS AND AGRICULTURE, North-Western Provinces and Oudh, to GOVERNMENT, North-Western Provinces and Oudh, No. 1,432, dated 15th April 1890.

I have the honour to reply to General Order No. 117—1-590A., dated 20th January 1890, asking my opinion on the proposed formation of a company to introduce grain elevators into India.

2. I have discussed the subject with European and Native traders, and I have also had the advantage of consulting the traffic superintendent of the metre gauge section of the Bombay, Baroda, and Central India Railway, who arranged a meeting with me at Agra, and was able to give me valuable information as to the existing conditions of the wheat trade on his railway.

3. I need not dwell upon the obvious advantages which would result to India if Indian wheats could be placed on the English market in better condition than is now the case. It has, however, been proved, beyond doubt, that the main hindrance to improvement is not the Indian cultivator, but his European customers. If the London and Liverpool Corn Associations would insist on a higher standard in contracts for Indian wheat or would alter the practice by which deductions can be claimed by the buyer on account of the alleged existence of impurities, the Indian cultivator would improve the character of his wheat. Labour is cheap with him and grain-cleaning is well understood in his household. It is because the local dealers will not give him a higher price for clean wheat that he takes no trouble to clean it and even resorts to the device of loading it with dirt. What the Grain-cleaning and Elevating Company propose to do for the ryot's grain the ryot can himself do, provided the conditions of the export market remain unaltered. No ryot and no local dealer will be at the expense of taking grain to the Company's premises and receiving it back again in a cleaned state, unless there is a remunerative demand for this special class of grain. No ryot or local dealer could get a higher price for his cleaned grain received back by him from the Company, because his customers would have no guarantee that after it had been bagged and certified the seller may not have adulterated it. It follows that if the Company is to do any business at all, it must from the outset undertake the handling and transport of grain from the local markets to at least the port of export, and must further be in a position to create a special market in England or in Calcutta and Bombay for the certified product. The half measures to which the promoters suggest that operations should be confined* at first will not answer, as it is impossible to "secure a bag" or to satisfactorily cover it by a certificate if this bag is to be returned to the local dealer. The promoters must from the first not only clean grain, but arrange for its despatch by rail direct either in bags or in close waggons from their premises to the shipping port.

Ryot can produce clean grain for better prices.

Company must purchase and export, not merely clean the grain.

4. I pass to the terms which the promoters ask for from Government in Messrs. Ritchie, Stuart, & Co.'s letter of the 17th September. On the second page of the printed papers they ask for the assistance of Government under five heads, and following this they ask for "rights" or concessions under nine heads. The first form of assistance sought is that the grain certificates should be signed by Government officials. I do not think this can be granted. No Government official has time for this work in addition to his own duties, nor does any Government official know the details of the grain-classing business. Even if Government were to agree to appoint and pay the salaries of special officers, who are to look after them?

Government securities.

Temptations to dishonesty would be frequent, and it would not be to the ultimate credit of the State to have anything to do with these grain certificates unless it be prepared to go to great expense in securing adequate supervision. The most under this head that could be offered is that the premises should be inspected by an officer of the Provincial Service at frequent intervals and his report made public. The report, however, would not carry any Government guarantee.

5. Free lands for sites could in most cases be found within the Railway Companies' fences, and probably the Companies would not object to surrender land within reasonable limits free of cost if the Government of India wish this and convey some assurance

Free land for sites.

* "We would propose to select a few stations on some of the principal grain-carrying railways, and to conduct there simple cleaning and grading operations, returning the grain into bags properly secured and covered by certificates as to the quantity and quality, thus discarding the idea of the grain elevator proper."

that the case will not form a precedent for similar demands on behalf of other Companies. A Railway Company would no doubt be inclined to consider each case on its merits, especially with reference to the possible destination of the grain. The North-Western Railway, for instance, would object to give land at Ghaziabad for an elevator if all the grain cleaned in it was likely to go to Calcutta by the East Indian Railway. In some towns land might be acquired by Government near a railway at not excessive cost. It is questionable, however, whether in default of amicable agreement resort could be had to the Land Acquisition Act.

Guarantee
against other
companies.

6. The guarantee might be limited somewhat as follows: the Railway Company or Government or both to agree that it would not give or lease land to another grain Elevator Company or afford to such Company special loading or unloading facilities within a term of ten years in or near any town situate on the particular railway in which the present promoters construct a grain elevator of suitable capacity and suitably equipped. If an elevator is considered by the Railway to be needed at any place on the line where the Elevator Company has not put one, the Elevator Company should be given the option of putting an elevator there before land or facilities are given to another Company. This guarantee would not prevent other persons from acquiring land privately, and building elevators for themselves without the assistance of Government or the Railway. I presume a guarantee of this kind could be legally given by an Indian Railway with the consent of the Government of India, although it involves some apparent departure from the principle that a Railway acts strictly as a public carrier and is bound not to give preferential facilities to one person over another.

Guarantee to
extend to
every Indian
Railway.
Interest
guarantee.

7. As to the fourth head of assistance, the Company might be allowed to make its terms with each railway separately.

8. This might be conceded for a limited term of years and on a limited capital outlay.

9. I now come to "rights." These so-called rights are really of the nature of restrictions on the right which the promoters by law would have to trade and levy charges. In return for free land and certain guarantees the promoters would bind themselves to trade in particular ways only and to limit their charges. As my idea is not to give the Company a monopoly of grain-cleaning trade, or connect it closely with Government, but merely to help it at the outset with free land, a limited guarantee for interest and the like, I should not be disposed to impose conditions as to charges or on the character of its business. If its charges are high, its cleaning sheds will not be used; or if they are used in spite of high charges other persons will build similar cleaning sheds on private land near the railway station. The promoters, if they are well advised, will not "advance money to ryots on the security of their lands or crops."

10. The general feeling of Europeans and natives engaged in the grain trade is that the promoters should not acquire an exclusive legal privilege of erecting cleaning houses or elevators in any town or place in India. Subject to this consideration it is thought that Government or the Railway Companies might reasonably assist the promoters by free grants of land, transport facilities, and the like. I agree with this view and have made my suggestions in accordance with it.

11. Of the three Railways to which the promoters would at first confine operations, the Bombay, Baroda, and Central India Railway alone concerns these Provinces. On that Railway, Sirsa, Delhi, and Hathras would be the places at which elevators could be established with the best prospect of success. At Agra there is no wheat trade. On the North-Western Railway, Meerut would be an excellent place.

UPPER INDIA CHAMBER OF COMMERCE, Cawnpore, to GOVERNMENT, North-Western Provinces and Oudh, dated C., 25th April 1890.

I am directed by the Committee to acknowledge receipt of your letter No. 116—1-590-A., dated the 20th January, and to express their regret at the delay that has occurred in replying to the same. This, however, I am to say, has been unavoidable owing to the many important considerations and interests involved in the question.

2. The proposed scheme has been laid before various leading grain-dealers, European and native, and they as a body appear to be of opinion that the establishment of elevators and cleaning depôts at the ports would be of advantage to the country, as the result should be to increase the European demand by improving the quality, and so give direct encouragement to the production of wheat in India. The elimination of freight and charges on dirt, of which 52,000 tons were shipped during the last official year, would alone substantially benefit the producer, even supposing that the higher price obtained for purer grain would do no more than cover the cost of cleaning it.

Scheme
deserves
support.

3. Strenuous objections, however, are urged against granting a monopoly such as the proposed Company seek to acquire from Government. The Committee, therefore, on behalf of the interests which they represent, beg respectfully to protest against any proposals in this direction being entertained which would eventually tend to place the entire control of the wheat trade in the hands of a State Guaranteed Association.

No mono-
poly.

61.

GOVERNMENT, Punjab, to GOVERNMENT OF INDIA, No. 59, dated 24th March 1890.

In reply to your letter No. 122 of 6th January last, forwarding for consideration certain papers relating to the formation of a Company for the introduction of grain elevators into India, and the issue of certificates of the quality of grain, I am directed to forward, for the information of the Government of India, a copy of the papers noted below,* and to say that the Lieutenant-Governor does not think that he can offer any opinion upon the subject until the concessions which the Company seek are much more clearly defined. It would obviously be impossible for Government to give any assistance to a trading firm in regard to many of the so-called rights which the promoters wish conceded to them.

62.

DIRECTOR, Department of Land Records of Agriculture, to GOVERNMENT, Punjab, No. 292, dated 26th February 1890.

In reply to your letter No. 11, dated 20th January 1890, forwarding Circular No. ^{122-127-C.} from Mr. Muir-Mackenzie, Under Secretary to Government of India, I have the honour to forward copies of opinions received from the officers noted below.†

The officers in question have all replied very briefly with the exception of Mr. Nicholl, Secretary to the Amritsar Municipal Committee whose note, as he is well acquainted with the circumstances of the local wheat trade, is worthy of attention.

My own opinion on the subject, which has been asked, is that every reasonable encouragement should be given to the scheme for the introduction of wheat elevators into India. I have watched the discussions on the Indian wheat trade, which have lately been going on in England, with great interest, and I am convinced that the Government of India will be well advised to do all in its power to enable buyers to get a purer wheat than they do at present, if they are in earnest in so desiring.

Encourage-
ment of clean
wheat.

I am convinced, from all I have heard lately in this province and from what I myself saw in the wheat-producing districts in which I have served, that a very large proportion of the dirt and impurities which are now to be found in wheats shipped from India are not due to sweepings from the threshing floor and the mixture of extraneous grains owing to careless cultivation, but to deliberate admixture of other grains and dirt by the middlemen; and so long as buyers will accept, say, 7½ per cent. of various impurities, a seller who gave wheat with only, say, 5 per cent., would be deliberately throwing away money. The introduction of the elevator would have this immense advantage, that it would open the eyes of all buyers, sellers, and millers to the exact state of affairs, and would make it possible for those who desire to sell a cleaner wheat to do so without losing by the transaction.

Deliberate
adulteration.

* Letter of Director of Land Records, Punjab, No. 292, of 26th February, and enclosures.

† Commissioner and Superintendent, Lahore Division. Commissioner and Superintendent, Delhi Division. Commissioner and Superintendent, Derajat Division. Deputy Commissioner of Lahore. Deputy Commissioner of Rawalpindi. Secretary to the Amritsar Municipality.

I think that the Government of India should be prepared to run even some risk of loss in an endeavour to raise the reputation of Indian wheat and the Indian wheat trade.

Opinion on
concessions
required.

With regard to the details of the scheme, I feel more diffidence in offering an opinion. I should have thought that the Punjab, with its North-Western Railway running from Peshawar to Karachi entirely under State control, would have offered special facilities for the commencement of operations, but of this of course the Company are far the best judges.

In regard to the matters in respect of which assistance from Government of India is asked for on page 2 of the printed papers, I do not quite understand what the counter-signature of the certificates would amount to. As to No. 2—The free provision of land—I should imagine that it would be quite impossible to accede to this, as the land asked for would in many cases be exceedingly valuable and the property of large Corporations or Companies, and of individuals—rarely of Government. All that could be done would be to assist the Company to obtain such land on reasonable terms. Nos. 3 and 4—This seems to me to be asking a good deal, and any such concession granted should, I think, be accompanied by a corresponding obligation on the part of the Company to erect elevators wherever they are called upon by the Government of India to do so. 5—This, I think, the Government of India might reasonably be asked to do. The sum risked is, after all, only 5,000*l.*, and the possible advantages are worth a great deal more than this.

As regards the rights asked for, I have nothing to say as to 1, 2, 3, 4, 5, or 6. As regards 7, I would confine the right to make advances to ryots, to advances on the security of crops. I would not permit advances to be made on the security of their land to farmers in the Punjab at any rate. To 8 and 9 I think little exception can be taken.

It is feared that the “middlemen” will oppose the scheme.

Opposition
of middle-
men.

I am not sufficiently acquainted with all the intricacies of the trade to offer an opinion of any value as to this. I think it would not be difficult to ascertain the views of large buyers like Ralli Brothers and others on the point. But it appears to me that middlemen, whose assistance in the wheat trade is so absolutely essential, and without whom it would never have reached anything like even its present stage of development, will have no interest in opposing the scheme.

Naturally if a middleman finds, as at present, that the price of the wheat he sells is regulated by the supposition that it contains a certain proportion of dirt and impurities, he will take good care that he supplies duly the proportions of wheat and impurities expected. But if the wheat he has to sell is certified on authority accepted by the trade to contain only a certain portion of impurities, he can demand, and I fancy, would very soon be able to command, a correspondingly higher price.

One other point only I would wish to refer to. The Company will have to be very careful from the outset to see that their certificates merit and command the absolute confidence of the trade, and to do this they will have to see that the employés whose duty it is to grant these certificates are men of skill and integrity, and are sufficiently well paid to be above all suspicions even of temptation, which will be very great.

63.

COMMISSIONER AND SUPERINTENDENT, Delhi Division, to DIRECTOR, Land Records and Agriculture, Punjab, No. 88, dated 8th February 1890.

In reply to your No. 160—1—14 of 31st January 1890, that an industry of the kind proposed should stand on its own bottom.

2. The only concession should be No. 3 of those asked for. The rights detailed below the concession asked for need no granting that I can see; what is meant probably is sole rights, and the effect of concession 3 would be to limit such rights to the first Company exercising them.

64.

MUNICIPAL COMMITTEE, Amritsar, to DIRECTOR, Land Records and Agriculture,
Punjab, No. 66, dated 10th February 1890.

I am in receipt of your No. 160, dated 31st ultimo, forwarding, for my opinion, printed papers relating to the "introduction of grain elevators into India."

2. I have no doubt the system possesses all the advantages claimed for it, but its adoption by wheat-growers in the Punjab I consider most unlikely for the simple reason that the conditions of America and this part of India are totally different. India diffe

3. The condition of the wheat brought to Amritsar and other markets in adjoining districts has much improved of late years, and the growers are fairly honest in their transactions; it is the middleman who adulterates by mixing barley and foreign matter with wheat, and he will continue to do so, so long as the trade is prepared to accept the produce with a liberal allowance of refraction.

The refraction at present allowed by exporters is 5 per cent. barley, and $2\frac{1}{2}$ per cent. dirt. This, however, is to be altered with the new crop of 1890. The standard fixed by the London and Liverpool Trade Associations for Karachi wheat is 7 per cent. impurities and 2 per cent dirt.

4. One of the many advantages claimed by the promoters of the elevator system is depriving others of the opportunity of mixing and profiting by an adulteration of dirty sample; this advantage in itself would be enough to create a strong opposition by the host of middlemen engaged in the trade, to the introduction of the system, and their opposition, considering the terms on which they work with the growers, could not be overcome by any Company, however strong. Middlemen

5. One of the rights asked for by the Company is to advance money to the ryots on the security of their lands, crops, etc.; this measure alone I view as being quite beyond the power of any Company to carry out with success. The field is already, it will be found, occupied by the village "Shah."

6. While I admit that the system is an excellent one where the growers are independent, I see many insurmountable obstacles to its introduction into this part of India. I can see only one chance for the extension of the Company's operations in these parts, and that is by enlisting the co-operation of the large buyers, such as Ralli Brothers, McHinch & Co., and others. Were these firms to adopt the system at their principal centres, they would save large sums in freight and reap the other advantages offered by the Company in the sampling and improvement of wheat. But any attempt to deal direct with the grower and the village money-lender to the detriment of the middlemen must fail. Co-operation
of large
buyers.

65.

GOVERNMENT OF PUNJAB to GOVERNMENT OF INDIA, No. 30 S., dated 26th May 1890.

In continuation of Mr. Fanshawe's letter No. 59, dated 24th March 1890, I am directed to forward, for the information of the Government of India, a copy of a letter No. 650, dated 2nd May 1890, from the Director, Department of Land Records and Agriculture, Punjab, with a copy of its enclosures, on the subject of the introduction of grain elevators into India.

66.

DEPUTY COMMISSIONER, Delhi District, to DIRECTOR, Department of Land Records and Agriculture, Punjab, No. 264, dated 27th February 1890.

In reply to your No. 160—1-14 of the 31st January 1890, I have the honour to forward copy of a note in which I have recorded my views on the subject of the introduction of grain elevators into India.

Note.

It is premature to think of introducing the elevator system into India until a satisfactory understanding has been come to on the subject of refraction. Scheme
premature.

II 3

There is no doubt that even without the elevator system, good clean grain could be supplied by the growers, and it would be supplied if it were not so ruinously against their interest, as the trade is at present conducted, to do so.

As everyone knows, the standard of refraction for Indian wheat is absurdly high, but it is kept at its present figure by the action of the London and Liverpool Associations. Let them, in communication with the export firms, lower the standard of refraction and agree only to deal in good classified grain of the standard decided upon, and grain of that quality will be forthcoming.

With the cheap labour that is available in India, machinery can never compete up-country with hand labour for cleaning and moving the comparatively small quantity of grain that passes in one day through an up-country station.

Might be
tried at ports.

An elevator at the port of export and the substitution of bulk for bags in the shipping trade might be an improvement, but even the promoters are not sanguine as to the possibility of doing away with bags before the grain reaches the seaboard.

The promoters of the company also seem to under-estimate the extent to which the export houses deal direct with growers through their up-country agents; the only middleman as a rule being the "*Arthi*" or commission agent, who receives a small commission for indispensable services rendered.

The Indian grower cannot afford to hold his grain or to accept and negotiate elevator warrants. What he wants is hard cash, and that he receives now as soon as his produce is weighed over in the open market.

67.

OFFICIATING COMMISSIONER AND SUPERINTENDENT, Rawalpindi Division, to DIRECTOR,
Land Records and Agriculture, Punjab, No. 700, dated 8th March 1890.

Limits of
Government
aid.

In reply to your No. 160—1-14, dated 31st January 1890, on a proposal to conditionally introduce the American grain elevator system in India, I have the honour to say that as the undertaking will not affect the Punjab until it shall have successfully emerged from the experimental stage, I do not think any detailed opinion on the question will now be of much value. It seems to me out of the question for Government to do more at the present stage than promise the Company, if formed, its general goodwill and a careful consideration of any reasonable application put forward in a detailed manner. The Director of Railways concerned will doubtless, in self-interest give the Company facilities for the conduct of its business. If the speculation is sound it will succeed by its own merits; if unsound, the exceptional concessions demanded as a preliminary to the formation of the Company on a small experimental scale, if granted, would not make the scheme a success. At present from the papers before me, I think the promise of the aid of Government has been prematurely sought.

68.

AGENT to MESSRS. A. MCHINCH & Co., Ferozepore, to DEPUTY COMMISSIONER,
Ferozepore, dated 20th April 1890.

I beg to thank you for sending me the Government of India Circular No. 122--127 C. Agri., with accompanying letters, &c., on the above subject. I regret very much that I have not been able to reply earlier, and am sorry that I have been disappointed in my desire to make some inquiries at out-stations before doing so.

Prospects of
success small.

The advantages enumerated in Mr. J. G. Smith's letter, dated Liverpool, 17th September 1889, and advanced as argument in support of the project, would probably be the result of its introduction, but I believe it will be a long while before any appreciable effect can be produced by it, while this district, at all events, is certainly not advanced enough to appreciate it. In fact it appears to me to be very doubtful for the system to gain a footing at all, since it aims at revolutionising all the ideas so deeply rooted in native minds regarding the manipulation and sale, &c., of their grain; and people like those of India are certainly not the ones to easily relinquish their ancient practices and customs handed down from father to son. But no doubt a company undertaking such a thorough renovation of the cultivation of and trade in grain as is proposed will take into consideration all the difficulties, &c., they will

have to encounter, bearing in mind that unforeseen obstacles may arise which might upset the best considered arrangements.

With regard to the extension and improvement in the cultivation of wheat, I do not think that the proposed system will effect more than what is going on at present.

The production of wheat has vastly increased during the past few years while the area under cultivation is continually expanding. This is due to the increasing demand for export, and to the encouragement and facilities offered by Government in the extension of irrigation canals and the improvement of the cart-roads.

I believe Government have also spent large sums of money in endeavouring to improve the Indian agriculturist in his system of cultivation. If Government with all the machinery at its command has so far met with ill-success I think a Company with limited means, and moving within prescribed bounds, is scarcely likely to effect much.

In my opinion the buyer or exporter is the person who can best work towards the improvement in cultivation, because he can insist on getting a good quality and class of wheat. The cultivator very soon appreciates the difference in price paid for good and bad wheat, and will naturally do his utmost to work up to the standard from which he gets the best value.

At present, however, I believe exporters themselves mix barley dust and indifferent or bad wheat into good grain, in order to take advantage of the liberal standards of admixture and impurities fixed by the corn trade associations at home and accepted by the buyers there. This doctoring of the wheat has in some instances been done openly and in the presence of the very men whom it is now desired to improve both in their trading morality and their system of cultivation. Under circumstances such as these it is to be expected that the native trader or cultivator will try to secure all the profit he can for himself, not only by adulterating it before he brings the wheat to market, but also by spending as little as he possibly can on its production.

It appears to me that since the demand for more wheat has caused an expansion in its production, so a demand for purer and good wheat will effect an improvement in its cultivation and quality. But so long as the English market is content with a low standard of cleanliness and purity, and no pressure is brought to bear on the Indian exporter or shipper, so long will the latter continue to ship impure and dirty wheat, notwithstanding the means within his reach of getting a cleaner and better article.

I do not see how one Company, unless it has a monopoly of the entire wheat business of India, can by itself and unaided or unassisted by other exporters, change the existing conditions of trade, especially in the face of the opposition it is certain to encounter from those exporters whose interests will be assailed.

The best way to put the wheat trade on a firmer and more satisfactory footing is, I think, to invite the straightforward co-operation of all exporters, in shipping good, pure, and clean wheat, and at the same time request the European buyers to raise their standards of purity. It is vain for one company, be it ever so well-organised and equipped with elevating and cleaning machinery, and receiving all the very liberal concessions that this one requests, to try and effect reforms, where perhaps the largest interests are strongly against them.

On the whole I am of opinion that the benefits enumerated in the letter before me will scarcely be the outcome of the erection of grain cleaners and elevators, but depend on the efforts of the parties in whose hands the business lies, namely, the buyer in Europe, and the shipper in India.

The concession and assistance which the proposed Company require from Government appear to be rather out of proportion to the benefits and advantages which they expect to confer. The countersignature of Government officials on the Company's certificates will, I venture to think, be scarcely accepted as a guarantee in commerce circles. And should the article purchased fail to come up to the terms of the certificate, from whom will the buyer be able to recover the difference in value,—from Government or the official who signed the certificate?

Again, certificates a couple of months old will not show to what extent the grain has suffered from weevils or other insects.

The free provision of land is a question that may be conditionally entertained where public money would not have to be spent in acquiring it, or it might be left to the Railway Companies and Port Trusts who are likely to benefit by the concern.

That facilities similar to those which may be granted to this Company should not be granted to any other Company or individual for a period of 25 years is, in my opinion,

quite out of the question, as it would be an endeavour to secure a monopoly to this one Company against all preconceived ideas of fair play.

The same may be said of the request for a grant of similar concessions at every grain-shipping port, and along every line of railway built or to be built through the grain-producing districts of India.

I fail to see on what grounds the request is made for a guarantee of interest at the rate of 4 per cent. per annum for the first five years of the Company's operations, same being repayable without interest from half of the surplus profits over 6 per cent. But supposing there are no surplus profits over 6 per cent., who is to bear the burden of such advances?

Such payments will be made out of public money, and therefore should only be made in return for some general public benefit; but in this case benefits will only accrue to State and private railways, Port Trusts, the Wheat merchants, and the Home consumers. These, however, do not form the ratepaying population of India, and it would be unfair to make the last-named pay for benefits which it is supposed the others will enjoy.

I think on the whole that a private enterprise of this nature should be able to look after its own interests in the same way as all other private enterprises do, and the promoters should be in a position to demonstrate to their shareholders that the venture will be a paying one.

The very fact of them asking Government to guarantee 4 per cent. annually leads one to suppose that they themselves are uncertain or have but little faith in its success.

I have before said that I do not think the Company will meet with much success here, and my reasons for saying so are as follows:—

How the
ryot threshes
and sells

The cultivation of wheat is carried on by individuals, the bulk of whom have only small holdings of land or are merely tenants; each one keeps a certain number of cattle for the purpose of ploughing and watering the land, threshing the wheat, and carting same to any one of the grain markets within his district, where he thinks he is likely to realise the best value; he has no fixed market of resort, and therefore cannot be depended on to take his produce to any one station where the Company may have its machinery and warehouses. The cleaning is done by the members of his family, and he stores the wheat either in his own godown or in others for which he pays a nominal rent in his own village. All this manipulation of the grain costs him nothing, but if he used the Company's machinery he would have to cart the wheat some distance to be cleaned and graded, for which operations he would have to pay as well as for the storage of the wheat.

From my knowledge of the native, I may say he is not the one to pay in advance or even enter into an agreement to pay later on for some possible advantage which he may or may not achieve at some future date.

In conclusion, I beg to say that while the Company deserves every encouragement and help to attain the objects which it has in view, such help should be given to them only where it does not trench upon public or other interest.

From my own experience I know that clean and good wheat is to be got here, and if the European buyer will only pay for it, I am certain the country will soon rise to meet him, and be able to supply any quality he wants. It will then be in a position to adopt systems such as that now proposed.

I have given my individual opinion as regards this part of the country, and while I feel honoured at being asked for it, I trust it will be taken as given without prejudice.

69.

GOVERNMENT, Punjab, to GOVERNMENT OF INDIA, No. 130, dated 4th September 1890.

In continuation of my letter No. 30 S., dated the 26th of May 1890, I am directed to forward, for the information of the Government of India, further correspondence* submitted by the Director, Department of Land Records and Agriculture, regarding the introduction of grain elevators into India.

* From Director, Department of Land Records and Agriculture, Punjab, No. 1,332, dated the 18th August 1890, and enclosures.

70.

DIRECTOR, DEPARTMENT OF LAND RECORDS AND AGRICULTURE, Punjab, to GOVERNMENT, PUNJAB, No. 1332, dated 18th August 1890.

In continuation of my No. 292, dated 26th February 1890, on the subject of the introduction of grain elevators into India, I have the honour to forward copy of the correspondence noted below.*

These replies to my No. 160-1-14, dated the 31st January 1890, were only received on 4th August 1890.

I would draw attention to the report of the Sub-Committee of the District Board of Ferozepur composed entirely of natives of this country as of special interest.

The account given of the deliberate admixture of sand by zamindars on their way to market is, I regret to say, only in too complete accord with what is generally reported, and has indeed become a matter of "common notoriety."

71.

COMMISSIONER AND SUPERINTENDENT, Jullunder Division, to The DIRECTOR, DEPARTMENT OF LAND RECORDS AND AGRICULTURE, Punjab, No. 2102, dated 4th August 1890.

In reply to your No. 160-1-14, dated 31st January last, forwarding for opinion a copy of Government of India's Circular No. 122-127C., dated 6th idem, with enclosures, relating to the formation of a Company for the introduction of grain elevators into India, I have the honour to say that I consulted the several Deputy Commissioners in this Division on the subject, and am now in receipt of replies from all.

2. A copy of the reply of the Deputy Commissioner of Ferozepore with its enclosures in original, and of that of the Deputy Commissioner of Ludhiana are enclosed. The Deputy Commissioners of Kangra and Jullunder have no remarks to offer, while Mr. Dane, as Deputy Commissioner of Hoshiarpur, wrote that in his opinion "the concessions demanded by Mr. Smith are so extravagant that the scheme in its present form hardly merits encouragement."

3. My views coincide generally with those expressed by Mr. Dane and the Secretary to the Ferozepore District Board. The grant of sites free of cost and rent for the Company's premises at up-country stations might, I think, be given; but the other concessions demanded are scarcely reasonable. Unless the Railway Administration can arrange for the counter signature of certificates, I do not see that any other suitable Government agency is available. The grant of a monopoly for 25 years to an irresponsible Company, working for its own profit, can scarcely be a wise measure, and the guarantee of an interest of 4 per cent. per annum for five years, when the rising value of the rupee is likely to check the export grain trade, may cause considerable loss to the State.

4. If the Company can supply a want felt by grain merchants in England, the improved prices which grain covered by its certificates may enable it to command should, in the course of time, attract all grain to its elevators, so that the Company should be able to reap a handsome profit without any extraneous aid.

72.

REPORT OF SUB-COMMITTEE OF THE FEROZEPORE DISTRICT BOARD.

We think that we can only speak of the Punjab and not of the whole of India as regards the need of grain cleaners and grain elevators in the Province.

The Punjab is one of, if not the most important, grain-producing and go-a-head province of the vast Indian Empire, and we are sure that not only the cultivator but the trader both in and out of India as well as the Government are interested in establishing some proper system whereby the rapidly increasing evil practice of adulterating wheat could be stopped; that this evil is daily growing is admitted freely

* No. 2102, dated the 4th August 1890, from Commissioner and Superintendent, Jullunder Division, with enclosures.

by all. Not more than 20 years ago the zamindar brought the pure and unadulterated produce of his land to the market, got its value, and went back to his village without ever feeling the necessity of mixing dust, &c., with his beautiful wheat. It was a matter of laudable pride with the zamindar to exhibit his wheat in the open market by plunging his hand deep into the big heap, and showing a handful of the grain *without* any visible sign of dust; whereas now, while the cunning *bunya* is inventing all sorts of ways to cheat the once rough and open-hearted zamindar, the latter has by experience learnt to avenge himself on the trader by mixing dust with his grain before his cart enters the gate of the town; the writer has seen with his own eyes a string of carts standing on the road and about 20 zamindars, who had deliberately brought baskets and mattocks with them from home, coolly digging *fine* sand from a large heap and like trained men emptying their baskets in their carts full of grain; and it should here be remarked that the zamindar while loading grain at home leaves room in his cart for the dust and fine sand which he expects to mix before he has approached the suburbs of the town in order to avoid carrying dust as far as possible; and the reason why they mix fine sand is that it cannot be so easily detected, inasmuch as it does not soil the hand or cloth as real dust would. Sand being heavy and more like a particle of stone than anything else does not show itself in a heap of grain. While this struggle is going on between the *bunya* and the cultivator a third party has stepped in, *i.e.*, the foreign merchant, who was first heard of in Karrachi, but has now gradually come in close contact with the cultivator, deals direct with him, and considering the advantage that Europe has over India from all points of view, every one expected naturally that something will be now done to put a stop to this trade in dust and fine sand instead of pure produce of the country; but while one sees a great many grain sifters and other machines round about the place of the foreign trader, one is sorely disappointed to see the result, *viz.*, the complaints about the adulterated wheat of India are getting louder and louder, therefore evidently the evil is getting a strong hold of all concerned; and, as everywhere so in India, self-interest predominates, thus it is proved beyond doubt that unless Government take *active* interest in this matter things will most probably go from bad to worse. And perhaps it is not impertinent to say that had the foreign trader set a better example, both the cultivator and the *bunya* would to a certain extent have been compelled to follow it: and while we agree generally with the remarks so ably made by the Secretary of the District Board, we are far from thinking it to be advisable to "let the Company shift for itself," and, while we would on no account like to see the enterprising Company (who have made the offer) monopolise the business, we would hail the introduction of grain elevators in this country on some modified and generally beneficial terms; and as we do not feel ourselves competent enough to discuss the terms offered by the Company, we leave it to the proper authorities. All we beg to say is that the evil is growing, and the sooner the system proposed to clean the grain is introduced the better, only of course the Company ought on no account to be allowed to have such privileges that would interfere with "the free and fair trade" under British rule.

73.

REMARKS by SECRETARY, DISTRICT BOARD, Ferozepore, on the MEMORANDUM of
J. G. SMITH, Esq., on the introduction of GRAIN ELEVATORS into INDIA.

Advantages
claimed by
scheme
criticised.

- (1.) The reputation of India as a wheat-growing country is already an established fact, and is yearly gaining ground, while no other country can compete with it as regards cost of production.
- (2.) The extension and improvement of the cultivation is at present greatly accelerated by the extension of canals through desolate tracts of country which never had the slightest chance of being brought under cultivation otherwise.
- (3.) If an exporter is determined on adulterating the wheat he can do so after it has passed through the elevators, unless the Company monopolise the entire wheat trade and become the exporters themselves.
- (4.) The elevators will be erected near the railway stations and facilities for handling, storage, &c., will only effect the Railway Companies, as the cultivators will still have the expense and trouble of carrying the wheat there to be stored, which means a great deal in a large country like India, where road communications are yet in their infancy.

(5.) The borrowing and lending of money on the grain crops will continue as heretofore, whether the Company exists or not, as the cultivators are under heavy bonds of obligations to the village *bunyas*, who will no doubt take precautions against their hold being weakened.

(6.) Advantage No. 6 appears to be in contradiction with concession No. 3 when it stipulates for a guarantee of monopoly for 25 years.

The benefits would be exclusively confined to Railway Companies, Port Trusts, and other parties concerned, who would no doubt look to their own interests. Anticipated effects.

India generally would be benefited as a wheat-producing country if the buyer at home would insist on getting a purer article than he at present accepts.

It is an open secret that the wheat can be and is purchased pure, but is adulterated by the exporter to the standard of impurity accepted at home.

The primitive method of cleaning and the low rate of wages in this country would be found cheaper than the advanced and complicated machine cleaner. Moreover, it is not stated what steps would be taken to prevent the wheat from being attacked by "weevils," as these insects get at the wheat very soon after it has been stored, and this injury is even more to be considered than the admixture of dirt, as it destroys the grain altogether. It is also not stated whether the cleaner can remove foreign grain such as barley, grain, &c.

Some steps are being taken to insist on a purer demand for Indian wheat, as may be seen from the letter of the Secretary to the London Commercial Trade Association, published in the "India Morning Post," Saturday, 7th December, 1889, page 10. Concessions.

- (1.) The countersignature of Government officials would hardly be a sufficient guarantee to merchants, as Government officials are already overburdened with work, and their signatures would probably become a matter of routine; besides it is hardly fair to require a Government official to become a grain expert in addition to his other professional duties.
- (2.) The free provision of land to the Company might be made by the Railway Companies in consideration of the facilities for handling, concentrating and increasing the railway traffic. The elevators would be built of course on the railway premises.
- (3.) The monopoly is against all ideas of free and fair trade.
- (4.) The concession here asked for may be made only where the Company may be actually working.
- (5.) The subject is hardly of such vital importance to the country to guarantee an interest of 4 per cent., and is after all a commercial speculation of dubious advantage to a country subject more or less to famine, during which time it would be more advantageous to retain the wheat in the country and not export it all.

The rights which the Company ask for will of course depend upon the basis upon which they start their business.

In conclusion, it may be added, that it would hardly be fair to burden the rate-payer of India with a commercial speculation of this nature, and it would be far healthier to let the Company shift for itself.

74.

DEPUTY COMMISSIONER, Ludhiana, to COMMISSIONER and SUPERINTENDENT, Jullunder Division, No. 206—1148, dated 28th June, 1890.

In compliance with your Circular letter No. 25—364, dated 6th February 1890, forwarding for opinion certain papers regarding the introduction of grain elevators into India, I beg to state that this district never occupied such a position in the grain traffic of India as to render local experience of much value in regard to the very large question under discussion, and since the opening of the Patiala-Bhatinda Railway Line any importance Ludhiana possessed as a centre of business has diminished.

2. I will take leave however to suggest that the scheme of the Grain Cleaning and Elevator Company for India is open to all the objections which attach to monopolies under State aid and assistance, and that any benefit to India as a wheat-producing country would be dearly purchased by the vicious practice of artificially fostering certain classes of productive industry at the expense of other industries and other countries, and in short that the subject is one for gradual development by private enterprise alone.

75.

From CHIEF COMMISSIONER, Central Provinces, to GOVERNMENT OF INDIA, No. 4743 S.—88, dated 18th November 1890.

Government interference undesirable.

Referring to your Circular No. 122-127 C., Agriculture, dated 6th January 1890, and subsequent letter No. 225 C., dated 31st January 1890, regarding the introduction of grain elevators into this country, I am directed to forward copies of the below-noted papers on the subject,* and am to say that the Chief Commissioner thinks that the reform of the Indian wheat trade must be left to those interested in it, and that he is entirely opposed to Government interference, and especially to the attempt to create a monopoly such as is asked for by Mr. J. G. Smith. There are already large and influential firms interested in the export of wheat from these Provinces who may be quite trusted to take such steps as are necessary to secure clean wheat, as soon as the trade at home puts matters on a sound basis. The idea of a Company like that proposed attempting to deal directly with the roys and to enter on the business of money advances appears to Mr. Mackenzie to be quite chimerical; and he can see no reason why it should be guaranteed by Government or receive any specially valuable concession such as is asked for in Mr. Smith's letter. The Government might help any such Company to acquire land on reasonable terms; but commercial enterprise now-a-days stands in no need of being bolstered up by Government in the way suggested.

76.

NOTE by the COMMISSIONER OF SETTLEMENTS AND AGRICULTURE, Central Provinces.

Prices for clean wheat.

The principal object of the scheme is, I understand, of the condition in which Indian wheat reaches the European market. The Government of India is fully aware of the main reason why Indian Wheat is now despatched to Europe in an impure state. Wheat is not cleaned—and, indeed, wheat is purposely adulterated—because, owing to the conditions of the wheat trade, people are paid no more for clean wheat than for wheat containing an admixture of dirt or other impurities. Nor does such an admixture involve a penalty, so long as it is within a certain per-centage. Were exporters paid according to purity, wheat would be exported in a very much cleaner state than it is at present. And until prices depend upon purity, the introduction of grain elevators cannot be expected to add to the purity of the wheat.

Demand sufficiently strong for all surplus produce.

2. Assuming, however, that the introduction of elevators would lead to a fall in the refraction limit, so that exporters would be penalized for a less amount of dirt than is passed at present, Indian wheat would of course gain in reputation and possibly in price. At all events the trade would no longer be burdened by the gross waste of money which now occurs in the payment of freight on thousands of tons of dirt which are shipped to England. It is doubtful whether, as matters stand at present, the introduction of elevators would benefit these Provinces by adding to the demand for wheat. The demand is already sufficiently strong to withdraw all surplus produce. It is claimed by Mr. Smith that elevators will be of advantage in rendering it possible for producers to export direct instead of through middlemen. But in the present state of affairs there seems small probability of this. According to the custom of the country, production is the business of one class of people and trading in produce is the business of another class. Cultivators very rarely take a hand in exporting their produce. And the only connexion which traders as a rule have with agriculture arises from their money-lending transactions, which enable them to get cultivators into their power, to dictate to them what crops are to be grown, and to annex the whole of the produce.

The experiment worth undertaking.

3. It is, however, extremely difficult to predict in a case like this what would be the effect of introducing a new set of circumstances, and an experiment would be well worth undertaking. Government would be justified in doing what it could in reason to assist persons in making such an experiment. It might reasonably grant a

* Note by the Commissioner of Settlements and Agriculture, Central Provinces; 2 Letter No. 1162, dated 12th March 1890, from the Commissioner, Jabalpur Division; 3 Letter No. 1717, dated 24th March 1890, from the Commissioner, Narbada Division; 4 Letter No. 2958, dated 2nd May 1890, from the Commissioner, Nagpur Division, with annexures from the Deputy Commissioner of Wardha, Nagpur and Chanda; 5 Letter No. 6156, dated 25th September 1890, from the Commissioner, Chattisgarh Division, with annexure from the Deputy Commissioner, Bilaspur.

monopoly for a term of years for the erection of elevators, provided that the concessionaries were obliged to use proper diligence and despatch. It might go so far as to take up and grant land free of charge or at a nominal rent. And it might provide the salary of an official capable of granting certificates on the understanding that it incurred no liability whatever by doing so. Further, I see no great objections to guaranteeing interest for a certain number of years, provided that the liability on this account was limited to a fixed sum. But Government would not, in my opinion, be justified in granting any further concessions. With these advantages to assist them the concessionaries ought to succeed, if their undertaking is of real utility to the country.

77.

From COMMISSIONER, Jabalpur Division to CHIEF COMMISSIONER, Central Provinces,
No. 1162, dated 12th March 1890.

Under your endorsement No. 177 S.—88, dated the 11th February, you sent papers relating to the formation of a Company for the introduction of grain elevators into India.

2. The concessions asked for are:—

- (1.) Arrangements for the countersignature of certificates by Government officials.
- (2.) The free provision of land for the Company's purposes, either within or adjacent to the Railway and Port Trust premises, and connected with the lines by sidings.
- (3.) A guarantee that facilities will not be afforded to a competing Company or individual for a term of 25 years.
- (4.) That the grant of concessions as above extend to every grain shipping port and upon every line of railway built or to be built through the grain-producing districts of the Indian Empire.
- (5.) A guarantee of interest at the rate of 4 per cent. per annum for the first five years of the Company's operations, such advances being, however, repayable without interest from half of surplus profits in excess of 6 per cent.

It will probably occur to most people that the Company hardly have the courage of their convictions, and as the case stands it seems to me that the Company ask for large concessions, run no risk for five years, and have a good chance of within that time disposing of the concessions to some larger Company or of distributing their concessions among several Companies.

3. The views of Deputy Commissioners are these:—

The Deputy Commissioner, Jabalpur, does not feel himself "qualified to give an opinion on the proposals."

The Deputy Commissioner, Saugor, says:—

"The demands made by the proposed Company on Government for assistance seem to me more or less preposterous, but I would so far further their views by giving facilities for acquiring land in the vicinity of railway stations. Grants of free land I would not advise, for, if the Company failed, which they certainly would in many places, they would sell the plots to the local *bunya*, who would doubtless use it in many ways not to the public advantage. Small plots of land either now exist or could be acquired adjacent to any railway station in this district at a comparatively small cost. If acquired by Government, such plots might be leased at a nominal rent, to a *bond fide* Company. On the closing of operations owing to the failure of the Company or otherwise the land would revert to Government. Further than this, in my judgment, no concession is feasible or expedient."

The Deputy Commissioner, Damoh, thinks it "a matter of most urgent importance to the trade of India that efficient measures should be taken for the improvement of the reputation of the samples of wheat imported from India. Further, if the Government wish to give a monopoly, I certainly think they should give effectual aid so as to have an undoubted claim to close and effectual check and supervision. The confidence of the public in the certificates of the Elevator Company would be increased by the knowledge that it was guaranteed by Government and liable to be taken over on the expiry of the term of guarantee. On this understanding I think

Grant of sites.

Extent to which Government might assist.

the Government should give the assistance proposed by Colonel Filgate in his memorandum, viz.:-

- “(1) Give on lease free for 25 years the land required for erection of elevators and sidings, and withhold similar facilities from others for 25 years.
- “(2) Guarantee interest at 4 per cent. for the five years, on condition of being allowed close check and supervision of the work, and the right to buy up the property at its market value at the end of the 25 years' monopoly.”

The Deputy Commissioner, Seoni, thinks the scheme a desirable one, but observes:-

“I do not understand how any Company can expect to have a monopoly of this business as seems to be contemplated, nor do I understand why any Government guarantee is necessary. If the ultimate advantages of such a scheme are likely to fulfil Mr. J. G. Smith's expectations, it ought surely to be possible for enterprising private firms to start such business even without such guarantee.

“I do not see how it is possible for Government to undertake the management of any such business directly through its own officials.”

The Deputy Commissioner, Mandla, also thinks the scheme a desirable one, remarking:-

“The assistance of Government officers might be given—

- “(1) in the matter of the company's certificates;
- “(2) land for the erection of elevators might be given at the cost of the Company (sic);
- “(3) similar facilities not to be afforded to a competing Company or to individuals for a term of say 10 or 15 years.

• “These concessions to be limited in the first instance to certain lines of existing railways and shipping ports.”

78.

From COMMISSIONER, Narbada Division, to CHIEF COMMISSIONER, Central Provinces,
No. 1717, dated 24th March 1890.

With reference to your endorsement No. 177S.—88, dated the 11th ultimo, forwarding, for opinion of myself and the Deputy Commissioners, of this Division, Circular letter No. 122-127—Agriculture, from the Under-Secretary to the Government of India, on the subject of the introduction of grain elevators into India, and the encouragement which may properly be given to the Company, I have the honour to report as follows.

2. The Deputy Commissioner of Hoshangabad is of opinion that “the matter should be left entirely to private enterprise,” Government only affording “facilities in the way of sites, &c., on easy terms for the establishment of the elevators.”

Elevators not
required
while demand
for dirty
grain exists.

Colonel Plowden adds that, as long as the present principle of mixing a certain percentage of dirt with cleaned grain is a recognized factor in mercantile transactions, there is little hope of the proposed Company meeting with much encouragement. Even admitting that the admixture of dirt with grain could be put a stop to, Colonel Plowden would only allow of Government interference being “altogether indirect.”

3. The Deputy Commissioner of Nimar has misunderstood the question asked as to how far the Company should receive encouragement from Government, and gives no reply to that point. He does not think the ryot producer will patronise the elevator much, but he thinks the mahajan exporter will, eventually.

4. The Deputy Commissioners of Betul and Narsinghpur “do not know sufficient of of the subject to give any useful opinion.”

5. The Deputy Commissioner of Chhindwara is somewhat diffuse and has wandered away from the subject, but practically he holds the same opinion as Colonel Plowden, i.e., “that as long as the merchants and grain-producers of the country choose to pay a tax of 5 per cent, on the cost of carriage,” there is little hope of grain elevators being a success. He also objects strongly to the principle of giving Messrs. Ritchie, Stuart & Co. a monopoly, and points out that in his opinion their demands are hardly such as Government should accept. He points out the very great difficulty

there would be in arranging any system of Government control, or appointing "officials to sample their outturn, and grant them certificates."

6. As far as my own views are concerned, I am inclined to think that Government interference in a transaction of this description would be a mistake. I would leave it as in America, to the mercantile community, and I would certainly not grant a monopoly for 25 years. On the contrary I would encourage the introduction of similar elevators by as many firms as chose to take the risk of introducing them. I agree with Mr. Ellison in thinking that the system of countersignature of certificates by Government officials would be a mistake, for unless such officials were experts and thoroughly honest (qualifications which are extremely rare) the certificates would be worthless. In all probability the countersignature of certificates would develop in a very short space of time into a mere perfunctory performance, the certificates would be worthless as guarantees of the condition of the grain they referred to, and, although the Company proposes to hold the Government free from risk in this matter, they cannot save the Government from the discredit which would certainly accrue. One of the arguments in support of the proposal is that the position of the producer would be improved by "depriving others of the opportunities of mixing, carrying and profiting by an adulterated or dirty sample."

As the Deputy Commissioner, Hoshangabad, says, as long as a firm like Balli Brothers finds it pay to clean its wheat and then mix 5 per cent. of earth in it—and as long as the practice is not, to the best of my knowledge, condemned by the Chambers of Commerce—I fear that the erection of a few elevators here and there, or "the simple cleaning and grading operations" proposed in Mr. Smith's letter, will have but little effect in the direction suggested. They are certainly not, in my opinion, worth the risks that Government will incur by the grant of the rights and guarantees that Mr. Smith asks for.

79.

From COMMISSIONER, Nagpur Division, to CHIEF COMMISSIONER, Central Provinces,
No. 2958, dated 2nd May 1890.

In reply to your No. 177S-88, dated the 11th February last, I have the honour to say that the concessions which the projected Grain Cleaning and Elevator Company ask for, as detailed at page 2 of the enclosure to the letter from the Government of India, seem to me quite inadmissible. They involve the free grant of land close to railway stations throughout the grain-producing districts of the Empire and at ports of shipment, a monopoly of these privileges for 25 years, and a guaranteed rate of interest on the capital embarked for the first five years, the sums so advanced not to be repaid until the profits of the Company exceed 6 per cent., and then without interest.

2. Mr. James G. Smith, of Ritchie, Stuart & Co., is evidently not a gentleman who will lose anything for want of asking. These demands seem preposterous even taken singly. For instance, the free grant of land close to railway stations means that Government would have in the majority of places to take up very valuable land at its own expense and make a present of it to the Company. It is apparently also intended that Government shall be at the expense of connecting the Company's premises with the railway lines by sidings. And this privilege is asked for practically throughout India, as almost the whole of India is grain-producing.

3. As to a monopoly for 25 years and a guaranteed rate of interest, such concessions would be justifiable only in a case of undertakings like railways and canals, which are of undoubted benefit to the entire country through which they pass. There is no such certainty that this project would benefit the country to any extent. We cannot reason from the analogy of the active, enterprising American to the slow and apathetic people of this country. The keen competition of the United States forces the farmers of that country to adopt every improvement in the processes for cleaning and transporting grain. It is by no means certain that in this country the superior facilities offered by elevators would meet with ready appreciation. The Deputy Commissioner, Nagpur, who goes more fully into the matter than the other Deputy Commissioners, does not think that these advantages would be much appreciated, and cites the alleged fact that the cleaned grain of Messrs. Balli Brothers does not meet with much greater demand than the

Scheme should not be guaranteed by Government.

adulterated grain of the ordinary market. I do not altogether understand this remark Ralli Brothers do not clean grain for sale in this country. The grain they clean they export themselves from Bombay. I should doubt the assertion that cleaned grain does not fetch a higher price, bulk for bulk, than uncleaned. I think that if an Elevator Company was started as proposed, it would probably result in some or all of the advantages enumerated on pages 1 and 2 of the enclosure. But it does not follow that Government should grant the demands formulated. Government cannot be expected to bolster up in this way every plausible commercial enterprise which may have a tendency indirectly to benefit the country. The precedent would, I think, be a bad one. It is a purely commercial enterprise and should depend for success on its own merits. I do not know why greater assistance should be extended to the enterprise than to the various spinning mills and other industries that have been established in the country.

Grain certificates objectionable.

4. The proposal that grain certificates should be countersigned by Government officials also seems inadmissible. I cannot see why Government officials should take any direct part in the business of the Company, and I think such participation would be most objectionable. I suppose the idea is that people would feel more confidence in the security of the certificates if they were countersigned by a Government official. Such counter-signatures could be nothing more than a mere form, and I should think most officials would object to sign. I am inclined to agree with the Deputy Commissioner of Chanda who characterises some of the proposals as little short of "audacious."

5. As for the "rights" which Mr. Smith asks for (page 2), they are rights for which no special permission is required. If the Company choose to purchase land and erect their own elevators thereon, they can do all these things without asking any one's leave. I can see no reason why they should not "select a few stations on some of the principal grain-carrying railways and conduct thereat simple cleaning and grading operations, returning the grain into bags, properly secured, etc." They can do this without troubling Government in the matter, as Ralli Brothers already do at Nagpur. Let them begin in a small way, and then if they succeed let them gradually extend their operations, but I am at a loss to conceive why they should be treated with any special favour by Government. Deputy Commissioners' replies are forwarded in original.

80.

From DEPUTY COMMISSIONER, Wardha, to COMMISSIONER, Nagpur Division,
No. 900, dated 22nd February 1890.

With reference to your No. 1018, dated the 14th instant, I have the honour to state that, in my opinion, the advantages to be gained by the introduction of any system by which it can be ensured that Indian wheat shall reach the European markets properly cleaned, graded and certified are so numerous, that Government should certainly give all the aid in its power to the proposed scheme, especially as it would appear from the papers forwarded that it has been worked with success both in America and Russia, which is to some extent a guarantee that there will be little or no risk in making the concessions asked for.

Effects of the scheme on middlemen.

2. It is not likely that the introduction of elevators will do away with the middleman, for the majority of producers individually grow such small quantities that they would not think of carting their produce to the elevators. As now, the middleman would go about to villages and petty markets and make up a good quantity, which he would find he could not dispose of to much advantage in competition with certified grain; he would therefore in his own interests have to take it to the elevator to have it cleaned and graded. After a time the larger ryots would themselves see the advantage of going direct to the elevator and getting their certificates, which they could dispose of when they thought best.

Probable benefits.

3. Besides stimulating trade with Europe and giving Indian wheat a better place in the markets there, the following advantages would necessarily follow:—

- (1.) It would put a stop to dishonest weighing and measuring by which the ryots at present suffer considerably, for it is a notorious fact that in nearly all markets about this part of the country dishonesty in this respect is very common.

- (2.) It would be more clearly brought home to the ryots what kind of grain was most in demand, and they would grow that kind and endeavour to prevent mixture.
- (3.) Adulteration with earth and other things for the purpose of counteracting the dodges of middlemen in weighing and measuring would be rendered unnecessary. In Chhattisgarh I was told by ryots that they had to mix earth with their wheat and linseed for this reason.
4. It certainly will be a great pity if, for want of some encouragement from Government, so excellent a proposal should fall to the ground.

81.

From DEPUTY COMMISSIONER, Nagpur, to COMMISSIONER, Nagpur Division,
No. 1461, dated the 10th March 1890.

Referring to the printed papers received with your endorsement No. 1018, dated the 14th ultimo, I have the honour to observe as follows.

2. I gather from these papers that the proposed "Grain Cleaning and Elevator Company" want to establish themselves as agents only to receive consignments of grain, clean the article, store it, dispose of it when the market rates are favourable, and undertake all the incidental charges on account of loading, shipping, &c., for all of which certain fees will be charged; and that in order to establish themselves and to start with some reasonable prospect of success, they ask for certain concessions to be made to them by Government in the way of free provision of land for store godowns, &c.

3. The Company apparently rely on producers chiefly, but speculators would also come rapidly forward once they have practical proof of anything like an increased financial return over that now realised by direct consignments to Bombay of the uncleaned grain fresh from the threshing floors or granaries.

I am not very hopeful of the Company's succeeding readily as mere agents.

4. I have been in charge of this district for about three years, I have been over nearly all of it, and have come in direct contact with many of its phases of commercial life, and yet, so far as the grain trade is concerned, I cannot recall a single instance of a local producer, be he a fairly well-to-do tenant or large prosperous land-holder, exporting direct to Bombay on his own account. The small producer is more or less in debt, and his crops are practically not his own; and the large producer is content to store and sell locally, though fully conscious that in doing so he forfeits profits to the middleman, which would be his if he exported direct. The reason is obvious; he runs no risks, he has not to wait for his money, he has no expenses to incur in carting, despatching, &c., and he readily invests the money he has received by placing it out at interest.

5. There must then be some very clear inducement quite patent to him to tempt him to consign his goods to an agency like that contemplated; such an inducement would be that he would realise more than he does at present. There would be such an inducement if it was patent to all that adulterated grain is at a discount, and that there is a readier and greater demand and higher price for the cleaned article. The question arises, do such factors exist?

6. Then, on the other hand, if we take the class which is really the exporter of grain, we find that this class consists of:—

- (1) Ralli Brothers;
- (2) the floating speculating Marwaris;
- (3) the travelling agents of Bhattia firms at Bombay.

The first two buy, store, and export, the third buy and despatch on the telegraphic orders from Bombay, then again, Ralli Brothers do, to some extent, clean grain before despatching it, but I am assured that this makes little or no difference in the demand for the adulterated article.

7. It therefore follows that so long as there is no perceptible diminution in the demand for grain as issued from the threshing-floors, and no restriction in such grain being offered for sale, the proposed agency will find their scheme a very up-hill if not non-paying work.

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America and
Russia no
examples.

8. I note that the printed papers show that the scheme has succeeded in America, Russia, &c.; but the conditions of those countries are widely different from those in India. There the grain, as a whole, may be said to be cleaned before leaving the farm, for nearly all large growers have winnowing machines. It is otherwise in India, where the rude threshing-floor still reigns supreme.

9. The foregoing remarks are not entirely based on my experience of the commercial life in this district, for I have consulted men who are in a position to speak definitely on the subject, such as the Ghatate, Mr. Gopal Hari, Pleader, Jadhoram Sheonarain, Deokaran, Marwari, Adamji Mamuji and others,

82.

From DEPUTY COMMISSIONER, Chanda, to COMMISSIONER, Nagpur Division, No. 787,
dated 28th February 1890.

Your No. 1018 of 14th February 1890, touching the proposed Company to supply India with grain elevators.

I, too, while recently at home, discussed Indian wheat with practical millers and others; I have often watched cleaning operations by Messrs. Ralli Brothers and others, and when at Jabalpure took an interest in the matter of grain-cleaning; I think it should be left to private enterprise.

The proposals are audacious in some degree, I think.

83.

From OFFICIATING COMMISSIONER, Chhattisgarh Division, to CHIEF COMMISSIONER,
Central Provinces, No. 1656, dated 25th September 1890.

I have the honour to submit the remarks of the Deputy Commissioners of this division on the subject of the introduction of grain elevators in this part of the Province.

Present
conditions
unfavourable.

Ignorance of
middleman.

2. There can be no doubt that the cleaning which Indian wheat would undergo by means of these elevators would do much to rehabilitate its reputation in European markets, but I doubt, however, whether the present conditions of the wheat trade in this part of the country and the intelligence and morality of those who deal in wheat are such as to render the measures, found so effective in the United States, practicable here. The great bulk of the wheat which is exported from this station for the European market, is despatched by regular grain-dealers, who obtain it in small quantities from the petty dealers, who visit the villages in which it is grown, or attend the small local markets to which it is taken in small quantities for sale. Now it is, I think, admitted that it is the middleman who principally adulterates the wheat. They have not intelligence enough to see that if the character of wheat were raised in the market, that they, as well as all other dealers, would benefit thereby; or if they can understand this, they consider it futile and insensate to abstain from practices which the whole trade adopts. It is clear then that these men would not be concerned in the cleaning of their wheat, and would not therefore resort to the elevator. There are but few wheat-growers in this part of the country who export their own wheat, or bring it to Raipur or any other railway station for sale, as mentioned before. They sell the produce either in their own village, or at the nearest local market; and even supposing that in time it becomes the custom for growers themselves to bring their wheat to the railway for exportation, I doubt whether they would have sufficient intelligence to understand the advantage of elevators. They would want immediate payment, and the process of having their wheat cleaned and then sold by sample would be unintelligible to them and unpopular. What they desire is an immediate sale of their wheat and its value in silver. They do not understand what a negotiable instrument is, nor would they value any such certificate. It seems to me therefore that there is but little hope of an elevator being used by any class of native traders. The result of cleaning would be against the interests of the middlemen (as they understand their interest), and its value would be quite incomprehensible to the great majority of growers who bring their wheat to the railway. The business which would be attracted

to the grain elevators would not suffice to pay working expenses. Any attempt to introduce the cleaning of wheat before the traders are convinced of its value (and the loss attendant on adulteration is manifest to all) will fail. The only hope of the successful introduction of the improvements in this respect is the same in this as in all other matters of advancement. The first step must be made by Europeans. More would be done by a firm like Messrs. Ralli Brothers by establishing elevators at Jabalpur, Harda, and Nagpur for the cleaning of their own wheat than by the establishment of a score of elevators on the plan proposed. When middlemen, and especially the large native dealers who purchase from middlemen, perceive the advantages of a good reputation in the principal wheat marts, and understand that an enlightened self-interest is opposed to adulteration, they will not be backward in abstaining from these vicious practices. European firms who adopt cleaning processes might be assisted by Government in this matter by granting them official certificates of the quality of the wheat exported. These certificates would in time become guarantees of superior quality, and the advantage of cleaning would eventually be made manifest to the trade. A regards the proposal that the Grain Elevator Company should make advances to growers on produce to be delivered at the proper season, I do not think that an ordinary Company could successfully undertake the duties of the local Marwari, who knows personally every one of his customers. Government in advancing money to cultivators in cases where their lands are hypothecated and sums due can be recovered as arrears of land revenue, have not always found this work easy, and have sustained losses. I hardly fancy that a private Company making loans to individual ryots without having any special or local knowledge is at all likely to succeed any better. Moreover, it is certain that the indebted and the dishonourable would be those who would first seek these loans, and would probably be quite unable to repay them. In conclusion, I would say that I do not think that the scheme of cleaning wheat by elevators put forward by Messrs. Ritchie, Steuart and Co., though it would have the most beneficial results if it could be introduced into this country, is at all practicable, or in any way adapted to the circumstances and conditions of the wheat trade of this part of India.

Co-operation
of large
firms.

Advances to
growers.

84.

From DEPUTY COMMISSIONER, Bilaspur, to COMMISSIONER, Chhattisgarh Division,
No. 2597, dated 8th May 1890.

With reference to your endorsement No. 972, dated the 14th February last, I have the honour to state that there are no large exporters of wheat in this district to the Bombay market.

2. It is not likely that the ryots or malguzars or merchants of this district will, for some time at least, deal direct with the Grain Cleaning and Elevator Company.

Success of
scheme
dependent on
demand of
clean wheat.

The success of the Company will depend on the demand for wheat at the port of exportation. If prices are sufficiently high, middlemen will come up from Bombay to purchase locally and transmit through the Company.

3. The Company asks for the right to advance money to ryots on the security of their land and crops. It is not clear whether the Company mean by this the exclusive right to make such advances. If so, the request for such a right could not of course be entertained. If the exclusive right is not asked for it would appear unnecessary to ask permission to make advances. If the Company is prepared to make advances to the ryots at reasonable rates, it might be of great assistance to the people.

4. The local merchants who have been consulted by me are petty dealers, for, as I have already stated, there are no large exporters in Bilaspur. They were all of opinion that if the Company is ready to make agricultural advances on the security of the crop and take payment in kind, the undertaking would be beneficial to the cultivators.

5. The Company's scheme appears deserving of encouragement.

EXTRACT FROM THE PROCEEDINGS OF THE GOVERNMENT OF INDIA IN THE REVENUE AND AGRICULTURAL DEPARTMENT, No. 39, dated 20th October 1893.

Read—

The following despatches from Her Majesty's Secretary of State for India :—

- “ Despatch from Her Majesty's Secretary of State for India No. 83, dated 27th September 1888, and enclosures.
- “ Despatch from Her Majesty's Secretary of State for India, No. 3, dated 10th January 1889 and enclosure.
- “ Despatch from Her Majesty's Secretary of State for India, No. 62 (Revenue), dated 4th July 1889, and enclosures.
- “ Despatch from Her Majesty's Secretary of State for India, No. 116 (Revenue), dated 28th November 1889, and enclosures.
- “ Despatch from Her Majesty's Secretary of State for India, No. 128 (Revenue), dated 26th December 1889, and enclosures.
- “ Despatch from Her Majesty's Secretary of State for India, No. 90 (Revenue), dated 13th November 1890.
- “ Despatch from Her Majesty's Secretary of State for India, No. 7 (Revenue), dated 22nd January 1891, and enclosures.
- “ Despatch from Her Majesty's Secretary of State for India, No. 1 (Revenue), dated 14th January 1892, and enclosure.”

Read Also—

A Volume of Papers dealing with Indian wheat impurities and the formation of a “ Grain Cleaning and Elevator Company ” for India.

RESOLUTION.

1. It has been acknowledged for some years past that the Indian wheat sold in England is very impure, and that both the bulk of the trade and the profits of the growers are injuriously affected in consequence. The matter has received the attention of the Secretary of State and the Government of India, and the volume of selections above quoted contains the result of the inquiries instituted on the subject.

2. In wheat exported from India a considerable per-centage of extraneous matter has always been accepted by the trade. Up to 1889 the practice was that, on arrival in England, samples were taken from the various shipments, and an average quality was deduced from these by the Corn Trade Association, and made generally known; and all the wheat sold during the month was represented as of “ fair average quality.” This system saved a great deal of trouble to home dealers, but it obviously placed no check on the amount of impurity that may be mixed with the imported wheat.

3. Owing to the system of threshing and storing wheat in this country and to the practice of sowing wheat mixed with other crops, a certain amount of impurity must always be found in the grain before it leaves the grower's hands; but it is plain from the information now published that a large portion of the impurities in the wheat which is sold in England is inserted intentionally after the grain has left the threshing floor. It was for some time contended that in order to stop the practice of intentional adulteration, Indian wheat should be subjected on arrival in England to some test of purity similar to that applied to other foreign wheats, and the Liverpool Chamber of Commerce arranged for a maximum “ refraction ” of 2 per cent. A conference was held by the Secretary of State in May 1889, and the London Chamber agreed to the principle involved so far as to fix rates for the various kinds of wheat; but the amount of impurity allowed still ranges from 4 to 7 per cent., and the Chamber have refused to reduce the per-centage.

4. So far, therefore, the attempt to induce the home dealers to move has been only partially successful. Dr. Voelcker in his recent report on the improvement of Indian Agriculture states his opinion that, failing voluntary help from the trade, legislation may be found necessary, and various proposals have from time to time been made for the introduction of enactments to ensure the purity of exported wheat. The mercantile community are, however, averse to legislative measures, and the Government of India are of opinion that things have not reached a stage at which legislation would be justifiable.

5. There remains the possibility of adopting a medium course by which private enterprise shall be subsidized in order to secure the purity of wheat before it leaves the country. It has been proposed that the Government should, with this object in view, give its active support to the introduction of the American elevator system; and a despatch of the 28th November 1889, from the Secretary of State, forwarded a letter from Mr. J. G. Smith, of Messrs. Ritchie, Steuart & Co., suggesting the formation of a "Grain-Cleaning and Elevator Company," and asking for the assistance of Government in several directions. The suggestions themselves, and the opinion upon them of the Civil officers, mercantile associations and railway authorities consulted will be found in detail in the volume of selections.

6. Though it was not the immediate object of the proposed Company to introduce elevating machinery on any such complete plan as that adopted in America, they desired to test at a few centres the more important practices of the American system, such as the cleaning of wheat by machinery, the grading of wheat by responsible officers, and the storing of wheat in safe and convenient places. Their scheme differed little from those discussed in the Government of India's Resolution No. 6—223-244 of 30th August 1879, or from that put forward in 1883 by Messrs. Reinhold of Cawnpore; but having been considered on its own merits, it has, on the same grounds as the schemes previously considered, been held to be unworkable under Government direction or guidance.

7. The idea that cultivators and local dealers should be induced to bring their wheat to the Company's premises to be cleaned by machinery has not found much support. It has been pointed out that the cultivator can supply very much cleaner grain; and that if any further cleaning is demanded, he could probably effect it on his own threshing-floor much more cheaply than any machine at a central granary. It has also been noted by many of those consulted that the further cleaning of wheat is of very little use until the home dealers agree to ensure a better price for cleaned than for dirty wheat. Other considerations have been put forward, such as the chance of adulteration *en route* to the ports, the difficulty of providing against damage by weevil on the voyage to England, and the necessity, under any circumstances, of further cleaning before use in English mills. If the attempt to remove the premium offered on the export of dirt to England is successful, the Government would be glad to see efforts made by private enterprise to provide cheap and convenient means of cleaning wheat; but would not feel justified in fostering trade in wheat any more than any other commercial ventures, by granting subsidies in support of private action.

8. It is in the *grading* of wheat, however, that the aid of Government has been specially invited. The proposed system requires that grain received at the Company's premises shall be tested and divided into grades; that all grain of the same grade should be stored in the same warehouse; that the owner should be furnished with a certificate of the grading, which he may use as a negotiable instrument in place of transferring the actual wheat. Finally, the promoters of the scheme anticipate that if proper precautions are taken, the certificates may be accepted by the home market, and that the uncertainty entailed by the present system may be avoided.

The suggested scheme could not eliminate difficulties involved by adulteration or by damage from weevil *en route* to England; but even if these were surmounted, it is feared that it would be found far less easy to work than in America or Russia, owing to the smaller scale of individual cultivation, the ultra-conservative habits of both cultivators and middlemen, and the numerous varieties of wheat requiring classification. The Government could not consent either to allow their officers to countersign certificates made out by persons other than their own servants, or to provide official agency for the purpose of classifying grain. They are disposed to think that, if the scheme is to be worked at all, measures for the grading of wheat must be arranged by a combination of the leading merchants at the seaports.

9. It is doubtful, however, whether the mercantile classes in India are likely to appreciate the advantages of public warehousing. Their instincts are apparently in favour of more confidential methods of dealing; their stocks are not as a rule collected at commercial centres, and their existing system of open-air or pit storage is less expensive than, and in the opinion of many as efficient as, any public storage on advanced lines could be. Without endorsing all the objections which the dealers urge against the system advocated, the Government of India are afraid that there is little chance of securing for it much support at present, and would prefer to wait until the

expansion of local and bonded warehouses under the charge of municipal and other bodies has familiarised the public with the warehouse system.

10. On the whole, therefore, the proposal that the State should subsidize a Company for the cleaning, grading, and storing of wheat, or for any one of these purposes, does not commend itself to the Government of India. This being the case, it seems unnecessary to discuss the subordinate advantages claimed for the scheme put forward, such as the certified weighing of goods, the substitution of bulk for bags, and so forth. Nor is it necessary to notice the form which possible concessions by Government would take, especially as some of those suggested by Mr. J. G. Smith are, as pointed out in the papers, quite impracticable. The Government of India are unwilling to do anything that would stand in the way of the introduction either of the American elevator system or of any modified form of it; but they hold with most of the commercial associations consulted that the promotion of such a system must be left to private enterprise, and that it cannot be introduced or subsidised by the State.

ORDER.—Ordered, that the above Resolution, with copies of the volume referred to in the preamble, be forwarded to the Local Governments and Administrations, and Officers noted below for information.*

Ordered also that copy of the Resolution and volume be forwarded to the Foreign Department for communication to Political Officers, and to the Departments of Finance and Commerce and Public Works for information.

[True extract.]

E. C. BUCK,
Secretary to the Government of India.

* The Governments of Madras, Bombay, Bengal, North-Western Provinces and Oudh, and the Punjab.
The Chief Commissioners, Central Provinces, Burma, Assam, Ajmere, and Coorg.
The Secretary for Berar to the Resident Hyderabad.
The Inspector-General of Forests to the Government of India.
The Agricultural Chemist to the Government of India.
The Reporter on Economic Products to the Government of India.
Foreign Department for Political Officers.
Finance Department.
Public Works Department.

APPENDICES.

1.

APPENDIX A.

From the SECRETARY OF STATE FOR INDIA, to GOVERNMENT OF INDIA, No. 7. (Revenue),
dated, 22nd January 1891.

I forward herewith, for your Excellency's information, a copy of a letter, dated 20th December 1890, received from Mr. Phillip Pavy, of Elcombe Hall, near Swindon, and its enclosure, an interesting Report on the subject of the wheat industry of the Punjab, addressed by Mr. Pavy to Sir C. Aitchison in 1883. Mr. Pavy is anxious that it should not be overlooked at a time when the question of dealing with the impurities in Indian wheats is being so much impressed on public attention. In this connexion I shall be glad to be advised at an early date of any recommendations you may propose to make on Mr. J. G. Smith's letter of the 17th of September 1889, forwarded to your Excellency with my Revenue Despatch, No. 116, of the 28th November following

2.

From PHILLIP PAVY, Esq., to Sir GEORGE BIRDWOOD, India, Office, dated 20th December 1890.

Since I had the pleasure of seeing you with Mr. H. Cairns Jackson when you were good enough to give me the official papers on impurities in Indian wheats, I have been travelling about and unable to report on them earlier.

As promised, I have now the pleasure to send you copy of the report I wrote in 1883 at the request of Sir Charles Aitchison, the then Governor of the Punjab, giving my views of the best means of growing in his province the wheats most suitable for the English and European markets.

I have read with very great interest the papers you were kind enough to give me, which confirm in many respects what I had previously written in 1883

I can only speak more particularly of the Punjab and the North-West Provinces which I have visited at three different times, and attended most of the principal markets to learn by actual experience the way the wheat was brought to market by the native producers.

It appears to me the different matters for investigation to promote the success of the arrival in Europe of the wheat grown in India in quality equal to that imported from other countries are—

- (a.) Selection of seed suitable for the land and district.
- (b.) Harvesting, thrashing, and marketing the grain by the producers.
- (c.) Transit of the grain to the ports for shipment.
- (d.) Customs of export merchants and shipment.
- (e.) Quality and analysis.
- (f.) Buyers and consumers in Europe.

Some of these subjects have already been alluded to in my report to Sir Charles Aitchison, and on these I have little more to communicate; but I may add—

(a.) There are some fine specimens of wheat grown in India, and could be procured clean, and good for seed, if the hard were not planted with the soft or the red with the white.

(b.) I have seen at the country markets wheat clean and in good condition, although probably thrashed in the usual way. In California I have seen wheat harvested with a "header" clearing 20 feet at a time, at the same operation cutting, thrashing, winnowing, and putting the seed in sacks. The machine was drawn by 28 horses or mules, and worked by five men, and was reputed to cut 60 acres per day. But I always prefer the "binder," worked with three horses and one man, doing about 12 acres a day.

In my opinion, judging from what I have seen, it is an exception for the producers to adulterate the wheat, it being sold by them according to quality and cleanness. There is a considerable quantity of seed and other grain sometimes grown with the wheat, but the seed and grain are easily separated by the natives, and the barley can be separated by machinery.

(c.) With the present mode of transit there is much less damage done on the road to the shipping ports than formerly, when the wheat was sent by boats, which were more or less leaky.

I also think the present mode of sending the wheat in sacks far preferable to sending it in bulk in the railway trucks as in the Eastern States of America.

Granaries should be built at all the large railway stations, as in England, California, and other countries.

(d.) In my opinion, it is at the shipping ports where the bulk of the adulteration takes place, the shipping houses hoping to make a profit in two ways—

First, by any difference they may get in the refraction which, it appears, is 4 per cent. in Bombay, 5 per cent. in Calcutta, and, if my memory serves me rightly, 7 per cent. in Karachi; so

that, if the natives deliver to the export shippers wheat at Kurrachi with only 2 per cent. admixture, the export merchants would make 5 per cent. profit.

Secondly, by the large shippers making their own f. a q., consequently being able to deliver gradually each month a quality depreciated in value to a considerable extent to the prejudice of the producer in India and the consumer in England.

Formerly in India the wheat was delivered by the native direct to the export merchants from the railway, but as they could not get a better price for their clean grain, I am informed they now take the wheat to their own godown, and reduce the quality by a mixture of siftings; probably the refuse of the export merchants who take delivery from the native godown, cart it to their own godown, clean it down to 4 or 5 per cent. and ship it.

Quality and analysis.

(e.) I see no reason myself why Indian wheat could not be sold on a mutual 2 per cent. refraction both in England and at the shipping ports, except that naturally the large export houses who wish, and do to a certain extent monopolise the business, would lose the chance of making the profits before mentioned.

I do not understand why the charge for analysing wheat should be more than seed, and there is no more difficulty with the invoices than with seed, Egyptian beans, or other articles sold on analysis.

My experience is that with well-cleaned wheat there is little weevil.

There is no reason why an average sample could not be made and wheat sold on sample the same as with American, Californian, and other exporting countries.

In my opinion the fault as to quality of Indian wheat does not lie with the producer in India, or the consumer and miller in England, but solely, directly or indirectly, with the export merchants in India.

For the sake of the producer in India and the consumer in Europe, it is most desirable that the present contract be revised.

On reference to my Report, page 5, and taking Dr. Forbes Watson's figures, that in 1873-74 there was under wheat 5,551,794 acres in the Punjab, and the return this year, 1890, as 6,678,000, being an increase only of 1,118,206 acres in 16 years, which is much less than could have been reasonably expected with the increase in value, there is yet in the Punjab and Scinde Valley very large tracts of land that could be cultivated with wheat.

3.

From PHILLIP PAVY, Esq., to SIR CHARLES AITCHISON, K.C.S.I., Lahore, dated June 1883.

Introduction of improved varieties of wheat into the Punjab.

I must apologise for having delayed so long sending you the report I promised you of my views of the best means of growing wheat in your Province suitable for the English and other European markets, but I have been so much occupied with the development of the through transit grain business in connexion with my son, Mr M. E. Pavy, in Lahore, that my time has been fully taken up.

I regret my visit to India in 1882 was so short, and consequently gave me so little opportunity of gaining any information of the system and routine of cropping the land adopted in the Punjab, which would have assisted me very much in my present report.

In England, as doubtless you are aware, there are many systems adopted, which from experience have been found the most suitable to the localities in which they are placed and the nature of the soils to be dealt with as to their wheat-producing capabilities both as to quantity and quality.

In England, on the heavy or so called wheat-producing land, it is customary in some districts to cultivate on the two course system, or planting wheat every other year and beans or peas alternately with tares or summer fallow; others cultivate the same description of soil on the three-course system, or wheat followed by spring or lenten corn and then seed or green food for stock, which is fed off on the land, and consequently manures it without extra expense.

The hill or lighter soils are farmed generally on the four and even five-course system, say wheat, then turnips which are fed off with sheep, then barley, then seeds which are either cut for hay or fed with stock when farmed on the four-course system, and when farmed on the five-course system the seed is left as old field, or, in other words, is cut or fed the second year.

In the south of Italy, where the climate resembles nearer to that of the Punjab, and I have known the thermometer 105 Fahr. in the shade, wheat is usually grown alternately with maize or other summer crops, on the reclaimed land, of which there are many thousands of acres. Wheat is grown alternately with hemp or maize, the former growing frequently 10 to 12 feet, and the latter 6 to 8 feet high.

In any case the land should be clean, well-manured, and in good order to receive the seed, which should be planted in good season.

Having the land in good condition, the next in importance is to have good seed, which should be of the new or (last crop) of good quality, clean, and free from *barley*, *gram*, or other grain seed, and ought always to be changed, and, if possible, brought from colder and poorer land than it is intended to be sown on.

The question of the quantity to be sown per acre I cannot from actual experience give an opinion, but my impression is that generally it is too little in India, and I think two bushels to two and a quarter bushels per acre, or about 60 to 75 seers, would not be too much.

The best description of white wheat suitable for your province would be, I think,—

- | | |
|----------------------|-----------------------|
| 1. Australian. | 5. Essex Rough chaff. |
| 2. Delhi. | 6. New Zealand. |
| 3. Italian Richele. | 7. Californian. |
| 4. Algerian Richele. | |

Suitable varieties white wheat.

Of these, the Australian is by far the best and containing more of the qualities required for the English and European markets than any other, both as regards colour and strength and for comparison as to value.

The different qualities may be estimated as follows :—

1. Australian	-	-	-	-	-	50s. per 492 lbs.
2. Delhi	-	-	-	-	-	48s. " "
3. Italian Richele	-	-	-	-	-	48s. " "
4. Algerian Richele	-	-	-	-	-	48s. " "
5. English Rough chaff	-	-	-	-	-	46s. " "
6. New Zealand	-	-	-	-	-	46s. " "
7. Californian	-	-	-	-	-	45s. " "

as against 42 for the same weight of white wheat of the Punjab.

The best description of red wheat, and probably the most suitable for your climate, would be— Red wheat.

- | | |
|---------------------|---------------------|
| 1. Winter American, | 5. English nursery, |
| 2. Sicilian, | 6. " common, |
| 3. Italian, | 7. " April. |
| 4. Delhi, | |

and the relative value may be estimated as follows :—

1. Red Winter American	-	-	-	-	-	46s. per 492 lbs.
2. Sicilian	-	-	-	-	-	45s. " "
3. Italian	-	-	-	-	-	45s. " "
4. Delhi	-	-	-	-	-	45s. " "
5. English nursery	-	-	-	-	-	44s. " "
6. " common sort	-	-	-	-	-	42s. " "
7. " April	-	-	-	-	-	42s. " "

as against 39 for the same weight of red wheat of your province.

The next matter in importance, after having planted the wheat in clean and well-cultivated soil and from good clean seed, is to see that it is well cared for after it is grown, and to effect this it should be thrashed on wood floors, canvas, or even as a last resource on matting, which can be procured more or less, I presume, all over your province. The present mode, as I am informed, of treading the wheat out by oxen or thrashing on the ground or road arranged for the purpose gives it a dirty, dingy, and dull appearance, and often a disagreeable and earthy smell, and deteriorates the value from 2 to 4 per quarter of 8 bushels, or 492 lbs., instead of its being retained, as in other countries, in its natural state, bright and glossy in appearance and free handling in bulk. Thrashing.

When thrashed the wheat should be winnowed by machine or, if this is not possible by an ordinary fan, which could be made in the country for a few rupees; the latter was the usual way of winnowing the corn in England before the machine, now so general in use, was introduced, and which answers the same purpose, but is more tedious in the operation. Winnowing.

After being cleaned it should be kept so by being put in a proper warehouse instead of the dirty back hovels I have seen it in, by which means the corn becomes weevily and gradually of more and more inferior quality. When taken to market it should be conveyed, whether on bullocks, camels, or carts, in sacks, and not put on the road or in the squares when exposed for sale, as is customary now at Ludhiana, Delhi, and other places. Storing.

I see no reason why your province should not grow wheat of quality, if not equal in value, nearly so to the best wheat-producing countries of the world.

Taking the relative values of the average qualities of white wheat at this time on the London markets as before estimated as follows :— Values.

Australian	-	-	-	-	50s. per 492 lbs.	} Average 47 per 492 lbs.
Italian Richele	-	-	-	-	48s. " "	
Algerian	-	-	-	-	48s. " "	
Californian	-	-	-	-	45s. " "	
Oregon	-	-	-	-	45s. " "	
New Zealand	-	-	-	-	46s. " "	
			against			
Punjab	-	-	-	-	42s.	
and the red wheat—						
American Winter	-	-	-	-	46s. per 492 lbs.	} Average 45-4 per 492 lbs.
Italian	-	-	-	-	46s. " "	
Sicilian	-	-	-	-	45s. " "	
			against			
Punjab	-	-	-	-	39s.	

In Paris the relative values estimated by one of the large merchants are for white wheat—

Australian	-	-	-	28 francs per 100 kilos	49s. 11d. per 492 lbs.
Italian Richele	-	-	-	28 " "	49s. 11d. "
Algerian	-	-	-	28 " "	49s. 11d. "
Californian	-	-	-	26·50 " "	47s. 3d. "
Oregon	-	-	-	26 " "	46s. 4d. "
New Zealand	-	-	-	25 " "	44s. 7d. "
Average being	-	-	-	48 per 492 lbs.	
				against	
Punjab	-	-	-	23·59 francs per 100 kilos	41s. 11d. per 492 lbs.
and red—					
American Winter	-	-	-	26·50 francs per 100 kilos	47s. 3d. per 492 lbs.
Italian Richele	-	-	-	27·50 " "	49s. 1d. "
Sicilian	-	-	-	27·50 " "	49s. 1d. "
Average being	-	-	-	48·6 per 492 lbs.	
				against	
Punjab	-	-	-	22·50 francs per 100 kilos	40s. 2d. per 492 lbs.

I have not considered in this report the question of hard wheat, of which there is a considerable quantity grown in your province, but which is only saleable on the London market in moderate quantities, and of that imported the greater portion is re-exported for Holland, Belgium, or Spain. These qualities also find a better market in Italy and the Mediterranean markets generally.

In taking therefore the average price of the six countries that supply England with white wheat, and whose climates approach the nearest to that in your province, we find for the London market it is 47s. per quarter of 492 lbs. as against 42s., the value of the average quality of white wheat grown in the Punjab, and in my own mind your province may grow white wheat equal, if not superior, in quality, and of the same value in this market as the average of these countries.

In red wheat I have taken the three countries where the climates are about the same as regards heat as your own province, and we find the average value on the London market is 45s. per quarter of 492 lbs. against that grown in your province, 39s.

In Paris the average value of the six different qualities of white is 48s. per 492 lbs. against 41s. 11d., the value of yours, and red, 48s. 6d. against 40s. 2d.

The difference therefore in the average value of the white and red wheat of the same qualities grown in the different countries mentioned for the London market is as between 46s. 5d. and 40s. 6d., and for the Paris market as between 48s. 2d. and 41s. 0½d., or an average, we may say, for the European markets of 6s. 7d. per quarter less for the wheat grown in the Punjab than the average of the other countries from whence we draw large supplies; this at 1-8 per rupee will make a difference of something over 10 annas per maund.

Economic
effect of
improvement
of quality.

Taking Dr Forbes Watson's figures that in 1873-74 there were 5,551,794 acres under wheat in the Province of the Punjab, and that it had increased in four years, say in 1877-78, to 6,983,904 acres, and presuming the increase to continue in the same proportion, and that in 1882-83 the area under wheat to be estimated at 8,774,041 acres, and as the crop this season is considered to be a large one of good quality and may be calculated at 10 maunds per acre or 87,740,410 maunds or 14,623,401·4-6 quarters of 492lbs., and presuming that the quality could be improved in value, and brought up to the average standard of other countries of somewhat similar climate or, say, 10 annas per maund, it would amount to a sum of no less than, say, Rs. 54,837,756, or an average of R 6-4-0 per acre. These figures may seem fabulous but may be possible, and, if so, it would be difficult to foretell the good that would accrue to your province if over five millions of pounds sterling could be augmented to the receipts of the producers by the improvement of quality alone.

Seed experi-
ments.

It is difficult for me, having no actual experience in the production of wheat in India, to even venture upon a suggestion of which would be the best description of wheat to recommend for seed in your province, but seeing the enormous amount of money, probably pounds sterling 5,000,000, involved in the question of quality alone, it may be worth the consideration of your Government to make a practical experiment by planting a few acres of each sort of wheat in four or five different localities.

This would be a comparatively inexpensive experiment, and would prove by actual results the best seed suitable for the soil and climate.

For the qualities of white wheat, unquestionably the Australian is the best grown suitable for the English and European markets, containing the qualities most requisite both as regards colour and strength for making flour of greatest value; next to Australian, if sent to market clean and in the same condition, is the long-berried wheat grown in the Delhi and Meerut districts; next would be the white Richele of the South Italy and Algeria; some Californian and Oregon may also be planted for experiment. Some white Spanish may also be tried, as well as English, but I am doubtful if the experiment would be successful.

Considering that the expenses and carriage of sending the grain to the European market is considerably more than the first cost paid the producers, and as these charges are the same on wheat of the value of 50s. per quarter as 40s., it is of the greatest importance for the farmers to grow the best quality possible to enable them to get the highest prices.

As regards the qualities of red wheat, the long-berried description grown in the Delhi and Meerut districts, if sent to market in the same good condition and clean, would probably make as high a price as any grown on the English and European market. Next to this would be the Italian and Sicilian; these qualities are particularly liked by the millers in France and Belgium,

and next would follow the red Winter American, which is more appreciated in England than on the Continent on account of its strength. There are also, I have no doubt, some descriptions of red English wheats that may do well in the Punjab, particularly in the north, and would be worth a trial.

There are also the fine red wheats of the south of France grown in the Merac and Dordogne districts, and the finer descriptions of Hungarian grown in the valley of the Theiss, and from which the flour used by the Viennese for making probably the best bread in the world is produced, and may answer well in your province.

Presuming that the quality of the wheat can be improved, and in my own mind I have no doubt on this point, the next question to enable your province to compete successfully with the countries from which we have up to this time usually drawn our supplies, is the question of transit rates by railway and shipping charges. Transit rates.

In America, where of late years we have drawn the bulk of our supplies, the ordinary railway Land rates are 20s. to 27s. per ton for 1,000 miles, or an average of 23s. 6d., including terminal and shipping freights. charges; whereas on the Scinde, Punjab, and Delhi and Indus Valley Railways, at the lowest rate of 16 pies per 100 maunds per mile and exchange at 1-8 per rupee on the same distance, 1,000 miles, it is as follows:—

	Rs.	a.	p.
Railway rates	22	8	0
Ferry charges	1	11	0
Terminal	0	6	9
Shipping charges, Port-dues, and agency	2	0	0
	26	9	9

or 44s. 4d. per ton as against an ordinary average rate in America of 23s. 6d., and this will clearly show so far as railway rates, charges, &c., are concerned, the producers in your province pay 20s. 10d. per ton more than their competitors in the Far West of America.

I have here spoken of and made comparison with the ordinary rates in America, but during a war of rates with the railways, grain is frequently carried at 10s. and 12s. per ton per 1,000 miles, or about one quarter the amount paid from the Punjab.

These figures will, I think, speak for themselves, as far as inland rates and charges are concerned, and show the position of the producers in your province in competing for the food-supply of this country.

As regards ocean rates there is no monopoly, and freights are regulated in the usual way by supply Ocean rates and demand; they are sometimes high and at others low. I have known rates for freight even from Calcutta sometimes 12s. per ton for wheat, and sometimes 70s. and 80s.

The annual requirements of the United Kingdom may be estimated at twelve to eighteen million quarters, according as our crop here is more or less abundant, the bulk of which has of late years been supplied us from America, and the question may be asked if our own colony, the Empire of India, could not compete successfully for the supply of a considerable quantity of this wheat, and millions sterling paid to the producers in India instead of America, and in spite of the boasted millions of acres of rich alluvial soil reputed to be yet uncultivated in that country, with land in India at the same or less rent, labour at 2 to 3 annas, 2½ to 3½ per day, instead of 6s. to 8s., fairly cultivated soil, suitable seeds, and proper care taken of the wheat when grown with a climate far more certain and favourable for the production of wheat than America, and with reasonable and not excessive inland rates of transit, there can be no reason why India, your province of the Punjab in particular, should not successfully compete for the increasing requirements of the United Kingdom and other European countries.

If you think I am able to give you any other information on this subject, I am quite at your disposal.

APPENDIX B.

The GRAIN TRADE of the CAUCASUS and the FUTURE of NOVO ROSSIESK, by W. BARNES STEVENS,
Special Commissioner in the Caucasus.

1. THE EXISTING DEPRESSION IN THE RUSSIAN GRAIN TRADE.

In the present and succeeding articles I purpose laying before the readers of the "Mark Lane Express" the results of a special inquiry, which I have recently undertaken, as to the causes of the existing depression of the Russian grain trade, and as to the prospects of the trade in view of the recent introduction of the American system of storage at Novo Rossiesk, the new Black Sea port. Those who take an interest in Russian commercial affairs will be aware that at the present time this important question is engaging the serious attention of the Imperial Government. It was the object of the recent tour of that energetic and indefatigable Russian statesman, M. Vishnegradsky, the Minister of Finance, to ascertain, by inquiries made on the spot, the extent of the material resources of Southern Russia, the Caucasus, and the territories of Russia in Central Asia, and especially the development of the grain trade by means of the improved methods of carrying on that trade adopted at the new port above mentioned.

A recent report furnished to M. Vishnegradsky by the Railway Companies states that the main causes of the depression in the Russian grain trade are:—

- (1.) The fluctuating value of the rouble, and the uncertainty of the amount of the shipping and railway expenses, which render it impossible for importers and shippers to make reliable calculations.
- (2.) The poverty of the peasants and farmers, which compels them to sell their grain immediately it has been gathered.
- (3.) The large number of middlemen between the producer and the consumer, and the absence of elevators and magazines for storing grain.

So far as this statement goes it is perfectly correct, but I am surprised to find no allusion in it to a practice which, to my mind, has more to do with the present languishing condition of the trade than any of the conditions above referred to. I refer to the wholesale system of adulterating the grain. It is this abominable custom which has, I believe, eaten away the very life of the trade, and as this is a question affecting British buyers and consumers, it is well that they should possess some reliable information on it. I am informed by a Russian railway official, connected with one of the principal lines in Southern Russia, that his Company is doing quite a large business in carrying to the various grain ports a composition known as "Ostalkee," the avowed purpose of which is the adulteration of the grain prior to shipment. "Ostalkee," in plain English, means "leavings," and consists of the bran, husks, dust, sand, and small particles of straw left after the grain has been threshed. It is bought from the peasants in large quantities and conveyed to the ports for this nefarious purpose in truck-loads at a time. So common has this practice of adulteration become that people have begun to regard it as a natural condition of the trade. The farmers and peasants are not responsible for this malpractice, although they could, of course, and would, if they knew their best interests, minimise it considerably by refusing to sell the ostalkee. The grain, when it leaves their hands, is in good condition and "up to sample" equal, and often superior in quality to the grain of any other exporting country. But it is not long in this condition. The Jewish, Greek, Russian, and Armenian middlemen, into whose hands it then passes, make a practice (as a St Petersburg editor avers, who has written much against the abuses of the present system) of opening each sack that they purchase from the producers, and deducting from it 20 per cent of the pure grain, the place of which they supply with spoiled grain or the rubbish above referred to. In this way they not only make a profit on the mixed parcels, but a clear profit of 20 per cent. on each sack shipped. Nor are these unscrupulous shippers content with having in this way destroyed the once good name of Russian shipments, but, in pursuance of the same suicidal policy, they are doing their best to make Russian agriculture altogether unprofitable. In districts where there are no Railway Companies or banks to make advances on the grain, the great grain houses established at the principal ports have the farmers and peasants completely at their mercy. They form "rings," or "corners," and, having agreed upon a price amongst themselves, telegraph it to their agents in the interior. Thus the producer, the victim of an organised conspiracy, frequently has to sell his grain at a price far below its natural value. A very small portion of the sums which his grain ultimately fetches in London and other markets goes into his pockets, frequently not enough to cover the rent of his land and the costs of production. The greater portion goes towards defraying the great expenses in respect of carriage, freight, warehousing, and in meeting the charges of the middlemen, which, when compared with those of other countries, cannot but be regarded as exorbitant.

But the peasant has not only to contend with unfavourable conditions of outside origin; he has to contend with his own sluggish and easy-going temperament. It is a deplorable fact that the Russian peasant is far too much addicted to vodka, and that he lays hold of any and every excuse for taking a holiday. In short, as a rule, he is not industrious. Further, being ignorant—and for his being ignorant the Government is more responsible than himself—he is conservative in the extreme and consequently averse to trying any of the "foreign inventions" as he terms the labour-saving agricultural machines of Western civilisation. It is difficult even to induce him to abandon his antiquated plough, a large, heavy, and incomplete article, which it takes seven or eight pairs of oxen to put in motion.

With such influences at work without and within, it is scarcely to be wondered at that the condition of the Russian peasant has become one of almost chronic poverty. But if the peasant is in a bad way, the landlord is in a worse, for the latter, since the emancipation of the serfs robbed him of his farm labourers, has gradually gone down hill. The late sudden rise in the value of the rouble seems to have completed his misfortunes; it has driven members of his class into the hands of that just now much-abused nation, the Jews, and have forced others to sell their lands to peasants at almost nominal prices. In some parts of Russia, where the conditions for growing corn are most unfavourable, both landlords and peasants have entirely ceased growing corn for purposes of export. "I am so disgusted with the present state of affairs," said the landlord of an immense estate in Poland to me the other day, "that I am allowing my land to lie fallow; for, at least, if I do not gain anything, I shall not ruin myself by selling my grain at a loss." One can imagine a farmer in England acting thus, but it is extraordinary to find one doing so in a country where, if anything should prosper, agriculture should. Yet, as things are at present, it is difficult even for a farmer working on his own land to make a profit. A desjation (equal to 2 acres 2 roods 32 poles, English) of the finest land in the Caucasus, suitable for growing wheat, may be leased for a very small sum, and yet the expenses of ploughing, sowing, reaping, and threshing are so heavy that a profit of more than 10 roubles is rarely made. Thus being the state of affairs, it does not require much acumen to see that something is wrong at the core of the Russian export grain trade; but it is

reassuring to those who have the true interests of that trade at heart to find that M. Vishnegradsky has come back from his visit to Novo Rossiesk and his tour in Central Asia thoroughly convinced on this score, and resolved to give free scope and Government assistance to those who are trying to bring about a reformation of the trade. It is late in the day indeed that this decision has been come to. The present stagnant condition of the grain trade had come to be looked upon as its normal and hopeless condition. When we reflect on the extent of the arable portion of the Russian Empire, and the vastness of the interests involved, the lethargy from which the Government are now tardily awakening was at once inexcusable and well-nigh inexplicable. The fact is that, for the last thirty years, the Tsar and his Ministers have been paying too much attention to the manufacturing interests of the country. They have spent millions in fostering these, have enabled a few manufacturers to become millionaires, but until the present moment never seemed aware that they had any agricultural interests worth looking after. The Tsar is to be congratulated, however, in having, as his Finance Minister, a statesman so painstaking and patriotic as M. Vishnegradsky; and now that this gentleman has become thoroughly alive to the necessities of the situation, he will do his best to make up for lost time. Already something has been done to improve matters; more has been resolved upon, and much is under consideration. What steps have been taken, and what further measures are likely to be adopted, I reserve for future communications; and I hope to show from the remarkable history of the rise of the new port of Novo Rossiesk, which I had the pleasure of visiting this summer, slightly in advance of the Finance Minister, that there are good grounds for the belief that a thorough reform of the Russian grain trade has been successfully initiated, and that it is by no means unlikely, if things go on as they have begun, that America and other grain-exporting countries will soon find it difficult to hold their own with Russia. Perhaps they may even be ousted altogether from European markets.

Novo Rossiesk, the important departure at which is likely to have far-reaching effects on the future of the Russian grain trade, is situated on the Black Sea, at a spot about 100 miles to the east of the Straits of Yenikale, where the western extremity of the Caucasian range approaches the seaboard. In its position at the head of a magnificent natural harbour, with mountains at its rear and sides rising to an altitude of several thousand feet above the level of the sea, their slopes covered with groves of wild apple, pear, plum, and other trees, it presents a remarkable resemblance of the harbour of Palermo. Though possessed of such manifest natural advantages as a port, no attempt was made to utilise it until two years ago. It aspired to be nothing more than a small fishing village, and boasted no other signs of Russian occupation than a few Russian soldiers and officials. Beyond its outskirts Muscovite rule did not extend, or at any rate was not respected. Such of its inhabitants as, in pursuit of game, ventured into the mountains did so at the imminent peril of their lives. These heights were held by Circassian mountaineers, who successfully resisted all attempts to dislodge them from their fastnesses, and who knew no more enjoyable sport than "potting" those luckless members of the garrison who happened to come within range of their rifles.

2. THE RISE OF NOVO ROSSIESK.

A different state of things exist now. The troublesome Circassians have given place to Russian, French, German, and Greek settlers, busily making their fortunes; and the quondam fishing village, emerging from its obscurity, has become a thriving grain port of some five thousand inhabitants, with a trade even now only third in extent to that of Odessa.

How this magical transformation has been effected is an instructive history. The good fairy has not been the Government with powder and shot; but that pacific and potent civiliser, the railway. About three or four years ago M. Stanislaus Kerbedz, a Polish engineer of high repute, recognising the possibilities latent in the place, conceived the idea of joining it with the Vladikavkaz Railway (of which he was then a Director) by a branch line to Tchoretz. From this station Novo Rossiesk is distant by the route chosen not more than about 300 miles. It lies, however, on the other side of the Caucasian range. To carry the Engineer's project into effect, it became necessary therefore to bore through these mountains. The construction of two long tunnels was found to be inevitable. Such an undertaking would necessarily involve enormous expense, but the Company, strong in their belief in the beneficial effects it would produce, did not hesitate. The work was rapidly pushed forward, arrangements at the same time being made for the reception of the grain; and in August 1888 the port and line were thrown open for traffic. In my visit to the place this summer, starting from St. Petersburg, I, of course, travelled over the new line. The main line begins at Rostov, on the Don, and the portion of it which lies between that port and the junction Tchoretz passes through the southern part of the country of the Don Cossacks (Zemlia Boiska Donskago), and thence through the district of the Black Sea Cossacks. A journey of a hundred miles farther on brought me to the River Kuban at Ekaterinodar. Throughout the whole distance from Rostov to this place nothing was to be seen but steppes covered with fields of wheat, the produce of the rich black soil (Tchornee Zom), which extends for hundreds of miles on either side of the line, and pampas plains supplying pasturage for thousands of sheep and cattle, with here and there a Cossack village. After leaving Ekaterinodar, the line passes through a region abounding in oak and wild fruit trees, dotted here and there with plantations of tobacco. So thickly-wooded is this region that it is estimated to comprise about five million acres of oak and other timber. Palm trees and box wood also flourish, and away up the mountain sides rise immense pine forests, already being exploited by French capitalists. As might be expected, these forests and mountains are full of various kinds of wild animals and game. Even within a few hours' walk of Novo Rossiesk, those fond of sport can have as much as they desire. Nor need they fear molestation at

the hands of fanatical Circassians, as these former holders of the mountains have nearly all been shipped off to Turkey. As many as 10,000 of them were, it is stated, so got rid of last year. The territory thus almost depopulated is being rapidly leased or bought up by Greeks and Frenchmen for the cultivation of the vine and the tobacco plant, while near the town itself cement works have been established by some Germans. The rocks round the bay of Novo Rossiesk are formed of a natural cement, requiring only to be crushed to be ready for use, and the astute Teutons, who have found out this fact, are, the English Consul assured me, making at least 60 per cent. on the working.

Living is not dear in Novo Rossiesk. Meat of the finest quality can be purchased there at 2*d.* a pound and a whole ox of the celebrated Circassian breed for 3*l.* or 4*l.*

Fruit for all description abound—pears, apples, melons, grapes, plums, peaches, apricots, and walnuts. A good water-melon costs about 1½*d.*, and a pound of fine grapes about the same amount. The finest tobacco is also grown in large quantities, and is sold at the rate of about 6*d.* a pound. It is subject to a slight duty, and the growers are chiefly Greeks, who send it to Rostov, on the Don, at which place it is made up into cigarettes and sold as Turkish at about 1*s.* a pound.

Possessed of such natural advantages, and such varied resources, Novo Rossiesk would have a prosperous future before it, even if it did not afford so convenient an outlet for the grain of the Caucasus, and this consideration doubtless weighed with the Directors of the Vladikavkaz Railway Company when they were deciding as to the construction of the branch line. The main object of the Company, however, was the development of the grain trade of the Caucasus, and it may be said at once that their sanguine anticipations on this head have been more than realised. Indeed, the grain export has advanced literally by leaps and bounds. This satisfactory result is abundantly evidenced by the following table, which gives the amount of grain (including a little flax) loaded at the wharves of the Railway Company for each month, from August 1888, when the port was opened, to June 1889:—

Month.		No. of Steamers	Tons of Cargo shipped.	Average Cargo per Steamer.
1888				
August	- - - - -	1	1,580	1,580
September	- - - - -	2	3,455	1,728
October	- - - - -	3	5,439	1,813
November	- - - - -	7	12,873	2,083
December	- - - - -	6	11,249	1,872
Total		19	34,596	1,901
1889.				
January	- - - - -	13	23,534	1,810
February	- - - - -	14	26,676	1,906
March	- - - - -	16	27,909	1,813
April	- - - - -	4	7,322	1,878
May	- - - - -	7	15,214	2,209
June	- - - - -	11	21,422	2,097
Total for first half of 1889		65	122,147	1,968
Total for the eleven months, from August 1888 to June 1889		84	156,743	1,914

[In calculating the average cargo three steamers have been omitted as they did not take a full cargo from Novo Rossiesk. They only completed their load there.]

Thus, during the first six months of 1889, nearly four times as much grain was exported as during the five months ended December 1888. Four-fifths of this grain was carried by steamers bearing the English flag. To the figures given above, 25,000 tons must be added as taken up by 100 sailing vessels and coasting steamers. The total turn-over of the port during the first eleven working months of its existence thus exceeded 180,000 tons. This remarkable activity has been maintained. By December 1889 the total exported had reached over 333,000 tons, and by July of the present year over 671,000 tons. The figures for each month of the present year, up to and including July, are as follows, viz. :—

Month		Tons of Cargo shipped
January 1890	- - - - -	41,760
February "	- - - - -	43,060
March "	- - - - -	44,480
April "	- - - - -	53,230
May "	- - - - -	53,230
June "	- - - - -	52,450
July "	- - - - -	51,430
Total		337,620

It may, therefore, be confidently expected that the export for the present year will exceed 600,000 tons. Not only has Novo Rossiesk, in the short space of two years, outstripped the smaller ports in the amount of export, but it seems likely that before long it will do more business than Rostov. According to the gazette of the Minister of Finance (No. 32) the exports from the following ports for the present year, up to August 4th last, were as follows, *viz.*—

Name of Port.	Peods* of Cargo shipped.
Odessa	44,590,417
Rostov	29,921,680
Novo Rossiesk	20,674,987
Libau	15,750,736
Sevastopol	8,985,640
Riga	6,752,452
Reval	6,518,112

* One Poed=36 $\frac{1}{2}$ lbs. English.

The significance of these statistics is obvious. I have now to point out that this striking success of the new port has been due mainly to the enlightened policy which the Vladikavkaz Railway Company have pursued. The details of that policy will form the subject of my next article.

3. THE POLICY OF THE VLADIKAVKAZ RAILWAY COMPANY.

The statistics given at the end of my last article demonstrate in a forcible and unmistakable way that the whole of Europe, and in particular the British Isles, may now reckon on receiving large and continuously increasing supplies of grain from a new and important source. This fact is of as supreme importance to the "struggling masses," to whom it holds out the prospect of a reduction in the price of bread, as it is to the corn trade, who cannot afford to ignore such an important factor in making their calculations. To make this prospect the clearer and these calculations the easier, I shall endeavour in the next and concluding paper of this series of articles to convey some idea of the extent to which the resources of the Caucasus are still undeveloped, and of the measures in contemplation by the Russian Government and the Railway Company for the purpose of bringing about their thorough development. In the present article I shall examine the causes which have brought Novo Rossiesk into its present prominent position as a grain port. The readers of the "Mark Lane Express" will then be the better able to estimate what probability there is of the continued development of the Caucasus.

As I have already indicated, the main cause of the sudden rise and prosperity of Novo Rossiesk has been the wise and patriotic policy pursued by the Vladikavkaz Railway Company, to whom practically the port belongs. But the fact should not be lost sight of that to the success of that policy the many and important natural advantages of the port have contributed in no slight measure. Incidentally, I have already touched upon some of these; but a circumstance remains to which I should direct particular attention. To those of your readers who have attentively perused the pregnant figures given in my last article, this circumstance will have been already revealed. It will have been observed by them that the grain export of Novo Rossiesk has gone on as merrily in the winter as in the summer. While Odessa and other Black Sea ports have been closed in consequence of frost, the new port of the Caucasus has been doing a roaring trade, without the intermission even of a single day. In the severe first three months of the present year it exported upwards of 120,000 tons of grain. At the present moment, when at the older ports, all is hurry-scurry in order to get off as much grain as possible before the frost commences, the new port, enjoying absolute immunity from frost, pursues the even tenor of its way rejoicing. On this account alone Novo Rossiesk has a tremendous pull over the older-established ports of the Black Sea and Sea of Azov. It would be only fitting then that, in an enumeration of the natural advantages which have made for the success of Novo Rossiesk, this circumstance should be accorded the premier place.

First, then, Novo Rossiesk is a port that never freezes.

Secondly, it affords a more convenient outlet than Rostov-on-the-Don, not only for the rich black soil district tapped by the main line of the Vladikavkaz Railway Company—a territory of some 5,000 square miles, of which a large proportion is still uncultivated—but also for the exceedingly fertile and, until recently, entirely undeveloped district tapped by the branch line connecting it with Techoretz.

Thirdly, it possesses the advantage of a position at the head of one of the finest natural harbours in the world.

The bay of Novo Rossiesk is nearly 5 miles long by 2 $\frac{1}{2}$ to 2 miles wide, covering an area of 5,000 acres. Its entrance is perfectly safe, and properly marked by beacons and lighthouses. Its northern extremity forms a large and deep harbour, being 1,500 acres in extent and 45 feet in depth. It is possible for ships capable of carrying 3,000 tons to take a full cargo from the wharves of the Railway Company. When the large size of the steamers of the present day is taken into account, the new port will be seen to possess in this feature no slight advantage over the older-established ports of the Black Sea and Sea of Azov, which both in depth and in extent are its inferiors.

Novo Rossiesk was thus certain of some degree of success, whatever policy the Railway Company thought fit to adopt. That the Directors took the line they did is therefore immensely to their credit, and it augurs well for the future of the Russian Empire that men of their enterprise and capacity continue to appear. When the vast sums of money expended on the undertaking, amounting to a total of twelve millions of roubles, are taken into consideration, no one would have been surprised to find the Company adopting every means in their power to ensure a speedy return of their capital. Assuredly no one could have blamed them had they taken this course. The Directors, in not doing so, seem to have subordinated their own pecuniary interests to the general good, and this in spite of the Imperial Government looking coldly upon their undertaking. They seem to have recognised to the full the gravity of the evils affecting the grain trade, and to have felt that upon them the duty of grappling with and overcoming them devolved. They saw the opportunity that presented itself in Novo Rossiesk, and they determined to make the best possible use of it. They set before themselves the twofold object of restoring the once good name of Russian shipments, and of making agriculture a less unprofitable calling to the farmers of the Empire.

To this end they introduced at Novo Rossiesk, and at the chief stations of their line, the American system of storage, and fixed their carriage and shipping charges at an exceedingly low figure. Indeed, on the shipping charges they have not aimed at making any profit at all. The only profit they seek is that which they hope to derive from the increased carriage of goods from the interior to the port. With the Government sanction they discharge the grain from the trucks, clean and sort it in their storehouses, then recart it to the piers, and finally ship it at the following low rates:—

- (1.) Cartage from trucks to storehouses weighing and stapling 4 copecks per 10 poods (361lbs).
- (2.) Shovelling, 2 copecks per 10 poods.
- (3.) Shifting and cleaning, 3 copecks per 10 poods.
- (4.) Carrying from stores to the Company's trucks, bagging, if required, weighing, cartage to piers, &c., 15 copecks per 10 poods.
- (5.) Work in the hold:—(a) Single-decked boats, 1 copeck per 10 poods; (b) double-decked boats, 1½ copeck per 10 poods, (c) bagging in hold, 2 copecks per bag.

[One copeck=about one-third of a penny.]

Not only are these rates exceedingly moderate in comparison with those levied at other ports, but they are not liable to fluctuations, excluding in this way the possibility of the introduction at Novo Rossiesk of those rules and customs which, in other ports, have been so just a cause of complaint on the part of merchants and shipowners. Although the work is done thus cheaply, its performance is none the less efficient. The Company keep permanently on their premises a properly organised set of experienced workmen.

Again, the Company spare no pains to ensure despatch in loading. At present vessels are loaded as they lie alongside the wooden piers of the Company. These structures are three in number, and of considerable length. Together they enable six large-sized vessels to load simultaneously, and five average-sized ones to complete their cargo. The grain export they thus provide accommodation for is very considerable, amounting to upwards of 65,000 tons during each busy month of exporting. One of the piers is two-storied, and is connected with the station and warehouses by a stone viaduct. It is similar in plan to the piers at South Shields, Bilbao, Huelva, and Odessa. While loading proceeds by manual labour at the lower platform, from the upper platform the grain brought from the storehouses in special waggons may be shot into the hold. All the piers are provided with the electric light, so that the Custom House authorities permitting, the work of loading can be carried on by night, whenever an accumulation of vessels or other circumstances renders such a course desirable.

These facilities for despatch in loading, in combination with the low rates charged, render Novo Rossiesk an attractive port to English captains. At no other port can they obtain a cargo so quickly and so cheaply. At Novo Rossiesk a cargo of 2,000 tons of wheat can be shipped in the short period of 24 hours, at just one-half the cost which would be incurred at any other Black Sea port. Then, too, if a vessel meets with a mishap at the port, it does not—as in other Russian waters—become the prey of a salvage company. Her captain has only to invoke the aid of the Vladikavkaz Railway Company and without delay tugs, divers, and all means of salvage are provided; everything is done that can be thought of to put the disabled vessel in speedy repair. For this service the Company charge only the bare cost of the work done. They even offer to refer their bill to Lloyd's agent, and to be content with whatever sum that functionary may think meets the requirements of the occasion. The tug belonging to the Company is English-built, and is supplied with engines of 300 horse-power. It contains appliances for the extinction of fire, and for draining the holds of vessels. Repairing shops have also been set up for the repair of the machinery and hulls of vessels. These are under the management of an experienced English engineer. In addition to these services, they undertake, if desired, at special rates, to see to the due performance of Custom House formalities, the victualling of vessels, and the providing of vessels with water, fuel, materials, &c. They provide also interpreters speaking English, French, German, and other languages, and will negotiate for captains with the Russian Standard Petroleum Company.

Nor have the Company neglected the interests of the growers. It is true that, owing to the extraordinary and unexpected influx of grain into the port, 8,000 waggons were last year under grain at one time, 3,000 of which were compelled to remain thus undischarged for more than three months awaiting shipment. But immense warehouses having been built, with a total storage capacity of 65,000 tons, growers can now store their produce, and obtain advances on it.

FUTURE DEVELOPMENT.

In the preceding articles I have attempted to gauge the evils affecting the Russian grain trade, and have indicated the source whence a movement has arisen for their abolition. I have now to deal with the future, and will therefore at once proceed to state the grounds upon which I base my strong optimism in regard to the future of the trade.

For Russia to obtain the practical monopoly of the European grain trade, the movement so successfully initiated by the Vladikavkaz Railway Company at Novo Rossiesk must extend to the other Russian ports. This much is apparent. How then is it to be accomplished? Powerful interests are involved in the maintenance of the system at present in operation at these ports, and admittedly nothing will break them down but the pressure of dire necessity. I shall therefore strive to show that there is a great probability of this necessary pressure being exerted, in the by no means distant future.

Everything bends before competition. If the grain trade of the Caucasus, which even now is a factor to be taken into account by merchants in making their calculations, increases in the future at the rapid rate at which, as I have shown, it has increased in the past, if, too, means can be found to divert through the new port a large portion of the grain produced in other parts of the Empire, which produce now finds other outlets, few will deny that the pressure of competition thus brought about will force the older ports, however unwillingly, to adopt the new system.

That both these indispensable conditions will be fulfilled, I see, in the present circumstances, no reason for doubting. They are both largely dependant for their fulfilment on the attitude taken by the Russian Government. The satisfactory result already obtained at Novo Rossiesk is to be attributed almost entirely to the private enterprise of a Railway Company. In Russia, however, all such enterprises depend for their success, and even for their continuance, on the favour of the Executive Government. The frown of a Minister is sufficient to depress the ardour of any body of enterprising commercial men. From the first, therefore, the Vladikavkaz Railway Company have been anxious to secure for their venture the favourable regard of the Imperial Government. At the outset they did not, it is said, meet with the success hoped for in this direction all kinds of obstacles being, it is asserted, placed in the way of their undertaking. At length however, they obtained the appointment of a Government Commission to visit and report on the harbour. To this Commission they submitted the following programme of reform:—

- (1.) To improve the quality of the grain prior to shipment by submitting it to a process of cleaning, shifting, weighing, &c., in the elevators of the Company.
- (2.) To establish a system of making advances on all grain delivered by the growers at the stations of the Company, and to build for this purpose a series of small elevators in the interior.
- (3.) To diminish the expenses attending the loading and carriage of grain by transporting all large parcels in bulk, and also by establishing at Novo Rossiesk a fixed railway tariff and list of charges.
- (4.) To afford to steamers loading at the port of Novo Rossiesk every convenience for despatch by means of special mechanical arrangements.
- (5.) To establish a Grain Commission, whose duty it shall be to inspect the parcels of grain prior to shipment, and to grant certificates as to their condition.
- (6.) To construct a large American elevator capable of holding 50,000 tons of grain, and containing all the latest appliances for cleaning and storing the grain.
- (7.) To construct two new docks near the premises of the Company, the present Government harbour works not being in a favourable situation for the expansion of the trade.

This programme was generally approved by the Commission, and many of the reforms alluded to in it have, as we have seen, already been carried out. The Government sanction has been given to the erection of the elevators, and the proposition as to the docks is under consideration. We have seen the satisfactory result which has followed on the inauguration of these reforms; but great as the attractions of Novo Rossiesk as a port have proved to be already, they will largely increase when the whole programme has been completed.

Much more important, however, than the visit of this Commission, was that of the Minister whose recent tour through the territories of Russia in Central Asia has attracted so much attention. On his return journey, M. Vishnegradsky made a special visit to Novo Rossiesk for the purpose of forming on the spot an estimate of its capabilities.

It is no secret that this energetic Minister was very favourably impressed by what he saw at the new port, and that he returned to St. Petersburg resolved to recommend the Government to give free scope to the energies of the Vladikavkaz Railway Company, and to do everything in his power to further the object which the Directors have at heart. Government assistance in the prosecution of these reforms is thus assured. I will now therefore proceed to indicate the extent to which the Caucasus is capable of development and the other means whereby the trade of Novo Rossiesk is likely to be further increased.

The Caucasus is, it should be borne in mind, a country as large as France. That portion of it, however, through which the Vladikavkaz Railway runs, and in which the grain exported at Novo Rossiesk is produced, consists of parts of the fertile provinces of Kuban, Stavropol, and Terek, and comprises an area of about 5,000 square miles. Even in this region there is room for great development. Much of it, notwithstanding the richness of the soil, has never known a plough, and in the cultivated portions the yield per acre is small owing to the bad system of agriculture. Only 15 per cent. of the Kuban district and 10 per cent. of Stavropol are estimated to be under cultivation, and the yield per acre in the cultivated districts is eight times less than in England.

Several causes have combined to produce this unsatisfactory state of affairs, all of which bid fair, however, to be removed in course of time. They may be stated thus: (1) The sparseness of the population; (2) the absence of good roads; (3) the want of knowledge on the part of the peasants of a proper system of agriculture. As regards the first cause mentioned, the population of the 5,000 square miles above referred to does not exceed three million souls. This population is wholly insufficient for gathering in the harvest. Every year the Railway Companies bring from Vologda, Omega, and other Northern Governments, at one-third the ordinary fare, a numerous army of labourers to assist in the work. Notwithstanding this aid from less-favoured Governments, the crops of many cultivators in the Caucasus are annually spoiled through sheer inability to gather them before the corn is damaged by the scorching heat. It is to be hoped, therefore, that the Central Government will see the advisableness of offering inducements to these harvesters from the North to settle in the Caucasus. Is there not here, too, an opportunity for the Government to test, in the capacity of farmers, those starving Jews to whose sad condition so much attention has recently been directed? It is not too much to say that the region tapped by the Vladikavkaz line would, if properly farmed, support three times its present population. As regards (2), the absence of good roads, this deficiency is mainly due to the sparseness of the population; and as regards (3), it is satisfactory to learn that the repugnance of the peasants to foreign agricultural machines is gradually being overcome. Though very rudimentary methods of cultivation still obtain in the larger portion of the district, machinery is now fast coming into use. Last year the Railway Company carried over 4,000 tons of machinery and agricultural implements; and I have been informed by the Mayor of Stovopol that in his district, where before the opening of the Novo Rossiesk branch line machinery was almost unknown, there are now in use over 2,000 machines. Few farmers, of course, are able to buy these machines. They hire them from the Railway officials at the various stations. These officials find it no unprofitable speculation to invest their savings in agricultural machines, for they obtain as payment for their use one-fifth to one-eighth of the grain thus threshed. The favourite ploughs in use are made by Ransome-Sims, Heena, and an Anglo-Bulgarian firm. A kind of harrow is used in the hilly districts for turning over the upper surface of the soil.

It must be evident to anyone who will consult the map on page 700 that the cultivated portion of the Caucasus bears but a small proportion to the cultivable portion. There are thus great possibilities before Novo Rossiesk if the country be properly opened up. To this fact M. Vishni-gradsky is thoroughly alive. He has, indeed, already approved of the construction of two new lines of railway, offshoots of the Vladikavkaz main line, and has under consideration certain schemes of irrigation. The courses of the new branch lines are shown on the map above referred to. The one is to run from Vladikavkaz to Petrovsk, a port on the Caspian; the other from Techoretz (where the Novo Rossiesk line joins the main line) to Czaritzin, a town on the Volga.

The Petrovsk line, which will be really an extension of the main line, will be the first to be constructed. Its purpose is not only to further open up the fertile province of Terek, but to afford communication between Novo Rossiesk and the grain-producing districts on the other side of the Caspian. Of late the Russian authorities have been evincing much interest in this portion of the Empire. I have not extended my travels thither; but I am credibly informed by a gentleman who has just returned from a tour of 11,000 miles in Turkestan, Southern Siberia, and the Khirgise steppes that Central Asia is not by any means the barren place ignorantly supposed by many Europeans; on the contrary, it is in many districts astonishingly fertile. Turkestan and Trans-Caspia are watered by the Oxus rivers—the Syr-darya, Murghab, Zarafshan, and Tchirchik; but these waters not being sufficient for those thirsty districts several canals will probably be constructed. One will probably run from the Oxus to Bairam Ali, “the stepping-stone to Herat;” another from Syr-darya to Jizak, across the Galodnaya steppe, which latter is nearly a hundred miles long; while a third will proceed from the Oxus to Bokhara *via* Karshi, the Zarafshan river, exhausted by the requirements of Samarand, Kermineh, and Katte-Kurgan, not being sufficient for Bokharan cultivation. Moreover, on the Murghab, some 40 miles south of Bairam Ali, the dam known as the Sultan-Band is in course of construction. When finished, this work will fertilise over 150 square miles of land. On it, and the canal system generally, Sir Colin Moncrieff is now reporting to the Imperial Government.

In the oasis of Merv the finest wheat can be grown for three roubles a tchetwert (=5.77 bushels), and could, it is asserted, be conveyed to Novo Rossiesk by the Trans-Caspian and Vladikavkaz railways at a fair profit. Farther on, too, in the Semerotchunsk district, the cost of production is still less—1½ roubles only per tchetwert. The district will be connected by a branch line with the Trans-Caspian Railway, which now extends into Asia from the Caspian about 900 miles, a distance which the trains perform in 60 hours.

With regard to the projected Czaritzin branch of the Vladikavkaz main line, any one will perceive from the map that it would, if constructed, open up an immense tract of hitherto uncultivated land. Its main purpose would be, however, to divert to Novo Rossiesk a large portion of the traffic which now goes northwards through St. Petersburg. The produce of the Volga provinces is at present towed up-stream at great expense, and then floated to the capital through the canals of the Mariansky system. If the proposed connexion of Czaritzin with Techoretz is effected, the grain barges would float down-stream, discharge at Czaritzin into railway trucks, and in this way be conveyed to Novo Rossiesk with a minimum expenditure of time and money. Needless to say, this project will encounter vehement opposition in the Russian capital, whose grain trade it would go far to ruin. But it offers such manifest advantages over the present expensive system, and there is such urgent necessity for competing with America, and other grain-exporting countries, that the carrying of it into effect cannot be delayed many years.

Limited as is the present development of the Caucasus, Novo Rossiesk already has a monthly export of 60,000 tons. What will its export amount to if, and when, all the reforms and projects to which I have referred are fully carried out? It will have become a veritable Chicago. If, too, other Russian ports see the wisdom of adopting its enlightened method of carrying on the grain trade, is it at all unlikely that Russian grain will practically monopolise the European market?

In such a contingency politicians may see a danger. They will argue that it would never do for England to be dependent for her grain supply on a country with which, at any time, she may be at war. I am not concerned, however, to deal here with the political aspect of the question, but will merely state my assured conviction that the closer are drawn the commercial bonds between the two countries, the less likelihood is there of a disruption of their friendly relations.

Bell's "Weekly Messenger," 24th November and 1st December, 1890; 12th and 19th January, 1891.

[TWENTY-SEVENTH ISSUE]

DEPARTMENT OF COMMERCIAL INTELLIGENCE AND STATISTICS, INDIA

ESTIMATES
OF
AREA AND YIELD
OF
Principal Crops in India
1924-25

Published by Order of the Governor-General in Council



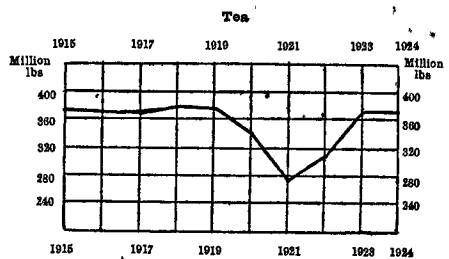
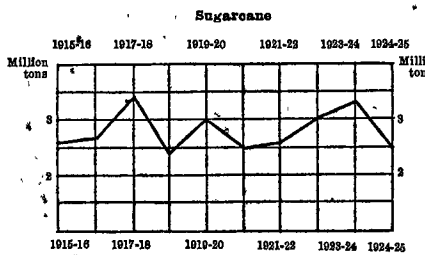
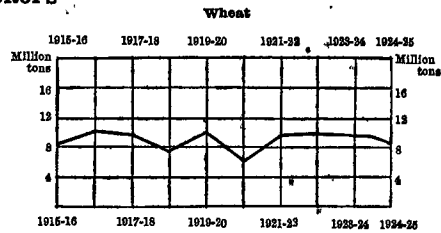
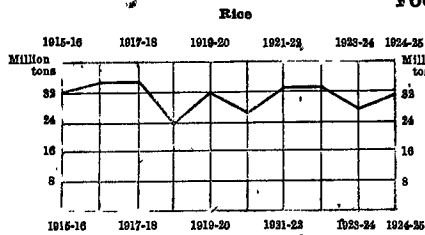
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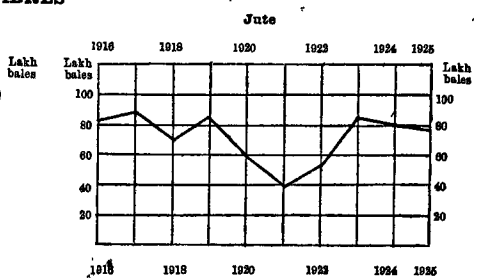
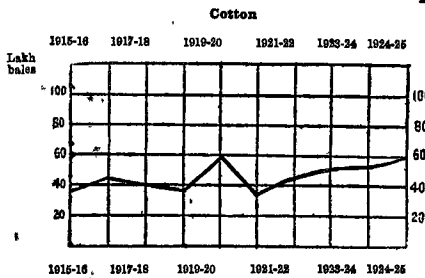
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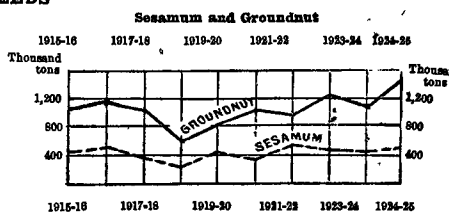
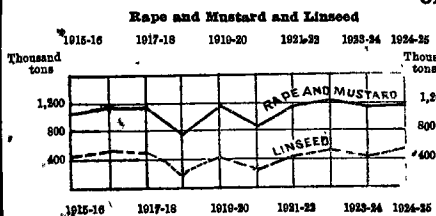
FOOD CROPS



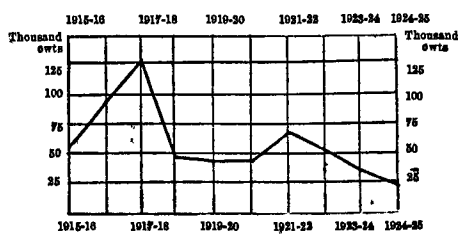
FIBRES



OILSEEDS



INDIGO (DYE)



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Estimates of Area and Yield of Principal Crops in India, 1924-25

INTRODUCTORY NOTE

The present issue is the twenty-seventh of the series and relates to the area and yield of the principal crops for which estimates were framed in 1924-25.

The periodical estimates or forecasts of certain crops are compiled from local returns and issued by this Department. The general practice is to issue a preliminary forecast, a second estimate, and a third or final estimate—fuller and more precise in data than the first two forecasts. There are two additional forecasts for wheat and cotton, and one for sesamum. On the other hand, only two forecasts are made of the jute, groundnut, and indigo crops. The methods of collecting information and of framing estimates are described in Appendices I and II and the dates prescribed for the issue of the different forecasts by this Department are given in Appendix IV. The tables of this volume are compiled from the data given in the final forecasts.* The detailed tables show for the last ten years (whenever available) the area sown with, and the estimated yield of, rice, wheat, sugarcane, tea, cotton, jute, linseed, rape and mustard, sesamum, groundnut, indigo, coffee and rubber†. The rates of yield per acre of these crops in each of the ten years ending 1924-25 are shown in table No. 2, and the standard or normal yields per acre, as far as reported are given in table No. 3.

The estimates for these crops in the forecasts for earlier years did not relate to all the producing areas in India, but only to those tracts where the respective crops were grown on an extensive and commercial scale. Tracts of minor importance have been added gradually, as will be seen from the tables and the footnotes thereto. It should, therefore, be borne in mind that, owing to this gradual development, the estimates for earlier years are not strictly comparable with those for later years, as is the case with the agricultural statistics of India published in Volumes I and II of Agricultural Statistics of India. At present the estimates for cotton, wheat, and jute, as also those for tea, coffee, and rubber, relate to all the tracts in India where these crops are grown to any extent, excluding certain unimportant outlying tracts such as Baluchistan, Kashmir, Nepal, and Sikkim. For other crops, however, the estimates relate to all the British provinces where they are grown to any considerable extent, but exclude Indian States, except those in the Bombay Presidency and the States of Hyderabad, Mysore, and Baroda in certain cases. Further details regarding the reporting tracts are given in the paragraphs below, and also in footnotes to the tables, and in Appendices II and V. It should be borne in mind that, owing chiefly to the reasons stated above, the figures given in this volume do not agree in some cases with those in the Agricultural Statistics of India.

Estimates so far as available from the provincial Season and Crop Reports or specially obtained from local authorities for certain other staple crops, namely, barley, jowar, bajra, maize, gram, and castor seed, are shown in a supplementary table (No. 17).

Figures showing the reported area and yield of certain crops (rice, wheat, maize, barley, cotton, linseed, rapeseed, tea, coffee, and sugarcane) in foreign countries are given in table No. 1^a, the data being mainly collected from the publications of the International Institute of Agriculture, Rome.

In the hot weather months (i.e., March to May) of 1924, the weather was drier than usual over the greater part of the country. The Arabian Sea monsoon was late in establishing itself, particularly in north-west India; but the total rainfall during the monsoon season was slightly above the normal and fairly well-distributed over most of the country. Owing to the prolongation of the south-west monsoon in the Bay and the weak incidence generally of the north-east monsoon, rainfall during the period, October to December, was below the normal in the south of the Peninsula. It was also in defect in Bombay, Sind and the North-West Frontier Province, but generally in excess elsewhere. The winter rains were unusually heavy in the United Provinces, the Punjab and Rajputana during December. Taking the year as a whole, the rainfall was generally normal over the plains of India; and the season was, on the whole, fairly good. Conditions with regard to each crop are stated in

* In the case of Madras finally adjusted figures of the Season and Crop Report are entered. For the other provinces also the final forecast figures are subsequently revised when finally adjusted figures are available.

† For tea, coffee and rubber no forecast is prepared, the figures being taken from the annual Statistics, separately published by this Department.

‡ In the case of coffee estimates are framed for plantations having an area of 10 acres or more.

§ From 1926 three forecasts will be issued vide Appendix IV.

the following paragraphs. Statistics of normal and actual rainfall are given in table No. 18, and the condition of weekly rainfall during the monsoon period (June to October) of 1924 is shown in the appended chart (page 5).

Rice Rice is generally regarded as a winter crop, being mainly harvested in December and January. It is sown in the months of May to August. There are two other varieties of comparatively small importance, namely, autumn rice and summer rice. Autumn rice is sown in May and June and harvested in September, and summer rice is sown in January and February and harvested in May and June. In Madras, the seasons vary greatly, the first crop being sown in April to October and harvested between September and March and the second crop sown in September to March and harvested between January and May. The provinces to which the estimates for rice now relate are Bengal, Bihar and Orissa, Madras, Burma, the United Provinces, the Central Provinces and Berar, Assam, Bombay (including Sind), and Coorg. The Indian States for which estimates for rice are prepared are Hyderabad, Mysore, and Baroda, and those in the Bombay Presidency (including Sind), the United Provinces, and the Central Provinces. These tracts comprise about 97 per cent of the total rice area of India. The total area under rice in all these tracts in 1924-25 was reported as 81,328,000 acres, as compared with 79,112,000 acres in the preceding year. The condition of the crop was good. The total yield was estimated at 31,097,000 tons, as against 28,198,000 tons in 1923-24. To this figure should be added some 975,000 tons in respect of other tracts* (having an area of about 2,535,000 acres under rice), for which no forecasts are made.

Wheat Wheat, which is a *rabi* (spring) crop in India, is sown from October to December and is harvested from March to May. The provinces and states to which the estimates for this crop relate are the Punjab†, the North-West Frontier Province, the United Provinces‡, Ajmer-Merwara, Delhi, the Central Provinces † and Berar, Bombay (including Sind)†, Bengal, Bihar and Orissa, Central India, Gwalior, Rajputana, Hyderabad, Baroda, and Mysore. These tracts contain practically the whole of the area under wheat in India. The total area under wheat in 1924-25 was reported to be 31,788,000 acres, which is greater than the area of the preceding year by 2 per cent. The condition of the crop was not so good as in the preceding year. The total estimated yield was 8,702,000 tons, which is 10 per cent below the yield of 1923-24. An addition of some 138,000 tons should be made to this estimated yield in respect of some other tracts ‡ (having an area of about 504,000 acres under wheat), for which no reports are made.

Sugarcane The sugarcane crop is usually planted from February to May and is harvested from November to January. In Madras, the crop is harvested between December and May. The provinces to which the reports on this crop relate are the United Provinces, Bihar and Orissa, Bengal, Assam, the Punjab, the North-West Frontier Province, Bombay (including Sind), Madras, the Central Provinces and Berar, and Delhi. Reports are also received from the States in the Bombay Presidency and the United Provinces and from Baroda and Mysore. These tracts contain 94 per cent of the total area under sugarcane in India. The total area reported under sugarcane in 1924-25 was 2,530,000 acres, as compared with 2,921,000 acres in the preceding year. The condition of the crop was reported to be fair. The estimated yield amounted to 2,537,000 tons of raw sugar (gur), being 23 per cent below the final figure (3,317,000 tons) of the preceding year. To this figure should be added approximately 185,000 tons in respect of other tracts§, for which no separate estimates are made.

Tea Tea seeds are sown between November and March, and the seedlings are transplanted when they are at least six months old. The crop is plucked from May to December in northern India, and from January to December in southern India. The provinces where tea is grown are Assam, Bengal, Madras, the United Provinces, the Punjab, Bihar and Orissa, and the States of Travancore and Tripura (Bengal). In Burma tea is grown for consumption as pickles. The total area under tea in 1924 was reported to be 716,200 acres, as compared with 711,200 acres in the preceding year. The total production of manufactured tea (black and green) was reported to be 375,255,900 lbs, as against 375,355,700 lbs in the preceding year. For detailed accounts, a reference is invited to the Indian Tea Statistics, 1924, published as a Supplement to the *Indian Trade Journal*.

Cotton Cotton is grown in all the provinces. There are two crops, namely, the early and the late, of cotton grown in India. Early cotton grows mainly in central and

* Punjab, North-West Frontier Province, Delhi, Manpur Pargana, Ajmer Merwara and certain other Indian States.

† Including Indian States

‡ Burma, Madras, and the Kashmir State. § Burma, Coorg, Ajmer Merwara and certain other Indian States.

northern India, and late cotton in southern and western India. Taking both the crops together, the sowing season extends from March to August and the harvesting season from October to April. In parts of southern India sowings continue till December and harvesting till July. The estimates given below relate to all the cotton-growing provinces and states in India.

The total reported area under cotton was 26,465,000 acres in 1924-25, as against 23,631,000 acres in 1923-24, or an increase of 12 per cent. The condition of the crop was, on the whole, good. The total estimated outturn was

	1923-24	1922-23
Exports	1,000	1,000
Mill consumption	3,450	3,473
Extra-factory consumption (conjectural)	1,879	2,109
Total	6,079	6,582
Less imports	100	63
Approximate crop estimated in forecast	5,979	6,270
	5,161	5,073

The estimates of yield classified according to the recognised trade descriptions of cotton grown in the years 1923-24 and 1924-25 are given in the

	1924-25	1923-24
	1,000 bales	1,000 bales
Oomras	2,494	2,631
Dholleras	600	311
Bengal-Sind	1,044	862
American-		
Punjab	355	235
Sind	4	3
Broach	333	215
Westerns and Northern	343	182
Cocanadas	57	51
Tinnevellys	161	157
Salems	32	25
Comillas	133	151
Coompta-Dharwars	343	254
Comillas, Burmas and other sorts	110	84
Total	6,070	5,161

Jute is an autumn crop, being sown from March to May and harvested in June August and September. The provinces where it is grown are Bengal (including the Cooch Bihar State), Bihar and Orissa, and Assam. It is also grown to a small extent in the Nepal State, but no reliable information is available from that State except the figures of export. The total area under jute in 1924 was 2,770,000 acres, being 1 per cent below that of the preceding year, and the estimated yield 4,062,000 bales (of 400 lbs each), being 4 per cent, below that of 1923. The sum of exports and internal consumption, both in and outside the mills, is compared, in table No. 9, with the estimated yield for the nine years ending 1924. The area and yield of jute in 1925 are estimated to be 2,926,000 acres and 7,791,000 bales, showing an increase of 6 per cent in area but a decrease 3 per cent in yield as compared with 1924.

Linseed is a *rabi* (spring) crop, being sown from August to October and harvested from January to April. The provinces to which the estimates for linseed relate are the United Provinces, the Central Provinces and Berar, Bengal, Bihar and Orissa, the Punjab, and Bombay. Reports are also received from Hyderabad, the States in the Bombay Presidency, Kotah (in Rajputana), and certain Feudatory States in the Central Provinces. These tracts comprise 93 per cent of the total area under linseed in India. The total area under linseed in all the reporting tracts in 1924-25 was 3,695,000 acres, which is 1 per cent below the final figure of the preceding year. The condition of the crop was reported to be generally good. The total estimated yield (341,000 tons) was greater than that of the preceding year by 17 per cent. To this figure should be added some 28,000 tons for other tracts, for which no reports are made.

Rape and mustard are also *rabi* (spring) oilseeds, being sown from August to October and harvested from January to April. The provinces from which reports are received are the Punjab, Bengal, Bihar and Orissa, Assam, the United Provinces, the North-West Frontier Province, Bombay (including Sind), and Delhi. Reports are also received from the States of Hyderabad, Baroda, and Alwar (Rajputana) and from the States in the Bombay Presidency. These

* For earlier years, see table No. 8, page 16.

† Assam, Ajmer-Merwara, Madras, Burma, Manipur Patkora and certain other Indian States.

tracts contain about 96 per cent of the total area under rape and mustard in India. The total area under rape and mustard in all the reporting tracts in 1924-25 was 6,376,000 acres, as against 6,180,000 acres in the preceding year, an increase of 3 per cent. The condition of the crops was reported to be generally fair. The total estimated yield (1,172,000 tons) was 2 per cent above the final figure of the preceding year. To this figure should be added some 46,000 tons in respect of other tracts,* for which no reports are made.

sesamum

Sesamum is mainly a *kharif* (autumn) crop, being generally sown from May to July and harvested from October to December; a *rabi* or summer variety is also grown in certain tracts; this is sown in January and February and is harvested in May to July. The provinces to which the estimates for sesamum relate are Burma, the Central Provinces and Berar, Bombay (including Sind), Madras, the United Provinces, Bengal, Bihar and Orissa, the Punjab, and Ajmer-Merwara. Reports are also received from the States of Hyderabad, Baroda, Kotah (Rajputana), and those in the Bombay Presidency. These tracts contain 90 per cent of the total area under sesamum in India. The total area under sesamum reported in 1924-25 was 5,167,000 acres, as against 5,139,000 acres in the preceding year. The condition of the crop was generally fair. The total estimated yield was 504,000 tons, as against 441,000 tons in 1923-24. An addition of approximately 62,000 tons should be made to this figure in respect of other tracts † (containing an area of about 636,000 acres under sesamum), for which no reports are made.

groundnut

The groundnut crop is sown from May to August and is harvested from November to January. A summer variety is also grown in Madras, forming about 5 per cent of the total area under the crop; this variety is sown in February-March and harvested in July-August. The estimates for the groundnut crop relate to Madras, Bombay (including Indian States), and Burma, these being the provinces where groundnut is grown to a considerable extent. Report is also received from the Hyderabad State. The total area under groundnut in these tracts in 1924-25 was reported to be 2,838,000 acres, which is 1 per cent greater than in the preceding year, the estimated yield (1,450,000 tons) being 34 per cent more than that of the preceding year.

indigo

The indigo crop is sown from February to July and is harvested from August to November. In Madras, about 20 per cent of the area under the crop is irrigated, being grown as a second crop on wet land after paddy; this irrigated crop is sown in December-January and harvested in March-April. The provinces to which the estimates for indigo relate are Bihar and Orissa, Bengal, the United Provinces, the Punjab, Madras, and Bombay (including Sind). No report is received from any Indian State, except the State of Khairpur in Sind. These tracts contain about 84 per cent of the total area under indigo in India. The total reported area (111,900 acres) in 1924-25 was 38 per cent below that of the preceding year. The total estimated yield of dye was 21,700 cwts, which is 38 per cent below the yield of the preceding year.

coffee

Coffee is sown and transplanted in the rainy season and is harvested from October to January. The crop is practically confined to southern India, comprising the Madras Presidency, Coorg, and the States of Mysore, Travancore, and Cochin. The total reported area under coffee in 1924-25 was 135,600 acres‡, the yield therefrom being estimated at 29,318,600 lbs§. The figures are, however, defective in as much as plantations of less than 10 acres are not taken into account.

Rubber

The provinces where rubber is cultivated to an appreciable extent are Burma, Bengal†, Assam‡, Madras, Coorg, and the States of Mysore, Travancore, and Cochin. The total area under rubber in 1924 was 129,500 acres, as against 128,000 acres in the preceding year. The total yield of dry rubber was 15,601,300 lbs, as against 14,462,500 lbs in 1923.

D. N. GHOSH,
Director of Statistics,
for Director-General.

DEPARTMENT OF COMMERCIAL
INTELLIGENCE AND STATISTICS, INDIA.

Calcutta, December 10, 1925.

* Central Provinces and Berar, Madras, Burma, Ajmer-Merwara, Manpur Pargana and certain other Indian States.

† Assam, North-West Frontier Provinces, Delhi, Manpur Pargana, Coorg and certain other Indian States.

‡ Area at present unworkable.

§ Excluding certain tracts in Madras for which figures are not yet available.

CONDITION OF WEEKLY RAINFALL DURING THE MONSOON PERIOD FROM JUNE TO OCTOBER, 1924

(Abbreviations—S—Scanty, F—Fair, N—Normal, Ex—Excess)

Province and Sub-division	JUNE				JULY					AUGUST				SEPTEMBER				OCTOBER				
	week ending				week ending					week ending				week ending				week ending				
	4th	11th	18th	25th	2nd	9th	16th	23rd	30th	6th	13th	20th	27th	3rd	10th	17th	24th	1st	8th	15th	22nd	
Bombay—																						
Gujarat	S	Ex	F	N	F	F	S	S	Ex	N	S	S	Ex	Ex	F	F	Ex	Ex	F	S	S	
Konkan	S	F	Ex	Ex	F	Ex	Ex	F	F	F	S	S	Ex	Ex	F	F	S	Ex	N	S	S	
Bombay, Deccan	S	S	N	N	S	F	Ex	S	N	F	S	S	Ex	Ex	F	S	Ex	Ex	S	N	Ex	
Sind	N	S	S	S	S	S	S	S	N	N	S	S	Ex	Ex	S	S	S	N	N	N	N	
Bengal	S	F	Ex	Ex	N	N	N	Ex	N	F	Ex	N	F	N	Ex	Ex	F	F	F	N	N	
Assam	S	F	Ex	N	Ex	Ex	Ex	Ex	N	F	Ex	Ex	S	N	F	Ex	Ex	Ex	N	Ex	F	
Bihar and Orissa—																						
Orissa	F	S	S	F	F	F	F	S	F	Ex	F	S	N	N	Ex	N	F	F	Ex	N	S	
Chota Nagpur	S	S	S	Ex	F	Ex	N	F	Ex	F	S	F	Ex	Ex	Ex	Ex	S	N	Ex	S	S	
Bihar	S	S	S	Ex	Ex	Ex	Ex	N	Ex	N	N	S	F	Ex	Ex	Ex	N	F	Ex	N	N	
United Provinces—																						
East	S	S	S	F	F	Ex	Ex	Ex	F	Ex	N	F	S	N	Ex	N	N	S	S	Ex	S	
West	S	S	S	S	N	F	Ex	Ex	N	Ex	N	S	F	Ex	Ex	Ex	F	Ex	S	Ex	S	
Punjab—																						
East and North	S	S	S	S	S	S	N	F	Ex	Ex	N	S	F	Ex	Ex	F	S	Ex	S	Ex	S	
South-West	S	N	S	S	S	S	N	S	Ex	Ex	S	S	S	Ex	Ex	Ex	S	S	S	N	N	
North-West Frontier Province	Ex	S	S	S	S	Ex	N	S	Ex	S	S	S	N	Ex	Ex	N	S	S	N	N	N	
Central Provinces—																						
Deccan	S	S	N	S	S	Ex	F	S	Ex	F	S	S	Ex	Ex	S	S	Ex	F	Ex	Ex	N	
West	S	S	S	S	F	F	N	N	Ex	N	Ex	S	N	Ex	N	Ex	Ex	N	Ex	Ex	N	
East	F	S	F	S	F	N	N	S	N	Ex	F	S	F	F	Ex	Ex	N	Ex	Ex	S		
Central India—																						
West	S	S	S	S	S	N	N	F	Ex	S	F	S	Ex	Ex	Ex	F	Ex	Ex	F	Ex	N	
East	S	S	S	S	F	Ex	Ex	N	N	Ex	S	S	F	Ex	Ex	S	N	F	S	S		
Assam—																						
Malabar	Ex	N	Ex	N	N	Ex	N	Ex	Ex	F	Ex	Ex	N	N	N	S	Ex	Ex	S	S		
South-East	S	Ex	Ex	N	Ex	Ex	Ex	Ex	S	S	F	Ex	N	F	F	F	Ex	Ex	S	S	S	
Deccan	F	N	S	S	Ex	N	F	F	S	S	F	F	Ex	F	S	S	Ex	Ex	S	S	N	
Coast North	F	S	S	S	N	N	F	F	N	Ex	F	F	Ex	Ex	N	N	Ex	Ex	Ex	F	S	
Burma—																						
Lower	Ex	N	Ex	Ex	F	N	Ex	Ex	Ex	N	F	N	Ex	N	F	S	F	Ex	Ex	Ex		
Upper	F	N	N	N	N	N	F	Ex	N	F	N	N	Ex	N	F	N	F	F	N	N	Ex	
My Islands	Ex	S	F	S	Ex	Ex	Ex	F	F	F	F	S	Ex	Ex	Ex	S	S	S	N	Ex	N	
Hyderabad—																						
North	F	S	S	S	F	Ex	F	S	N	S	S	S	Ex	Ex	Ex	S	N	Ex	Ex	S	Ex	
South	F	N	F	S	F	N	F	S	F	S	S	Ex	Ex	N	Ex	S	N	N	Ex	S	F	
Isore	Ex	Ex	F	F	Ex	N	Ex	F	N	S	Ex	N	N	S	F	S	Ex	Ex	S	S	Ex	
Sashmir	S	S	S	S	S	F	F	N	Ex	N	N	F	F	Ex	F	F	S	F	S	S	S	
Baluchistan	N	N	N	S	S	S	S	F	Ex	S	N	S	N	Ex	N	N	N	N	N	N	N	

Note.—The redder the statement, the scantier the rainfall. On the other hand, the thicker the black type in the statement, the more abundant the rainfall.

TABLES

Note.—The rates of yield per acre of the crops given in table No. 2 are worked out from the figures tabulated in tables Nos. 4 to 16.

ABSTRACT TABLE

No. 1—ABSTRACT TABLE—AREA AND YIELD OF EACH CROP.

Area (acres)

Crops	Average 1899-98 to 1900-1900	Average 1900-01 to 1904-05	Average 1905-06 to 1909-10	Average 1910-11 to 1914-15	Average 1915-16 to 1919-20	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Rice . .	50,855,000	50,087,000	50,011,000	70,252,000	79,519,000	79,422,000	78,952,000	61,667,000	82,402,000	79,112,000	61,828,000
Wheat . .	22,649,000	25,518,000	26,565,000	30,550,000	30,499,000	29,949,000	25,784,000	23,207,000	30,852,000	31,181,000	31,768,000
Sugarcane	(a)	2,258,000	2,302,000	2,383,000	2,656,000	2,684,000	2,575,000	2,395,000	2,740,000	2,921,000	2,530,000
Tea . .	467,000	525,000	540,000	593,000	664,000	691,800	704,100	709,000	768,200	711,200	718,200
Cotton . .	13,866,000	16,652,000	21,321,000	23,221,000	21,961,000	23,385,000	21,389,000	18,451,000	21,804,000	23,631,000	26,485,000
Jute . .	2,035,000	2,335,000	3,264,000	3,058,000	2,631,000	2,888,900	2,509,000	1,518,000	1,800,000	2,788,000	2,770,000
Linseed . .	2,869,000	3,547,000	3,061,000	3,852,000	3,157,000	3,103,000	2,269,000	3,011,000	3,382,000	3,724,000	3,695,000
Rape and Mustard	4,541,000	5,598,000	6,056,000	6,416,000	4,169,000	5,895,000	5,010,000	6,355,000	6,258,000	6,160,000	6,376,000
Sesamum . .	4,019,000	4,903,000	5,016,000	5,177,000	4,450,000	4,254,000	4,432,000	5,746,000	4,998,000	5,139,000	5,167,000
Groundnut	(a)	481,000	827,000	1,610,000	1,785,000	1,586,000	2,127,000	2,144,000	2,683,000	2,801,000	2,888,000
Indigo . .	1,280,000	722,000	354,000	216,000	475,000	248,800	245,800	334,800	284,400	179,800	111,900
Coffee . .	..	..	..	..	..	116,400	124,200	125,000	128,400	129,800	(c) 135,600
Rubber . .	..	..	..	..	..	118,500	124,200	124,700	128,900	128,000	129,500

Yield

Rice . . tons	21,466,000	21,550,000	22,291,000	28,809,000	32,017,000	32,024,000	27,656,000	33,143,000	33,703,000	28,198,000	31,097,000
Wheat . . "	4,029,000	7,676,000	8,092,000	9,683,000	9,288,000	10,122,000	6,706,000	9,830,000	9,974,000	9,660,000	8,702,000
Sugarcane . . "	(a)	2,049,000	2,030,000	2,411,000	2,864,000	3,039,000	2,522,000	2,614,000	3,045,000	3,317,000	2,537,000
Tea . . lbs	158,375,000	201,339,000	242,386,000	290,060,000	374,265,000	377,055,600	345,339,600	274,263,800	311,638,900	375,355,700	375,255,900
Cotton (b) bales	2,303,000	3,203,000	3,996,000	4,370,000	4,412,000	5,799,000	3,600,000	4,485,000	5,073,000	5,161,000	6,070,000
Jute . . "	5,771,000	7,095,000	8,136,000	9,069,000	7,992,000	8,481,300	5,915,000	3,965,000	5,408,000	8,401,000	8,062,000
Linseed . . tons	352,000	416,000	393,000	508,000	434,000	419,000	270,000	436,000	533,000	463,000	541,000
Rape and Mustard "	915,000	1,011,000	992,000	1,236,000	1,072,000	1,153,000	859,000	1,163,000	1,090,000	1,149,000	1,172,000
Sesamum . . "	848,000	465,000	458,000	471,000	421,000	449,000	882,000	518,000	482,000	441,000	504,000
Groundnut . . "	(a)	(a)	358,000	695,000	952,000	822,000	1,022,000	959,000	1,236,000	1,084,000	1,450,000
Indigo . . cwts	156,000	100,000	49,000	37,000	74,000	43,800	43,700	67,800	52,100	84,800	21,700
Coffee . . lbs	..	..	..	..	..	21,325,000	22,453,700	20,487,900	25,459,400	22,718,500	29,315,600
Rubber . . "	..	..	..	..	..	13,615,000	13,768,900	9,056,400	11,912,900	14,462,500	15,601,300

(a) Not available.

(b) A bale contains 400 lbs

(c) Excluding certain tracts in Madras for which figures are not available.

Note—Figures for 1924-25 are subject to revision.

No. 2—YIELD PER ACRE OF CROPS (based on figures in tables Nos. 4 to 16) IN EACH PROVINCE IN EACH OF THE LAST TEN YEARS, 1915-16 to 1924-25.

Province	RICE (GRAINED)										WHEAT									
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Madras	808	1,170	1,059	899	1,038	1,007	1,030	1,030	985	1,011	...	...	...	...	...	...	...	...	...	...
Bombay (c)	692	871	912	749	1,088	884	1,030	1,069	829	1,061	616	656	607	610	673	413	496	524	892	466
Bengal	880	851	924	725	888	883	951	981	827	829	969	995	906	429	541	694	470	530	429	444
United Provinces	804	888	799	481	878	809	755	673	627	718	617	1,014	893	948	954	607	675	618	617	729
Punjab	...	...	...	...	...	...	...	...	...	...	642	618	681	769	874	587	939	783	817	610
Burma	904	670	894	888	788	882	941	914	788	942	...	...	...	...	...	...	...	...	...	...
Bihar and Orissa	1,209	1,214	1,275	709	1,084	727	948	1,068	784	821	879	1,024	928	838	974	838	1,079	917	851	902
Central Provinces and Berar	749	852	706	814	781	828	697	858	694	664	608	655	640	645	568	807	619	704	567	621
Assam	668	748	686	627	618	788	694	763	729	720	...	...	...	...	...	...	...	...	...	...
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	835	551	596	578	612	458	639	675	408	414
Ajmer-Merwara	...	...	...	...	...	...	...	...	...	...	378	880	1,018	747	467	747	707	560	617	589
Coorg	1,446	1,440	1,068	1,068	1,467	1,440	1,068	1,440	1,080	1,079	...	...	...	...	...	...	...	...	...	...
Delhi	...	...	...	...	...	...	...	...	...	...	990	787	640	1,071	897	980	988	823	791	988
Hyderabad	(f)	(f)	(f)	(f)	(f)	(f)	673	768	755	808	161	210	224	167	154	43	168	169	160	204
Mysore	(f)	619	619	403	617	500	504	659	618	601	328	373	318	660	261	260	268	373	856	224
Baroda	(g)	(g)	(g)	475	780	889	710	618	341	366	(g)	(g)	(g)	380	537	535	640	655	885	720
Gwalior	...	...	...	...	...	...	...	...	...	...	(d)	(d)	(d)	(d)	(d)	(d)	611	594	623	595
Central India (e)	...	...	...	...	...	...	...	...	...	...	400	673	333	478	493	407	455	597	429	456
Rajputana	...	...	...	...	...	...	...	...	...	...	400	516	436	501	425	428	498	610	568	590
AVERAGE	896	869	893	701	908	765	908	916	798	856	689	696	636	707	757	583	761	724	684	613

Province	SUGARCANE (RAW SUGAR OR GUDA)										TEA									
	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Madras	6,386	5,246	6,403	5,718	6,369	5,937	5,939	6,122	6,924	6,374	419	373	262	273	264	267	271	320	390	406
Bombay (c)	6,140	6,360	6,203	4,443	5,254	5,500	4,920	6,043	5,389	5,939	...	...	...	...	...	...	...	...	...	...
Bengal	2,462	2,328	2,906	2,261	2,630	2,606	2,423	2,363	2,406	2,368	656	557	548	632	675	416	331	308	486	470
United Provinces	2,370	2,203	2,418	1,482	2,203	1,789	2,174	2,227	2,368	1,835	368	294	294	270	272	223	155	257	327	285
Punjab	1,776	1,863	1,946	1,418	1,869	1,544	1,869	1,867	1,939	1,821	199	204	140	185	177	171	148	168	177	200
Burma	...	...	...	...	...	...	...	...	...	...	68	61	39	39	61	70	(b)	(b)	(b)	(b)
Bihar and Orissa	2,223	2,428	2,461	2,254	2,500	2,348	2,467	2,123	2,328	1,968	132	113	141	147	196	183	78	69	168	162
Central Provinces and Berar	2,773	2,727	2,778	2,061	2,629	2,128	2,636	2,629	2,841	2,823	...	...	...	...	...	...	...	...	...	...
Assam	1,668	1,793	2,048	1,333	2,030	2,048	1,748	2,027	1,970	1,920	645	627	618	624	581	658	425	425	577	674
North-West Frontier Province	2,396	2,369	2,312	1,816	2,701	2,615	2,822	2,757	2,761	2,841	...	...	...	...	...	...	...	...	...	...
Delhi	(f)	(f)	(f)	(f)	(f)	(f)	3,820	2,733	2,340	2,688	...	...	...	...	...	...	...	...	...	...
Mysore	(f)	1,901	2,036	1,420	2,240	1,941	1,990	1,763	1,494	1,660	...	...	...	...	...	...	...	...	...	...
Baroda	(g)	(g)	(g)	4,480	2,967	4,480	5,000	4,480	4,430	3,900	...	...	...	...	...	...	...	...	...	...
Travancore	...	...	...	...	...	...	...	...	...	...	496	454	446	509	516	497	406	463	548	639
Tripura (Bengal)	...	...	...	...	...	...	...	...	...	...	(f)	(f)	(f)	(f)	(f)	(f)	5	22	46	70
AVERAGE	2,667	2,524	2,601	1,897	2,528	2,124	2,445	2,469	2,544	2,346	396	371	267	261	246	260	267	260	328	324

(a) Including Baroda up to 1917-18. (b) Discontinued. (c) Including Gwalior up to 1920-21. (d) Included under Central India. (e) The low outturn is due to the crop being sown in dry land. (f) Not available. (g) Included under Bombay. Note.—Figures for 1924-25 are subject to revision.

YIELD PER ACRE

No. 2—YIELD PER ACRE OF CROPS (based on figures in tables Nos. 4 to 16) IN EACH PROVINCE IN EACH OF THE LAST TEN YEARS, 1915-16 to 1924-25—contd.

Province	LINSEED										RAPE AND MUSTARD									
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Bombay	318	305	297	151	234	128	233	158	138	199	216	371	309	228	195	198	310	333	268	263
Bengal	347	357	343	233	282	284	269	353	313	353	395	435	410	338	331	339	370	384	361	371
United Provinces	448	457	376	414	423	394	385	435	409	416	420	419	323	343	454	338	466	475	460	449
Punjab	210	210	230	186	217	160	183	210	234	210	260	340	349	334	447	351	355	420	385	394
Bihar and Orissa	453	493	517	300	493	419	527	468	439	490	428	495	518	371	493	419	468	444	464	439
Central Provinces and Berar	177	189	168	70	155	79	189	369	137	203	...	...	...	...	...	...	...	...	...	...
Assam	...	...	...	...	...	...	...	...	...	...	344	403	399	399	441	411	423	398	424	405
North-West Frontier Province	...	...	...	...	...	...	...	...	...	...	387	275	278	314	267	304	309	263	214	170
Delhi	...	...	...	...	...	...	...	...	...	...	(d)	(d)	(d)	224	320	149	373	320	173	230
Hyderabad (b)	93	112	125	218	58	25	80	141	100	143	37	75	55	134	...	...	58	130	64	80
Baroda	...	...	...	...	...	...	...	...	...	...	(e)	(e)	(e)	460	543	530	258	437	517	354
Rajputana	(d)	(d)	(d)	330*	52*	55*	113*	226*	272*	262*	(d)	(d)	(d)	327†	446†	249†	434†	603†	530†	636†
AVERAGE	320	331	304	265	302	267	324	353	273	328	380	412	333	352	433	364	412	438	416	412

Province	SESAMUM										GROUNDNUT (NUTS IN SHELL)									
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Madras	191	303	307	283	297	271	265	293	297	297	1,248	1,031	1,073	939	1,114	1,036	1,041	1,051	923	1,115
Bombay	(e) 265	(e) 298	(e) 218	108	258	173	306	301	215	278	2,602	2,110	2,240	1,213	2,068	1,970	1,778	1,732	1,133	2,096
Bengal	244	241	279	339	373	333	368	345	357	336†	...	...	...	...	...	...	...	...	...	...
United Provinces	203	189	177	91	225	200	234	305	234	211	...	...	...	...	...	...	...	...	...	...
Punjab	265	273	202	173	244	207	215	315	174	168	...	...	...	...	...	...	...	...	...	...
Burma	(d)	(d)	(d)	(d)	(d)	(d)	(d)	122	99	144	902	839	939	391	316	330	636	743	651	313
Bihar and Orissa	343	367	311	219	373	282	371	350	360	354	...	...	...	...	...	...	...	...	...	...
Central Provinces and Berar	225	165	134	153	230	167	236	173	166	218	...	...	...	...	...	...	...	...	...	...
Ajmer-Merwara (a)	17	172	18	23	133	24	140	140	54	287	...	...	...	...	...	...	...	...	...	...
Hyderabad (b)	90	123	73	134	87	60	150	132	101	145	(d)	(d)	(d)	(d)	(d)	(d)	129	199	132	184
Baroda	(e)	(e)	(e)	68	92	87	129	147	61	180	...	...	...	...	...	...	...	...	...	...
Rajputana	(d)	(d)	(d)	53*	91*	40*	124*	166*	150*	168*	...	...	...	...	...	...	...	...	...	...
AVERAGE	211	239	200	174	236	193	302	316	193	213	1,424	1,149	1,233	997	1,161	1,076	1,003	1,053	867	1,244

(a) The generally low outturn of sesamum in Ajmer-Merwara is due to the fact that the crop is grown on unirrigated land, which is not manured and on which no other valuable crop is expected to give a yield sufficiently remunerative.
 (b) The low outturn is due to the crop being sown in dry lands. (c) Includes Baroda.
 (d) Not available. † Refers to Alwar State only.
 (e) Included under Bombay. * Refers to Kotah State only.

Note.—Figures for 1924-25 are subject to revision.

No. 2—YIELD PER ACRE OF CROPS (based on figures in tables Nos. 4 to 16) IN EACH PROVINCE IN EACH OF THE LAST TEN YEARS, 1915-16 to 1924-25—conold.

Province	Cotton (seed)										Jute										
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Madras	47	64	74	74	89	87	76	73	73	76	...	...	...	...	...	...	...	...	...	...	...
Bombay	85	95	78	53	108	65	99	91	72	83	...	...	...	...	...	...	...	...	...	...	...
Bengal	126	110	107	175	146	118	93	94	118	155	(a)	(a)	(c)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
United Provinces	136	104	80	81	139	119	119	109	130	105	1,240	1,350	1,316	1,187	1,253	969	1,086	1,308	1,338	1,212	1,064
Punjab	88	115	68	127	126	110	98	114	131	141	...	...	...	...	...	...	...	...	...	...	...
Burma	58	72	78	78	84	46	49	68	61	86	...	...	...	...	...	...	...	...	...	...	...
Bihar and Orissa	96	94	99	101	87	77	76	76	79	71	1,598	988	1,300	898	1,008	749	833	857	947	798	887
Central Provinces and Berar	100	83	53	78	113	65	102	86	63	81	...	...	...	...	...	...	...	...	...	...	...
Assam	131	137	153	100	178	144	130	140	144	133	940	1,090	969	894	995	880	780	1,107	1,130	994	806
North-West Frontier Province	63	86	53	72	86	74	80	80	87	83	...	...	...	...	...	...	...	...	...	...	...
Ajmer-Merwara	35	208	30	137	213	143	135	167	137	133	...	...	...	...	...	...	...	...	...	...	...
Delhi	(d)	(d)	(d)	(d)	(d)	(d)	30	300	133	100	...	...	...	...	...	...	...	...	...	...	...
Hyderabad (e)	61	63	53	107	97	63	119	117	133	105	...	...	...	...	...	...	...	...	...	...	...
Mysore	61	61	64	45	49	40	103	116	71	123	...	...	...	...	...	...	...	...	...	...	...
Baroda	83	97	108	40	64	64	57	79	46	104	...	...	...	...	...	...	...	...	...	...	...
Gwalior	(c)	(c)	(c)	(c)	(c)	(c)	53	57	68	59	...	...	...	...	...	...	...	...	...	...	...
Central India (h)	86	88	38	69	55	40	89	81	71	77	...	...	...	...	...	...	...	...	...	...	...
Rajputana	102	153	60	68	107	88	93	101	88	85	...	...	...	...	...	...	...	...	...	...	...
Average	84	83	84	78	99	87	97	93	87	92	1,230	1,230	1,298	1,118	1,165	948	1,060	1,309	1,305	1,164	1,065

Province	Indigo (raw)									Cotton					Rubber							
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25	1919	1920	1921	1922	1923	1924
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Madras	20	14	23	26	26	28	28	26	26	27	185	196	201	300	288	315	108	138	44	113	130	168
Bombay	18	20	17	17	18	18	18	19	16	19	...	...	...	...	...	...	...	...	...	...	...	...
Bengal	14	10	8	9	9	8	8	8	8	8	...	...	...	...	...	...	0	...	...	...	...	...
United Provinces	10	10	10	9	10	11	13	11	12	13	...	...	...	...	...	...	...	...	...	...	...	...
Punjab	14	19	20	21	25	19	21	21	21	17	...	...	...	...	...	...	...	...	...	...	...	...
Burma	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	89	85	63	69	78	94
Bihar and Orissa	13	13	13	11	16	13	15	13	10	8	...	...	...	...	...	...	...	...	...	...	...	...
Coorg	...	...	...	...	...	...	...	...	...	...	213	233	171	240	106	261	63	78	22	71	137	126
Mysore	...	...	...	...	...	...	...	...	...	...	160	164	149	144	145	161	11	35	19	9	10	14
Travancore	...	...	...	...	...	...	...	...	...	...	177	214	43	147	146	198	196	141	108	117	146	140
Cochin	...	...	...	...	...	...	...	...	...	...	110	128	135	134	99	173	198	177	87	147	168	169
Average	17	14	20	19	20	20	23	21	23	23	193	181	189	189	175	212	113	111	33	66	118	129

(e) Including Cochin Bihar. (f) Including Gwalior up to 1920-21. (g) Included under Central India. (h) Not available.
 (c) The low culture is due to the crop being sown in dry lands. (d) Based on incomplete data.
 Note.—Figures for 1924-25 are subject to revision.

NORMAL YIELD PER ACRE

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No. 3—STANDARD OR NORMAL YIELDS PER ACRE OF THOSE CROPS FOR WHICH FORECASTS ARE PREPARED.

[For District figures, see Quinquennial Report on the Average Yield per acre of Principal Crops in India for the period ending 1921-22.]

Province	Rice (cleaned)	Wheat	Sugarcane (gur)	Cotton (ginned)	Jute	Linseed	Rape and mustard	Sesamum	Groundnut (nuts in shell)	Indigo (dye)	Castor
	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs	lbs
Madras	1,057	...	6,383	84	...	...	...	303	1,120	23	229
Bombay	1,230	575	6,950	102	...	360	625	400	{ (g) 2,500 (h) 1,150 }	...	...
	1,841*	{ (g) 1,032 (h) 711 }	...	190*	...	...	{ (g) 343 (h) 375 }	320*		...	...
Bengal	{ (a) 1,029 (b) 888 (c) 1,156 }	688	8,004	155	1,330	467	485	503	...	12	...
	900	1,050	2,600	170	...	500	600	280	...	18	...
	777	856	2,191	138	...	...	440	...	...	...	...
Burma	970	540	...	90	...	...	...	160	1,000	...	...
Bihar and Orissa	{ (a) 987 (b) 741 (c) 600 }	{ (d) 984 (e) 451 (f) 861 }	2,460	155	1,200	492	492	350	...	20	...
	624	600	2,569	86	...	226	...	224	...	...	...
	{ (a) 896 (b) 706 (c) 1,008 }	...	2,128	153	1,400	336	504	...	...	...	...
North-West Frontier Province	862	614	2,721	92	...	...	323	...	...	...	...
Ajmer-Merwara	...	697	...	136	...	...	...	72	...	...	...
Coorg	1,420	...	...	...	...	...	...	...	...	...	...
Delhi	...	792	2,391	100	...	...	317	317	...	...	...
Mysore	1,323	450	2,621	147	...	...	...	...	...	...	...

(a) Winter rice
(b) Autumn rice
(c) Summer rice

(d) Bihar
(e) Chota Nagpur
(f) Orissa

(g) Irrigated
(h) Unirrigated
* Refer to Suid.

No. 4—AREA AND YIELD OF RICE IN EACH PROVINCE.

Area (acres)

Province	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras . . .	11,230,000	11,533,000	11,655,000	10,469,000	11,643,000	11,086,000	11,280,000	11,286,000	10,518,000	10,870,000
Bombay (including Sind and Indian States) . . .	(a) 3,630,000	(a) 3,879,000	(a) 3,789,000	3,113,000	3,625,000	3,599,000	3,461,000	3,521,000	3,435,000	3,190,000
Bengal . . .	20,916,000	21,120,000	20,966,000	21,333,000	20,938,000	20,884,000	21,832,000	21,773,000	20,346,000	20,869,000
United Provinces . . .	6,376,000	7,182,000	7,495,000	6,705,000	6,539,000	(e) 6,868,000	(e) 6,880,000	(e) 7,046,000	(d) 7,046,000	(e) 7,119,000
Burma . . .	10,406,000	10,570,000	10,708,000	10,332,000	10,480,000	10,338,000	11,001,000	11,288,000	11,917,000	12,047,000
Bihar and Orissa (f)	16,255,000	16,259,000	15,800,000	15,073,000	15,260,000	14,938,000	15,220,000	15,362,000	13,995,000	14,653,000
Central Provinces and Berar . . .	5,097,000	5,088,000	5,226,000	5,307,000	(a) 5,707,000	(e) 5,836,000	(e) 5,915,000	(e) 6,163,000	(e) 5,796,000	(e) 6,241,000
Assam . . .	4,438,000	4,513,000	4,629,000	4,406,000	4,256,000	4,427,000	4,335,000	4,433,000	4,596,000	4,683,000
Coorg . . .	82,000	84,000	84,000	80,000	83,000	84,000	84,000	84,000	83,000	81,000
Hyderabad . . .	(b)	(b)	(b)	(b)	(b)	(b)	717,000	534,000	564,000	624,000
Mysore . . .	(b)	804,000	818,000	694,000	762,000	680,000	715,000	703,000	644,000	693,000
Baroda . . .	(d)	(d)	(d)	151,000	224,000	202,000	227,000	199,000	171,000	253,000
TOTAL	78,830,000	81,023,000	81,160,000	77,653,000	79,422,000	78,952,000	81,667,000	82,402,000	79,112,000	81,323,000

Yield (tons)

Madras . . .	4,552,000	6,022,000	5,512,000	4,308,000	5,393,000	4,987,000	5,230,000	5,233,000	4,531,000	4,908,000
Bombay (including Sind and Indian States) . . .	(a) 1,564,000	(a) 1,681,000	(a) 1,543,000	777,000	1,719,000	1,324,000	1,600,000	1,680,000	1,425,000	1,511,000
Bengal . . .	8,276,000	8,028,000	8,648,000	6,901,000	8,354,000	8,219,000	9,269,000	9,049,000	7,503,000	7,721,000
United Provinces . . .	2,283,000	2,686,000	2,871,000	1,441,000	2,243,000	(e) 1,560,000	(e) 2,320,000	(e) 2,112,000	(e) 1,972,000	(e) 2,283,000
Burma . . .	4,200,000	4,576,000	4,760,000	4,000,000	3,686,000	4,073,000	4,623,000	4,606,000	4,167,000	5,067,000
Bihar and Orissa (f)	8,771,000	8,808,000	8,981,000	6,771,000	6,977,000	6,346,000	6,406,000	7,281,000	4,898,000	6,023,000
Central Provinces and Berar . . .	1,705,000	1,481,000	1,647,000	744,000	(a) 1,662,000	(e) 842,000	(e) 1,841,000	(e) 1,756,000	(e) 1,796,000	(e) 1,671,000
Assam . . .	1,320,000	1,497,000	1,995,000	1,289,000	1,543,000	1,547,000	1,344,000	1,511,000	1,495,000	1,506,000
Coorg . . .	53,000	54,000	41,000	39,000	54,000	54,000	41,000	54,000	40,000	39,000
Hyderabad . . .	(b)	(b)	(b)	(b)	(b)	(b)	215,000	189,000	190,000	240,000
Mysore . . .	(b)	222,000	226,000	114,000	210,000	170,000	180,000	180,000	149,000	186,000
Baroda . . .	(d)	(d)	(d)	32,000	73,000	35,000	73,000	46,000	26,000	42,000
TOTAL	32,730,000	35,054,000	35,864,000	24,316,000	32,024,000	27,656,000	33,143,000	33,703,000	28,198,000	31,097,000

(a) Includes also Baroda. (b) Not available. (c) Includes Indian States. (d) Included under Bombay.
(e) Recalculated on the basis of the revised normal output per acre of winter rice.
(f) Excluding Feudatory States, estimates for which for 1924-25 are 2,983,000 acres and 1,077,000 tons, as against 3,011,000 acres and 1,302,000 tons in 1923-24.

Notes.—Figures for 1924-25 are subject to revision.

WHEAT

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No. 5—AREA AND YIELD OF WHEAT IN EACH PROVINCE.

Area (acres).

Province	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Bombay (including Sind and Indian States) (a)	2,840,000	2,879,000	3,379,000	1,366,000	2,439,000	1,786,000	2,423,000	2,450,000	1,865,000	2,268,000
Bengal	134,000	129,000	124,000	115,000	116,000	117,000	124,000	125,000	120,000	126,000
United Provinces	6,599,000	6,764,000	7,248,000	5,444,000	7,037,000	6,589,000	6,906,000	7,085,000	7,233,000	7,495,000
Punjab (including Indian States)	10,246,000	10,737,000	11,271,000	8,536,000	9,953,000	8,781,000	9,961,000	10,899,000	11,013,000	10,924,000
Bihar and Orissa (j)	1,330,000	1,308,000	1,195,000	985,000	1,145,000	1,094,000	1,133,000	1,268,000	1,223,000	1,175,000
Central Provinces and Berar (b)	3,616,000	3,996,000	4,007,000	2,881,000	3,350,000	2,660,000	2,525,000	3,104,000	3,377,000	3,410,000
North-West Frontier Province (c)	868,000	1,050,000	1,143,000	872,000	1,025,000	722,000	935,000	1,133,000	1,055,000	998,000
Ajmer-Merwara	12,000	28,000	22,000	6,000	24,000	18,000	19,000	16,000	18,000	19,000
Delhi	28,000	37,000	42,000	23,000	31,000	28,000	41,000	49,000	51,000	80,000
Hyderabad	1,045,000	1,344,000	1,262,000	623,000	770,000	310,000	644,000	700,000	693,000	800,000
Mysore	4,000	5,000	5,000	4,000	5,000	4,000	5,000	6,000	2,000	4,000
Baroda	(d)	(d)	(d)	59,000	85,000	67,000	69,000	65,000	57,000	56,000
Gwalior	(g)	(g)	(g)	(g)	(g)	(g)	1,042,000	1,221,000	1,482,000	1,426,000
Central India States (f)	2,949,000	3,517,000	4,382,000	2,301,000	2,933,000	2,798,000	1,507,000	1,739,000	1,970,000	1,926,000
Rajputana States	649,000	1,147,000	1,407,000	603,000	976,000	810,000	850,000	989,000	969,000	1,101,000
TOTAL	30,320,000	32,941,000	35,437,000	23,798,000	29,949,000	25,784,000	28,207,000	30,852,000	31,181,000	31,788,000

Yield (tons)

Bombay (including Sind and Indian States) (a)	781,000	842,000	915,000	311,000	624,000	329,000	536,000	573,000	326,000	474,000
Bengal	40,000	40,000	33,000	22,000	28,000	31,000	26,000	29,000	23,000	25,000
United Provinces	2,700,000	3,061,000	2,889,000	2,304,000	2,996,000	2,374,000	2,699,000	2,537,000	2,656,000	2,437,000
Punjab (including Indian States)	2,481,000	2,837,000	3,425,000	2,893,000	3,884,000	2,301,000	4,185,000	3,808,000	4,019,000	2,974,000
Bihar and Orissa (j)	531,000	598,000	495,000	360,000	498,000	455,000	546,000	518,000	466,000	473,000
Central Provinces and Berar (b)	973,000	1,168,000	787,000	701,000	877,000	365,000	698,000	1,059,000	839,000	945,000
North-West Frontier Province (c)	246,000	277,000	304,000	225,000	280,000	147,000	262,000	292,000	192,000	189,000
Ajmer-Merwara	2,000	11,000	10,000	2,000	5,000	6,000	6,000	4,000	3,000	5,000
Delhi	12,000	13,000	12,000	11,000	12,000	12,000	19,000	18,000	18,000	25,000
Hyderabad	75,000	128,000	128,000	41,000	53,000	6,000	54,000	52,000	56,000	73,000
Mysore	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	(h)	(i)
Baroda	(d)	(d)	(d)	10,000	20,000	16,000	20,000	19,000	22,000	18,000
Gwalior	(g)	(g)	(g)	(g)	(g)	(g)	234,000	324,000	413,000	379,000
Central India States (f)	646,000	898,000	651,000	491,000	659,000	509,000	306,000	456,000	377,000	392,000
Rajputana States	118,000	284,000	274,000	135,000	185,000	154,000	180,000	225,000	245,000	293,000
TOTAL	8,653,000	10,286,000	9,922,000	7,507,000	10,122,000	6,706,000	9,830,000	9,974,000	9,860,000	8,702,000

(a) Includes also the State of Baroda up to 1917-18.

(b) Includes the States of Khairagarh and Nandgaon; some other States included from 1919-20.

(c) Includes the Tochi and the Kurram Agencies.

(d) Included under Bombay.

(e) Includes the State of Rampur.

(f) Includes Gwalior up to 1920-21.

(g) Included under Central India States.

(h) 300 tons.

(i) 400 tons.

(j) Excluding estimates for Orissa and Chota Nagpur Feudatory States which report an area of 3,100 acres with a yield of 500 tons as against 2,500 acres and 600 tons last year.

Note.—Figures for 1924-25 are subject to revision.

No. 6—AREA AND YIELD OF SUGARCANE IN EACH PROVINCE.

Area (acres)

Province	1916-17	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	96,000	114,000	127,000	128,000	98,000	108,000	119,000	131,000	121,000	110,000
Bombay (including Sind and Indian States) (a)	108,000	115,000	180,000	122,000	80,000	90,000	81,000	96,000	101,000	85,000
Bengal	231,000	204,000	207,000	219,000	218,000	219,000	221,000	201,000	202,000	208,000
United Provinces	1,281,000	1,202,000	1,459,000	1,544,000	1,414,000	1,287,000 (d)	1,123,000 (d)	1,359,000 (d)	1,554,000 (d)	1,800,000 (d)
Punjab	347,000	414,000	503,000	474,000	422,000	427,000	373,000	427,000	423,000	393,000
Bihar and Orissa (f)	228,000	278,000	228,000	275,000	275,000	286,000	306,000	306,000	307,000	229,000
Central Provinces and Berar	21,000	23,000	25,000	30,000	19,000	20,000	17,000	19,000	22,000	22,000
Assam	37,000	35,000	34,000	38,000	32,000	35,000	41,000	42,000	42,000	42,000
North-West Frontier Province	31,000	30,000	31,000	37,000	34,000	36,000	34,000	39,000	43,000	41,000
Dalhi	(b)	(b)	(b)	(b)	(b)	(b)	7,000	9,000	8,000	5,000
Mysore	(b)	36,000	44,000	41,000	34,000	30,000	32,000	35,000	35,000	32,000
Baroda	(c)	(c)	(c)	4,000	8,000	2,000	2,000	3,000	3,000	2,000
TOTAL	2,391,000	2,451,000	2,853,000	2,902,000	2,684,000	2,575,000	2,395,000	2,740,000	2,921,000	2,530,000

Yield (tons) of raw sugar (gür)

Province	1916-17	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	126,000	227,000	263,000	314,000	264,000	273,000	315,000	353,000	320,000	313,000
Bombay (including Sind and Indian States) (a)	291,000	328,000	360,000	243,000	188,000	221,000	179,000	259,000	243,000	225,000
Bengal	256,000	212,000	221,000	223,000	266,000	255,000	289,000	212,000	217,000	210,000
United Provinces (e)	1,278,000	1,182,000	1,604,000	987,000	1,453,000	1,028,000 (d)	1,123,000 (d)	1,351,000 (d)	1,643,000 (d)	1,066,000 (d)
Punjab	275,000	345,000	437,000	299,000	428,000	315,000	278,000	414,000	418,000	323,000
Bihar and Orissa (f)	260,000	305,000	289,000	273,000	318,000	299,000	337,000	290,000	319,000	252,000
Central Provinces and Berar	25,000	28,000	31,000	28,000	24,000	19,000	20,000	24,000	28,000	29,000
Assam	29,000	28,000	31,000	27,000	29,000	32,000	34,000	39,000	36,000	36,000
North-West Frontier Province	38,000	32,000	33,000	30,000	31,000	42,000	43,000	48,000	53,000	52,000
Dalhi	(b)	(b)	(b)	(b)	(b)	(b)	11,000	15,000	8,000	5,000
Mysore	(b)	33,000	40,000	26,000	34,000	26,000	27,000	30,000	26,000	24,000
Baroda	(c)	(c)	(c)	8,000	4,000	4,000	6,000	6,000	6,000	8,000
TOTAL	2,633,000	2,768,000	3,428,000	2,457,000	3,039,000	2,622,000	3,614,000	3,045,000	3,317,000	2,527,000

(a) Includes also the State of Baroda up to 1917-18. (b) Not available. (c) Included under Bombay. (d) Including Rampur State.
 (e) Figures of outturn prior to 1917-18 were arrived at after making allowances for seeds; from 1917-18 no such allowance was made.
 (f) Excluding Feudatory States, estimates for which for 1924-25 are 33,000 acres and 16,000 tons against 32,000 acres and 15,000 tons last year.

Note.—Figures for 1924-25 are subject to revision.

No. 7—AREA AND YIELD OF TEA IN EACH PROVINCE.

Area (acres)

Province	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
Madras	27,100	30,500	35,600	38,500	39,700	41,300	42,500	44,500	46,400	48,600
Bengal	161,800	166,800	167,700	169,100	173,200	172,800	177,800	180,900	180,300	181,600
United Provinces	7,900	8,800	7,800	8,000	7,600	6,700	6,500	6,000	6,000	6,100
Punjab	2,900	7,500	7,500	7,500	9,800	9,800	9,700	9,800	9,700	9,700
Burma	2,800	2,800	2,800	2,800	1,700	1,700	(a)	(a)	(a)	(a)
Bihar and Orissa	2,800	2,200	2,200	2,200	2,100	2,100	2,200	2,100	2,100	2,100
Assam	382,800	388,300	398,700	405,900	411,900	420,200	417,200	412,100	411,900	412,900
Travancore	40,200	43,400	45,800	44,500	45,600	47,100	48,700	46,800	49,400	50,200
Tripura (Bengal)	...	...	...	...	...	8,000	4,800	5,100	4,900	4,800
TOTAL	634,900	649,000	667,100	673,500	691,900	704,100	709,000	708,200	711,200	716,200

Yield (lbs)

Province	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924
Madras	11,361,600	11,964,400	10,395,200	10,513,400	10,469,400	12,355,200	11,521,600	14,240,800	18,096,800	19,696,400
Bengal	89,526,100	82,645,000	91,352,900	89,983,600	89,511,400	71,696,600	68,753,700	71,720,700	87,950,600	87,121,300
United Provinces	2,906,000	2,352,700	2,290,100	2,284,800	2,123,800	1,491,900	1,006,300	1,542,400	1,961,500	1,741,300
Punjab	1,988,600	1,680,100	1,050,200	1,988,700	1,731,200	1,668,500	1,405,900	1,648,400	1,721,700	1,936,300
Burma	145,500	142,400	109,600	110,300	138,500	134,100	(a)	(a)	(a)	(a)
Bihar and Orissa	393,300	246,000	302,300	323,900	412,500	394,500	173,500	200,300	216,400	213,500
Assam	245,761,900	244,073,100	245,623,900	253,370,100	239,132,900	234,314,100	181,502,300	199,965,900	237,600,400	237,163,100
Travancore	30,248,300	17,959,800	19,665,200	22,629,200	23,535,900	23,339,100	13,876,900	22,207,400	37,583,300	37,055,300
Tripura (Bengal)	...	...	...	...	...	(b)	24,000	114,900	222,100	338,300
TOTAL	373,302,700	370,313,500	371,396,300	380,459,000	377,056,600	346,339,600	374,263,200	511,658,900	675,255,700	675,255,900

(a) Discontinued. (b) Not available.

c 2

No. 8—AREA AND YIELD OF COTTON IN EACH PROVINCE:

Area (acres)

Province	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras (a)	2,087,000	2,194,000	2,788,000	3,173,000	2,370,000	2,150,000	1,808,000	2,848,000	2,803,000
Bombay (including Sind and Indian States)	4,600,000	6,570,000	7,964,000	5,864,000	6,176,000	5,863,000	4,676,000	5,817,000	7,510,000
Bengal (including Tripura State)	88,000	73,000	71,000	73,000	69,000	71,000	65,000	72,000	77,000
United Provinces (b)	884,000	1,185,000	1,315,000	662,000	1,268,000	1,161,000	828,000	664,000	1,046,000
Punjab (h)	902,000	1,168,000	1,800,000	1,550,000	2,269,000	2,142,000	1,289,000	1,394,000	2,536,000
Burma	187,000	223,000	247,000	369,000	430,000	366,000	325,000	284,000	326,000
Bihar and Orissa (i)	67,000	68,000	69,000	79,000	78,000	78,000	79,000	80,000	79,000
Central Provinces and Berar	4,081,000	4,402,000	4,582,000	4,135,000	4,800,000	4,477,000	4,414,000	4,857,000	5,202,000
Assam	33,000	32,000	34,000	32,000	32,000	39,000	40,000	40,000	39,000
North-West Frontier Province	26,000	28,000	38,000	39,000	51,000	27,000	15,000	15,000	39,000
Ajmer-Merwara	23,000	47,000	70,000	30,000	44,000	42,000	26,000	36,000	45,000
Delhi	(c)	(c)	(c)	(c)	(c)	(c)	2,000	2,000	4,000
Hyderabad	2,964,000	3,200,000	3,451,000	2,406,000	3,095,000	2,214,000	2,914,000	3,313,000	3,412,000
Mysore	92,000	136,000	165,000	125,000	147,000	110,000	59,000	83,000	118,000
Baroda	566,000	707,000	914,000	814,000	794,000	792,000	600,000	585,000	657,000
Gwalior	(f)	(f)	(f)	(f)	(f)	(f)	355,000	523,000	500,000
Central India States (e)	999,000	1,419,000	1,454,000	1,236,000	1,591,000	1,332,000	714,000	889,000	1,041,000
Rajputana States	244,000	334,000	435,000	250,000	371,000	375,000	297,000	302,000	330,000
TOTAL	17,773,000	21,771,000	25,337,000	21,087,000	23,365,000	21,339,000	18,461,000	21,804,000	23,331,000

Yield (bales of 400 lbs each)

Madras (a)	245,000	350,000	503,000	588,000	411,000	358,000	341,000	431,000	463,000	567,000
Bombay (including Sind and Indian States)	982,000	1,553,000	1,456,000	755,000	1,589,000	969,000	1,187,000	1,328,000	1,212,000	1,538,000
Bengal (including Tripura State)	80,000	20,000	19,000	32,000	25,000	21,000	15,000	17,000	21,000	24,000
United Provinces (b)	262,000	309,000	198,000	174,000	436,000	387,000	244,000	180,000	218,000	275,000
Punjab (h)	195,000	335,000	305,000	493,000	682,000	588,000	296,000	397,000	630,000	893,000
Burma	27,000	40,000	48,000	70,000	89,000	42,000	40,000	45,000	46,000	70,000
Bihar and Orissa (i)	16,000	16,000	17,000	20,000	17,000	15,000	15,000	15,000	16,000	14,000
Central Provinces and Berar	1,106,000	691,000	591,000	807,000	1,289,000	514,000	1,127,000	1,040,000	1,020,000	1,050,000
Assam	10,000	11,000	13,000	12,000	14,000	14,000	13,000	14,000	14,000	13,000
North-West Frontier Province	4,000	6,000	5,000	7,000	11,000	5,000	3,000	3,000	5,000	8,000
Ajmer-Merwara	2,000	35,000	14,000	14,000	24,000	15,000	12,000	15,000	13,000	15,000
Delhi	(c)	(c)	(c)	(c)	(c)	(c)	(g)	1,000	1,000	1,000
Hyderabad	450,000	500,000	450,000	643,000	749,000	341,000	870,000	1,116,000	1,079,000	899,000
Mysore	14,000	16,000	21,000	14,000	18,000	11,000	15,000	24,000	15,000	36,000
Baroda	117,000	171,000	239,000	81,000	127,000	127,000	85,000	116,000	76,000	171,000
Gwalior	(f)	(f)	(f)	(f)	(f)	(f)	46,000	74,000	60,000	145,000
Central India States (e)	216,000	311,000	118,000	214,000	219,000	162,000	159,000	181,000	194,000	262,000
Rajputana States	62,000	123,000	54,000	55,000	99,000	81,000	68,000	76,000	79,000	89,000
TOTAL	3,733,000	4,482,000	4,055,000	3,977,000	5,799,000	3,600,000	4,485,000	5,073,000	5,161,000	6,070,000
Net Exports and Consumption (j)	5,109,000	4,985,000	4,489,000	3,991,000	5,343,000	4,941,000	5,972,000	6,270,000	5,979,000	(d)

(a) Includes the State of Banganapalle. (b) Includes the State of Rampur. (c) Not available. (d) Not yet available.
(e) Includes Gwalior up to 1920-21. (f) Included under Central India States. (g) About 400 bales. (h) Includes Indian States.
(i) Excluding Feudatory States, estimates for which for 1924-25 are 53,000 acres and 13,000 bales, as against 52,000 acres and 17,000 bales in 1923-24.
(j) The exports as well as the mill consumption are for the year ending August. The mill consumption is estimated from 1916-17 on the basis of returns furnished by mills to the Bombay Millowners' Association; prior to 1916-17 the estimates were based on returns of yarn produced by mills. No reliable information is available as to the annual consumption outside the mills, but in 1911 it was settled in consultation with the Bombay Cotton Trade Association (now East India Cotton Association) to adopt the conventional estimate of 450,000 bales, at which figure it remained up to 1913-14. The consumption was estimated for 1914-15 at 1,000,000 bales, and that from 1915-16 to 1923-24 at 750,000 bales each year by the Association.
Note.—Figures for 1924-25 are subject to revision.

No. 9—AREA AND YIELD OF JUTE IN EACH PROVINCE.

Area (acres)

Province	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
Bengal	2,351,800	2,376,200	2,219,200	2,459,000	2,189,000	1,316,000	1,528,000	2,410,000	2,359,000	2,524,000
Bihar and Orissa	224,000	228,800	149,800	208,400	179,000	108,000	160,000	228,000	246,000	248,000
Assam	95,200	100,500	102,100	187,800	135,000	81,000	90,000	120,000	184,000	125,000
Cooch Bihar	31,800	86,200	29,800	39,200	36,000	13,000	22,000	36,000	32,000	39,000
TOTAL (c)	2,702,800	2,786,200	2,500,400	2,888,900	2,509,000	1,518,000	1,800,000	2,788,000	2,770,000	2,926,000

Yield (bales of 400 lbs each)

Province	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
Bengal	7,429,800	7,854,000	6,348,800	7,587,800	5,247,000	3,595,000	4,746,000	7,463,000	7,166,000	6,922,000
Bihar and Orissa	552,000	669,800	335,300	512,500	335,000	225,000	349,000	528,000	489,000	556,000
Assam	259,400	248,400	228,300	331,200	275,000	154,000	267,000	339,000	333,000	252,000
Cooch Bihar	68,000	95,000	43,300	69,800	56,000	11,000	52,000	71,000	74,000	61,000
TOTAL (c)	8,309,800	8,887,200	6,956,700	8,481,300	5,915,000	3,985,000	5,408,000	8,401,000	8,062,000	7,791,000
Exports and consumption (a)	9,018,000	7,702,000	7,849,000	9,128,000	8,459,000	7,837,000	8,196,000	9,453,000	10,052,000	(b)

(a) The exports as well as mill consumption are for the year ending June. The mill consumption and the extra-factory consumption (the latter being 500,000 bales for each year) are the trade estimates. (b) Not yet available.

(c) Excluding Nepal, for which no estimate of area or yield is available. The figures of imports from Nepal are, however, stated below:—

	Bales		Bales		Bales
1916	70,000	1920	99,000	1924	58,000
1917	41,000	1921	75,000	1925	70,000
1918	78,000	1922	57,000		(b)
1919	66,000				

Note.—Figures for 1925 are subject to revision.

No. 10—AREA AND YIELD OF LINSEED IN EACH PROVINCE.

Area (acres)

Province	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Bombay (a)	176,000	169,000	226,000	89,000	130,000	109,000	121,000	158,000	135,000
Bengal	181,000	157,000	144,000	144,000	127,000	128,000	133,000	137,000	121,000
United Provinces (c)	295,000	380,000	359,000	89,000	230,000	121,000	238,000	232,000	433,000
Punjab	650,000	675,000	695,000	321,000	560,000	476,000	660,000	737,000	672,000
Bihar and Orissa	32,000	32,000	39,000	27,000	31,000	28,000	37,000	32,000	33,000
Central Provinces and Berar	668,000	704,000	736,000	595,000	737,000	647,000	761,000	746,000	731,000
Hyderabad	1,048,000	1,176,000	1,287,000	509,000	(a) 1,025,000	(a) 455,000	(a) 798,000	(a) 1,050,000	(a) 1,183,000
Rajputana (Kota)	288,000	321,000	341,000	216,000	230,000	266,000	233,000	191,000	228,000
Total (c)	2,688,000	2,889,000	3,102,000	1,668,000	3,543,000	1,798,000	2,351,000	2,645,000	3,034,000
GRAND TOTAL	8,333,000	8,564,000	8,797,000	1,989,000	3,103,000	2,269,000	3,011,000	3,332,000	3,724,000

Yield (tons)

Province	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Bombay (a)	25,000	23,000	30,000	6,000	13,000	6,000	12,000	11,000	12,000
Bengal	23,000	26,000	22,000	15,000	16,000	16,000	16,000	20,000	19,000
United Provinces (c)	69,000	97,000	60,000	13,000	44,000	21,000	49,000	55,000	62,000
Punjab	190,000	139,000	117,000	59,000	205,000	84,000	113,000	143,000	126,000
Bihar and Orissa	3,000	3,000	4,000	2,000	3,000	2,000	3,000	3,000	3,000
Central Provinces and Berar	138,000	155,000	170,000	98,000	160,000	121,000	165,000	156,000	142,000
Hyderabad	83,000	99,000	93,000	16,000	(a) 71,000	(a) 16,000	(a) 67,000	(a) 126,000	(a) 84,000
Rajputana (Kota)	13,000	16,000	19,000	21,000	6,000	3,000	8,000	10,000	10,000
Total (c)	346,000	388,000	398,000	176,000	314,000	186,000	323,000	390,000	416,000
GRAND TOTAL	476,000	526,000	515,000	235,000	419,000	270,000	436,000	533,000	541,000

(a) Includes Indian States.

(b) Not available.

(c) The figures in italics represent "mixed" crop, i.e., seed sown in the same fields with other crops. The estimates for the mixed crop of the United Provinces are highly conjectural; hence they have been kept separate.

Note.—Figures for 1924-25 are subject to revision.

No. 11—AREA AND YIELD OF RAPE AND MUSTARD IN EACH PROVINCE.

Area (acres)

Province	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Bombay (including Sind and Indian States) (a)	239,000	382,000	534,000	111,000	241,000	147,000	354,000	296,000	234,000	311,000
Bengal	1,322,000	1,225,000	1,154,000	1,125,000	912,000	882,000	895,000	753,000	738,000	737,000
United Provinces (f)	181,000	153,000	149,000	91,000	153,000	197,000	165,000	119,000	165,000	142,000
Funjab	2,400,000	2,500,000	2,815,000	1,848,000	2,480,000	2,023,000	2,182,000	2,467,000	2,550,000	2,517,000
Bihar and Orissa (g)	1,129,000	1,018,000	1,259,000	660,000	891,000	588,000	1,464,000	1,286,000	1,141,000	1,254,000
Assam	725,000	792,000	805,000	683,000	827,000	775,000	787,000	818,000	805,000	818,000
North-West Frontier Province	328,000	278,000	264,000	288,000	315,000	311,000	308,000	315,000	349,000	354,000
Delhi	110,000	163,000	138,000	50,000	67,000	59,000	198,000	145,000	115,000	132,000
Hyderabad	(b)	(b)	(b)	2,600	7,000	6,000	6,000	6,000	13,000	4,000
Baroda	6,000	6,000	8,000	5,000	4,000	2,000	4,000	7,000	7,000	14,000
Rajputana (Alwar)	(c)	(c)	(c)	14,000	38,000	16,000	26,000	21,000	13,000	19,000
	(b)	(b)	(b)	17,000	15,000	9,000	31,000	26,000	55,000	74,000
TOTAL (e)	4,038,000	3,995,000	4,311,000	3,044,000	3,465,000	2,987,000	4,223,000	3,792,000	3,680,000	3,859,000
	2,400,000	2,500,000	2,815,000	1,848,000	2,480,000	2,023,000	2,182,000	2,467,000	2,550,000	2,517,000
GRAND TOTAL	6,438,000	6,495,000	7,126,000	4,892,000	5,945,000	5,010,000	6,405,000	6,259,000	6,180,000	6,376,000

Yield (tons)

Bombay (including Sind and Indian States) (a)	23,000	60,000	72,000	11,000	21,000	12,000	49,000	44,000	27,000	36,000
Bengal	233,000	238,000	211,000	169,000	155,000	153,000	148,000	129,000	118,000	122,000
United Provinces (f)	34,000	28,000	21,000	14,000	32,000	34,000	32,000	25,000	34,000	28,000
Funjab	450,000	493,000	405,000	283,000	503,000	351,000	444,000	523,000	524,000	505,000
Bihar and Orissa (g)	148,000	154,000	196,000	113,000	178,000	94,000	234,000	241,000	196,000	204,000
Assam	137,000	175,000	186,000	113,000	182,000	145,000	175,000	162,000	168,000	180,000
North-West Frontier Province	50,000	50,000	47,000	51,000	62,000	57,000	58,000	56,000	66,000	64,000
Delhi	19,000	20,000	17,000	7,000	8,000	8,000	18,000	17,000	11,000	10,000
Hyderabad	(b)	(b)	(b)	200	1,000	(c)	1,000	1,000	1,000	(g)
Baroda	100	200	200	300	(d)	(d)	(f)	(g)	(h)	(g)
Rajputana (Alwar)	(c)	(c)	(c)	3,000	8,000	4,000	3,000	4,000	3,000	3,000
	(b)	(b)	(b)	4,000	3,000	1,000	6,000	7,000	13,000	21,000
TOTAL (e)	642,100	725,200	750,300	485,500	650,000	508,000	724,000	686,000	625,000	667,000
	450,000	493,000	405,000	283,000	503,000	351,000	444,000	523,000	524,000	505,000
GRAND TOTAL	1,092,100	1,193,200	1,155,200	768,500	1,153,000	859,000	1,168,000	1,209,000	1,149,000	1,172,000

(a) Includes also the State of Baroda up to 1917-18. (b) Not available. (c) Included under Bombay.
 (d) Less than 100 tons. (e) 400 tons. (f) 100 tons. (g) 500 tons. (h) 200 tons.
 (i) The figures in italics represent "mixed" crop, i.e., seed sown in the same fields with other crops. The estimates for the mixed crop of the United Provinces are highly conjectural; hence they have been kept separate.
 (j) Excluding Feudatory States, estimates for which for 1924-25 are 119,000 acres and 13,000 tons as against 116,000 acres and 14,000 tons in 1923-24.

Notes.—Figures for 1924-25 are subject to revision.

No. 12—AREA AND YIELD OF SESAMUM (*Til or Jinjili*) IN EACH PROVINCE.

Area (acres)

Province	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	823,000	779,000	882,000	681,000	881,000	753,000	778,000	733,000	696,000	784,000
Bombay (including Sind and Indian States) (a)	837,000	941,000	802,000	229,000	552,000	673,000	681,000	581,000	595,000	508,000
Bengal	248,000	223,000	225,000	218,000	210,000	199,000	208,000	156,000	157,000	159,000
United Provinces (c)	299,000	278,000	188,000	207,000	168,000	276,000	250,000	198,000	202,000	275,000
	1,100,000	1,000,000	850,000	925,000	975,000	875,000	975,000	875,000	920,000	820,000
Punjab	127,000	246,000	122,000	61,000	110,000	108,000	156,000	156,000	116,000	107,000
Burma	(e)	(e)	(e)	(e)	(e)	(e)	1,084,000	865,000	1,015,000	1,009,000
Bihar and Orissa (h)	199,000	189,000	144,000	194,000	192,000	167,000	198,000	192,000	198,000	190,000
Central Provinces and Berar	927,000	759,000	502,000	497,000	489,000	709,000	773,000	566,000	555,000	592,000
Ajmer-Merwara	5,000	89,000	25,000	3,000	17,000	19,000	15,000	16,000	21,000	24,000
Hyderabad	546,000	569,000	589,000	512,000	588,000	520,000	554,000	530,000	552,000	572,000
Baroda	(f)	(f)	(f)	26,000	78,000	77,000	75,000	76,000	74,000	87,000
Rajputana (Kotah)	(e)	(e)	(e)	42,000	49,000	56,000	54,000	54,000	48,000	40,000
TOTAL (c)	4,008,000	4,023,000	3,429,000	2,680,000	3,279,000	3,557,000	4,771,000	4,123,000	4,219,000	4,347,000
	1,100,000	1,000,000	850,000	925,000	975,000	875,000	975,000	875,000	920,000	820,000
GRAND TOTAL	5,108,000	5,023,000	4,279,000	3,585,000	4,254,000	4,432,000	5,746,000	4,998,000	5,139,000	5,167,000

Yield (tons)

Madras	70,000	105,000	114,000	87,000	117,000	91,000	92,000	96,000	86,000	104,000
Bombay (including Sind and Indian States) (a)	99,000	125,000	78,000	11,000	68,000	53,000	98,000	78,000	57,000	63,000
Bengal	27,000	24,000	28,000	33,000	35,000	34,000	34,000	24,000	25,000	24,000
United Provinces (c)	36,000	28,000	15,000	8,000	17,000	25,000	28,000	18,000	21,000	26,000
	90,000	80,000	67,000	33,000	98,000	78,000	100,000	80,000	91,000	77,000
Punjab	15,000	90,000	11,000	4,000	12,000	10,000	15,000	15,000	9,000	9,000
Burma	(e)	(e)	(e)	(e)	(e)	(e)	(e)	50,000	45,000	65,000
Bihar and Orissa (h)	30,000	31,000	20,000	19,000	32,000	21,000	22,000	20,000	21,000	30,000
Central Provinces and Berar	93,000	56,000	30,000	34,000	48,000	53,000	78,000	45,000	46,000	37,000
Ajmer-Merwara	(d)	3,000	(e)	(d)	1,000	(e)	1,000	1,000	(g)	2,000
Hyderabad	22,000	31,000	19,000	42,000	21,000	14,000	37,000	36,000	25,000	37,000
Baroda	(f)	(f)	(f)	1,000(b)	3,000	3,000	5,000	5,000	2,000	7,000
Rajputana (Kotah)	(e)	(e)	(e)	1,000	2,000	1,000	3,000	4,000	3,000	3,000
TOTAL (c)	392,000	433,000	315,000	240,000	351,000	304,000	418,000	402,000	350,000	427,000
	90,000	80,000	67,000	33,000	98,000	78,000	100,000	80,000	91,000	77,000
GRAND TOTAL	482,000	513,000	382,000	273,000	449,000	382,000	518,000	482,000	441,000	504,000

(a) Includes also the State of Baroda up to 1917-18. (b) As reported by the Director of agriculture, Bombay.
 (c) Not available. (d) Less than 100 tons. (e) 200 tons. (f) Included under Bombay. (g) About 500 tons.
 (h) Excluding Pundrabary States, estimates for which for 1924-25 are 257,000 acres and 25,000 tons, as against 342,000 acres and 23,000 tons in 1923-24.
 (i) The figures in italics represent "mixed" crop, i.e., sown in the same fields with other crops. The estimates for the mixed crop of the United Provinces are highly conjectural; hence they have been kept separate.
 Note - Figures for 1924-25 are subject to revision.

No. 13—AREA AND YIELD OF GROUNDNUT IN EACH PROVINCE.

Area (acres)

Province	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras . . .	1,136,000	1,793,000	1,415,000	1,001,000	1,144,000	1,800,000	1,459,000	1,754,000	1,807,000	1,904,000
Bombay (including Indian States) . . .	266,000	276,000	272,000	157,000	162,000	224,000	223,000	367,000	400,000	348,000
Burma . . .	262,000	265,000	249,000	249,000	280,000	303,000	306,000	332,000	390,000	452,000
Hyderabad . . .	(a)	(a)	(a)	(a)	(a)	(a)	166,000	180,000	204,000	184,000
TOTAL . . .	1,664,000	2,834,000	1,996,000	1,407,000	1,666,000	2,127,000	2,144,000	2,633,000	2,801,000	2,868,000

Yield (tons) of nuts in shell

Madras . . .	633,000	825,000	680,000	442,000	569,000	740,000	678,000	823,000	744,000	948,000
Bombay (including Indian States) . . .	309,000	260,000	272,000	85,000	151,000	197,000	177,000	287,000	213,000	326,000
Burma . . .	116,000	111,000	104,000	99,000	102,000	115,000	95,000	110,000	115,000	165,000
Hyderabad . . .	(a)	(a)	(a)	(a)	(a)	(a)	9,000	16,000	12,000	11,000
TOTAL . . .	1,068,000	1,196,000	1,056,000	626,000	622,000	1,022,000	959,000	1,236,000	1,084,000	1,450,000

(a) Not available.
 Note.—Figures for 1924-25 are subject to revision.

No. 14—AREA AND YIELD OF INDIGO IN EACH PROVINCE.

Area (acres)

Province	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras . . .	222,000	459,700	324,400	144,400	101,300	112,100	197,300	141,300	89,400	70,200
Bombay and Sind (including Khairpur State) . . .	4,100	7,900	11,600	7,200	7,400	7,300	9,400	11,000	7,700	6,600
Bengal . . .	1,600	2,200	7,000	10,100	11,700	9,700	10,600	7,300	900	100
United Provinces . . .	43,200	159,300	190,200	49,100	48,800	45,300	44,600	39,100	20,600	12,500
Punjab . . .	21,400	60,300	90,700	17,000	22,000	27,000	33,000	50,300	36,400	6,400
Bihar and Orissa . . .	60,800	80,600	86,700	64,200	57,100	44,400	39,900	35,400	24,800	16,100
TOTAL . . .	353,100	770,000	710,800	292,000	248,300	245,800	334,800	284,400	179,800	111,900

Yield (cwts) of dye

Madras . . .	40,500	59,100	80,800	33,400	23,600	27,800	43,600	32,600	20,600	17,100
Bombay and Sind (including Khairpur State) . . .	600	1,400	1,800	1,100	1,200	1,200	1,500	1,900	1,100	1,100
Bengal . . .	200	200	500	800	900	700	500	200	(a)	(a)
United Provinces . . .	4,000	14,100	17,400	3,800	4,500	4,300	5,000	4,000	2,200	1,400
Punjab . . .	2,700	10,000	16,500	3,200	4,900	4,700	6,300	9,300	6,700	1,000
Bihar and Orissa . . .	7,100	10,900	10,200	6,300	8,200	5,000	5,400	4,100	4,200	1,100
TOTAL . . .	55,100	95,700	127,000	48,600	43,900	43,700	67,900	52,100	34,800	21,700

(a) Less than 50 cwts.

Note.—In estimating the yield of indigo an allowance of 10 per cent of the area sown is made for seed in the United Provinces and Bombay. In the Punjab the rate varies widely from district to district. In Bihar no deduction is made as the seed is imported from the United Provinces and the Punjab.

No. 15—AREA AND YIELD OF COFFEE IN EACH PROVINCE.

Area (acres)

Province	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25 *
Madras	25,100	25,200	25,700	25,500	25,300	(a) 27,000
Coorg	38,000	32,200	31,900	31,600	31,600	32,500
Mysore	55,800	63,700	64,200	68,200	69,600	72,800
Travancore	900	900	1,000	900	900	900
Cochin	2,100	2,200	2,200	2,200	2,400	2,400
TOTAL	118,400	124,200	125,000	128,400	129,800	(b) 135,600

Yield (lbs) of cured coffee

Madras	4,565,200	4,945,600	5,163,100	7,642,400	7,169,500	(a) 8,512,200
Coorg	7,018,800	7,190,500	5,462,900	7,577,800	5,209,200	8,487,700
Mysore	9,851,800	9,441,100	9,543,700	9,835,700	9,971,200	11,731,600
Travancore	159,600	193,000	42,400	132,100	130,100	172,700
Cochin	230,100	283,500	276,800	271,900	236,500	414,400
TOTAL	21,825,000	22,453,700	20,487,900	25,459,400	22,716,500	(b) 29,318,600

* Subject to revision. (a) Incomplete, as figures for certain tracts are not yet available. (b) Excluding certain tracts in Madras for which figures are not yet available.

Note.—The figures in this table generally exclude statistics for small estates having less than 10 acres under coffee.

No. 16—AREA AND YIELD OF RUBBER IN EACH PROVINCE.

Area (acres)

Province	1919	1920	1921	1922	1923	1924 †
Madras	16,800	13,000	11,400	10,500	11,400	11,800
Bengal	100	100	†	...	...	...
Burma	43,700	56,200	58,600	61,900	63,100	64,900
Assam	3,100	3,100	3,100	†	...	...
Coorg	2,700	2,600	2,400	2,400	2,400	2,400
Mysore	700	600	800	1,000	700	700
Travancore	37,700	39,500	39,600	41,300	41,600	41,300
Cochin	8,700	8,900	8,800	8,800	8,800	8,900
TOTAL	118,500	124,200	124,700	125,900	128,000	129,500

Yield (lbs)

Madras	1,715,500	1,667,900	467,300	1,172,500	1,434,300	1,694,900
Bengal	600	*	...	...	...	...
Burma	4,268,400	4,762,900	3,639,700	4,261,400	4,998,400	6,124,500
Assam . . . . .	*	*	*	*	...	...
Coorg	169,600	204,000	58,600	171,000	303,700	302,400
Mysore	8,000	19,900	14,300	2,500	11,000	10,100
Travancore	5,822,500	5,556,900	4,230,800	4,331,800	6,064,900	5,765,600
Cochin	1,620,400	1,577,300	590,800	1,467,000	1,660,800	1,503,800
TOTAL	13,615,000	13,783,900	9,056,400	11,912,900	14,462,500	15,501,300

* No area was tapped during the year, hence there was no production.

† The area reported in previous years is not workable and hence the column has been shown blank.

‡ Subject to revision.

BARLEY

No. 17—SUPPLEMENTARY TABLE—AREA AND YIELD OF BARLEY, JOWAR, BAJRA, MAIZE, GRAM, AND CASTOR SEED IN EACH PROVINCE.

Barley

Provinces	AREA (ACRES)									
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Bombay (including Sind)	68,000	48,000	59,000	48,000	55,000	37,000	44,000	43,000	84,000	36,000
Bengal	94,000	99,000	97,000	94,000	92,000	98,000	88,000	83,000	82,000	79,000
United Provinces	5,020,000	5,000,000	5,092,000	5,831,000	4,378,000	3,889,000	4,304,000	4,286,000	4,226,000	4,279,000
Punjab	1,040,000	1,183,000	1,425,000	865,000	1,304,000	631,000	1,112,000	1,173,000	1,246,000	989,000
Bihar and Orissa	1,314,000	1,283,000	1,311,000	1,287,000	1,354,000	1,322,000	1,373,000	1,406,000	1,391,000	1,381,000
Central Provinces and Berar	(a) 16,000	(b) 24,000	(b) 22,000	(b) 11,000	(b) 16,000	(b) 8,000	(b) 12,000	(b) 18,000	(b) 16,000	(b) 22,000
North-West Frontier Provinces	214,000	248,000	267,000	267,000	269,000	178,000	208,000	270,000	168,000	151,000
Ajmer-Merwar	52,000	45,000	(b) 81,000	25,000	27,000	46,000	55,000	51,000	45,000	45,000
Delhi	30,000	17,000	20,000	14,000	19,000	13,000	19,000	18,000	27,000	17,000
TOTAL	7,944,000	7,900,000	8,437,000	6,395,000	7,419,000	6,203,000	7,303,000	7,350,000	7,126,000	6,898,000

Provinces	YIELD (TONS)									
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Bombay (including Sind)	23,000	15,000	16,000	14,000	19,000	9,000	14,000	14,000	10,000	12,000
Bengal	29,000	31,000	23,000	24,000	28,000	29,000	25,000	24,000	23,000	22,000
United Provinces	2,259,000	2,350,000	2,286,000	1,859,000	2,116,000	1,772,000	2,053,000	2,091,000	1,919,000	1,751,000
Punjab	223,000	266,000	424,000	323,000	378,000	103,000	297,000	265,000	410,000	263,000
Bihar and Orissa	452,000	549,000	492,000	440,000	534,000	522,000	512,000	500,000	505,000	531,000
Central Provinces and Berar	(a)	(a)	(a)	(a)	4,000	1,000	3,000	5,000	4,000	6,000
North-West Frontier Provinces	128,000	89,000	88,000	108,000	110,000	89,000	104,000	94,000	44,000	47,000
Ajmer-Merwar	18,000	11,000	(a)	5,000	11,000	11,000	14,000	19,000	14,000	16,000
Delhi	5,000	5,000	6,000	4,000	5,000	4,000	6,000	6,000	6,000	6,000
TOTAL (c)	3,160,000	3,336,000	3,234,000	2,782,000	3,205,000	3,609,000	3,123,000	3,117,000	3,037,000	2,644,000

(a) Not available. (b) Taken from Agricultural Statistics. (c) Incomplete.
 Note.—No forecast is prepared for this crop. The figures are taken from the provincial Season and Crop Reports or specially obtained from local authorities.

No. 17—SUPPLEMENTARY TABLE—AREA AND YIELD OF BARLEY, JOWAR, BAJRA, MAIZE, GRAM AND CASTOR SEED IN EACH PROVINCE—*contd.*

Jowar

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Province	AREA (ACRES)									
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	23-24	1924-25
Madras	5,225,000	4,761,000	4,890,000	5,089,000	5,408,000	5,223,000	5,378,000	5,265,000	4,842,000	4,944,000
Bombay (including Sind)	8,098,000	8,060,000	8,707,000	7,966,000	8,408,000	8,810,000	8,615,000	8,720,000	7,903,000	9,107,000
Bengal	5,000	4,000	5,000	4,000	4,000	4,000	4,000	4,000	5,000	5,000
United Provinces	2,546,000	2,402,000	1,982,000	1,862,000	2,330,000	2,313,000	2,884,000	2,270,000	2,478,000	2,047,000
Punjab	1,001,000	1,464,000	825,000	683,000	1,050,000	923,000	1,314,000	951,000	985,000	1,054,000
Burma	68,000	66,000	692,000	374,000	592,000	700,000	849,000	888,000	767,000	768,000
Bihar and Orissa	108,000	80,000	86,000	89,000	88,000	76,000	84,000	74,000	76,000	60,000
Central Provinces and Berar	4,885,000	4,188,000	5,280,000	4,862,000	4,395,000	4,492,000	4,986,000	4,528,000	4,078,000	4,162,000
North-West Frontier Province	40,000	107,000	93,000	41,000	78,000	58,000	108,000	60,000	77,000	78,000
Ajmer-Merwara	86,000	89,000	(b) 56,000	15,000	39,000	48,000	45,000	47,000	62,000	66,000
Delhi	26,000	21,000	13,000	20,000	28,000	28,000	31,000	26,000	33,000	40,000
Hyderabad	(a)	(a)	(a)	(a)	(a)	(a)	9,273,000	8,786,000	8,581,000	9,048,000
TOTAL	25,021,000	21,871,000	21,068,000	20,406,000	22,437,000	22,663,000	24,000,000	21,556,000	20,466,000	21,450,000

Province	YIELD (TONS)									
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	23-24	1924-25
Madras	1,288,000	1,446,000	1,895,000	1,348,000	1,809,000	1,420,000	1,624,000	1,438,000	1,271,000	1,406,000
Bombay (including Sind)	2,226,000	2,006,000	1,768,000	1,083,000	1,994,000	1,810,000	1,737,000	1,601,000	1,243,000	1,836,000
Bengal	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
United Provinces	665,000	523,000	273,000	198,000	563,000	351,000	647,000	486,000	566,000	411,000
Punjab	108,000	120,000	59,000	43,000	200,000	106,000	171,000	118,000	133,000	116,000
Burma	63,000	89,000	75,000	54,000	71,000	88,000	124,000	120,000	91,000	68,000
Bihar and Orissa	33,000	26,000	33,000	19,000	27,000	27,000	34,000	28,000	29,000	11,000
Central Provinces and Berar	1,645,000	881,000	747,000	654,000	1,243,000	501,000	1,444,000	1,211,000	1,000,000	967,000
North-West Frontier Province	2,000	17,000	18,000	10,000	14,000	10,000	18,000	10,000	14,000	10,000
Ajmer-Merwara	2,000	11,000	(a)	400	2,000	1,000	2,000	2,000	2,000	5,000
Delhi	5,000	4,000	1,000	1,000	5,000	4,000	5,000	5,000	5,000	5,000
Hyderabad	(a)	(a)	(a)	(a)	(a)	(a)	770,000	1,066,000	828,000	868,000
TOTAL	4,044,000	5,123,000	4,652,000	3,462,000	6,021,000	3,710,000	5,602,000	4,187,000	4,212,000	4,421,000

(a) Not available. (b) Taken from Agricultural Statistics. (c) Incomplete.
 Note.—No forecast is prepared for this crop except by Bombay and the Hyderabad States. The figures are taken from the provincial Season and Crop Reports or specially obtained from local authorities.

No. 17—SUPPLEMENTARY TABLE—AREA AND YIELD OF BARLEY, JOWAR, BAJRA, MAIZE, GRAM, AND CASTOR SEED IN EACH PROVINCE—*contd.*

Bajra

Province	AREA (ACRES)									
	1916-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	3,673,000	3,411,000	3,309,000	3,030,000	3,285,000	3,012,000	3,137,000	3,075,000	3,045,000	3,047,000
Bombay (including Sind)	5,530,000	5,666,000	4,161,000	3,294,000	5,461,000	3,764,000	3,113,000	4,944,000	5,388,000	4,105,000
Bengal	6,000	6,000	6,000	4,000	3,000	3,000	3,000	3,000	2,000	2,000
United Provinces	2,806,000	2,548,000	2,209,000	2,886,000	2,665,000	2,885,000	3,662,000	2,347,000	2,338,000	1,789,000
Punjab	1,907,000	3,033,000	3,643,000	1,662,000	2,675,000	2,423,000	3,323,000	3,119,000	2,850,000	2,686,000
Bihar and Orissa	73,000	70,000	67,000	85,000	65,000	63,000	70,000	64,000	68,000	69,000
Central Provinces and Berar	185,000	118,000	128,000	126,000	141,000	138,000	174,000	166,000	151,000	137,000
North-West Frontier Province	72,000	223,000	228,000	67,000	169,000	129,000	232,000	143,000	180,000	152,000
Ajmer-Merwara	31,000	53,000	(b) 23,000	24,000	17,000	10,000	19,000	22,000	31,000	29,000
Delhi	54,000	59,000	58,000	47,000	61,000	56,000	65,000	63,000	51,000	50,000
TOTAL	14,337,000	15,225,000	12,729,000	11,205,000	14,562,000	11,991,000	15,888,000	13,939,000	13,674,000	11,964,000

Province	YIELD (TONS)									
	1916-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	749,000	635,000	906,000	701,000	820,000	614,000	826,000	618,000	632,000	883,000
Bombay (including Sind)	820,000	908,000	445,000	256,000	618,000	467,000	756,000	613,000	619,000	609,000
Bengal	3,000	1,000	3,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
United Provinces	620,000	469,000	407,000	238,000	329,000	395,000	556,000	461,000	469,000	390,000
Punjab	160,000	514,000	313,000	105,000	448,000	199,000	391,000	424,000	365,000	362,000
Bihar and Orissa	27,000	23,000	25,000	18,000	23,000	23,000	23,000	10,000	23,000	22,000
Central Provinces and Berar	(a)	(a)	(a)	(a)	41,000	15,000	50,000	44,000	27,000	33,000
North-West Frontier Province	13,000	44,000	36,000	9,000	20,000	15,000	26,000	23,000	26,000	20,000
Ajmer-Merwara	300	6,000	(a)	4,000	3,000	1,000	1,000	1,000	1,000	2,000
Delhi	10,000	13,000	6,000	400	13,000	9,000	6,000	12,000	6,000	6,000
TOTAL	(c) 3,369,300	(c) 3,302,000	(c) 2,133,000	(c) 1,387,400	3,843,000	1,969,000	3,840,000	3,430,000	3,109,000	3,316,000

(a) Not available. (b) Taken from Agricultural Statistics. (c) Incomplete.
 Note.—No forecast is prepared for this crop except by Bombay. The figures are taken from the provincial Season and Crop Reports or specially obtained from local authorities.

No. 17—SUPPLEMENTARY TABLE—AREA AND YIELD OF BARLEY, JOWAR, BAJRA, MAIZE, GRAM, AND CASTOR SEED IN EACH PROVINCE—*contd.*

Maize

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Province	AREA (ACRES)									
	1916-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	124,000	118,000	108,000	84,000	407,000	122,000	104,000	127,000	180,000	148,000
Bombay (including Sind)	176,000	178,000	190,000	246,000	226,000	229,000	313,000	313,000	308,000	198,000
Bengal	96,000	68,000	69,000	85,000	88,000	84,000	90,000	78,000	82,000	79,000
United Provinces	2,612,000	2,426,000	2,321,000	1,822,000	2,420,000	2,094,000	2,075,000	1,879,000	1,886,000	1,650,000
Punjab	1,184,000	1,270,000	1,219,000	1,161,000	1,168,000	1,063,000	1,112,000	1,129,000	1,050,000	922,000
Surma	107,000	168,000	188,000	183,000	158,000	171,000	211,000	194,000	168,000	191,000
Bihar and Orissa	1,656,000	1,861,000	1,667,000	1,786,000	1,778,000	1,784,000	1,800,000	1,680,000	1,680,000	1,674,000
Central Provinces and Berar	(b) 165,000	(b) 169,000	(b) 168,000	(b) 162,000	(b) 161,000	(b) 157,000	(b) 165,000	(b) 160,000	(b) 155,000	(b) 146,000
Assam	19,000	19,000	(b) 1,000	(b) 1,000	(b) 1,000	(b) 1,000	(b) 1,000	(b) 1,000		...
North-West Frontier Province	481,000	461,000	469,000	460,000	454,000	418,000	462,000	450,000	438,000	429,000
Ajmer-Merwara	60,000	60,000	(b) 65,000	38,000	50,000	57,000	57,000	57,000	69,000	78,000
Delhi	2,000	4,000	4,000	2,000	4,000	4,000	2,000	2,000	2,000	2,000
Total	6,681,000	6,681,000	6,446,000	6,040,000	6,680,000	6,164,000	6,290,000	5,916,000	5,824,000	5,318,000

YIELD (TONS)

Madras	(a)	(a)	48,000	20,000	39,000	61,000	52,000	64,000	63,000	71,000
Bombay (including Sind)	68,000	106,000	101,000	61,000	101,000	67,000	66,000	97,000	94,000	67,000
Bengal	26,000	26,000	23,000	27,000	31,000	28,000	20,000	24,000	26,000	26,000
United Provinces	1,184,000	962,000	1,028,000	808,000	1,014,000	639,000	815,000	698,000	766,000	638,000
Punjab	464,000	461,000	319,000	399,000	406,000	346,000	380,000	391,000	369,000	336,000
Surma	70,000	35,000	27,000	24,000	26,000	31,000	40,000	24,000	26,000	30,000
Bihar and Orissa	480,000	525,000	612,000	469,000	630,000	638,000	727,000	849,000	697,000	260,000
Central Provinces and Berar	(a)	(a)	(a)	(a)	115,000	112,000	116,000	114,000	111,000	104,000
Assam	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)		...
North-West Frontier Province	237,000	219,000	249,000	206,000	128,000	162,000	217,000	230,000	236,000	218,000
Ajmer-Merwara	6,000	19,000	(a)	26,000	19,000	11,000	15,000	11,000	11,000	15,000
Delhi	1,000	1,000	1,000	300	1,000	1,000	1,000	200	1,000	1,000
Total (a)	2,803,000	2,346,000	2,614,000	1,733,300	2,658,000	2,083,000	2,462,000	1,902,300	2,176,000	1,668,000

(a) Not available. (b) Taken from Agricultural Statistics. (c) Incomplete.
 Note.—No forecast is prepared for this crop. The figures are taken from the provincial Season and Crop Reports or specially obtained from local authorities.

No. 17—SUPPLEMENTARY TABLE—AREA AND YIELD OF BARLEY, JOWAR, BAJRA, MAIZE, GRAM, AND CASTOR SEED IN EACH PROVINCE—*contd.*

Gram

Province	AREA (ACRES)									
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	160,000	175,000	119,000	112,000	117,000	94,000	112,000	127,600	106,000	106,000
Bombay (including Sind)	738,000	785,000	925,000	868,000	880,000	477,000	883,000	788,000	625,000	741,000
Bengal	177,000	183,000	188,000	156,000	147,000	161,000	148,000	141,000	130,000	130,000
United Provinces	6,088,000	6,469,000	6,387,000	2,737,000	4,947,000	3,961,000	6,088,000	7,131,000	6,366,000	6,617,000
Punjab	8,665,000	5,118,000	6,004,000	2,049,000	4,126,000	2,229,000	5,147,000	5,428,000	4,202,000	5,088,000
Burma	64,000	68,000	63,000	46,000	63,000	63,000	119,000	161,000	67,000	80,000
Bihar and Orissa	1,402,000	1,388,000	1,468,000	1,081,000	1,615,000	1,408,000	1,461,000	1,641,000	1,427,000	1,432,000
Central Provinces and Berar	(b) 783,000	(b) 894,000	(b) 845,000	(b) 649,000	(b) 748,000	(b) 647,000	(b) 637,000	(b) 770,000	(c) 1,188,000	(c) 1,120,000
North-West Frontier Province	143,000	210,000	236,000	207,000	240,000	144,000	289,000	221,000	236,000	227,000
Ajmer-Marwara	19,000	9,000	(e) 30,000	18,000	(e) 21,000	9,000	15,000	10,000	13,000	10,000
Coorg	(a)	(a)	(a)	(a)	(a)	3,000	2,000	1,000	1,000	1,000
Delhi	26,000	108,000	85,000	2,000	30,000	11,000	97,000	85,000	64,000	26,000
Total	(d) 13,263,000	(d) 15,415,000	(d) 18,340,000	(d) 7,367,000	(d) 12,641,000	9,205,000	14,742,000	16,395,000	14,397,000	16,466,000

YIELD (TONS)

Madras	(a)	(a)	27,000	26,000	21,000	19,000	22,000	26,000	24,000	24,000
Bombay (including Sind)	122,000	141,000	163,000	35,000	116,000	53,000	114,000	139,000	90,000	132,000
Bengal	45,000	49,000	41,000	35,000	49,000	44,000	32,000	34,000	29,000	34,000
United Provinces	2,025,000	2,268,000	1,882,000	773,000	1,644,000	1,180,000	2,114,000	2,642,000	2,307,000	1,897,000
Punjab	454,000	658,000	1,509,000	468,000	1,008,000	361,000	1,143,000	1,510,000	1,116,000	1,149,000
Burma	(a)	(a)	(a)	(a)	16,000	12,000	24,000	22,000	12,000	16,000
Bihar and Orissa	638,000	607,000	551,000	386,000	598,000	558,000	646,000	670,000	541,000	609,000
Central Provinces and Berar	238,000	266,000	216,000	187,000	209,000	129,000	195,000	220,000	222,000	274,000
North-West Frontier Province	16,000	26,000	32,000	23,000	40,000	17,000	46,000	13,000	43,000	51,000
Ajmer-Marwara	3,000	1,000	(e)	3,000	(e)	1,000	1,000	1,000	1,000	1,000
Coorg	(a)	(a)	(a)	(a)	(a)	400	400	200	200	200
Delhi	2,000	19,000	19,000	500	6,000	2,000	19,000	19,000	10,000	26,000
Total	(d) 2,480,000	(d) 4,234,000	(d) 4,446,000	(d) 1,920,000	(d) 3,701,000	2,374,400	4,357,400	5,208,200	4,466,200	4,184,200

(a) Not available. (b) Excludes gram sown with other crops.

(c) Taken from Agricultural Statistics. (d) Incomplete.

Note.—No forecast is prepared for this crop. The figures are taken from the provincial Season and Crop Reports or specially obtained from local authorities.

No. 17—SUPPLEMENTARY TABLE—AREA AND YIELD OF BARLEY, JOWAR, BAJRA, MAIZE, GRAM, AND CASTOR SEED IN EACH PROVINCE—*concl.*

Castor seed

Province	AREA (ACRES)									
	1915-16	1916-17	1917-18	1918-19	1919-20	1920-21	1921-22	1922-23	1923-24	1924-25
Madras	563,000	547,000	489,000	396,000	475,000	391,000	381,000	327,000	339,000	369,000
Bombay (including Sind)	(a)	(a)	(a)	(a)	(a)	(b) 81,000	74,000	63,000	60,000	67,000
United Provinces	(a)	(a)	(a)	(a)	(a)	(a)	(b) 4,000	4,000	7,000	15,000
Punjab	(a)	(a)	(a)	(a)	(a)	(a)	(b) 400	200	300	100
Burma	(a)	(a)	(a)	(a)	(a)	(a)	(a)	300	300	300
Bihar and Orissa	(a)	(a)	(a)	26,000	40,000	38,000	35,000	38,000	36,000	35,000
Central Provinces and Berar	(a)	(a)	(a)	(a)	(a)	53,000	43,000	45,000	40,000	(b) 33,000
Assam	3,000	3,000	6,000	4,000	5,000	5,000	5,000	5,000	5,000	5,000
Hyderabad	784,000	(a)	613,000	651,000	(a)	678,000	1,015,000	798,000	869,000	676,000
Mysore	(a)	(a)	(a)	(a)	(a)	(a)	(b) 102,000	(b) 112,000	(b) 117,000	(b) 30,000
Baroda	(a)	(a)	(a)	(a)	(a)	(a)	(b) 130,000	(b) 130,000	108,000	78,000
TOTAL (c)	1,334,000	850,000	1,367,000	1,077,000	650,000	1,245,000	1,755,400	1,517,800	1,678,500	1,607,400

YIELD (TONS)

Madras	(a)	(a)	51,000	38,000	45,000	30,000	36,000	33,000	30,000	38,000
Bombay (including Sind)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	9,000
United Provinces	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Punjab	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Burma	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Bihar and Orissa	(a)	(a)	(a)	3,000	6,000	5,000	5,000	6,000	5,000	6,000
Central Provinces and Berar	(a)	(a)	(a)	(a)	(a)	7,000	6,000	(a)	(a)	(a)
Assam	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Hyderabad	37,000	(a)	75,000	63,000	(a)	34,000	54,000	78,000	66,000	55,000
Mysore	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Baroda	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	7,000
TOTAL (c)	37,000	...	136,000	108,000	51,000	84,000	145,000	117,000	108,000	114,000

(a) Not available.

(b) Taken from Agricultural Statistics.

(c) Incomplete.

(d) Not available. The normal yield per acre of the crop was however 800 lbs for Gujarat and 400 lbs for the remainder of the Bombay Presidency where the crop is grown.

Note.—From 1926, an All-India forecast will be prepared for this crop.

RAINFALL

No. 18—NORMAL AND ACTUAL RAINFALL (IN INCHES) IN EACH PROVINCE AND METEOROLOGICAL SUB-DIVISION IN INDIA.

Provinces and Sub-divisions	Normal rainfall	ACTUAL RAINFALL										Variation of 1924 rainfall from normal	Percent age of rainfall from normal	
		1915	1916	1917	1918	1919	1920	1921	1922	1923	1924			
	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Per cent
Madras—														
Malabar	100.1	119.6	131.2	123.1	106.0	112.3	122.5	99.0	122.0	120.0	142.9	+42.8	.	
Madras, South-east	35.6	38.2	34.0	36.8	35.3	41.5	46.5	38.1	41.2	33.9	32.5	-3.1	.	
Madras Deccan	24.8	31.0	40.1	34.1	19.8	28.7	17.0	25.4	20.2	16.7	22.4	-2.4	.	
Madras Coast, North	41.1	53.2	52.7	54.2	35.9	48.9	31.8	41.5	38.1	42.8	45.6	+4.5	.	
Bombay—														
Gujarat	32.3	18.9	32.6	54.0	11.8	34.2	26.2	41.1	28.7	18.4	29.1	3.2	.	
Konkan	108.5	96.1	128.6	136.1	70.9	100.6	77.0	108.4	107.6	112.3	98.5	-10.0	.	
Bombay Deccan	30.8	35.0	40.9	35.8	17.9	33.6	22.9	27.3	28.5	25.5	27.9	-2.9	.	
Sind	6.7	1.9	11.1	14.1	1.6	7.1	2.1	7.2	1.4	4.2	6.9	+0.2	.	
Bengal	74.9	80.1	88.3	80.4	82.1	74.3	76.4	76.3	78.1	65.6	79.9	+5.0	.	
United Provinces—														
East	39.2	53.5	47.2	46.3	23.3	40.9	31.7	41.9	51.6	42.2	43.8	+4.6	+	
West	37.4	37.2	47.7	50.9	19.2	39.6	29.6	46.0	46.3	39.9	47.3	+9.9	+	
Punjab—														
East and North	23.2	18.4	26.8	41.8	13.2	24.9	15.6	18.3	22.3	26.5	26.3	+3.1	+	
South-west	10.0	4.9	12.3	21.5	6.8	10.2	6.8	12.3	7.9	12.2	11.8	+1.8	+	
Burma—														
Lower Burma	125.9	131.9	125.5	129.8	148.6	140.4	135.0	131.3	135.0	146.8	136.2	+10.3	+	
Upper Burma	47.1	48.6	49.9	48.1	46.0	41.7	36.4	46.1	43.4	49.4	46.4	-0.7	-	
Bihar and Orissa—														
Orissa	58.7	58.8	57.7	73.8	46.5	67.0	60.0	54.0	57.8	51.0	50.0	-3.7	-	
Chota Nagpur	52.7	39.4	50.1	66.4	42.9	65.2	56.2	48.4	57.0	57.6	52.7	...	...
Bihar	48.5	50.7	58.7	53.7	52.7	51.3	44.7	51.0	59.2	37.1	56.4	+7.9	+	
Central Provinces and Berar—														
Berar	32.3	38.0	47.2	41.7	19.2	31.3	16.0	32.0	34.9	29.2	31.1	-1.2	-	
Central Provinces, West	46.7	51.3	57.5	60.1	33.6	61.9	32.9	39.6	44.9	52.4	46.5	-0.2	...	
Central Provinces, East	53.8	55.5	54.1	64.5	53.3	72.7	37.4	49.9	49.8	50.9	47.9	-5.9	-	
Assam	100.3	112.3	96.6	95.1	110.3	86.8	97.4	111.1	55.4	98.5	99.2	-1.1	-	
North-West Frontier Province	15.9	15.4	20.3	20.2	14.5	18.4	10.8	15.0	14.8	18.3	17.1	+1.2	+	
Hyderabad—														
North	34.0	38.6	44.4	48.9	23.2	30.4	16.2	29.9	32.5	28.9	28.8	-5.2	-	
South	30.7	41.5	50.9	39.9	22.3	34.2	19.7	27.2	25.1	24.4	29.6	-1.1	-	
Mysore	36.1	38.4	46.6	41.5	27.9	39.1	28.9	36.3	34.6	36.1	40.6	+4.5	+	
Central India—														
West	34.8	26.9	46.9	50.3	20.7	48.8	27.0	31.1	35.3	42.6	39.3	+5.0	+	
East	42.4	38.7	48.3	54.6	20.2	56.5	26.0	38.2	44.7	45.3	49.3	+6.9	+	
Rajputana—														
West	12.6	6.2	17.3	32.0	2.8	12.8	10.5	9.9	10.4	11.8	13.0	+0.4	+	
East	25.8	16.4	33.6	53.0	10.3	31.6	21.4	21.4	25.9	28.0	38.5	+12.7	+	

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO 1924.

Rice

Countries	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Argentina	11,000	17,000	26,000	17,000	26,000	27,000	16,000	9,000	(b)
Bulgaria	7,000	12,000	10,000	4,000	6,000	7,000	7,000	8,000	10,000
Egypt	154,000	278,000	385,000	150,000	165,000	324,000	50,000	186,000	(c) 231,000
Formosa	1,165,000	1,151,000	1,194,000	1,228,000	1,235,000	1,224,000	1,522,000	1,232,000	1,310,000
Indo-China	10,148,000	10,176,000	10,169,000	11,869,000	11,756,000	11,979,000	12,103,000	11,897,000	11,782,000
Italy	352,000	341,000	(a) 342,000	325,000	276,000	285,000	294,000	303,000	340,000
Japan	7,523,000	7,554,000	7,377,000	7,605,000	7,659,000	7,675,000	7,695,000	7,713,000	7,699,000
Java and Madura	(b)	(b)	(b)	(b)	(b)	7,319,000	8,178,000	8,160,000	8,353,000
Korea	(b)	(b)	(b)	(b)	(b)	3,752,000	3,816,000	3,798,000	3,860,000
Siam	5,118,000	5,359,000	5,490,000	5,382,000	6,044,000	6,412,000	6,242,000	6,636	6,520,000
Spain	100,000	106,000	110,000	119,000	120,000	113,000	114,000	114,000	116,000
United States of America	869,000	861,000	1,119,000	811,000	1,385,000	921,000	1,055,000	895,000	892,000

Countries	YIELD (TONS)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Argentina	(b)	(b)	21,000	(b)	25,000	25,000	15,000	(b)	(b)
Bulgaria	4,000	9,000	5,000	3,000	4,000	6,000	5,000	7,000	8,000
Egypt	167,000	358,000	501,000	176,000	205,000	342,000	40,000	219,000	(c) 279,000
Formosa	326,000	359,000	323,000	374,000	360,000	384,000	367,000	364,000	1,079,000
Indo-China	4,860,000	4,556,000	4,548,000	4,714,000	4,535,000	5,724,000	5,696,000	5,205,000	5,672,000
Italy	511,000	517,000	(a) 514,000	478,000	448,000	463,000	456,000	513,000	580,000
Japan	10,380,000	9,692,000	9,715,000	10,803,000	11,237,000	9,801,000	10,780,000	9,872,000	10,154,000
Java and Madura	(b)	(b)	(b)	(b)	(b)	3,984,000	4,864,000	4,867,000	5,062,000
Korea	(b)	(b)	(b)	(b)	(b)	2,544,000	2,667,000	2,695,000	2,348,000
Siam	(b)	(b)	(b)	(b)	4,201,000	4,157,000	4,263,000	4,321,000	4,359,000
Spain	237,000	232,000	204,000	227,000	264,000	257,000	292,000	288,000	290,000
United States of America	819,000	696,000	774,000	708,000	1,044,000	754,000	830,000	676,000	681,000

(a) Exclusive of invaded territory.

(b) Not available.

(c) 8% crop only.

NOTE.—The figures for European countries for the different years are not comparable, where changes of frontier have taken place after the war.

No. 19—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1911 TO 1924—contd.

Wheat

Countries	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Algeria	3,271,000	3,220,000	3,165,000	2,889,000	3,227,000	3,007,000	3,034,000	3,166,000	3,491,000
Argentina	16,082,000	17,868,000	16,969,000	17,401,000	18,008,000	14,285,000	16,246,000	17,216,000	17,785,000
Australia	11,528,000	9,770,000	7,987,000	6,416,000	9,068,000	9,715,000	9,760,000	9,503,000	10,833,000
Austria	2,007,000	2,035,000	1,924,000	871,000	871,000	878,000	459,000	475,000	482,000
Bulgaria	2,381,000	2,480,000	2,434,000	2,056,000	2,178,000	2,232,000	2,225,000	2,303,000	2,461,000
Canada	15,363,000	14,749,000	17,946,000	19,118,000	18,224,000	23,251,000	22,413,000	22,672,000	24,046,000
Denmark	152,000	131,000	140,000	128,000	180,000	220,000	237,000	205,000	149,000
Egypt	1,447,000	1,116,000	1,286,000	1,323,000	1,190,000	1,458,000	1,517,000	1,537,000	1,415,000
France	12,424,000	10,353,000	10,938,000	11,622,000	12,181,000	13,294,000	13,066,000	13,678,000	13,614,000
Germany	4,157,000	3,749,000	3,732,000	3,179,000	3,397,000	3,559,000	3,894,000	3,638,000	3,822,000
Hungary	(d)	(d)	(d)	(d)	2,661,000	2,587,000	3,121,000	3,320,000	3,615,000
Italy	11,674,000	10,532,000	10,723,000	10,588,000	11,285,000	11,774,000	11,484,000	11,554,000	11,279,000
Japan	1,303,000	1,392,000	1,389,000	1,344,000	1,239,000	1,263,000	1,228,000	1,199,000	1,149,000
Luxemburg	27,000	24,000	25,000	27,000	27,000	29,000	23,000	25,000	22,000
Netherlands	134,000	121,000	148,000	168,000	152,000	180,000	150,000	154,000	118,000
New Zealand	219,000	281,000	208,000	140,000	220,000	353,000	276,000	183,000	170,000
Norway	(d)	(d)	(d)	(d)	41,000	41,000	25,000	95,000	21,000
Poland	18,000	23,000	41,000	41,000	1,063,000	1,790,000	2,574,000	2,514,000	2,650,000
Rumania	4,843,000	(d)	5,622,000	4,253,000	4,926,000	6,146,000	6,546,000	6,648,000	7,335,000
Spain	10,144,000	10,336,000	10,224,000	10,374,000	10,250,000	10,922,000	10,305,000	10,469,000	10,375,000
Sweden	318,000	328,000	378,000	347,000	357,000	337,000	356,000	362,000	322,000
Switzerland	137,000	94,000	151,000	130,000	119,000	111,000	108,000	(c)169,000	104,000
Tunis	1,482,000	1,447,000	1,603,000	1,408,000	1,318,000	1,491,000	1,672,000	1,559,000	1,107,000
Union of South Africa	755,000	986,000	953,000	819,000	875,000	992,000	847,000	(d)	(d)
United Kingdom	2,053,000	2,105,000	2,794,000	2,371,000	1,936,000	2,046,000	2,038,000	1,806,000	1,599,000
United States of America	52,294,000	45,070,000	59,156,000	73,069,000	61,118,000	63,670,000	62,291,000	58,308,000	54,186,000
Uruguay	779,000	976,000	839,000	680,000	700,000	812,000	663,000	919,000	988,000

YIELD (TONS)

Algeria	779,000	775,000	1,315,000	561,000	225,000	753,000	454,000	975,000	459,000
Argentina	2,141,000	5,865,000	4,587,000	5,799,000	4,173,000	5,106,000	5,235,000	6,617,000	5,103,000
Australia	4,074,000	3,067,000	2,022,000	1,229,000	3,899,000	3,451,000	2,926,000	3,370,000	4,312,000
Austria	743,000	674,000	594,000	137,000	145,000	175,000	198,000	238,000	227,000
Bulgaria	791,000	777,000	620,000	796,000	799,000	782,000	1,003,000	970,000	757,000
Canada	7,024,000	6,248,000	5,054,000	5,166,000	7,035,000	8,042,000	10,636,000	12,702,000	7,006,000
Denmark	182,000	115,000	169,000	158,000	198,000	238,000	247,000	237,000	157,000
Egypt	977,000	797,000	859,000	806,000	848,000	989,000	963,000	1,069,000	914,000
France	5,477,000	3,597,000	6,054,000	5,001,000	6,333,000	8,646,000	6,504,000	7,381,000	7,516,000
Germany	3,031,000	2,244,000	2,403,000	2,112,000	2,207,000	2,881,000	1,923,000	2,651,000	2,384,000
Hungary	(d)	(d)	(d)	(d)	1,014,000	1,409,000	1,463,000	1,814,000	1,378,000
Italy	4,719,000	3,742,000	4,859,000	4,233,000	3,773,000	5,154,000	4,321,000	6,023,000	4,548,000
Japan	759,000	875,000	829,000	820,000	759,000	720,000	738,000	761,000	679,000
Luxemburg	12,000	9,000	14,000	12,000	12,000	17,000	5,000	14,000	8,000
Netherlands	123,000	99,000	141,000	152,000	154,000	225,000	162,000	164,000	134,000
New Zealand	136,000	183,000	176,000	123,000	184,000	283,000	224,000	114,000	134,000
Norway	8,000	13,000	29,000	29,000	27,000	26,000	17,000	16,000	13,000
Poland	(d)	(d)	(d)	421,000	608,000	1,000,000	1,133,000	1,382,000	869,000
Rumania	2,099,000	(d)	574,000	1,765,000	1,639,000	2,100,000	2,459,000	2,705,000	1,832,000
Spain	4,073,000	3,814,000	3,627,000	3,453,000	3,795,000	3,820,000	3,354,000	4,208,000	3,255,000
Sweden	242,000	185,000	238,000	250,000	276,000	330,000	354,000	297,000	184,000
Switzerland	109,000	120,000	140,000	104,000	100,000	96,000	63,000	(c)146,000	63,000
Tunis	147,000	195,000	319,000	137,000	140,000	239,000	96,000	256,000	138,000
Union of South Africa	128,000	371,000	233,000	137,000	204,000	225,000	169,000	151,000	(d)
United Kingdom	1,598,000	1,719,000	2,490,000	1,858,000	1,487,000	1,939,000	1,744,000	1,590,000	1,413,000
United States of America	17,009,000	17,013,000	24,830,000	25,271,000	22,267,000	21,732,000	23,191,000	21,047,000	23,327,000
Uruguay	144,000	349,000	184,000	159,000	208,000	286,000	138,000	335,000	303,000

(a) Exclusive of invaded territory. (b) Incomplete data. (c) Including meslin and spelt. (d) Not available.
 Note.—The figures for European countries for the different years are not comparable, where changes of frontier have taken place after the war.

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO 1924—*contd.*

Maize

Countries	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Algeria	18,000	20,000	18,000	15,000	18,000	18,000	18,000	16,000	24,000
Argentina	8,965,000	8,712,000	8,249,000	8,181,000	8,087,000	7,340,000	7,848,000	8,465,000	9,158,000
Australia	860,000 (a)	832,000 (a)	287,000 (b)	265,000	284,000	305,000	313,000	316,000	(c)
Austria	362,000	359,000	390,000	104,000	102,000	112,000	148,000	144,000	147,000
Bulgaria	1,456,000	1,896,000	1,461,000	1,445,000	1,392,000	1,421,000	1,312,000	1,364,000	1,464,000
Cuba	173,000	234,000	250,000	364,000	292,000	297,000	318,000	318,000	295,000
Egypt	1,787,000 (a)	1,684,000 (a)	1,811,000 (a)	1,791,000	1,987,000	2,065,000	2,084,000	1,864,000	(c)
France	881,000	847,000	753,000	744,000	823,000	814,000	789,000	845,000	845,000
Hungary	(c)	(c)	(c)	(c)	2,016,000	2,166,000	2,444,000	2,401,000	2,478,000
Italy	3,915,000	3,852,000	3,856,000	3,707,000	3,708,000	3,715,000	3,856,000	3,790,000	3,605,000
Japan	144,000	138,000	141,000	132,000	150,000	168,000	140,000	136,000	(c)
New Zealand	6,000	8,000	10,000	9,000	12,000	11,000	10,000	8,000	(c)
Poland	(c)	(c)	(c)	(c)	107,000	132,000	188,000	189,000	190,000
Rumania	5,064,000	(c)	5,728,000	6,749,000	8,140,000	8,507,000	8,408,000	8,413,000	8,945,000
Siam	1,154,000	1,176,000	1,169,000	1,179,000	1,167,000	1,177,000	1,159,000	1,166,000	1,162,000
Switzerland	4,000	5,000	7,000	6,000	6,000	5,000	4,000	4,000	4,000
Ukraine	40,000	46,000	36,000	45,000	(e) 25,000	(e) 35,000	(e) 16,000	(e) 144,000	(e) 41,000
Union of South Africa	3,142,000	4,419,000	3,931,000	4,001,000	3,813,000	4,597,000	4,607,000	(c)	(c)
United States of America	105,252,000	116,681,000	104,424,000	87,795,000	101,657,000	103,697,000	102,809,000	104,158,000	104,968,000
Uruguay	627,000	590,000	552,000	494,000	571,000	479,000	569,000	576,000	(c)

YIELD (TONS)

Algeria	6,000	8,000	5,000	6,000	4,000	4,000	6,000	6,000	6,000
Argentina	1,488,000	4,258,000	5,594,000	6,454,000	5,742,000	4,895,000	4,893,000	6,919,000	4,642,000
Australia	213,000	221,000	172,000	162,000	181,000	196,000	184,000	202,000	(c)
Austria	142,000 (a)	132,000 (a)	88,000 (b)	53,000	53,000	63,000	87,000	86,000	98,000
Bulgaria	481,000	435,000	211,000	635,000	516,000	409,000	388,000	672,000	680,000
Cuba	187,000	194,000	354,000	423,000	358,000	372,000	344,000	340,000	299,000
Egypt	1,603,000 (a)	1,596,000 (a)	1,634,000 (a)	1,596,000	1,761,000	1,796,000	1,773,000	1,674,000	(c)
France	415,000	372,000	243,000	252,000	361,000	259,000	316,000	317,000	450,000
Hungary	(c)	(c)	(c)	(c)	1,251,000	791,000	1,216,000	1,231,000	1,849,000
Italy	2,034,000	2,065,000	1,911,000 (a)	2,142,000	2,228,000	2,308,000	1,917,000	2,380,000	2,636,000
Japan	99,000	95,000	84,000	101,000	99,000	107,000	87,000	84,000	(c)
New Zealand	7,000	9,000	10,000	10,000	12,000	12,000	13,000	10,000	(c)
Poland	(c)	(c)	(c)	(c)	27,000	37,000	69,000	96,000	104,000
Rumania	(c)	(c)	781,000	3,526,000	4,541,000	2,768,000	2,758,000	4,012,000	3,875,000
Siam	715,000	733,000	603,000	633,000	621,000	621,000	669,000	593,000	644,000
Switzerland	4,000	7,000	9,000	7,000	7,000	4,000	5,000	4,000	4,000
Ukraine	3,000	9,000	3,000	6,000	(e) 3,000	(e) 9,000	(e) 1,000	(e) 7,000	(e) 5,000
Union of South Africa	872,000	1,125,000	1,080,000	885,000	1,159,000	878,000	1,707,000	960,000	1,326,000
United States of America	54,035,000	76,470,000	62,435,000	53,322,000	80,046,000	76,533,000	72,432,000	76,860,000	80,725,000
Uruguay	170,000	168,000	164,000	115,000	197,000	120,000	162,000	163,000	(c)

(a) Exclusive of invaded territory.

(b) Incomplete data.

(c) Not available.

(d) Sorghum crop only.

(e) Maize and sorghum.

No. 19.—The figures for European countries for the different years are not comparable, where changes of frontier have taken place after the war.

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD
OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO
1924—contd.

Barley

Countries	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Algeria	3,008,000	2,838,000	2,793,000	2,707,000	2,827,000	2,513,000	2,916,000	2,837,000	3,156,000
Argentina	388,000	604,000	615,000	669,000	616,000	620,000	599,000	637,000	679,000
Australia	280,000 (a)	205,000 (a)	255,000 (b)	267,000	335,000	299,000	342,000	259,000	(c)
Austria	1,972,000	1,921,000	1,811,000	232,000	240,000	266,000	313,000	383,000	341,000
Bulgaria	598,000	603,000	601,000	484,000	549,000	523,000	534,000	544,000	525,000
Canada	1,602,000	2,391,000	3,152,000	2,644,000	2,551,000	2,794,000	2,598,000	2,785,000	3,406,000
Denmark	633,000	592,000	551,000	566,000	626,000	628,000	666,000	690,000	745,000
Egypt	439,000	497,000	336,000	356,000	340,000	394,000	375,000	400,000	372,000
France	1,537,000 (a)	1,696,000 (a)	1,371,000 (a)	1,254,000	1,640,000	1,679,000	1,712,000	1,684,000	1,764,000
Germany	3,765,000	3,808,000	3,484,000	2,783,000	3,257,000	3,114,000	3,102,000	3,216,000	3,572,000
Hungary	(c)	(c)	(c)	(c)	1,266,000	1,184,000	1,144,000	1,123,000	1,047,000
Italy	595,000	469,000	(a)478,000	480,000	494,000	540,000	576,000	569,000	572,000
Japan	3,073,000	2,887,000	2,860,000	2,892,000	2,985,000	2,928,000	2,745,000	2,549,000	2,482,000
Luxemburg	5,000	7,000	7,000	6,000	5,000	5,000	9,000	9,000	9,000
Netherlands	60,000	51,000	60,000	57,000	56,000	61,000	61,000	59,000	63,000
New Zealand	30,000	19,000	19,000	23,000	47,000	33,000	17,000	21,000	(c)
Norway	98,000	117,000	156,000	156,000	156,000	156,000	132,000	125,000	136,000
Poland	(c)	(c)	(c)	1,314,000	1,943,000	2,450,000	2,823,000	2,864,000	3,009,000
Rumania	1,453,000	(c)	2,119,000	1,942,000	3,458,000	3,876,000	4,267,000	4,642,000	4,571,000
Spain	3,834,000	4,005,000	4,208,000	4,352,000	4,317,000	4,333,000	4,060,000	4,540,000	4,342,000
Sweden	412,000	436,000	457,000	415,000	398,000	397,000	427,000	392,000	423,000
Switzerland	17,000	19,000	23,000	18,000	18,000	16,000	16,000	16,000	16,000
Tunis	1,232,000	1,188,000	1,417,000	1,106,000	926,000	1,228,000	733,000	1,206,000	892,000
Union of South Africa	57,000	132,000	125,000	85,000	97,000	108,000	107,000	(c)	(c)
United Kingdom	1,658,000	1,796,000	1,839,000	1,973,000	1,844,000	1,809,000	1,548,000	1,468,000	1,467,000
United States of America	7,754,000	8,929,000	9,736,000	6,470,000	7,597,000	7,411,000	7,314,000	7,905,000	7,083,000
Uruguay	13,000	6,000	5,000	5,000	5,000	3,000	3,000	5,000	5,000

YIELD (TONS)

Algeria	769,000	673,000	1,249,000	600,000	265,000	1,026,000	356,000	1,005,000	400,000
Argentina	46,000	(c)	(c)	55,000	79,000	128,000	166,000	238,000	149,000
Australia	91,000 (a)	89,000 (a)	106,000 (b)	96,000	159,000	136,000	146,000	111,000	(c)
Austria	835,000	496,000	587,000	82,000	95,000	117,000	120,000	168,000	154,000
Bulgaria	224,000	215,000	145,000	100,000	201,000	182,000	255,000	237,000	170,000
Canada	915,000	1,177,000	1,633,000	1,206,000	1,354,000	1,277,000	1,537,000	1,650,000	1,899,000
Denmark	523,000	382,000	459,000	524,000	528,000	589,000	651,000	696,000	731,000
Egypt	231,000 (a)	291,000 (a)	211,000 (a)	216,000	223,000	255,000	242,000	257,000	230,000
France	818,000	797,000	588,000	562,000	821,000 (b)	819,000 (b)	875,000 (b)	965,000	1,027,000
Germany	2,747,000	1,831,000	2,065,000	1,809,000	1,761,000	1,904,000	1,579,000	2,324,000	2,357,000
Hungary	(c)	(c)	(c)	(c)	463,000	458,000	474,000	554,000	314,000
Italy	216,000	159,000	207,000	176,000	126,000	222,000	176,000	225,000	166,000
Japan	2,048,000	2,047,000	1,909,000	2,039,000	1,970,000	1,879,000	1,583,000	1,574,000	1,603,000
Luxemburg	3,000	3,000	3,000	2,000	2,000	2,000	4,000	3,000	4,000
Netherlands	46,000	43,000	58,000	52,000	59,000	71,000	63,000	63,000	76,000
New Zealand	17,000	13,000	16,000	18,000	36,000	26,000	13,000	13,000	(c)
Norway	77,000	86,000	120,000	112,000	116,000	92,000	96,000	70,000	100,000
Poland	(c)	(c)	(c)	596,000	825,000	1,202,000	1,274,000	1,629,000	1,167,000
Rumania	642,000	(c)	107,000	677,000	1,446,000	968,000	2,005,000	1,331,000	658,000
Spain	1,857,000	1,867,000	1,935,000	1,749,000	1,934,000	910,000	1,658,000	2,397,000	1,790,000
Sweden	293,000	243,000	247,000	272,000	239,000	256,000	231,000	252,000	264,000
Switzerland	12,000	15,000	14,000	13,000	13,000	12,000	10,000	12,000	11,000
Tunis	105,000	167,000	280,000	118,000	56,000	246,000	39,000	246,000	54,000
Union of South Africa	23,000	47,000	37,000	15,000	23,000	28,000	26,000	26,000	(c)
United Kingdom	1,178,000	1,280,000	1,383,000	1,325,000	1,305,000	1,080,000	1,036,000	1,091,000	1,143,000
United States of America	3,898,000	4,538,000	5,479,000	2,609,000	4,049,000	3,313,000	3,898,000	4,247,000	4,017,000
Uruguay	2,000	2,000	2,000	2,000	2,000	1,000	1,000	2,000	1,000

(a) Exclusive of invaded territory. (b) Incomplete data. (c) Not available.
NOTE.—The figures for European countries for the different years are not comparable, where changes of frontier have taken place after the war.

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO 1924—*contd.*

Cotton

Countries	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Algeria	(b)	1,000	(b)	1,000	1,000	1,000	1,000	1,000	5,000
Anglo-Egyptian Sudan	(b)	(b)	(b)	(b)	(b)	84,000	62,000	112,000	(b)
Argentina	8,000	29,000	83,000	83,000	59,000	89,000	56,000	155,000	258,000
Australia	(b)	(b)	(b)	(b)	(b)	23,000	9,000	40,000	50,000
Brazil	501,000	726,000	605,000	685,000	805,000	1,419,000	1,512,000	1,966,000	1,578,000
Bulgaria (c)	4,000	5,000	7,000	4,000	5,000	4,000	7,000	7,000	5,000
Egypt	1,718,000	1,740,000	1,865,000	1,683,000	1,897,000	1,340,000	1,868,000	1,646,000	1,855,000
Italy	(b)	(b)	(b)	(b)	(b)	(b)	9,000	9,000	9,000
Japan	6,000	6,000	6,000	6,000	6,000	6,000	5,000	5,000	(b)
Union of South Africa	2,000	3,000	5,000	7,000	19,000	15,000	15,000	(b)	(b)
United States of America	84,970,000	83,837,000	85,998,000	89,726,000	85,868,000	80,496,000	88,086,000	87,123,000	41,843,000
YIELD (BALES OF 400 LBS)									
Algeria	(b)	1,000	(b)	(a)	1,000	1,000	(a)	1,000	3,000
Anglo-Egyptian Sudan	(b)	(b)	(b)	(b)	(b)	24,000	28,000	46,000	47,000
Argentina	5,000	19,000	19,000	16,000	31,000	31,000	32,000	88,000	60,900
Australia	(b)	(b)	(b)	(b)	(a)	2,000	10,000	30,000	17,000
Brazil	335,000	411,000	404,000	603,000	441,000	687,000	576,000	860,000	721,000
Bulgaria (c)	1,000	1,000	1,000	1,000	1,000	1,000	4,000	2,000	4,000
Egypt	1,250,000	1,555,000	1,121,000	1,377,000	1,492,000	1,076,000	1,659,000	1,447,000	1,754,000
Italy	(b)	(b)	(b)	(b)	(b)	(b)	5,000	5,000	5,000
Japan	5,000	5,000	5,000	5,000	6,000	4,000	4,000	3,000	(b)
Union of South Africa	1,000	1,000	3,000	3,000	3,000	3,000	3,000	(b)	(b)
United States of America	13,654,000	13,473,000	14,359,000	13,566,000	16,027,000	9,435,000	12,303,000	12,675,000	17,035

(a) Less than 500 bales.

(b) Not available.

(c) The figures for different years are not comparable, where changes of frontier have taken place after the war.

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO 1924—*contd.*

Linseed

Countries	AREA (ACRES)								1924	
	1916	1917	1918	1919	1920	1921	1922	1923		
Algeria	(c)	(c)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Argentina	3,206,000	3,231,000	3,418,000	4,362,000	4,767,000	3,890,000	4,315,000	5,255,000	6,320,000	
Australia	(c)	(c)	1,000	1,000	1,000	1,000	1,000	(c)	(c)	
Austria	49,000 (a)	48,000 (a)	65,000 (b)	7,000	8,000	8,000	9,000	9,000	9,000	9,000
Belgium	(c)	(c)	(c)	54,000	125,000	37,000	41,000	46,000	54,000	54,000
Bulgaria	(c)	(c)	1,000	1,000	1,000	1,000	2,000	1,000	1,000	1,000
Canada	657,000	919,000	1,068,000	1,093,000	1,428,000	533,000	565,000	680,000	1,276,000	
Egypt	1,000 (a)	(c)	4,000 (a)	3,000 (c)	6,000	6,000	1,000	2,000	2,000	2,000
France	17,000	22,000	28,000	52,000	66,000	48,000	38,000	37,000	30,000	
Germany	53,000	74,000	104,000	110,000	(c)	118,000	(c)	(c)	(c)	
Hungary	(c)	(c)	(c)	(c)	9,000	10,000	7,000	4,000	8,000	8,000
Italy	42,000	41,000	48,000	47,000	50,000	53,000	52,000	50,000	51,000	51,000
Japan	36,000	48,000	65,000	68,000	103,000	76,000	39,000	45,000	37,000	
Netherlands	37,000	30,000	15,000	24,000	60,000	22,000	24,000	25,000	31,000	
New Zealand	1,000	1,000	4,000	5,000	10,000	6,000	11,000	12,000	(c)	
Poland	(c)	(c)	(c)	81,000	101,000	175,000	251,000	256,000	282,000	
Rumania	20,000	(c)	186,000	50,000	32,000	27,000	27,000	23,000	51,000	
Spain	3,000	4,000	4,000	2,000	3,000	4,000	5,000	4,000	(c)	
Sweden	2,000	2,000	5,000	6,000	7,000	7,000	6,000	5,000	(c)	
Tunis	5,000	5,000	5,000	8,000	8,000	9,000	5,000	7,000	5,000	
United Kingdom	92,000	110,000	163,000	115,000	151,000	48,000	(b) 5,000	55,000	(b) 5,000	
United States of America	1,473,000	1,933,000	1,909,000	1,502,000	1,756,000	1,196,000	1,113,000	2,061,000	3,288,000	
Uruguay	36,000	36,000	51,000	88,000	79,000	61,000	84,000	102,000	124,000	

YIELD (TONS)

Algeria	(c)	(c)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
Argentina	100,000	489,000	768,000	1,245,000	1,497,000	899,000	1,187,000	1,465,000	1,125,000	
Australia	(c)	(c)	(c)	(d)	(d)	(d)	(d)	(c)	(c)	
Austria	8,000 (a)	7,000 (a)	9,000 (b)	1,000	1,000	1,000	1,000	1,000	2,000	
Belgium	(c)	(c)	(c)	12,000	21,000	8,000	9,000	10,000	12,000	
Bulgaria	(c)	(c)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	
Canada	206,000	148,000	151,000	137,000	190,000	103,000	126,000	178,000	242,000	
Egypt	(c)	(c)	(c)	1,000	3,000	1,000	(d)	(d)	1,000	
France	(a) 3,000	(a) 4,000	(a) 5,000	9,000	19,000	7,000	8,000	7,000	9,000	
Germany	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	
Hungary	(c)	(c)	(c)	(c)	2,000	2,000	1,000	1,000	1,000	
Italy	9,000	8,000	(a) 12,000	11,000	10,000	13,000	10,000	10,000	11,000	
Japan	7,000	(c)	16,000	12,000	(c)	16,000	7,000	7,000	5,000	
Netherlands	9,000	8,000	4,000	7,000	15,000	6,000	6,000	6,000	8,000	
New Zealand	(c)	(c)	(c)	2,000	5,000	3,000	5,000	3,000	(c)	
Poland	(c)	(c)	(c)	14,000	16,000	32,000	50,000	58,000	66,000	
Rumania	(c)	(c)	7,000	8,000	5,000	3,000	5,000	(c)	6,000	
Spain	(c)	1,000	2,000	1,000	1,000	1,000	1,000	1,000	(c)	
Sweden	(c)	(c)	1,000	1,000	(d)	(d)	(d)	(d)	(c)	
Tunis	(c)	1,000	1,000	1,000	1,000	1,000	(d)	1,000	(d)	
United Kingdom	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	
United States of America	357,000	229,000	334,000	181,000	269,000	200,000	259,000	435,000	753,000	
Uruguay	3,000	8,000	12,000	23,000	24,000	13,000	18,000	20,000	36,000	

(a) Exclusive of invaded territory.

(b) Incomplete data.

(c) Not available.

(d) Less than 500 tons.

NOTE—The figures for the European countries for different years are not comparable, where changes of frontier have, taken place after the war.

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO 1924—*contd.*

Rapeseed

Country	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Austria	(a) 10,000	(a) 18,000	(b) 24,000	3,000	2,000	3,000	3,000	3,000	3,000
Belgium	(e)	(e)	(e)	4,000	3,000	3,000	1,000	1,000	1,000
Bulgaria	(e)	17,000	38,000	4,000	7,000	3,000	4,000	3,000	1,000
Czechoslovakia	(e)	(e)	(e)	22,000	16,000	11,000	10,000	9,000	9,000
Formosa	3,000	3,000	3,000	2,000	2,000	2,000	1,000	1,000	(e)
France	(a) 41,000	(a) 37,000	(b) 43,000	64,000	68,000	68,000	55,000	60,000	(e)
Germany	110,000	160,000	279,000	306,000	230,000	210,000	104,000	128,000	104,000
Hungary	(e)	(e)	(e)	(e)	9,000	40,000	29,000	44,000	26,000
Japan	292,000	294,000	285,000	279,000	276,000	262,000	224,000	206,000	(e)
Netherlands	7,000	6,000	9,000	20,000	10,000	4,000	2,000	5,000	5,000
Poland	(e)	(e)	(e)	84,000	102,000	81,000	112,000	112,000	107,000
Rumania	63,000	(e)	23,000	208,000	140,000	105,000	105,000	113,000	96,000

YIELD (TONS)

Austria	(a) 5,000	(a) 4,000	(b) 10,000	1,000	1,000	1,000	1,000	1,000	1,000
Belgium	(e)	(e)	(e)	2,000	2,000	2,000	1,000	1,000	1,000
Bulgaria	(e)	4,000	4,000	1,000	1,000	1,000	1,000	1,000	(d)
Czechoslovakia	(e)	(e)	(e)	11,000	7,000	5,000	4,000	5,000	4,000
Formosa	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(e)
France	(a) 20,000	(a) 16,000	(a) 20,000	38,000	40,000	33,000	23,000	27,000	(e)
Germany	(e)	(e)	(e)	(e)	(e)	(e)	(e)	(e)	(e)
Hungary	(e)	(e)	(e)	(e)	3,000	11,000	7,000	14,000	7,000
Japan	103,000	110,000	101,000	110,000	106,000	95,000	80,000	72,000	(e)
Netherlands	6,000	4,000	5,000	14,000	7,000	3,000	1,000	5,000	5,000
Poland	(e)	(e)	(e)	29,000	29,000	20,000	36,000	47,000	33,000
Rumania	10,000	(e)	1,000	53,000	23,000	11,000	19,000	16,000	3,000

(a) Exclusive of invaded territory. (b) Incomplete data. (c) Not available. (d) Below 500 tons.
NOTE.—The figures for the European countries for the different years are not comparable, where changes of frontier have taken place after the war.

FOREIGN COUNTRIES

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO 1924—*contd.*

Tea.

Country	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Andaman and Nicobar	(d)	(d)	(d)	(d)	(e)	(e)	(e)	(e)	(e)
Ceylon	498,000	509,000	505,000	395,000	395,000	418,000	420,000	420,000	400,000
Formosa	108,000	112,000	112,000	115,000	98,000	89,000	88,000	(e)	(e)
Japan	120,000	119,000	122,000	120,000	118,000	115,000	110,000	108,000	105,000
Java	308,000	(e)	(e)	(b)	(b)	(b)	(b)	(b)	(e)
Mauritius	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
Nyasaland	4,000	5,000	4,000	5,000	5,000	4,000	5,000	4,000	(e)
Union of South Africa	5,000	4,000	4,000	4,000	4,000	4,000	2,000	2,000	(e)
Fiji Islands	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(e)	(e)

YIELD (LBS)

Andaman and Nicobar	73,000	70,000	79,000	63,000	(e)	(e)	(e)	(e)	(e)
Ceylon (e)	202,829,000	194,821,000	180,438,000	208,122,000	184,382,000	161,271,000	171,446,000	181,557,000	204,500,000
Formosa	27,250,000	37,762,000	37,688,000	35,059,000	21,367,000	23,283,000	25,610,000	20,636,000	22,015,000
Japan	84,010,000	86,924,000	88,739,000	85,781,000	79,582,000	74,067,000	77,222,000	79,007,000	78,712,000
Java	98,959,000	87,377,000	70,095,000	(b)	(b)	(b)	(b)	(b)	(e)
Mauritius	66,000	66,000	66,000	44,000	44,000	(e)	33,000	(e)	(e)
Nyasaland	458,000	620,000	633,000	669,000	527,000	414,000	622,000	899,000	(e)
Union of South Africa	1,818,000	1,708,000	1,599,000	1,407,000	1,271,000	912,000	672,000	286,000	(e)
Fiji Islands	51,000	49,000	51,000	48,000	27,000	24,000	16,000	(e)	(e)

(a) Approximate data.

(b) Java and Sumatra.

(c) Not available.

(d) Below 500 acres.

(e) Export figures.

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO 1924—*contd.*

Coffee

Countries	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Australia	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(g)	(d)
Brazil	(d)	(d)	(d)	(d)	(d)	(d)	5,418,000	6,020,000	5,184,000
British Guiana	5,000	5,000	5,000	5,000	5,000	5,000	4,000	4,000	5,000
Colombia	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
Costa Rica	(d)	(d)	(d)	(d)	(d)	(d)	85,000	70,000	89,000
Dutch East Indies (d)	(d)	(d)	(d)	324,000	339,000	813,000	318,000	303,000	(f) 246,000
Dutch Guiana	(d)	(d)	(d)	(d)	3,000	13,000	13,000	13,000	27,000
Federated Malay States	3,000	3,000	1,000	3,000	3,000	3,000	(d)	(d)	(d)
French Central Africa	3,000	3,000	(d)	(d)	(d)	7,000	6,000	9,000	9,000
Guadeloupe	13,000	16,000	17,000	(d)	(d)	(d)	17,000	(d)	16,000
Guatemala	271,000	21,000	198,000	151,000	142,000	191,000	209,000	210,000	237,000
Hawaii	9,000	9,000	(d)	(d)	(d)	(d)	(d)	(d)	(d)
Indo-China	11,000	11,000	(d)	11,000	20,000	20,000	(d)	(d)	(d)
Jamaica	20,000	20,000	20,000	28,000	20,000	20,000	1,000	19,000	18,000
Mexico	188,000 (d)	(d)	(d)	(d)	(d)	126,000	126,000	126,000	(d) 7
Nicaragua	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
Nyasaland	1,000	1,000	1,000	(g)	(g)	(g)	(g)	(g)	(d)
Paraguay	(d)	1,000	(d)	(d)	(g)	(g)	1,000	(d)	(d)
Philippines	(d)	3,000	(d)	3,000	3,000	3,000	3,000	(d)	(d)
Porto-Rico	163,000	148,000	163,000	163,000	163,000	163,000	162,000	163,000	(d)
Salvador	(d)	108,000	173,000	(d)	(d)	140,000	(d)	(d)	(d)
Uganda	24,000	23,000	23,000	23,000	23,000	20,000	20,000	31,000	41,000
Venezuela	(d)	(d)	(d)	250,000	(d)	(d)	(d)	(d)	(d)

YIELD (LBS)

Australia	15,000	18,000	13,000	15,000	13,000	15,000	9,000	(d)	(d)
Brazil	1,653,397,000	3,001,870,000	1,265,754,000	1,734,674,000	1,830,308,000	1,858,463,000	3,509,613,000	3,039,067,000	1,923,000,000
British Guiana	(d)	(d)	(d)	(d)	(d)	307,000	534,000	513,000	(d)
Colombia	(d)	165,000,000	198,000,000	190,564,000	309,558,000	333,511,000	372,008,000	393,452,000	(e) 348,100,000
Costa Rica (c)	26,938,000	25,104,000	30,720,000	30,720,000	29,340,000	40,937,000	24,324,000	40,064,000	(e) 29,630,000
Dutch East Indies	119,375,000	98,507,000	111,633,000	123,947,000	100,301,000	73,773,000	100,040,000	130,971,000	(f) 94,380,000
Dutch Guiana	1,633,000	3,401,000	4,077,000	3,831,000	3,753,000	3,937,000	5,690,000	6,313,000	3,607,000
Federated Malay States	825,000	403,000	379,000	(d)	(d)	(d)	(d)	(d)	(d)
French Central Africa (c)	47,000	37,000	97,000	87,000	164,000	238,000	245,000	209,000	267,000
Guadeloupe (c)	1,108,000	2,368,000	1,131,000	1,766,000	1,471,000	1,101,000	1,173,000	1,070,000	(d)
Guatemala	93,961,000	53,777,000	104,613,000	68,661,000	53,900,000	106,336,000	73,980,000	80,960,000	66,763,000
Hawaii	4,753,000	4,753,000	(d)	19,943,000 (a)	(d)	(d)	(d)	(d)	(d)
Indo-China	3,663,000	3,706,000	(d)	3,706,000	(d)	(d)	(d)	(d)	(d)
Jamaica (c)	6,747,000	10,216,000	6,230,000	4,612,000	7,319,000	7,006,000	8,613,000	5,303,000	(d)
Mexico	63,000,000	104,361,000	(d)	(d)	76,733,000	98,557,000	87,970,000	89,100,000	(d)
Nicaragua (c)	(d)	25,507,000	33,618,000	15,313,000	20,876,000	19,333,000	23,943,000	34,968,000	(e) 19,844,000
Nyasaland	(d)	94,000	133,000	39,000	49,000	13,000	92,000	110,000	(d)
Paraguay	(d)	1,683,000	(d)	(d)	191,000	203,000	238,000	(d)	(d)
Philippines	1,308,000	1,586,000	1,573,000	3,167,000	3,337,000	3,280,000	2,548,000	(d)	(d)
Porto-Rico	39,333,000	37,530,000	27,830,000	33,007,000	40,905,000	44,905,000	43,339,000	26,006,000	(d)
Salvador	(d)	65,454,000	84,614,000	83,800,000	63,357,000	94,773,000	105,667,000	118,350,000	(e) 94,773,000
Uganda (c)	3,318,000	4,070,000	6,500,000	8,117,000	5,480,000	5,739,000	5,071,000	4,575,000	4,533,000
Venezuela (c)	26,673,000	37,971,000	179,416,000	73,873,000	131,711,000	143,946,000	114,632,000	103,123,000	(d)

(a) Coffee berries. (b) Incomplete data. (c) Export figures. (d) Not available. (e) Unofficial estimate of yield. (f) Java and Sumatra only. (g) Below 500 acres.

No. 19.—COMPARATIVE STATEMENT SHOWING REPORTED AREA AND YIELD OF CERTAIN PRINCIPAL CROPS IN FOREIGN COUNTRIES FROM 1916 TO 1924—*contd.*

Sugarcane

Countries	AREA (ACRES)								
	1916	1917	1918	1919	1920	1921	1922	1923	1924
Antigua	16,000	16,000	(c)	16,000	16,000	16,000	16,000	16,000	(c)
Argentina	212,000	230,000	234,000	235,000	234,000	236,000	262,000	300,000	(c)
Australia	178,000	188,000	171,000	169,000	174,000	197,000	217,000	237,000	(c)
British Guiana	78,000	78,000	74,000	71,000	69,000	63,000	61,000	65,000	67,000
Costa Rica	(c)	(c)	(c)	(c)	(c)	(c)	48,000	43,000	44,000
Cuba	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Dutch East Indies (b)	300,000(a)	283,000(a)	251,000(a)	372,000	413,000	443,000	444,000	405,000	(c)
Dutch Guiana	7,000	6,000	5,000	5,000	5,000	5,000	(c)	(c)	(c)
Egypt	65,000	68,000	69,000	53,000	66,000	65,000	65,000	66,000	(c)
Formosa	315,000	301,000	(c)	260,000	285,000	340,000	276,000	286,000	321,000
Guadeloupe and dependencies	94,000	90,000	(c)	(c)	(c)	(c)	86,000	(c)	(c)
Guatemala	18,000	(c)	40,000	42,000	(c)	32,000	37,000	32,000	33,000
Hawaii	124,000	120,000	120,000	114,000	113,000	124,000	114,000	(c)	(c)
Indo-China	94,000	66,000	(c)	(c)	93,000	93,000	(c)	(c)	(c)
Jamaica	33,000	38,000	41,000	48,000	56,000	44,000	49,000	47,000	(c)
Japan	78,000	72,000	68,000	68,000	72,000	76,000	64,000	68,000	(c)
Mauritius	175,000	176,000	178,000	178,000	180,000	178,000	171,000	167,000	(c)
Mexico	(c)	68,000	(c)	(c)	(c)	111,000	95,000	100,000	(c)
Paraguay	15,000	15,000	(c)	(c)	13,000	13,000	13,000	10,000	(c)
Peru	113,000	128,000	(c)	100,000	131,000	126,000	126,000	131,000	(c)
Philippines	453,000	508,000	494,000	488,000	506,000	595,000	561,000	561,000	(c)
Porto-Rico	305,000	266,000	289,000	228,000	240,000	241,000	244,000	237,000	(c)
Salvador	(c)	21,000	18,000	(c)	(c)	30,000	(c)	(c)	27,000
Spain	4,000	5,000	5,000	5,000	6,000	6,000	6,000	8,000	(c)
Uganda	3,000	1,000	2,000	3,000	2,000	4,000	7,000	12,000	7,000
Union of South Africa	163,000	194,000	(c)	180,000	190,000	197,000	215,000	211,000	(c)
United States of America (Louisiana)	221,000	244,000	231,000	235,000	225,000	225,000	241,000	217,000	180,000
Fiji Islands	69,000	68,000	69,000	74,000	91,000	63,000	36,000	(c)	(c)

YIELD (TONS)

Antigua	(c)	(c)	(c)	(c)	(c)	68,000	113,000	72,000	(c)
Argentina	1,408,000	1,112,000	2,161,000	3,044,000	3,044,000	2,745,000	2,864,000	3,719,000	3,421,000
Australia	1,719,000	2,873,000	1,776,000	1,347,000	1,468,000	2,432,000	2,311,000	2,173,000	(c)
British Guiana	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Costa Rica	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	31,000
Cuba	28,463,000	31,469,000	36,511,000	34,185,000	37,123,000	34,681,000	31,617,000	36,672,000	(c)
Dutch East Indies (b)	17,044,000	15,675,000	13,395,000	13,395,000	14,870,000	15,010,000	16,728,000	17,564,000	(c)
Dutch Guiana	(c)	(c)	(c)	10,000	11,000	(c)	(c)	(c)	(c)
Egypt	(c)	(c)	1,703,000	1,666,000	1,842,000	1,805,000	1,689,000	1,668,000	(c)
Formosa	5,002,000	4,017,000	3,318,000	2,838,000	2,910,000	3,979,000	3,664,000	4,394,000	4,719,000
Guadeloupe and Dependencies	(c)	(c)	(c)	(c)	380,000	359,000	369,000	(c)	(c)
Guatemala	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Hawaii	4,661,000	4,328,000	4,237,000	3,985,000	4,149,000	4,533,000	4,068,000	(c)	(c)
Indo-China	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Jamaica	(c)	(c)	(c)	(c)	(c)	499,000	424,000	(c)	(c)
Japan	1,502,000	1,167,000	1,067,000	1,037,000	863,000	1,089,000	798,000	712,000	(c)
Mauritius	2,083,000	2,171,000	2,301,000	(c)	(c)	(c)	(c)	(c)	(c)
Mexico	(c)	1,251,000	(c)	(c)	(c)	2,100,000	1,709,000	(c)	(c)
Paraguay	(c)	118,000	(c)	(c)	(c)	(c)	(c)	113,000	(c)
Peru	2,161,000	2,567,000	(c)	2,406,000	2,833,000	2,830,000	2,719,000	2,780,000	(c)
Philippines	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Porto-Rico	(c)	(c)	(c)	2,550,000	4,688,000	4,533,000	3,353,000	(c)	(c)
Salvador	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Spain	68,000	68,000	68,000	68,000	126,000	118,000	107,000	121,000	(c)
Uganda	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Union of South Africa	(c)	1,121,000	1,122,000	(c)	1,460,000	1,463,000	1,469,000	1,466,000	(c)
United States of America (Louisiana)	3,628,000	3,308,000	3,715,000	3,170,000	3,221,000	3,725,000	2,979,000	3,126,000	1,267,000
Fiji Islands	629,000	602,000	488,000	376,000	1,080,000	784,000	482,000	(c)	(c)

(c) Incomplete data.

(b) The figures relate to Java and Madura only.

(c) Not available.

APPENDIX I

METHOD OF FRAMING ESTIMATES OF CROPS

There are three factors necessary for framing an estimate of outturn, namely, the area, the standard normal outturn per acre, and the fraction representing the relation of the crop reported on to the normal crop per acre.

As regards area, there exists in the villages of most provinces an agency capable of reporting the acreage of crops with great accuracy, wherever the fields have been mapped and surveyed. The tracts, for which statistics are ordinarily not obtainable, are yearly diminishing in extent; but owing to the absence of maps or the non-existence of trained village establishments they still represent a considerable aggregate area. These tracts consist chiefly of permanently settled estates, lands held on privileged tenure, and unsurveyed areas. For these tracts, the acreage as well as the outturn cannot be more than a rough estimate. Such estimates of areas, once framed, are liable to become stereotyped and repeated year after year without regard to the influence of exceptional seasons or changes in the economic condition of the tracts. In order to prevent this, provision has been made for the annual revision of these estimates by careful comparison with the conditions prevailing in those adjoining areas of a similar character for which accurate information is available, and by means of such special enquiries as may be possible.

In dealing with the calculation of the areas under crops, two other matters demand consideration, namely, (1) whether the area returned should be the area sown or that successfully cropped, and (2) whether, when the forecast crop is sown mixed with other crops, it is preferable that the total area covered by the mixed crops should be exhibited, or that such area only should be shown as is estimated to represent the acreage covered by the forecast crop only. As regards (1), the general rule is that the returns should exhibit the areas actually sown whether the crop comes to maturity or not, the principle underlying this rule being that the failure of crop should affect not its area but its outturn. An exception to this rule is, however, made when fields, owing to the failure of the first sowings, have been devoted to other crops. In this case the area first sown with the forecast crop may be omitted. As to (2), the areas covered by the several crops in a mixed field are estimated in various ways in the different provinces, and the estimates are based on formulæ prescribed by the provincial authorities in individual cases, as it has not been found practicable to prescribe one uniform method of calculation. For purposes of the forecasts, the area to be returned must be the area covered by the forecast crop, exclusive of the area covered by the other crops with which it is mixed.

Next with regard to the standard normal outturn. A normal crop may be defined as "that crop which past experience has shown to be the most generally recurring crop in a series of years; the typical crop of the local area; the crop which the cultivator has a right (as it were) to expect, and with which he is (or should be) content, while if he gets more he has reason to rejoice, and if less he has reason to complain;" or in other words, it is the "figure which in existing circumstances might be expected to be attained in the year if the rainfall and season were of a character ordinary for the tract under consideration, that is, neither very favourable nor the reverse." Briefly, it is stated to be "the average yield on average soil in a year of average character." This normal or average yield will not necessarily correspond with the average of a series of years' figures, which is an arithmetical average. The Agricultural Department in each province maintains a statement of the normal or average yield per acre of land of average quality (under the two major heads of irrigated and unirrigated land) for the several crops in each district. In order to test the accuracy of these standards of normal or average yield and to revise them, if necessary, a system of crop-cutting experiments is in force in almost all the provinces. Under this system plots of land of average quality are selected and the crops grown on them are cut and weighed in the presence of responsible officers of the District staff or of the Provincial Agricultural Department. These experiments have to be carried out every year in respect of all the principal crops, and in accordance with rules specially framed by the several provincial authorities. The results of the experiments are reported to the head of the Provincial Agricultural Department, who, on a careful scrutiny of all the reports received by him and after such further investigations as he may deem necessary, revises or verifies the standards previously adopted for the districts or the province. This revision is ordinarily made once in five years.

The third factor—the fraction representing the relation of the crop reported on to the normal crop per acre—is what is known as the "anna estimate" or the "percentage estimate." In many parts of India the cultivators estimate the crop outturn in annas or sixteenths, as there are sixteen annas in a rupee. They take a certain number of annas to represent the normal outturn and estimate the outturn of the year of report as so many annas higher or lower than the normal. But in some tracts sixteen annas express a bumper-crop, while in others the same term expresses a normal crop, and the number of annas taken to represent a normal outturn varies between 12 and 16. Consequently the anna estimate of one tract is not always amenable to comparison or combination with that of another tract. The percentage estimate is the American system under which 100 is taken to denote a normal crop and the estimated outturn of the year of report is stated as a percentage of that crop. In 1897 a question arose as to whether the anna notation or the American notation should be used in making crop estimates, and it was strongly urged upon the Government of India that as the cultivators and

village officers entrusted with the duty of collecting data for crop reports were mostly accustomed to the Indian system, *i.e.*, the anna notation, the adoption of any other system would tend to confuse the estimate. Local Governments and Administrations were, therefore permitted to adopt such scale of notation as might be suited to local conditions, the object being to secure that the returns should be in terms of a normal crop. But since the anna standard thus adopted would not possess any fixed or uniform value, it was laid down that in published forecasts the anna notation should not be used, the American notation being used in its stead *i.e.*, 100 being taken to represent a normal crop and the estimated outturn being stated as a percentage of that crop, and the conversion of the anna estimate into the percentage estimate being made either by the district officer or by the provincial authorities.

When these three factors have been determined, they are multiplied with each other to arrive at the required quantitative estimate of outturn. Thus, if the area be 60,000 acres, the standard of normal outturn 500 lbs per acre, and the percentage estimate 80, the required quantitative estimate would be $60,000 \times 500 \times \frac{80}{100} = 24,000,000$ lbs.

APPENDIX II

METHODS OF COLLECTING THE STATISTICS PROVINCE BY PROVINCE

In the Madras Presidency, the estimates relate to all the districts in which the respective crops are grown. Approximately two-thirds of the cultivated land in the Presidency are Government or *rayatwari* land, and have been carefully surveyed. All the village officers therein are appointed and controlled by Government officials. In the ordinary course of his work the village accountant sends every month to the Revenue Inspector (the officer in charge of a group of villages varying in number) a detailed statement of the sowings in his village. For those crops for which forecasts are prepared, the Revenue Inspector, who is himself a touring officer, reports to his *Tahsildar** the area in his range under those crops, with his estimates of the average yield expressed in so many annas of the normal crop, when outturns are required. The *Tahsildar* consolidates all these figures and reports the total direct to the Director of Agriculture with, in the case of outturn, his estimated yield (also expressed in annas of the normal). The remaining third of the Presidency is *zamindari* (consisting of large proprietary estates), of which only a part has been accurately surveyed, and for which somewhat similar returns are prepared and dealt with accordingly. In other cases where some sort of account is maintained in *Zamindari* and *whole inam* villages, the *Tahsildar* or Deputy *Tahsildar* estimates the area and yield, as well as he can, from his own knowledge and from reports of the estate officials. The figures for these areas are included but shown separately under estimates in the reports sent by the *Tahsildar* to the Director of Agriculture. In the remaining cases, where estates have not been surveyed and where no sort of account is maintained at all, the estimating is done in the office of the Director of Agriculture with reference to previous year's final audited figures, the character of the season, and the figures of neighbouring Government areas. The States of Pudukkottai and Banganapalle send similar reports direct to the Director for cotton only. No other State in the Presidency prepares any crop forecast. Thus, for each forecast return, separate reports (242 for cotton and 240 for other crops) are received in the Director's office, where they are scrutinized and tabulated. More accurate figures of areas cultivated are obtainable at the end of the year after all the village accounts have been checked. These figures are published later in the provincial Season and Crop Report. The figures reported by *Tahsildars* in their final forecasts are checked by a comparison with the forecast reports and the Season and Crop Reports for previous years, and thus an attempt is made to rectify obviously inaccurate reporting. Standard rates of outturn have been determined for each crop on a consideration of the latest crop-cutting experiments, of the results on the Government farms, of the local knowledge of the Director of Agriculture and his staff in comparing the yields from adjoining districts, and of the results of a comparison of the figures of yield with the figures of net export and the estimate of consumption. The Director checks the rate of yield reported by *Tahsildars* by estimates received from his subordinate officers and from non-officials interested in a particular crop.

The estimates for the Bombay Presidency include all British districts and States where the respective crops are grown to any extent. In the British districts of the Presidency proper, the area under different crops is ascertained in the first instance by village officers and recorded in village returns, which are checked by circle inspectors and other revenue officers, and compiled by the former for their circles and then for the *taluka*** The *taluka* figures are tallied up for each district in the office of the Director of Agriculture of the province. For Sind, this work is done by local officers, and the Director receives district-by-district figures. The information received is for villages for which regular statistics are available, the proportion of reporting area being 91.4 per cent in the Presidency proper and 99.6 per cent in Sind. From 1899-10, however, estimates for the non-reporting areas have been made so far as possible and included in the table. In the case of Indian States the acreage is estimated on the best local data available. The approximate numerical strength of the reporting agency is 188 in the Presidency proper, 60 in Sind, and 33 in the Indian States. No standard of yield has yet been fixed. Local estimates of crop condition are converted to quantitative figures on the basis of a formula showing the average yield of crops, which has been adopted provisionally. This formula is now being revised, the revision being based on the ascertainment of actual yield in different parts of the Presidency by careful local enquiry by officers of the Provincial Agricultural Department, who are tabulating the results and comparing them for the purpose. The unit of area in the formula is the district, and irrigated and unirrigated crops are separately dealt with. Each year's estimate of the condition of crops is prepared by the *mamlatdar*† (or *mahalkaris*‡ where the *taluka* is sub-divided) from notes which they make and from reports from village accountants and circle inspectors. The estimate is sent direct to the Director of Agriculture, who, in the light of the general prospects of the season, makes the quantitative calculations. For Sind there are no formula, and all the necessary information is obtained from the district officers in the form of estimates on the basis of twelve annas for a normal crop, together with quantitative equivalents gathered from general experience. For Indian States condition estimates are obtained, and the formulae for adjoining British districts are applied.

The estimates for Bengal relate to all the districts of the Presidency where the respective crops are grown. In the absence of any revenue agency in the province, the figures are based mainly on rough approximate estimates made by District Officers, and are more or less conjectural. The district officers obtain information from the sub-divisional officers through the agency of the police or the Circle Officers where appointed as a permanent

NOTE.—The cultivated area shown in the margin represents the average net area actually sown with all crops in each province during the three years ending 1928-29.

* A sub-divisional officer. ** A sub-division of a district under the management of a *Tahsildar*.

† The chief revenue and police officer in charge of a *taluk*.

‡ A revenue or police officer in charge of a sub-division of a *taluk*.

§ Entire villages granted rent-free.

Madras
(Total cultivated area 33,779,000 acres)

Bombay and Sind
(Total cultivated area 30,834,000 acres)

Bengal
(Total cultivated area 23,383,000 acres)

measure. The quantitative estimates of yield formerly given in the forecasts were based on standards provisionally adopted. The standards have now been revised on the basis of the results obtained from crop-cutting experiments conducted over a series of areas and seasons.

United Provinces
(Total cultivated area
26,692,000 acres)

The estimates prepared by the United Provinces include all the districts of the province except Almora and Garhwal for which the required particulars are not available as no regular village papers are kept up by *patwaris* (village accountants) in these two districts. † The area is taken from the crop statements based on field-to-field inspections, which are compiled by *patwaris* and checked by higher revenue officers. The estimates of the standard yield are based on the results ascertained from crop-cutting experiments conducted annually in selected districts. The standards, which are different for irrigated and unirrigated crops, are revised every five years on a consideration of the results of the crop-cutting experiments, and are applied to the condition of the crops reported by district officers and selected landholders whose number exceeds six hundred.

Punjab
(Total cultivated area
26,500,000 acres)

The estimates for the Punjab relate to all the British districts in which the respective crops are grown. As regards Indian States of the province, reports on wheat and cotton are furnished by all the States in which these two crops are grown to any considerable extent. No estimates for any other crop are prepared by any State. The figures of area for all the British districts up to 1912-13 were based on actual measurements by the village revenue staff. Estimates of yield were recorded by district officers after personal enquiry from *tahsildars* and leading agriculturists. The total number of agriculturists consulted by the district officers and *tahsildars* amounts to several thousands. From 1913-14, however, this method is followed only in districts in which the respective crops are grown to a considerable extent. For other districts the Provincial Director of Agriculture prepares conventional forecasts based on the actual average area figures for the previous five years and an assumed average outturn as determined by him to meet the character of the harvest.

Burma
(Total cultivated area
16,194,000 acres)

The estimates for Burma relate to all the districts of the province in which the respective crops reported on are grown. The figures for the districts in which the crops are grown to a considerable extent are based on regular reports, furnished by District Officers, while those for the remaining districts are based on rough estimates prepared by the Commissioner of Settlements and Land Records. For the districts from which regular reports are received, the figures of area are obtained from the assessment rolls prepared by revenue surveyors. The original information about the yield is obtained from township officers, inspectors of Land Records, and from the more important of the Land Revenue subordinate officers. In this way the estimate of each district is based on the information furnished by some thirty or more persons. The figures of both area and yield are tabulated by the Superintendent of Land Records and checked by the District Officers. The Commissioner of Settlements and Land Records compares the estimated yield with a standard representing the normal yield, which was fixed after an extensive series of experimental crop-cuttings by Settlement Officers.

Bihar and Orissa
(Total cultivated area
25,232,000 acres)

The estimates for Bihar and Orissa relate to all the districts of the province where the respective crops are grown. Survey and Settlement operations have been completed in all the districts except two, and in these districts the settlement figures serve as a check on the estimates of acreage based on the information furnished by the police. In the absence of any revenue agency in the province, the figures are based mainly on rough approximate estimates made by district officers, and are more or less conjectural. The district officers obtain information from the sub-divisional officers through the agency of the police. In the district of Sambalpur, the acreages under crops are revised annually by the Land Records staff by field-to-field inspection. The system of making crop-cutting tests, as in other provinces, over a series of areas and seasons for the ascertainment of standards of yield has been in force in the districts of this province for some thirty-one years, but has been shown to be seriously defective and is under revision. The estimates, therefore, of yield given in the forecasts are based on standards adopted provisionally by the Provincial Department of Agriculture on the basis of information obtained from other sources.

Central Provinces
and Berar
(Total cultivated
area 24,069,000
acres)

The estimates for the Central Provinces and Berar relate to all the British districts of the province in which the respective crops reported on are grown. As regards Indian States of the province, reports on wheat, rice, and linseed only are furnished by six to ten States. No information is available from the other States. The figures of acreage for cotton, sesamum, rice, and sugarcane are estimates based on reports furnished by the local officials of the Land Records staff. The figures for wheat and linseed represent the actual areas sown with these crops as disclosed by field-to-field inspection by *patwaris*.* The reporting agency consists of 392 revenue inspectors with, on an average, 17 *patwaris* working under each inspector. Each *tahsil* † has usually 4 revenue inspectors. Standards of outturn were framed for each crop from the results of crop-cutting experiments on selected fields under the supervision of responsible and selected officials during the years 1884-85 to 1887-88. These standards have been revised from time to time on the basis of the results of crop-cutting experiments since made. In the year 1920-21 the substitution of anna estimates for American notation was introduced in accordance with the wishes of the Board of Agriculture, who, in 1919, decided that it would be better to abandon all attempts to impress on the reporting agency what is meant by the expression "normal crop," and secondly, that the use of American notation in which 100 is meant to signify a normal crop should be discontinued. The Board considered that in the long run better statistics would be obtained if the reporting agency were allowed to follow its traditional method of reporting the crop in the anna notation. All deductions based on the standards are made by the provincial Director of Land Records from the year's figures furnished by the District Officers, who are supposed to bear in mind the standards when estimating the yield of the season. *

* Village accountants.

† Sub-division of a district.

The estimates for Assam relate to all the districts in which the respective crops reported on are grown to any extent. For all districts the information is received from District Officers. The areas of crops except cotton and tea are collected by the Land Records Staff for the temporarily settled plains districts and the plains portion of Garo Hills and those for the hills are based on estimates revised quinquennially by the District Officers except in the case of forest crops for which estimates have to be made annually. In the permanently settled tracts of Sylhet and Goalpara the areas of jute are reported by the village Choukidari Panchayats. For other crops except cotton and tea the areas are estimated in Sylhet by the Deputy Commissioner on the basis of the population figures and the surveyed areas of the temporarily settled parts of the district; in Goalpara they are obtained from Zaminders. Tea Statistics in all districts are supplied by the Tea Garden Managers and Proprietors. The areas of cotton are obtained in Cachar from *patwaris* for the plains sub-divisions and for the North Cachar Hills estimate is made by the Sub-Divisional Officer; in Sylhet information is obtained from the Collector of Dao tax, in the Garo Hills from hill Manzadars, in Nowgong from the Supervisor Kunungo of hills Sub-circle, in Sibsagar and Goalpara from Mandals or other village officers, in Khasi and Jaintia Hills from Dolous and Sirdars, and in the Naga and Lushai Hills from intelligent chiefs. The figures are checked only in the temporarily settled tracts by the circle Sub-Deputy Collectors; in the permanently settled districts of Sylhet and Goalpara there is no real check at all. The estimates of outturn are based on the normal yield obtained from the results of crop-cutting experiments.

Assam
(Total cultivated area 5,802,000 acres)

The estimates for the North-West Frontier Province relate to all the districts of the province in which the respective crops reported on are grown, including the Tochi agency in the case of wheat, cotton, and sugarcane. The figures of area are based on actual measurements made by the *patwaris* in their field-to-field inspection at each harvest. They are further checked by higher revenue officers. The estimates of the standard yield are based principally on data derived from a large number of crop-cutting experiments made during the progress of settlement operations. They were framed for each assessment circle, which is the unit of area, and separately for lands irrigated by canals, by wells, for alluvial (*sailab*) lands, and for lands entirely dependent on rain. The standards are applied to the estimates of condition of crops received from the District Officers, who frame their estimates in consultation with local agriculturists. The exact number of agriculturists consulted by the District Officers is not available, but it must necessarily be several hundreds.

North-West Frontier Province
(Total cultivated area 2,385,000 acres)

The estimates for Ajmer-Merwara relate to the whole of the district. So far as *khalsa*,* *jagir*,† and minor *istamrari*‡ villages are concerned, the *patwari* is responsible for making field-to-field inspections of every village in his circle at each harvest. These inspections commence on 1st September for the autumn harvest and on 1st February for the spring harvest. The *patwari* notes down the results of his local inquiries and inspections in his field book. A certain percentage of the entries made by the *patwari* is checked and corrected, when necessary, by the *girdawar* or *kanungo*,§ who also inspects the crops at each harvest. The tahsil officers further test a certain number of entries, and the sub-divisional officer also makes a general inspection of crops at each harvest. As soon as the inspection of the harvest is complete, an abstract statement of area and outturn is compiled separately for each *girdawar*'s circle and tahsil, and these statements are then consolidated for the three sub-divisions in the district office. An assumed normal outturn per acre for each crop has been fixed at settlement. Crop estimates are annually made by the revenue officers and the results recorded. These sets of figures give a useful check on the outturn estimates made by the *patwaris*. The exact area sown in the sub-divisions is obtained from the abstract statements. In the large *istamrari* estates the preparation of the field books is done by the estate officials. These field books contain fairly accurate information in regard to wheat, the outturn of which in maunds is generally appraised for the purpose of payment of the cultivators' rent; but as regards cotton and sesamum the figures are conjectural, as no crop-cutting experiments are made, the rents being charged in cash. The Government agency does not supervise the collection of figures in large *istamrari* estates.

Ajmer-Merwara
(Total cultivated area 806,000 acres)

The estimates for rice furnished by Coorg are based on the results of annual crop inspections and experiments. Crop inspections are made by each *shandog*¶ for his circle under the supervision of the *parpatiagar* || and the detailed particulars entered in the crop inspection registers and summarised in the crop abstracts, the totals of which are compiled in the office of the Deputy Director, Land Records and Agriculture. About 30 crop experiments are conducted annually by subordinates of the Revenue Department and *subedars*** (*tahsildars*) and also a few by the Deputy Director of Land Records and Agriculture, in whose office the estimates of yield, given in the forecast, are calculated on the basis of the average for the province.

Coorg
(Total cultivated area 140,000 acres)

The estimates for the Delhi province relate to all villages included within the province. The figures of area are based on actual measurements by the village revenue staff. Estimates of yield are recorded by the *tahsildar* after personal enquiry from the leading agriculturists. No crop-cutting experiments are conducted in the province.

Delhi
(Total cultivated area 223,000 acres)

The estimates for the Hyderabad State relate to all the districts of the State including non-Government area, such as *Jagirs*, etc. *Raiyatwari* tenure prevails in the State and with the exception of some parts of a few districts, the area is surveyed and settled. *Patwaris* or village accountants, who are hereditary office-bearers, furnish to the *taluk* office figures regarding area under principal crops. The *tahsildars* who are touring officers check these figures by a field-to-field inspection during their tours and send reports of their *taluks* to the District Collector or first *talukdar* as he is called in the State. The figures for each district after being consolidated in the District office are sent to the Director of Statistics of the State who finally checks and consolidates them. The estimates of standard yields

Hyderabad
(Total cultivated area 36,430,000 acres)

* *Khales* villages are those which pay full revenue to Government.

† Land granted revenue-free on condition of military service or as a charitable endowment.

‡ A tenure which, though the revenue is assigned, is charged with a permanently fixed quit rent.

§ Circle inspector.

¶ Village accountant.

|| A revenue officer in charge of a sub-division of a taluk.

** Revenue officer in charge of a taluk.

of crops are based generally on conjectures, which are generally misleading. As a result, the reported outturn is generally low. Instructions were issued by the authorities of the State for conducting crop-cutting experiments. But the experiments were not carried out so extensively as to furnish any reliable data for fixing normal yields per acre. Sixteen annas represent a normal crop.

Mysore
(Total cultivated
area 6,026,000
acres)

The estimates furnished by the Mysore State relate to all the districts of the State in which the respective crops are grown. As regards area the information is based on the entries made by the *shambog* (village accountant) in his crop inspection book and checked by the higher revenue officers. The outturn is noted by the *shambog* in terms of annas (16 annas being taken for a normal or 100 per cent crop) from which the total yield is determined by reference to the standard normal outturn per acre fixed for each taluk. The figures are finally scrutinized and consolidated in the Revenue Commissioner's office.

Baroda
(Total cultivated
area 3,069,000
acres)

The figures are furnished to the Director of Agriculture by the Revenue Heads of each *taluka* (*Fakwadars*). These are prepared in villages by the village clerks (*Talatis*) from the form recording crops grown in every survey number. These entries are checked by the inspecting officers. The outturn is usually returned as so many annas in the rupee and also as so many lbs of 40 tolas per bigha. The crop returns are finally consolidated and checked in the office of the Director of Agriculture. With regard to the standard yields per acre, these are not yet separately ascertained as pertaining to Baroda territories. Whenever a reference to these becomes necessary, those ascertained for the contiguous British territory, with which Baroda territory is closely interlaced, are utilised.

Central India.

In the Central India States, estimates are framed for wheat and cotton. The methods differ with the different States. In most States the acreage returns are prepared by *tahsils* from the field measurements of the *patwaris* and then compiled for the whole State. In some cases the outturn estimates are similarly compiled after check on the spot by the higher revenue officials in consultation with the cultivators; in others they are merely an approximation from the acreage figures; in a few States fields are selected in the different circles as bearing an average yield, the crop is cut and weighed, the outturn for the circle is calculated from the result, and the totals of the circles form the return for the State.

Rajputana.

The estimates for wheat and cotton furnished by the States in Rajputana are generally defective in consequence of the absence of figures for unsurveyed areas and privileged tenures in many cases.

APPENDIX III.

SUMMARY OF THE SEASONAL OR OTHER CONDITIONS AFFECTING PRICES OF FOOD-GRAINS, ETC., IN EACH QUINQUENNIAL FROM 1861-65.

A general rise of prices took place about 1860. With the suppression of the Mutiny and the transfer of the administration to the Crown, there commenced a new era of commercial and industrial activity. The resources of the country were developed by the construction of roads and railways, the improvement of harbours and the extension of irrigation. The cotton famine caused by the American War of Secession (1861-65) gave a great impetus to the cultivation of cotton in India, which, while the war lasted, brought large profits to the cultivator and the merchant. The influx of the precious metals which had begun about the time of the Mutiny was thus further stimulated, and from about the second year of the war a great rise of prices took place throughout the cotton-growing districts of western and central India, as also in a smaller degree in other parts of the country. Prices were also raised by the famine of 1861 in the Upper Doab of the province of Agra and the neighbouring districts of the Punjab and Rajputana and by the scarcity in Cutch.

On the collapse of the inflation caused by the American War, prices would have fallen but for the great famine of 1866 in Orissa, which extended into Bengal proper, Bihar, Madras, and the eastern part of the Central Provinces. Another notable famine—that of 1869—affected western Rajputana and parts of northern India, and the extension of scarcity, towards the west and south, produced a rise of prices in Bombay, the Central Provinces, and Hyderabad.

During 1871-75 prices were not seriously disturbed by any calamity except the scarcity in Bihar of 1874 and although large purchases of grain were then made by the Government and scarcity prevailed in the adjoining districts of the United Provinces, the disturbance of prices was not widely felt. The export trade in rice expanded greatly in 1872-73, and was on a large scale throughout the decade 1871-80. It showed greater contraction in 1874, the year of the Bihar famine than in the Deccan famine three years later.

In this quinquennium occurred the great famine of 1877-78, which affected an enormous tract in western and southern India and extended with diminished intensity into the north, causing a general rise of prices of food-grains all over India. The export trade in wheat, which had begun in a small way after the opening of the Suez Canal in 1870, received a check in the years 1878-80.

Speaking generally, all crops except rice were good or abundant during these years, though there was scarcity in a portion of the Punjab in 1884 and distress in parts of Bengal and Madras in 1885. The rice crop was bad between 1882 and 1885 owing to drought and floods, but wheat was plentiful, and the average price for all grains was low.

It is difficult to find adequate reasons for the great rise in prices which took place during these five years, for the 1889 famine in Ganjam (accompanied by distress in Orissa and scarcity in Bihar) was only of local importance, and prices had already reached their highest point in 1888. The export trade in food-grains was not larger than in the preceding quinquennium.

The high prices ruling during 1886-90 were still further raised in 1891-92 by prolonged drought causing scarcity and distress in Madras, Bombay, the Deccan, Bihar, and Upper Burma. A strong Indian demand for rice was coupled with large exports, and at the same time there was an unprecedented exportation of wheat owing to the failure of crops in Europe, so that Indian prices rose almost to famine levels. With better seasons prices fell, but the lowest point reached in 1891-95 was still above the average level of the previous quinquennium; and, as in that period, the importation of silver for coinage continued on a large scale until the closure of the mints in June 1893.

This quinquennium witnessed two distinct famines. The first one occurred in the latter part of 1898 and extended into 1897; and the second occurred in the latter half of 1899 and continued, like the previous one, through the ensuing year. These famines bore a close resemblance to each other in this that they were more or less equally intense and equally widespread. The fall in prices associated with the closing year of the preceding quinquennium was thus one of short duration. In September 1896 a sudden rise took place in the prices of food-grains. In November, famine prices were declared in northern and central India, and soon after they became general. The autumn harvest of 1897 relieved the tension somewhat, and the bumper crops of 1898 saw prices assume a relatively low level. But this improvement was again not sustained, for the complete failure of the south-west monsoon in 1899 followed by poor winter rains re-introduced famine prices in the following year. The monsoon of 1900 was more favourable than its predecessor; still it was not of such a character as to efface altogether the ill-effects of the previous season of drought.

There was no very marked return to ordinary price levels in 1901 and 1902 as the weather conditions were generally not favourable, except perhaps for rice. But in the next two years, and particularly in 1904, agricultural conditions were distinctly good, especially in the case of the wheat crop. There was in these two years a corresponding improvement in prices of food-grains, especially of rice and wheat; but a set-back was experienced in 1905. The seasonal conditions of that year were marred by a partial failure of the monsoon in northern and western India and by heavy rain and floods in Bengal and Eastern Bengal. A sharp and rapid rise in the prices of articles of Indian produce, especially food-grains, began in 1905.

The rise was sustained in 1906 as the spring crops of that year, except wheat, were generally not good and the autumn crops were damaged more or less by excessive rain and floods, particularly in Bengal and Eastern Bengal. Agricultural prospects were to a certain extent improved by the good winter rains which, though late, saved a part of the spring harvest of 1907 in northern India. But as unfavourable conditions prevailed in other parts of the country, particularly in Bengal, prices remained unaffected; and when the failure of the south-west monsoon occurred famine conditions declared themselves over a large area. The wheat and oilseeds harvests of 1908 were very poor owing to deficient and badly distributed rainfall. Neither were the autumn crops good. The rise of prices was accentuated in 1907 and 1908 by the widespread failure of the crops in northern India. The wheat crop of 1909 showed an advance on the previous year, though the winter rains were generally deficient and the untimely rain in April damaged a quantity of the grain on the threshing floor in parts where the crop was reaped early. The monsoon was exceptionally favourable, and there was a considerable increase in the total outturn of the staple crops. There was a phenomenal rice crop in Burma and the two Bengals, the extended cultivation in the latter having been stimulated by low prices of jute. As a result there was a general decline in prices in 1909. The timely and well-distributed winter rains brought fine crops to harvest in the spring of 1910. The monsoon of that year was on the whole favourable and the crops good. Prices continued to fall; but in the case of rice a strong demand from China operated to keep the rates at the level of the previous year, particularly in Burma.

1906-10

The spring crops of 1911 were on the whole good, though frost and rust affected them in parts of northern and western India, and prices continued to fall. The monsoon of that year, however, was not very favourable particularly in northern and western India where the autumn crops suffered more or less from drought, and prices of rice showed an upward tendency accentuated by strong export demand. The spring crops of 1912 suffered through drought in western and in parts of northern India and prices rose; and although the monsoon of that year was not on the whole unfavourable, the strong export demand maintained the prices of rice at a high level. The rise in prices continued in 1913 and the spring crops of that year were affected adversely by deficient rains in the Punjab and in the western parts of the United Provinces and in the Bombay Presidency. The monsoon on the whole was not very satisfactory. In 1914, the spring crops suffered through drought in many districts in northern and western India, chiefly in the United Provinces, Rajputana, and Sind. The monsoon was on the whole favourable for the autumn crops, except in parts of northern and western India where heavy rains in September were injurious to the cotton crop. The winter rice crop was adversely affected by deficient rainfall during the months of September, October, and November in Bengal, Bihar and Orissa, Burma, and the United Provinces; elsewhere conditions were favourable. The spring crops of 1915 were good, except in parts of Bengal, Bihar and Orissa, and the eastern districts of the United Provinces, where the crops were affected by drought. The monsoon of 1915, however, was not very favourable. It arrived late and was weak and irregular in parts of the Bombay Presidency and of the Punjab; the rainfall in the north-eastern, central and southern India, on the other hand, was good. Excessive rain, however, caused serious floods in Assam and in parts of Bengal and the United Provinces.

1911-15

The spring crops of 1916, except linseed, were seriously affected by the failure of winter rains, especially in the unirrigated tracts. The monsoon of 1916 was particularly good: it arrived early and continued late, the distribution being remarkably uniform. There was ample moisture for the maturing of the autumn crops, which were distinctly better than those of 1915. The monsoon of 1917 gave abundant rainfall throughout the country, especially in north-west India. The heavy and continuous rains adversely affected the growth of some of the autumn crops, such as cotton and indigo, but provided a good seed-bed for those crops that are harvested in the spring. Some of the latter crops, especially winter oilseeds, suffered somewhat through the holding-off of the winter rains. The monsoon rains of 1918 began earlier than usual but were very weak over nearly the whole country outside of Burma and north-east India. The winter rainfall was greatly defective. These adverse climatic conditions affected both the autumn and the spring crops. The monsoon of 1919 gave a rainfall above the average, though it retreated from northern India earlier than usual. The season was, on the whole, favourable and a crop larger than that of the previous year was harvested, except in the case of indigo. The spring crops were affected in places by hail, frost, rust and winds. The monsoon of 1920 started well but ended badly. The rainfall during the year was in defect over most of the country, the only exceptions being south Madras and parts of north-east India. As a consequence a smaller yield than that of the preceding year was obtained for nearly all the crops.

1916-20

The spring crops of 1921 were affected by drought and hot winds. The monsoon of that year began normally and gave generally good rain in all the provinces. The season was favourable to the kharif (autumn) crops which yielded a much better outturn than in the preceding season. The spring crops of 1922 gave a good outturn. The monsoon of that year gave generally normal rain in central and north-western India. The season was favourable to the kharif (autumn) crops also which gave a good yield. In 1923 also the spring crops yielded a satisfactory outturn. The monsoon of that year though late in appearance gave fairly well-distributed rain over the greater part of the country except in Sind, Gujarat and parts of Madras. The yield of the autumn crops was however not as satisfactory as in the previous year. The spring crops of 1924 yielded less than in the previous season. The monsoon of that year was late in establishing itself, particularly in north-west India, but the rainfall was slightly above the normal and fairly well-distributed over most of the country. The season was fairly good for the autumn crops.

1921-24

APPENDIX IV

DATES ON OR ABOUT WHICH THE ALL-INDIA FORECASTS OF CROPS ARE ISSUED IN THE INDIAN TRADE JOURNAL BY THE DEPARTMENT OF COMMERCIAL INTELLIGENCE AND STATISTICS, INDIA.

RICE—		
1st forecast	October	20
2nd "	December	20
Final "	February	20
WHEAT—		
1st forecast	January	31
2nd "	March	15
3rd "	April	20
4th "	May	30
Final "	August	10
COTTON—		
1st forecast	August	15
2nd "	October	15
3rd "	December	15
Final "	February	15
Supplementary forecast	April	15
LINSEED, RAPE AND MUSTARD—		
1st forecast	January	1
2nd "	March	15
Final "	June	1
SESAMUM (<i>sil</i> or <i>jinjili</i>)—		
1st forecast	September	1
2nd "	October	20
Final "	January	15
Supplementary forecast	April	20
GROUNDNUT --		
1st forecast†	August	20
2nd "	October	20
Final "	February	15
Castor seed†	February	20
INDIGO—		
1st forecast	October	15
Final "	December	20
SUGARCANE—		
1st forecast	August	20
2nd "	October	20
Final "	February	5
JUTE*		
Preliminary forecast	July	7-15
Final "	September	21

* Published by the Director of Agriculture, Bengal.
† Started with effect from 1926.

APPENDIX V

SEASONS OF SOWING AND HARVESTING OF THE CROPS AND THE TRACTS WHERE THEY ARE MAINLY GROWN

CROP	SEASON OF		WHERE MAINLY GROWN	
	Sowing	Harvesting	British Provinces	Indian States*
Rice—				
Winter (a)	May to August	December and January	Bengal, Madras, Bombay including Sind, United Provinces, Bihar and Orissa, Punjab, Burma, Central Provinces and Berar, Assam, North-West Frontier Province and Coorg.	Mysore, Madras States, Central India States, Punjab States, Kashmir, Hyderabad, Baroda, Bombay States, Central Provinces States and United Provinces States.
Autumn	May and June	September		
Summer	January and February	May and June		
Wheat— (Rabi or spring crop)	October to December	March to May	Bengal, Madras, Bombay including Sind, United Provinces, Bihar and Orissa, Punjab, Burma, Central Provinces and Berar, North-West Frontier Province, Ajmer-Merwara and Manipur Pargana and Delhi.	Mysore, Central India States, Rajputana States, Punjab States, Kashmir, Hyderabad, Baroda, Central Provinces States, Bombay States and Gwalior.
Sugarcane (b)	February to May	November to January	Bengal, Madras, Bombay including Sind, United Provinces, Bihar and Orissa, Punjab, Burma, Central Provinces and Berar, Assam, North-West Frontier Province and Delhi.	Mysore, Madras States, Central India States, Rajputana States, Punjab States, Kashmir, Hyderabad, Bombay States, Gwalior and United Provinces States.
Tea	Seeds sown between November and March and seedlings transplanted when at least 6 months old.	May to December in Northern India and January to December in South India	Bengal, Madras, United Provinces, Bihar and Orissa, Punjab, Burma, and Assam.	Travancore (Madras) and Tripura (Bengal).
Cotton (c)—				
Early	March to August	October to April	Bengal, Madras, Bombay including Sind, United Provinces, Bihar and Orissa, Punjab, Burma, Central Provinces and Berar, Assam, North-West Frontier Province, Ajmer-Merwara and Delhi.	Mysore, Madras States, Central India States, Rajputana States, Punjab States, Kashmir, Hyderabad, Baroda, United Provinces State (Rampur), Bengal State (Tripura), Bombay States and Gwalior.
Late				
Jute— (Autumn crop)	March to May	August and September	Bengal, Bihar and Orissa and Assam.	Bengal State (Cooch Bihar).
Linseed— (Rabi or spring crop)	August to October	January to April	Bengal, Madras, Bombay, United Provinces, Bihar and Orissa, Punjab, Central Provinces and Berar, and Assam.	Central India States, Rajputana States, Punjab States, Kashmir, Hyderabad, Bombay States, Central Provinces States, Gwalior and United Provinces States.
Peas and Mustard— (Rabi or spring crop)	Ditto	Ditto	Bengal, Madras, Bombay including Sind, United Provinces, Bihar and Orissa, Punjab, Burma, Central Provinces and Berar, Assam, North-West Frontier Province and Delhi.	Mysore, Central India States, Rajputana States, Punjab States, Kashmir, Hyderabad, Baroda, Bombay States and Gwalior.
Sesamum— Kharif or autumn crop (d)	May to July	October to December	Bengal, Madras, Bombay including Sind, United Provinces, Bihar and Orissa, Punjab, Burma, Central Provinces and Berar, Assam, and Ajmer-Merwara	Mysore, Madras States, Central India States, Rajputana States, Punjab States, and Kashmir, Baroda, Hyderabad, Bombay States and Gwalior.
Rabi or summer	January and February	May to July		
Groundnut (e)	May to August	November to January	Madras, Bombay, United Provinces, Burma, Central Provinces and Berar.	Mysore, Madras State (Bangalorepalli), Central India States, Hyderabad, Bombay States, Rajputana States and Gwalior.
Indigo (f)	February to July	August to November	Bengal, Madras, Bombay including Sind, United Provinces, Bihar and Orissa, Punjab and Burma.	Rajputana, Punjab States, Hyderabad and Bombay State (Kharpur) and Madras States.
Coffee	Rainy season	October to January	Madras and Coorg	Mysore, Madras States (Travancore and Cochin).
Rubber	.....	.....	Burma, Madras, Assam, Coorg and Bengal	Mysore, Madras States (Travancore and Cochin).

* Incomplete.

(a) In Madras, the seasons vary greatly. The first crop is sown between April and October and the second crop between September and March. The first crop is harvested between September and March and the second crop between January and May.

(b) In Madras, the harvest takes place between December and May.

(c) In parts of Southern India, sowing continues till December and harvesting till July.

(d) A Summer variety is also grown in Madras forming about 5 per cent of the total area under the crop; this variety is sown in February-March and harvested in July-August.

(e) In Madras about 20 per cent of the area under the crop is irrigated being grown as a second crop on wet lands after paddy; this is sown in December-January and harvested in March-April.

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No. 10979 of 1922.

From
Dr. H. H. MANN, D.Sc.,
ACTING DIRECTOR OF AGRICULTURE, BOMBAY PRESIDENCY,
POONA ;

To
THE SECRETARY TO GOVERNMENT,
REVENUE DEPARTMENT,
BOMBAY.

Poona, 29th September 1922.

Sir,

I have the honour to submit herewith the Annual Season and Crop Report of the Bombay Presidency for the year ending 31st July 1922.

I have the honour to be,
Sir,
Your most obedient servant,

H. H. MANN,
Director of Agriculture.

SEASON AND CROP REPORT OF THE BOMBAY PRESIDENCY FOR 1921-22.

I.—CHARACTER OF THE SEASON.

1. Statement No. 1 (page i) compares the rainfall of the year with the average fall of rain at each representative station in the Presidency and in Sind. The average rainfall figures for each station are, as during the last year, those supplied by the Meteorological Office, Simla, based on the rainfall statistics available up to and including 1915.

The total rains in the Kharif season were much above the average in West Khandesh (Dhulia), but amounted to less than two-thirds of it at Nasik and Poona. Elsewhere in the Deccan they were about the average. In the Karnatak they were slightly over half the normal at Bijapur and three-fourths of it at Dharwar, but at the other stations the deficiency was only slight. Except at Karwar where they were much under the average, they were slightly over it at the other stations in the Konkan. In Gujarat, Broach and Kaira had the usual amount; the other stations, however, had an increase of very nearly fifty per cent. over it. In Sind the amount of rain was about fifty per cent. in excess of the normal at Mirpurkhas (Thar Parkar), and double and three times this amount at Hyderabad and Karachi respectively. In North Sind, on the other hand, the rain was deficient, and only from one-fourth to one-half of the normal was received.

During the *rabi* season, the total rain was almost double the normal in Khandesh and Sholapur, but in Satara and in the hilly tracts near the Western Ghats, they amounted only to about three-fourths of it. At Ahmednagar and Poona they were one-half and one-third of the average respectively while at Nasik they did not exceed a few drops against an average of over three and a half inches. In the Karnatak they were slightly in excess of the average at Dharwar but considerably so (by about fifty per cent.) in the hilly or *mallad* tracts, while in Belgaum and Bijapur they were fully double the usual amount. In the South Konkan they were about the average, but in the North Konkan and the whole of Gujarat they did not exceed a few drops. In Sind they were substantial in the north but were only light in the South.

The hot weather rains were practically absent in Gujarat and in Sind. In the Deccan they were absent in Khandesh and amounted only to two-thirds of the normal in Satara, but at the other stations they were from one and a half to thrice the usual quantity. Except at Dharwar, which showed an increase of about forty per cent. over the normal, the other stations in the Karnatak showed a deficiency of fifteen to twenty-five per cent. In the Konkan, Karwar and Ratnagiri approached the average, but Thana was below it, while Alibag had no rain at all.

The following remarks will show in detail the nature of the season in each Division of the Presidency.

Deccan.—The ante-monsoon rains were practically absent. Regular monsoon commenced about the second week of June but the rainfall being insufficient throughout except in East Khandesh, *kharif* sowings were restricted. These were completed only in July when general and copious rain was received. This, however, exceeded the requirements in places near the Sahyadris. The germinated seedlings were in good condition generally, but in August a long spell of dry weather occurred in the Eastern tracts. The young crops were consequently stunted in their growth and showed distress in places. In the North and West, however, they continued well. In September the rainfall was quite adequate in the North and nearly so in the West, but it was too light to be of any material help in Satara; elsewhere though not satisfactory, it was nevertheless very helpful in reviving the withering *kharif* crops. The *kharif* crops in the eastern areas were however very poor. *Rabi* sowings were pushed on the strength of this fall. The anxiety felt in Satara was partially removed by the good showers in October, though rain in this and the following month was either light or absent elsewhere, except in some parts

of Sholapur where it was fairly good. As a result though *rabi* crops in Khandesh did well owing to sufficient previous moisture, and in Satara and parts of Sholapur, on account of the good fall in the first fortnight of October and early November, those in other parts fared unsatisfactorily and gave but a poor yield. The untimely rains in January accompanied with a hail storm were very injurious to cotton and pulses in many places and also to the *kharif* crops brought to the threshing ground. Wilt disease was also responsible for some considerable damage to cotton in West Khandesh. Sugarcane too was adversely affected by the sugarcane borer in this district and also in all the canal areas. The season on the whole was below normal everywhere except in Khandesh and the Western areas where it was fairly good.

Karnatak.—The pre-monsoon rains were too light to be of any use for the preliminary field operations. The monsoon started early in June but the fall was quite inadequate except in the Belgaum *mallad*, to start general *kharif* sowings, which had consequently to be prolonged till July. In this month good rain was received. This allowed the completion of *kharif* sowings and gave a good start to the transplantation of rice and nagli in the West. The seedlings did well. The scanty rainfall in August, however, and the protracted break in September altogether disappointed the cultivators. Standing crops suffered considerably and cotton sowing was retarded for want of rain. Good rain in the first half of October and the first week of November, however, relieved considerably a very anxious situation. The *rabi* sowings were made in October, but there was no rain from the second week of November to the end of December. The crops, however, fared well and were further benefitted by good showers in January, though these proved most unwelcome to the *kharif* crops which were either harvested or ready for harvest. Early sown cotton was also somewhat damaged in places on this account. The paddy crop was excellent in the *mallad* of Belgaum, but moderate in that of Dharwar. The season on the whole was much below normal though fairly good in the *mallad*. The *kharif* jowar suffered seriously from Smut in the East. Adverse winds, wilt and want of sufficient moisture told seriously on the cotton crop, the yield of which was consequently small and the staple and quality was also affected. Owing to inadequate water supply the sugarcane crop fared meagrely and yielded far short of the normal.

Konkan.—Here there were practically no ante-monsoon showers anywhere. The monsoon commenced early in June all over. In the North it was light and partial till the middle of July and the sowing of sprouted rice was delayed in consequence. In the last week of July heavy and continuous rains were received in this area. They suspended all agricultural operations; some newly transplanted fields were buried under silt brought by the floods and the already delayed transplantations were further prolonged in this tract. In the South, however, the rainfall was quite satisfactory and adequate, and transplanting operations were finished off in proper time. From the last week of July onwards the rainfall though light continued to be favourable and adequate throughout the Konkan till the third week of September after which the monsoon practically withdrew excepting the occasional showers that were received in the first half of October. In the North rice suffered considerably. The early varieties were affected owing to late transplantation and the heavy and continuous rains that were received after it while the late varieties suffered owing to the insufficient rains at the end of September and throughout October. The October rains though slight were still favourable to the growth of the *rabi* crop which yielded a fairly good return. In the South both the *kharif* and *rabi* crops fared well though the *Vaingan* crop of rice and the other irrigated crops suffered later on owing to deficient supply of water in streams and wells on account of scanty late rains. The "Koleroga" disease appeared, as usual, on the betelnut in Kanara and was responsible for considerable reduction in its outturn.

Gujarat.—The monsoon set in abnormally late and as late as the middle of July and when it opened it gave very heavy rains which continued almost incessantly until September. The constant rain did not allow of proper sowing and interculturing, and seeds were washed away in many places necessitating resowing. The August rain spoiled cotton and jowar in many places. The

germination was defective in numerous areas and resowing was required. The rapid growth of weeds was in places more than the cultivators could cope with. In September heavy rain still occurred, and further damaged the standing crops. In Surat and Ahmedabad districts the crops turned sickly and yellow in places owing to excessive moisture and never revived properly. From the third week of September the monsoon practically closed. The real monsoon thus covered a short period of only two months (20th July to 20th September) with but insufficient breaks thus cramping the cultivators severely in their tillage and interculturing operations. The result was late sowing of *kharif* crops and of cotton, and early sowings of the *rabi* crops. *Kharif jowar*, maize, and cotton all suffered from excess of moisture, and had to be resown several times over large areas, when they were harvested they yielded a moderate return. Floods due to heavy rains caused total or almost total failure of crops in the riverside villages in the Kaira and Broach districts. The *kharif* crop was thus very unfavourable. As regards the *rabi* crops they had to depend on September rains only as they were none in October and onwards. In spite of this they were certainly better than the *kharif* ones and gave a nearly normal outturn. In Kaira and the Panch Mahals, the "Katra" or hairy caterpillar pest was very severe, due to the absence of rain between the middle of June and the middle of July, and did much damage.

Sind.—Good *kharif* rains fell in the south of Sind and there was an excellent fall of rain in the middle of December which greatly benefitted the wheat crop. The inundation was also a good one although it was somewhat late, reacting on this account on the cotton area. The special feature in the excellence of this year's inundation was the supply in August-September, when the *rabi* lands are watered. At this time the river was high and continued so for a long time, thus affording splendid facilities for the *rabi* crops. Such facilities, it is said, have not been available for a number of years. There was artificial restriction upon the cotton area on the Jamrao canal owing to the mouth of the Nara supply channel causing trouble brought about by the river receding towards the opposite side. Crop pests were not worse than usual, but rats continued to do much damage and complaints against the crab were on a scale in the rice area of the Delta. In spite of this the season was a good *kharif* and an excellent *rabi*.

II.—AREA CULTIVATED AND UNCULTIVATED.

2. The total number of villages in the Presidency (22,933½) dropped by five. Four uninhabited surveyed villages in Ahmedabad were absorbed in neighbouring villages and thus showed a net decline of four villages in the total of that district. In Ratnagiri two reported villages were amalgamated into one but one unsurveyed village lapsed to Government, the total number in the district being thus reduced by only one. One village in the Panch Mahals and one in Satara were transferred from those for which statistics are unavailable to those for which records can be presented.

3. The total area showed a net decline of 5,042 acres. 602 acres were added in Ahmedabad owing to hissa corrections, but there was a decline of 4,766 acres in Kaira owing to wrong totals of Udhad villages being previously shown. Other variations are small and due mainly to corrections in survey measurements. 144 acres from Khanapur Taluka of the Belgaum District were transferred to Goa Territory in settlement of a boundary dispute between British villages of that district and Goa Territory.

4. In Sind the total number of villages remained unaltered (5,345). Three villages in Upper Sind Frontier District were newly formed by breaking up of larger *dehs* in the Revision Survey, and some 3,000 acres of unassessed land were formed into a separate village in Nawabshah. But four forest *dehs* were amalgamated into one in Karachi and one village in the Samrao Taluka of Thar Parkar was transferred and amalgamated with another village in Jamesabad Taluka of the same district.

5. The total reported area in Sind showed a net increase of 8,377 acres. Of this about 7,400 acres were due to alluvial lands being given out for cultivation in Nawabshah, Upper Sind Frontier, and Karachi, and the rest to corrections in measurements. 146 acres were transferred from Ubauro and Kashmir Talukas of Sukkur District to Bahawalpur State.

The total area for which statistics were regularly collected and reported in the Presidency fell by 12,181 acres, but that for which statistics are unavailable rose by 7,139 acres. Estimates for the probable cropping of the area for which no statistics are available were supplied by the District Officers, except in Ratnagiri for which they have been prepared in my office.

6. *Cultivated, i.e., occupied area* (Appendix A, page 12).—The figures of the cultivated and uncultivated areas are compared with those of the previous year. Except in Kolaba where unfavourable conditions restricted cultivation (—6,600 acres) the gross and net cropped areas rose by 2,473 thousand and 2,286 thousand acres or by 9·8 and 9·3 per cent. respectively, owing to a favourable season; while the area cropped more than once stood higher by 34 per cent. over the corresponding figures of the previous year. The extent of the favourable character of the season will be clearly seen from this. The increase under gross cropped area was general, the main districts that contributed to the increase being Ahmednagar (+842,000 acres), Nasik (+468,000 acres), Sholapur (+183,000 acres), Ahmedabad (+166,000 acres) and Belgaum (+114,000 acres), that under area cropped more than once was marked in Pañch Mahals (+78,500 acres), in Ahmednagar (+31,900 acres), in Surat (+27,700 acres), in Khandesh (+21,000 acres), and in Sholapur (+10,600 acres). In Sind the gross, net cropped, and double cropped areas similarly extended owing to good inundation and sufficient rainfall by 14·3, 13·2 and 28·7 per cent. respectively over those of the last year, and the increase occurred in all districts. As a result of the extended cultivation the area under fallows in the Presidency receded by 25 per cent. and that in Sind by 5·9 per cent. Ahmednagar (—809,500 acres), Nasik (—465,200 acres), Ahmedabad (—161,000 acres), Belgaum (—110,000 acres), and Sholapur (—168,000 acres) principally shared in this decline. The assessed cropped area remained stationary. There was however a net increase in unassessed cultivable area by 34,700 acres to which all districts contributed except, Satara, Bijapur, Kolaba and Kanara, which showed a slight decline (—1,500 acres). In Sind the assessed areas rose by 4·1 per cent. but the unassessed fell by 28·3 per cent.

7. *Uncultivated, i.e., unoccupied area*.—The culturable waste was reduced, as a result of the increase in the occupied area, by 24,600 acres or 2·4 per cent. in the Presidency proper but in Sind there was a net increase of 91,600 acres under this head. Karachi (+407,000 acres) and Nawabshah (+122,000 acres) showed increases, against a decline of 437,000 acres in other districts, Sukkur being mainly responsible for this decline (—327,000 acres). The area under forests shows a net increase of 29,300 acres in the Presidency but a decrease of 1,329 acres in Sind. Some 48,272 acres in Thana which had hitherto been wrongly shown under miscellaneous uncultivated area were transferred to the proper head. In Belgaum 2,429 acres were afforested from culturable waste and in Ahmednagar the difference of 1,501 acres was due to correction in previously reported areas. Sholapur showed a decline of 640 acres due to disforestation. About 75,914 acres of forest lands were given out for temporary cultivation chiefly in Poona (29,400 acres), in Thana (25,400 acres), in West Khandesh (8,700 acres), in Ahmednagar (4,600 acres) and in Satara (1,400 acres). About 29,648 acres of culturable waste and 11,848 acres under miscellaneous unoccupied lands were similarly dealt with. In Sind the area under "miscellaneous unoccupied lands" considerably fell by about 2½ lakhs chiefly in Karachi (—431,000 acres) and in Nawabshah (—126,000 acres) but this decline was somewhat balanced by increases in other districts, Sukkur contributing 316,000 and Hyderabad 13,200 acres.

III.—CROPPED AREA OF THE YEAR.

(STATEMENT III, PAGES vi—xv.)

8. The main features of the season and of the harvest have been described elsewhere in the report. Appendix B (page 12) shows the effect of the season under report on the area sown as compared with the average and with the preceding year's areas under the principal crops. In the Presidency proper the area under *bajri*, wheat, gram, oil seeds, paddy, other cereals and pulses and miscellaneous food crops showed considerable expansions during the year owing to a fairly favourable season. The total food crops thus showed an increase of

16.1 and 7.9 per cent. over the last year and the normal respectively. Cotton, sugarcane, *jowar*, and "miscellaneous non-food crops" fell on the contrary by 19.8, 8.5, 4.3 and 6.2 per cent., respectively during the year. The decline in area in cotton was due to late rains in the Karnatak and unfavourable rains and low prices in Gujarat obtained last year. The contraction of area under sugarcane was due to want of sufficient water-supply in wells and tanks, while in *jowar* and in "miscellaneous non-food crops" insufficient rains and devotion of greater areas to more valuable food-crops led to the decline. In Sind the areas similarly extended considerably under all heads owing to good and ample rains, except cotton, paddy and sugarcane which suffered in the beginning from late inundation and deficient water-supply. The total area under food and non-food crops manifested increases of 9.8 and 42.1 per cent. over the previous year and 13.5 and 15.4 per cent., respectively over the normal.

9. The subjoined table compares as usual the areas under cereals and pulses in the Presidency proper in the *kharif* and *rabi* seasons of the year with those of the preceding two years. It will be seen, for reasons stated above, that both the areas under *kharif* and *rabi* crops advanced by 484,000 and 298,000 over those of 1919-20 thus showing a total gain of about eight lakhs over the total acreage under food grains of that year. The *kharif* areas when compared with the last year shows an increase of 31½ lakhs of acres but a decline of about four lakhs under *rabi* has brought down the excess to 27½ lakhs.

Area in acres (000 omitted).

	1919-20.		1920-21.		1921-22.	
	Cereals.	Pulses.	Cereals.	Pulses.	Cereals.	Pulses.
Kharif	10,645	1,668	8,488	1,152	11,375	1,517
Rabi	6,691	584	7,425	546	6,952	621
Total	17,336	2,247	15,908	1,698	18,327	2,138

10. The detailed remarks below explain variations under the principal crops:—

Jowar and Bajri.—The table below exhibits the extent of the cultivation of these main staple crops in the different divisions. Owing to sufficient, seasonable and early rains, as already stated the area under *bajri* considerably expanded by about 21½ lakhs of acres or by 77.1 and 13.4 per cent. over last year and the normal, respectively. The increase of 2,179,000 acres was general in all districts chiefly in Ahmednagar (+827,000 acres), in Nasik (+406,000 acres), in Sholapur (+136,000 acres), in Poona (+128,000 acres), in Satara (+124,000 acres), in Khandesh (+82,000 acres), in Kaira (+80,000 acres), in Belgaum (+64,000 acres), in Ahmedabad (+51,000 acres), in Bijapur (+270,000 acres), but *jowar* showed a drop of 361 thousand acres or by 4.3 per cent. for want of sufficient rains and more attention being paid to *bajri* and other *kharif* crops. The decline was mainly in Ahmednagar (−284,000 acres), in Satara (−116,000 acres), in Poona (−83,000 acres), in Bijapur (−61,000 acres), in Nasik (−34,000 acres), and in Sholapur (−17,000 acres), part of this being made up by total increases of 235,000 acres in other districts. These were noticed in Dharwar (+92,000 acres), in Khandesh (+55,000 acres), in Ahmedabad (+45,000 acres), in Surat (+16,000 acres), in Kaira (+13,000 acres) and in Belgaum (+12,000 acres). In Sind favourable inundation coupled with good rainfall in the desert and hilly tracts brought on their extension in all districts:—

Area in acres (000 omitted).

	Jowar.			Bajri.		
	Normal.	1920-21.	1921-22.	Normal.	1920-21.	1921-22.
Gujarat	582	599	676	460	301	442
Deccan	4,199	4,848	4,368	3,444	3,217	4,090
Karnatak	2,738	2,954	2,996	509	209	548
Sind	689	406	574	686	237	1,107

Wheat.—In the Presidency proper the area under this cereal exhibited an increase of 395,000 acres or 35·7 per cent. over the previous year though it was still below the normal by 6·4 per cent. The areas principally advanced in Gujarat (+247,000 acres), in the Karnatak (+93,000 acres), and in Ahmednagar (+63,000 acres), on account of favourable rains and inducement of high prices, but West Khandesh (–17,000 acres), Satara (–3,000 acres) and Poona (–2,000 acres) showed a slight decline due to insufficient late rains. In Sind the cultivation increased throughout all districts except Upper Sind Frontier (–4,000 acres), by a total amount of 86,000 acres or 24·9 per cent. over the last year owing to good inundation at the close of the season.

Rice.—The increase under this crop (+49,700 acres) occurred principally in Gujarat (+54,000 acres), and in the Konkan (+10,700 acres) due to good rains, but Poona, Sholapur, Satara, Dharwar and Kolaba showed a decline amounting altogether to 18,400 acres. In Sind the fall was very general in all districts owing to deficient water-supply at the beginning and the area receded by 191,000 acres.

Other cereals and pulses.—Of these crops, the area under *Ragi* in Kaira (–11,300 acres) and *Maize* in the Deccan and in Gujarat (–16,900 acres) slightly declined, but Barley in the Panch Mahals (+4,600 acres), *Ragi* (+31,000 acres) in the Deccan, Dharwar and Ratnagiri, and other miscellaneous cereals and pulses showed a considerable advance. Gram extended by 103,500 acres in all districts except in Satara (–9,000 acres), in Bijapur (–5,000 acres) and in Poona (–4,100 acres). Similarly Tur showed an increase of 108,000 acres almost in all districts, mainly in the Deccan (+66,000 acres) and in the Karnatak (+40,000 acres). In Sind the areas under Gram, Barley and “other miscellaneous cereals and pulses” similarly rose by 81,800 acres, 2,100 acres and 56,500 acres, respectively for reasons already explained.

Oil-seeds (1,278,000 acres).—The area under oil-seeds in the Presidency proper rose by 132,000 acres or by 17·1 per cent. over the preceding year but was still short of the normal by 19·7 per cent. In Sind it rose by 214,000 acres or 132·9 per cent. over the last year but was still below normal by 6·9 per cent. The fluctuations under the different oil-seeds as compared with the previous year's areas are shown below:—

Name of oil-seed.	Variations in acres (000 omitted).	
	Presidency.	Sind
Linseed	+ 9	.....
Sesamum	+ 42	+ 11
Rape seed	+ 5	+ 196
Groundnut	+ 68	.....
Castor	– 10	+ 2
Cocconut	+ 2	..
Others	+ 15	+ 4

Groundnut rose in the Deccan (+61,800 acres) and Panch Mahals (+5,600 acres). Sesamum advanced in the Deccan (+46,000 acres), but it declined in Poona (–5,300 acres) and in Gujarat (–10,200 acres). Castor seed showed an increase of 2,100 acres, 1,300 acres and 1,800 acres in Surat, the Panch Mahals and Dharwar, respectively, but these increases did not cover the large deficit in Kaira (–8,100 acres) and in Khandesh (–6,900 acres) owing to unfavourable rains. The area under Linseed somewhat extended in Ahmednagar (+7,300 acres), in Nasik (+6,600 acres) and in the Karnatak (+3,200 acres) owing to sufficient late rains. West Khandesh, however, showed a drop of 7,400 acres. The area under Rape seed including *Jambho* and under Sesamum, which are the most important oil-seeds grown in Sind, expanded by about two lakhs of acres and by 11,000 acres, respectively.

Cotton.—Owing to unfavourable rains, the fall in prices in the districts in the interior last year, and the devotion of larger areas to food and fodder crops, the total area fell from 3,537 thousand to 2,835 thousand acres. Gujarat (–335,000 acres), the Karnatak (–314,000 acres), Khandesh (–134,000

acres) and Sholapur (-7,600 acres) principally contributed to the decline. Other Deccan Districts, however, showed some increase (+90,700 acres) due to timely rains. The area in Sind contracted from 269,000 to 141,000 acres or by 128,000 acres, chiefly in the South on account of late inundation at beginning, and encouragement to the growth of fodder-crops by a reduction in assessment in their case by 25 per cent.

Other crops.—Among other crops the areas under Tobacco increased slightly in Gujarat (+7,600 acres) mainly in Kaira (+5,500 acres), but Belgaum showed a decline of 5,600 acres. Sugarcane fell by 4,700 acres in Nasik, in Sholapur, in Satara and in the Karnatak chiefly for want of sufficient water-supply at planting. In Sind there was a slight decline under sugarcane (-1,200 acres), mostly in the Thar Parker District (-1,100 acres), but tobacco increased (by 3,000 acres) throughout except very slightly in Karachi. Both in the Presidency and in Sind the demand for fruits and vegetables and fodder, and the high rates commanded in the market induced larger cultivation almost everywhere.

11. Appendix C (page 13) shows as usual the distribution in each district of the Presidency and of Sind of the principal food and non-food crops in percentages of the gross area cropped.

IV.—IRRIGATED AREA.

(STATEMENT No. IV, PAGES xvi to xix).

12. As the rains were adequate and seasonable in the greater part of the Presidency proper the total area under irrigation fell during the year from 1,105 thousand acres to 981 thousand acres or by 11·2 per cent. below the area of the previous year. Except in Gujarat (+7,000 acres), Satara (+9,600 acres) and Khandesh (+4,000 acres) which show some increase, the areas under irrigation dropped throughout the Presidency, by about 1½ lakhs of acres, mainly under wells, in Sholapur (-66,000 acres), Ahmednagar (-45,000 acres), Dharwar (-14,000 acres), Bijapur (-11,000 acres) and Poona (-6,000 acres). In Sind on the other hand the irrigated areas increased by 125,000 acres or by 4·4 per cent. over the area of the previous year. This took place in all the districts except Karachi and Thar Parker but was principally in the North owing to the excellent inundation of the season in that part of Sind. Karachi and Thar Parkar, however, showed a slight decline of 13,600 acres due to the late inundation there. The ratio of the irrigated area to net cropped area was 3·7 per cent. in the Presidency and 73·9 per cent. in Sind.

13. Appendix D (page 14) exhibits variations under the several heads of irrigation and crops irrigated as compared with similar details of the previous year. In the Presidency irrigation from Government Canals was curtailed by about 17,000 acres due to deficient water-supply mainly in Sholapur (-17,000 acres), in Ahmednagar (-14,000 acres), in Poona (-5,000 acres) and in Khandesh (-5,000 acres), but the decline was partially made up by extended irrigation (+24,000 acres), mainly in North Gujarat (+16,000 acres) where rains were ample though late, and in Satara (+8,000 acres). Irrigation from private canals receded by about 5,000 acres, mostly in Poona (-6,500 acres) and in Kanara (-1,800 acres) and in the Karnatak (-1,200 acres) due to scarcity of water in canals owing to scanty late rains, but was somewhat extended in West Khandesh (+3,000 acres) owing to plentiful rains and in Satara (+1,000 acres), in Ahmednagar (+700 acres) and in Ahmedabad (+450 acres). There was a large decline of 15,000 acres under irrigation from Tanks chiefly in Dharwar (-11,800 acres), in Satara (-5,000 acres) and in Poona (-4,800 acres) due to limited water-supply. Sufficient supply of water, however, extended its use in Ahmedabad (+3,000 acres), in Belgaum (+2,500 acres) and in Nasik (+1,000 acres) amounting to 6,500 acres. Similarly irrigation from wells showed a considerable decrease of about 93,000 acres chiefly in Sholapur (-49,000 acres), in Ahmednagar (-31,000 acres), in Bijapur (-10,000 acres), in Nasik (-3,500

acres) and in Belgaum (— 1,100 acres) for want of enough supply owing to deficient late rains. There was also a substantial decrease under this head in Ahmedabad (— 10,000 acres) and Kaira (— 4,000 acres), but the decrease here was due not so much to the deficient water-supply but to the fact that the rains being copious little necessity of resorting to well irrigation was felt. Against this Poona (+9,000 acres), East Khandesh (+6,000 acres), Panch Mahals (+1,500 acres), Satara (+1,000 acres), showed a slight increase. Irrigation from other sources showed an extension of 6,000 acres mostly in Satara (+4,800 acres), Kanara (+1,700 acres) and Poona (+800 acres). In the other districts the deviation from previous year was only slight. In Sind which is chiefly dependent for its cultivation on irrigation areas under Government Canals heavily expanded in all the districts except in Karachi and Thar Parker which showed a very slight decrease.

14. As regards the crops grown under irrigation rice showed an advance principally in Gujarat of 19,000 acres but against this was a decline in Dharwar (— 11,000 acres) where water-supply was defective in tanks. The area under wheat extended in North Gujarat (+7,500 acres), in Khandesh (+2,500 acres) and in Satara (+2,000 acres) partly on account of good late rains and partly by the incentive of high prices obtained, but was curtailed elsewhere by about 11,000 acres. The area under *jowar* showed a considerable drop in almost all the districts of the Presidency. The deficiency was particularly noticeable in the Deccan (— 63,000 acres), except in Satara (+6,700 acres). The area under *bajri* fell by about 12,000 acres, owing to seasonable early rains chiefly in the Deccan, but Satara (+6,500 acres) and Ahmednagar (+3,000 acres) showed a slight increase. Sugarcane, maize, cotton, "other cereals and pulses" and "other food-crops" showed a net decrease of 3,000, 13,800, 4,000, 10,500 and 5,500 acres, respectively in the Presidency partly owing to want of sufficient water-supply and partly to the increase under other paying crops.

15. In Sind the principal net decline was under rice and cotton (— 191,000 acres) and (—128,000 acres), respectively and was general in all districts owing to deficient water-supply at the beginning especially in the Nara Valley owing to the head of the Eastern Nara being silted and to the concession of the grant of remission of 25 per cent. in the assessment for bringing more area under fodder-crops in the south. Favourable late inundation and sufficient water in the Jamrao Canal and abundant rains in the desert portions brought large areas under wheat in all the districts especially in Thar Parkar (+22,000 acres), in Larkana (+21,500 acres) and in Sukkur (+13,000 acres), but Upper Sind Frontier (— 3,800 acres) showed a slight decline owing to scarcity of seed at sowing time. *Jowar*, *bajri*, barley, "other cereals and pulses" and "other miscellaneous non-food crops" exhibited also a great increase owing to good water-supply and sufficient rains. Under "other food-crops" and sugarcane there was a net decline of 6,600 acres and 1,300 acres, respectively.

V.—OUTTURN OF CROPS.

16. Statement V (page xxi) shows the estimated yield of the principal *khari* and *rabi* crops in parts of 100 which is taken as normal. The figures generally correspond with the nature of the season but there are indications that in some districts the pitch of the estimates is much higher than others.

17. The character of the season has been described above. In Gujarat the rains commenced late, were excessive in places and continuous and closed abruptly at the end of the third week of September. In the Konkau they were timely and sufficient. So also were early rains in the Deccan and Karnatak but the *rabi* rains were insufficient in some parts in the later period. In Gujarat all *khari* and *rabi* crops yielded between 66 and 75 per cent. except cotton which was from 42 to 67 per cent. and *bajri* in Kaira 50 per cent. In the Deccan and Karnatak, rice, *Jowar*, *bajri* and wheat ranged from about 66 to 83 per cent. except in Ahmednagar where the yields of these crops were 50, 58, 33 and 49 per cent., respectively. The outturn of cotton in the North Deccan varied from 83 to 100 per cent. and in the Karnatak from 67 to 75 ;

elsewhere from 50 to 60 per cent. All other crops did well. In Sind owing to good inundation, though late, and plentiful rains, rice, *bajri*, wheat and *jowar* returned generally between 63 to 75 per cent. and cotton yielded from 58 to 67 per cent. Rice, wheat and *jowar* in Thar Parkar and cotton in Hyderabad yielded half the normal.

18. Statement VI (pages xxii to xxxi) compares the average under food-grain crops (cereals and pulses) in each agricultural division of the Presidency and their approximate outturn in tons during the year under report with similar statistics for the two preceding years. The following table sums up the result:—

Average and outturn.	Gujarat.	Deccan.	Karnatak.	Konkan.	Total Presidency proper	Sind.
<i>A.—Acreage.</i>						
		In thousands of acres (000 omitted).				
1921-22	2,555	10,895	5,317	1,598	20,365	3,618
1920-21	1,912	9,348	4,753	1,593	17,606	3,246
1919-20	2,261	10,765	4,961	1,596	19,583	3,687
<i>B.—Outturn</i>						
		In thousands of tons (000 omitted).				
1921-22	780	1,753	1,032	716	4,281	1,021
1920-21	847	1,266	771	690	3,014	722
1919-20	847	2,121	1,119	792	4,869	1,005

In the presidency the area under food-grains shows an expansion of about 15·7 per cent. over the previous year and 7·9 per cent. over the normal while their outturn shows an increase of 15·6 per cent. over the yield of that year. In Sind the area was 11·4 per cent. over the previous year and the outturn was 11·5 per cent. over that year.

VI.—PRICE, TRADE AND STOCK.

19. The appended statement (Table VII) shows in detail the prices of the principal staples and of fodder ruling at harvest time at each district head-quarter station in the Presidency and in Sind.

20. In spite of the fact that the area under food crops and the outturn was considerably greater than in the previous year both in the Presidency proper and in Sind, the prices of the main staples ruled higher in almost all the districts due to insufficient stocks from former harvests on account of indifferent season.

Jowar and bajri.—*Jowar* was sold cheaper in Bijapur by $1\frac{1}{2}$ seers per rupee, in Sholapur by $2\frac{3}{4}$ seers per rupee, and by from $\frac{1}{2}$ to $\frac{3}{4}$ seer per rupee in Poona and Belgaum, but elsewhere in the Deccan, in Gujarat, and in Dharwar it was dearer by $\frac{3}{4}$ to $2\frac{3}{4}$ seers per rupee. In Sind it was dearer everywhere by about $1\frac{1}{4}$ to $2\frac{1}{4}$ seers per rupee except in Thar Parkar where it was slightly easier by about $\frac{3}{4}$ seer per rupee. *Bajri* was cheaper in Nasik, Sholapur and Bijapur by $\frac{3}{8}$ to $\frac{1}{2}$ seers per rupee, but dearer elsewhere by about $\frac{1}{2}$ to 1 seer per rupee. In Sind it was dearer by about $\frac{3}{4}$ to 2 seers per rupee.

Rice.—Except in the Konkan, Poona, Satara, and the Panch Mahals which showed slight falls, rice was dearer by about $\frac{1}{4}$ seer to 1 seer per rupee throughout the Presidency, and in Sind by $\frac{3}{8}$ seer per rupee in Karachi and Hyderabad, and by $\frac{3}{8}$ seer per rupee in Nawabshah. The price of this article was stationary in the north of Sind, but showed a decline of about one seer per rupee in Thar Parkar.

Wheat and gram.—Wheat and gram were both a little easier at one station in the Karnatak, at two stations in Gujarat, and wheat alone at one station in the Deccan and at two in the Karnatak, but elsewhere the prices of these two articles ruled higher than in the previous year by about $\frac{1}{4}$ seer to $1\frac{1}{4}$ seers per rupee. In Sind, wheat and gram were both dearer by about $2\frac{1}{2}$ seers per rupee throughout. Wheat was sold dearer in the north of Sind by about $1\frac{1}{2}$ to $2\frac{1}{2}$ seers per rupee but elsewhere the difference was some-

what less. Gram was also dearer in Hyderabad Larkana, and Upper Sind Frontier by more than two seers per rupee, but elsewhere the variation amounted to $\frac{1}{4}$ seer per rupee in Thar Parkar to $1\frac{3}{8}$ seers per rupee in Nawabshah.

Gul.—This article was sold slightly dearer everywhere both in the Presidency and in Sind by about $\frac{1}{4}$ to $\frac{3}{8}$ seer per rupee except at two stations in Gujarat, one in the Karnatak and one in Sind where the fall was very slight. In Hyderabad it was however higher by about $1\frac{1}{2}$ seers per rupee.

Tobacco.—Ahmedabad and East Khandesh showed a decline in price of $\frac{1}{4}$ and $\frac{3}{8}$ seers per rupee respectively and elsewhere it was a little easier from $\frac{1}{4}$ seer to $\frac{1}{2}$ seer per rupee. In Sind it was dearer by $\frac{1}{4}$ seer to $1\frac{1}{4}$ seer per rupee except in Sukkur and in Thar Parkar where the fall was from $\frac{1}{4}$ to $\frac{3}{8}$ of a seer per rupee.

Cotton.—The total area under Cotton in the Presidency inclusive of Sind, Kathiawar and other Native States fell from 5,963 to 4,576 thousand acres or by 21.6 per cent below the previous year on account of unfavourable rains and low prices fetched by the crop of that year. The outturn, however, rose from 969 to 1,136 thousand bales or by 17 per cent. Of the total bales 313,400 bales or 27.5 per cent. represented the yield of the long stapled Broach, Dharwar and Kumta varieties, and the rest belonged to the short stapled varieties of Khandesh, Nasik, Gujarat and Sind. The following Table compares the prices of cotton for the year with those of the last year and the average. It will be noticed that the prices obtained for the chief varieties showed a rise of 52.7 to 82.1 per cent. over the previous year and nearly approached those in 1919 owing chiefly to greater demand both for export especially to Japan and for local mills.

Variety.	Price per bale of 400 lbs.			Percentage increase (+) or decrease (-).	
	Average of five years ending 1920	Average of seven months ending 31st July		Compared with average.	Compared with the price of 1920.
		1921.	1922		
Broach	251	167	268	+ 48	+ 57.5
Khandesh	183	106	193	+ 55	+ 82.1
Dharwar	246	169	258	+ 49	+ 52.7

Fodder.—Dry grass and *kadbi* were both dearer in Surat, West Khandesh and Satara. The former was also dearer in Dharwar, Poona, Kolaba and Ratnagiri and the latter in East Khandesh and Bijapur. Elsewhere both of them were cheaper. In Sind dry grass in the whole fell considerably in price, but the price of both dry grass and fodder rose appreciably in Hyderabad.

VII.—AGRICULTURAL STOCK.

21. Information under this head is collected quinquennially. The result of the last enumeration has been published in the Season and Crop Report for the year 1919-20.

VIII AND IX.—CONDITION OF THE AGRICULTURAL POPULATION.

22. The season of 1921-22 was, so far as the farming and cultivating were concerned, on the whole a much better one than that which preceded it. Prices, however, ruled higher than in the previous year up to the time of harvest, as there were insufficient stocks of food-grains and fodder. As wages in the rural areas (except in the Konkan) did not make any further rise in the year under report, the consequence was that for the rural wage-earning classes it was decidedly a hard season.

Further, though the year was better than the preceding, yet it must not be forgotten that there were large areas in Nasik, Ahmednagar, Sholapur, Bijapur, and Kanara where much revenue and a proportion of *tagai* instalments

had to be suspended or remitted. Water supply was adequate in most areas, but in parts of the Panch Mahals (Kalol), Nasik, Sholapur, Ahmednagar, Dhawar, (the Eastern Talukas) the scarcity was great, and considerable grants were made for the improvement of the water supply.

The conditions in Sind so far as the population was concerned were similar on the whole to those in the Presidency proper. Labour continued, however, to be in demand and wages remained high. A very large loss of cattle occurred as a result of the preceding disastrous season and a bad wave of rinderpest. Therefore, in spite of the great improvement in the returns from the crops sown, the condition of the farming and cultivating classes have not very greatly improved.

APPENDIX A.

Total area, Area cultivated and uncultivated.

Details.	Presidency proper,			Sind.		
	1920-21	1921-22	Increase (+) or Decrease (-) per cent	1920-21	1921-22	Increase (+) or Decrease (-) per cent
<i>A.—Cultivated Area.</i>						
Gross cropped area	26126	27696	+9.8	26523	28368	+14.3
Area cropped more than once	650	737	+14.0	258	322	+23.7
Net area cropped	24476	26959	+9.3	26265	28046	+13.3
Current fallows	8783	8638	-25.6	8719	8378	-5.9
Assessed	83276	83228		8629	8378	+4.1
Unassessed	88	117	+40.9	748	536	-28.3
Total A	83364	83345	+0.1	9277	9414	+1.5
<i>B.—Uncultivated Area.</i>						
Available for cultivation waste.	1012	988	-2.4	6073	6164	+1.5
Not available for cultivation						
{ Forest ...	8610	8639	+0.3	724	723	-0.3
{ Others ...	5636	5787	-0.9	14069	13860	-1.6
Total B	16360	16314	-0.3	20865	20736	-0.6
Grand Total	48719	48714		30142	30150	

APPENDIX B.
CROPPED AREA.

Crops.	Presidency Proper					Sind				
	Normal.	1920-21	1921-22.	Percentage by which area in col. 4 exceeds (+) or falls short of (-) that in		Normal	1920-21.	1921-22.	Percentage by which area in col. 9 exceeds (+) or falls short of (-) that in	
				Col. 5.	Col. 6.				Col. 7.	Col. 8.
1	2	3	4	5	6	7	8	9	10	11
Area in acres (000 omitted).										
Jowari	7506	8402	8041	+7.1	-4.3	830	408	674	-10.2	+40.7
Bajri	4413	2827	5006	+12.4	+77.1	826	937	1107	+32.6	+18.1
Paddy	1686	1906	1966	+23	+3.6	856	1235	1044	+21.9	-15.5
Wheat	1603	1106	1501	-6.4	+26.7	499	346	439	-13.4	+24.9
Gram	623	284	483	-21.7	+27.1	75	98	175	+133.3	+88.2
Other cereals and Pulses.	3125	2922	3373	+7.6	+13.1	246	227	285	+16.2	+25.9
Total cereals and Pulses	18566	17607	20365	+7.9	+15.7	3150	3246	3618	+14.6	+11.4
Tobacco	77	106	108	+40.3	+1.9	9	8	12	+33.3	+50.0
Sugarcane	60	59	54	-10.0	-2.5	3	4	3		-25.0
Oilseeds	1124	771	903	-19.7	+17.1	408	161	375	-9	+122.9
Cotton	2265	2537	2235	-4.1	-19.3	120	269	141	-21.7	-47.6
Other crops	1406	3045	3334	+127.1	+9.5	53	135	210	+125.5	+22.9
Total food crops	19472	18066	20098	+7.9	+15.1	3104	3300	3635	+13.5	+9.8
Total non-food crops	5297	7040	6601	+21.3	-6.2	644	623	743	+15.4	+42.1
Total crops	24769	25106	26799	+12.7	+9.9	3748	3923	4378	+13.8	+14.3

APPENDIX C.
DISTRIBUTION OF CROPS.

Percentages on District—Gross Cropped Area.

No.	Districts.	Food crops.											Non-food crops.			Total.		
		Cereals and pulses.											Others	Cotton	Oilseeds.	Others.	Food crops	Non-food crops
		Rice.	Wheat	Barley.	Jowar.	Bajra.	Bajra.	Musa.	Gram.	Others.	Food.	Others.						
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
A.—PUNJAB AND PEWEE.																		
I.—Gujrat.																		
1	Ahmedabad	5	18	1	24	12	1	1	5	07	2	19	3	9	69	31		
2	Kaira	9	2	...	6	25	6	1	9	16	66	6	5	2	73	28		
3	Panch Mahals	18	4	1	2	7	...	13	10	13	76	1	1	2	77	23		
	Broach	3	8	...	27	2	...	1	11	52	1	35	2	10	66	34		
5	Surat	12	3	...	14	1	1	...	7	38	5	10	2	39	61	39		
	Average	8	8	...	17	10	2	3	3	10	60	3	10	4	73	27		
	1921-22	7	8	...	10	8	2	4	...	9	59	2	26	4	71	29		
	1920-21	7	8	...	10	8	2	4	...	9	59	2	26	4	71	29		
II.—Deccan.																		
6	West Khândesh	3	10	...	11	26	1	1	2	9	63	2	25	3	65	35		
7	East Khândesh	2	2	...	18	18	...	...	16	58	2	39	5	1	65	35
8	Nalk	3	6	...	4	50	5	...	8	11	62	2	3	7	64	36		
9	Ahmednagar	1	4	...	35	40	1	...	1	6	58	3	2	3	61	39		
10	Poona	4	3	...	41	29	2	...	2	5	65	3	3	9	68	32		
11	Sholapur	1	1	...	67	13	...	1	1	4	86	1	1	2	87	13		
12	Sâtra	2	2	...	28	20	2	1	3	10	68	4	5	23	73	27		
	Average	2	3	...	31	29	2	...	2	9	77	2	9	4	79	21		
	1921-22	2	4	...	30	18	2	...	1	3	74	2	11	4	76	24		
	1920-21	2	4	...	30	18	2	...	1	3	74	2	11	4	76	24		
III.—Karnatak.																		
13	Belgaum	6	6	...	38	8	2	1	2	13	76	2	8	3	77	23		
14	Bijapur	...	6	...	57	18	...	...	1	6	68	2	9	3	85	15
15	Dhârwar	6	16	...	30	...	2	...	2	12	66	1	20	1	66	34		
	Average	3	9	...	44	13	1	...	2	9	76	3	12	2	78	22		
	1921-22	4	8	...	44	4	1	...	1	9	71	1	12	2	72	28		
	1920-21	4	8	...	44	4	1	...	1	9	71	1	12	2	72	28		
IV.—Konkan.																		
16	Bombay Suburban	42	...	...	...	...	...	...	...	...	42	6	...	2	50	50
17	Thâna	63	...	...	...	9	...	...	6	68	1	...	1	30	69	31
18	Kolâpa	68	...	...	...	10	...	...	10	68	2	...	1	9	80	20
19	Bambâgiri	40	...	...	...	16	...	...	21	77	4	...	6	13	81	19
20	Kânara	63	...	...	...	2	...	...	3	67	4	...	5	24	71	29
	Average	61	...	...	...	11	...	...	12	74	3	...	4	19	77	23
	1921-22	61	...	...	...	10	...	...	14	75	3	...	4	18	78	22
	1920-21	61	...	...	...	10	...	...	14	75	3	...	4	18	78	22
	Average A...	7	6	...	39	14	3	1	3	9	74	3	10	3	76	24		
	1921-22	8	4	...	34	11	3	1	1	8	70	2	14	4	72	28		
	1920-21	8	4	...	34	11	3	1	1	8	70	2	14	4	72	28		
B.—Sind.																		
21	Karachi	61	3	2	10	8	...	...	5	74	3	...	9	15	76	24
22	Hyderabad	44	4	1	2	39	...	...	...	80	2	6	3	7	83	17
23	Thar Pârkar	6	4	...	3	73	...	...	...	86	1	6	3	4	87	13
24	Nawâbahd	6	10	1	19	32	...	...	4	3	76	1	10	7	76	24
25	Lârkatâ	37	11	1	19	...	...	...	3	14	66	1	...	12	1	86
26	Sukkur	8	29	...	23	7	...	...	9	8	69	3	...	6	3	92
3	Upper Sind Frontier	13	13	...	16	18	...	...	16	7	33	1	...	16	...	84
	Average B...	24	10	1	13	25	...	...	4	6	63	1	3	9	4	64
	1921-22	22	9	1	16	26	...	...	3	5	64	1	2	4	2	66
	1920-21	22	9	1	16	26	...	...	3	5	64	1	2	4	2	66
	Average for the Presidency.	9	6	...	37	19	2	1	2	9	76	3	9	4	77	23		
	1921-22	10	5	...	31	13	3	...	2	9	73	3	12	4	74	26		
	1920-21	10	5	...	31	13	3	...	2	9	73	3	12	4	74	26		

APPENDIX D.

IRRIGATED AREA.

Area in Acres (000 omitted).

Details.	Presidency proper.			Sind.		
	1920-21.	1921-22.	Increase (+) or decrease (-) per cent.	1920-21.	1921-22.	Increase (+) or decrease (-) per cent.
<i>A--Area Irrigated.</i>						
Irrigated from Government canals	261	241	- 6.5	2,665	2,778	+ 4.2
Do. private canals	58	57	- 3.5	7	2	- 71.4
Do. wells	642	549	- 14.5	66	39	- 40.0
Do. tanks	117	103	- 5.1		5	..
Do. other sources	27	38	+ 22.2	119	159	+ 32.8
Total, A-Area Irrigated	1,105	981	- 11.2	2,857	3,982	+ 4.4
<i>B--Crops Irrigated</i>						
Rice	168	175	+ 4.2	1,235	1,044	- 15.5
Wheat	175	176	+ 0.6	249	309	+ 24.1
Barley	13	14	+ 7.7	13	16	+ 23.1
Jowars	277	214	- 22.4	356	391	+ 9.8
Bajrs	92	80	- 13.0	499	604	+ 21.0
Mauze	51	37	- 27.3	3	3	..
Other Cereals and Pulses	72	61	- 15.3	158	272	+ 72.2
Sugarcane ...	57	54	- 5.3	4	3	- 25.0
Other food crops	147	142	- 3.4	64	57	- 10.9
Cotton	7	3	- 57.1	263	140	- 47.3
Other non-food crops	174	152	- 12.6	150	313	+108.7
Total, B-Crops Irrigated	1,233	1,109	- 10.1	2,999	3,152	+ 5.1

TABLE I.—Average Fall of Rain from 1st June 1921 to 31st May 1922 at each of the representative stations of the districts of the Bombay Presidency.

No.	District Head quarter station.	Kharif rains (1st June 1921 to 30th September 1921).				Rabi rains (1st October 1921 to 28th February 1922).				Hot-weather rains (1st March 1922 to 31st May 1922).				Total.			
		Average.		1921.		Average.		1921-22.		Average.		1921.		Average.		1921-22.	
		Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.	Fall.	Rainy days.
	<i>Deccan.</i>	Ina.		Ina.		Ina.		Ina.		Ina.		Ina.		Ina.		Ina.	
1	Dhulia (West Khan-desh).	19.32	30	23.67	40	2.66	4	4.75	5	0.40	1	...	...	22.36	65	26.42	45
2	Jalgaon (East Khan-desh).	27.29	41	28.97	50	2.00	3	3.16	5	0.62	2	...	...	29.91	46	32.13	55
3	Nánk ...	25.00	41	16.96	65	3.66	6	0.09	...	0.90	2	1.90	2	30.46	49	18.95	37
4	Ahmednagar ...	17.74	28	17.65	23	4.38	7	1.84	5	1.17	3	3.61	5	23.29	38	23.10	32
5	Poona ...	21.81	37	13.20	25	5.40	7	1.93	9	1.88	3	3.64	5	29.19	47	18.77	39
6	Sholapur ...	21.84	30	19.64	24	4.52	6	8.39	8	1.62	4	2.56	3	27.43	40	29.99	35
7	Sátára ...	32.99	54	30.80	45	5.21	9	4.11	10	3.49	5	1.63	4	40.69	68	36.54	59
8	*Hilly Deccan Tracts.	64.77	69	63.48	64	3.99	7	2.62	4	1.40	3	2.35	3	70.16	79	63.45	78
	<i>Karnatak.</i>																
9	Belgaum ...	39.65	61	34.00	54	6.61	11	13.44	14	4.47	9	3.29	5	50.73	51	50.73	73
10	Bijapur ...	15.27	20	5.11	13	5.32	3	12.08	12	2.38	6	1.98	6	23.47	40	23.13	31
11	Dhewár ...	30.14	45	16.08	41	7.30	11	8.91	11	5.05	10	7.08	8	32.79	66	32.02	60
12	*Hilly Karnatak Tracts.	59.08	65	55.88	62	6.93	10	9.20	12	5.81	7	3.22	6	70.15	83	63.30	80
	<i>Konkan.</i>																
13	Karwár (Kanara) ...	107.59	69	85.27	69	7.13	10	8.32	7	3.59	4	3.59	7	118.06	103	97.45	103
14	Ratnágiri ...	91.10	53	97.60	92	4.16	6	4.52	8	1.21	2	1.20	1	96.47	91	103.35	101
15	Alibág (Kolaba) ...	82.44	76	88.95	68	2.33	4	0.34	1	0.31	1	...	...	86.08	81	89.29	89
16	Thána ...	94.60	86	108.39	93	3.32	5	0.37	2	0.84	1	0.68	1	98.76	92	107.94	93
	<i>Gujarat.</i>																
17	Surat ...	37.53	43	53.51	63	1.81	3	...	...	0.15	...	...	...	39.31	46	53.51	62
18	Bronch ...	33.35	40	40.10	51	1.50	2	0.25	1	0.18	...	...	...	40.03	42	40.35	52
19	Kaira ...	32.18	36	32.58	35	0.31	2	0.14	1	0.23	1	0.04	...	33.25	39	33.06	39
20	Godhra (Panch Mahals).	37.84	42	53.60	49	1.13	2	0.11	1	0.50	1	...	...	39.47	45	55.71	50
21	Ahmedabad ...	28.09	34	42.31	44	0.71	1	...	...	0.33	1	...	...	29.13	36	42.51	44
	<i>Sind.</i>																
22	Karachi ...	5.72	5	14.31	10	1.36	3	1.01	3	0.61	1	...	...	7.69	9	15.56	13
23	Hyderabad ...	6.24	7	13.00	6	0.60	1	0.89	3	0.39	1	0.16	1	7.29	9	14.04	10
24	Mirpurkhas (Thar and Parkar).	5.93	6	8.10	9	0.36	1	0.17	1	0.38	1	0.04	...	6.67	10	8.3	10
25	Nawábalah ...	6.15	6	3.05	6	0.43	1	0.71	3	0.37	1	...	...	7.25	8	3.76	9
26	Lárkána ...	2.09	3	0.66	2	0.43	1	1.83	3	0.54	1	...	...	4.01	5	2.54	5
27	Sukkur ...	1.2	3	0.46	3	0.45	2	1.61	3	0.35	1	...	...	2.62	6	2.07	6
28	Jacobabad (Upper Sind Frontier).	2.53	4	1.00	2	0.83	2	2.59	5	0.54	2	0.01	...	3.95	6	3.69	7

* The figures for the Hilly Tracts of the Deccan and Karnatak are averages for 6 and 2 stations respectively.

TABLE II—Total Area and Area Cultivated and Uncultivated

No.	District.	Area by village papers.	Deduct area for which no returns exist.	Net area for which statistics are available.	CULTIVATED			
					Gross area cropped.		Deduct area cropped more than once.	
					Reported.	Estimated.	Reported.	Estimated.
1	2	3	4	5	6	7	8	9
A—BOMBAY PRESIDENCY PROPER.		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
<i>Gujarāt.</i>								
1	Ahmedabad ...	2,453,396	239,483	2,213,913	1,213,671	152,431	15,275	432
2	Kaira ...	1,027,125	85,213	941,913	748,619	67,574	19,828	708
3	Fateh Mahāls ...	1,028,783	175,832	852,951	474,024	128,162	68,334	18,438
4	Brosach ...	938,955	18,721	920,234	611,465	16,312	779	....
5	Surāt ...	1,058,257	25,243	1,033,014	771,998	28,649	48,686	762
	Total ...	6,506,516	544,492	5,962,024	3,824,977	389,128	118,502	20,385
<i>Deccan.</i>								
6	West Khāndesh ...	3,481,207	941,076	2,540,131	1,374,122	11,776	36,086	86
7	East Khāndesh ...	2,908,697	189,672	2,719,025	2,007,456	..	20,581	....
8	Nāsik ...	3,769,909	16,096	3,753,813	1,935,644	9,948	35,736	85
9	Ahmednagar ...	4,241,884	33,410	4,208,474	2,567,146	19,397	52,358	387
10	Poona ...	3,427,982	48,980	3,379,002	1,981,577	25,772	99,559	452
11	Sholāpur ...	2,916,099	....	2,916,099	2,219,069	..	89,874	....
12	Sātāra ...	3,142,670	125,255	3,017,415	2,057,739	77,594	129,212	6,612
	Total ...	23,886,489	1,354,489	22,533,950	14,142,753	144,387	413,906	7,572
<i>Karnātak.</i>								
13	Belgaum ...	2,952,655	141,609	2,811,046	1,797,655	56,588	85,108	176
14	Bijāpur ...	3,652,913	11,965	3,640,948	2,871,917	7,985	9,627	5
15	Dhārwar ...	2,946,982	72,399	2,874,583	2,169,435	54,160	16,314	126
	Total ...	9,552,550	225,993	9,326,557	6,839,007	118,728	61,649	307
<i>Konkan.</i>								
16	Thāna ...	2,191,590	51,569	2,140,021	580,360	14,369	5,376	26
17	Bombay Suburban District ...	98,078	15,327	82,751	29,629	8,526	223	....
18	Kolāba ...	1,387,417	65,187	1,322,230	389,794	24,021	9,479	271
19	Ratnāgiri ...	2,563,568	1,895,441	668,127	193,347	663,716	11,046	38,928
20	Kānara ...	2,525,978	....	2,525,978	257,831	..	19,671	..
	Total ...	8,756,661	2,027,494	6,739,167	1,430,961	710,632	45,800	39,225
	Total A ...	18,714,166	4,152,468	14,561,698	26,237,698	1,361,875	669,757	67,439
B.—Sind.								
21	Karāchi ...	7,534,899	....	7,534,899	453,346	....	20,855	....
22	Hyderabad ...	2,833,819	..	2,833,819	589,610	....	8,462	....
23	Thar Pārkar ...	8,727,583	..	8,727,583	877,249	....	10,548	..
24	Nawābshāh ...	2,498,156	..	2,498,156	466,829	..	13,897	....
25	Larkāna ...	3,212,566	....	3,212,566	978,040	..	169,060	....
26	Sukkur ...	3,587,928	....	3,587,928	428,630	..	28,951	....
27	Upper Sind Frontier ...	1,725,147	124,908	1,600,239	572,599	1,287	60,652	....
	Total B ...	30,149,898	124,908	30,024,990	4,367,303	1,287	332,420	..
	Grand Total ...	78,861,064	4,277,376	74,583,688	30,605,001	1,363,162	1,002,177	67,439

ARMA.

Net cropped areas.		Add current fallows.		Total columns 10 and 12 and 11 and 13.	
Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.
10	11	12	13	14	15
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1,208,596	151,999	418,477	77,995	1,622,073	229,994
728,791	66,871	60,943	3,393	789,734	70,264
405,090	109,724	78,614	36,978	483,704	146,702
610,886	16,812	34,267	652	644,953	16,964
728,812	22,887	26,088	293	754,395	23,180
3,676,475	367,793	618,384	119,311	4,294,859	487,104
1,838,088	11,690	228,605	1,582	1,868,701	13,272
1,986,875	.....	78,291	.....	2,065,166	.....
1,899,908	9,813	568,788	2,610	2,468,696	12,423
2,514,288	19,010	669,487	7,882	3,183,775	26,892
1,882,018	25,320	839,240	23,023	2,521,258	47,343
2,179,195	.....	344,601	.....	2,523,796	.....
1,928,627	70,982	318,215	17,981	2,246,742	88,813
13,728,847	136,815	2,847,287	61,398	16,576,134	188,213
1,763,547	56,407	851,014	29,547	2,119,561	86,954
2,662,290	7,960	359,141	3,448	3,221,431	11,428
2,152,621	54,034	201,788	4,839	2,354,404	58,873
6,777,458	118,421	911,938	37,834	7,689,396	156,255
574,984	14,343	375,791	24,184	950,775	38,527
23,401	8,526	17,535	5,651	46,936	14,177
880,815	23,700	388,161	80,195	748,478	58,945
182,801	624,788	239,519	769,197	421,820	1,393,985
238,160	.....	101,798	.....	339,958	.....
1,985,161	71,207	1,122,804	829,227	2,507,965	1,500,634
25,567,941	1,294,436	5,500,413	1,037,770	31,068,354	2,332,206
432,491	.....	405,963	.....	838,454	.....
681,148	.....	777,225	.....	1,358,373	.....
866,706	.....	1,492,494	.....	2,359,200	.....
452,982	.....	811,508	.....	1,264,490	.....
789,990	.....	740,089	.....	1,530,079	.....
899,679	.....	686,438	.....	1,086,117	.....
511,947	1,287	451,317	12,098	963,264	13,385
4,034,833	1,287	5,365,539	12,098	9,400,422	13,385
29,602,824	1,295,723	10,865,952	1,049,868	40,468,776	2,345,591

CULTIVATED AREA—continued.				UNCULTIVATED	
Details of columns 14 and 15				Culturable waste unoccupied and unassessed	
Assessed.		Unassessed.			
Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.
16	17	18	19	20	21
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1,612,825	229,957	9,748	37	109,121	1,735
788,707	70,065	1,027	199	14,061	279
482,774	146,702	930	.....	75,529	808
642,034	16,964	2,919	.. ..	26,915	.. ..
751,276	23,180	3,119	.....	60,695	98
4,277,116	486,868	17,743	236	286,521	2,413
1,551,689	13,269	15,012	3	166,153	435
2,064,226	....	940	.....	60,607	.....
2,465,612	12,423	3,084	.. ..	72,784	.. ..
3,177,594	26,862	6,181	.. ..	46,075	15
2,491,516	47,343	29,742	.....	14,880	4
2,517,834	.....	5,962	.. ..	16,377	.....
2,244,970	88,313	1,772	.....	24,446	5,131
16,513,441	168,210	62,693	3	400,322	5,585
2,109,682	85,954	3,879	.....	66,737	856
3,221,022	11,428	409	.. ..	46,233	300
2,354,346	58,873	58	.....	62,849	714
7,635,050	156,255	4,346	.....	165,819	1,870
921,292	33,527	29,488	.....	45,344	430
46,894	14,177	42	.....	6,584	14
740,627	58,945	1,849	.. ..	19,572	.....
421,820	1,893,985	.....	.....	5,805	2,910
338,943	.....	1,015	.....	43,883	.....
2,475,576	1,500,634	32,389	.....	121,138	3,354
30,931,183	2,331,967	117,171	239	974,300	13,222
623,346	.....	214,508	.....	1,231,279	.....
1,342,846	.. ..	15,527	.....	946,413	.. ..
2,299,685	.....	69,515	.....	1,832,830	.. ..
1,232,414	.....	32,021	.....	554,566	.....
1,441,643	.....	38,433	.....	670,786	.. ..
1,060,422	.....	35,695	.....	466,954	.. ..
887,004	.. ..	76,760	13,385	202,161	.....
8,877,963	.....	522,459	13,385	6,163,988	.....
39,899,146	2,331,967	639,630	13,624	7,138,268	13,222

in each District of the Bombay Presidency, 1921-22—concluded.

AREA.						District	No.
Not available for cultivation.				Total columns 20 to 25.			
Forest.		Others.		Reported.	Estimated.		
Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.		
22	23	24	25	26	27	28	29
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.		
12,017	..	470,702	7,756	591,810	9,489	A.—BOMBAY PRESIDENCY PROPR.	
.....	.....	136,117	14,670	152,178	14,949	<i>Gujardt.</i>	
202,105	10,175	91,613	18,652	369,247	29,180	Ahmedabad	1
.....	.....	248,866	1,757	275,281	1,757	Kaira	2
44,984	.....	172,740	1,965	278,619	2,063	Panch Mahals	3
259,106	10,175	1,121,538	44,800	1,667,165	57,388	Broach	4
						Surat	5
						Total.	
						<i>Deccan.</i>	
533,523	926,457	273,754	912	978,430	427,804	West Khândesh ..	
2,5445	189,672	367,807	.....	658,859	189,672	Es at Khândesh ...	7
815,551	1,268	396,778	2,405	1,285,108	3,673	Nâsik	8
580,352	.....	447,742	6,533	1,024,699	6,548	Ahmednagar	9
417,960	14	425,404	1,619	867,744	1,637	Poona	10
113,868	.....	262,563	.....	322,308	.....	Sholâpur	11
448,294	529	297,933	31,232	770,673	36,942	Sâtâra	12
3,085,013	1,117,940	2,471,981	42,781	5,957,816	1,166,276	Total.	
						<i>Karnâtk.</i>	
439,625	.....	191,123	54,799	697,485	55,655	Belgaum	13
177,003	.....	196,261	267	419,497	557	Bijâpur	14
242,940	.....	224,890	12,612	520,179	13,626	Dhârwar	15
859,568	.....	611,774	67,668	1,637,161	69,738	Total.	
						<i>Konkan.</i>	
782,779	1,156	361,123	11,456	1,189,246	13,042	Thâna	16
3,791	.....	25,480	1,136	35,815	1,150	Bombay Suburban Dis-	17
329,766	2,609	224,466	8,603	578,814	11,212	trict. Kolâba	18
3,799	4,630	230,798	496,916	246,307	501,456	Ratnâgiri	19
2,072,573	.....	69,564	.....	2,166,020	.....	Kânara	20
3,198,608	8,395	911,456	515,111	4,231,202	526,860	Total.	
7,402,295	1,186,510	5,116,749	670,530	13,433,344	1,820,262	Total A.	
						<i>B.—Sind.</i>	
167,448	.....	5,297,513	.....	6,696,245	.....	Karâchi	21
70,686	.....	468,177	.....	1,475,446	.....	Hyderabad	22
42,403	.....	4,493,160	.....	6,368,893	.....	Thar-Pârkar	23
69,551	.....	569,804	.....	1,233,721	.....	Nawâbahah	24
59,497	.....	782,205	.....	1,712,487	.....	Lârkâna	25
252,226	.....	1,782,621	.....	2,501,811	.....	Sukkur	26
40,808	.....	324,006	111,523	636,475	111,523	Upper Sind Frontier ...	27
722,299	.....	13,733,281	111,523	20,624,568	111,523	Total B.	
8,124,594	1,136,510	16,853,030	782,053	34,117,913	1,931,785	Grand Total.	

TABLE III.—Area cropped in each District for

Serial No.	District.	Cereals and Pulses.												
		1. Rice.			2. Wheat.			3. Barley.			4. Cholam or Jowar (millet).			
		Reported.	Estimated.	Total *	Reported.	Estimated.	Total.	Reported.	Estimated.	Total	Reported.	Estimated.	Total.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
	PRESIDENCY PROPER.													
	I.—Gujardt.													
1	Ahmedabad	80,908	6,000	86,928	237,745	18,308	243,780	6,543	282	6,825	292,410	40,878	8,258	37,278
2	Kaira	71,312	3,097	74,409	16,094	727	15,881	987	216	1,203	44,900	3,522	48,842	
3	Panch Mahals	86,335	10,821	77,056	17,460	5,783	23,223	3,321	1,892	5,013	11,012	1,478	13,800	
4	Broach	17,830	76	17,906	62,189	724	62,973	.....	.....	.....	100,844	6,916	107,760	
5	Surat	98,524	1,776	100,300	17,824	246	18,072	.....	.....	.....	107,863	5,875	113,838	
	Total	214,806	20,760	235,566	331,312	23,617	364,929	10,651	2,190	12,841	617,708	58,069	675,607	
	II.—Deccan.													
	West Khandesh	44,817	887	45,704	131,188	3,273	134,461	.....	.....	.....	147,837	1,648	149,485	
7	East Khandesh	660	.....	660	40,222	.....	40,222	.....	.....	.....	397,149	.....	397,149	
8	Nasik	65,689	977	66,666	112,494	253	112,737	.....	.....	.....	76,333	829	77,162	
9	Ahmadnagar	16,809	27	16,836	107,388	492	107,880	226	1	227	82,000	10,984	92,984	
10	Poona	80,164	3,725	83,879	49,873	597	50,470	487	.....	487	601,324	7,328	608,652	
11	Sholapur	6,193	.....	6,193	25,442	.....	25,442	1,800	.....	1,800	1,480,767	.....	1,480,767	
12	Satara	46,854	8,239	55,093	40,811	1,737	42,548	2,734	180	2,914	551,444	23,312	574,756	
	Total	261,171	8,835	270,006	507,638	8,402	516,040	5,257	181	5,438	4,324,444	44,991	4,369,435	
	III.—Karnatak.													
13	Belgaum	104,108	7,760	111,868	110,344	738	111,082	2,014	212	2,226	490,950	12,724	503,674	
14	Bijapur	6,457	2	6,459	175,639	532	176,071	3,120	6	3,126	1,024,705	4,711	1,029,416	
15	Dharwar	128,542	1,496	130,038	339,361	8,768	344,119	36	.....	36	614,064	16,208	630,272	
	Total	239,107	9,258	248,365	625,344	9,538	630,172	5,170	268	5,438	2,959,707	36,643	2,996,350	
	IV.—Konkan.													
16	Thana	307,973	7,012	314,985	85	.....	85	.....	.....	.....	504	.....	504	
17	Bombay Suburban	12,033	4,016	16,049	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	Kolaba	248,374	14,638	263,012	.....	.....	.....	.....	.....	.....	2	.....	2	
19	Ratnagiri	75,723	2,634	78,357	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	Kanara	160,537	.....	160,537	.....	.....	.....	.....	.....	.....	396	.....	396	
	Total	304,999	23,656	328,655	85	.....	85	.....	.....	.....	902	.....	902	
	Total, Presidency proper	1,620,127	325,531	1,945,658	1,461,389	39,657	1,500,946	21,078	2,639	23,717	7,922,702	133,432	8,041,134	
	SIND.													
21	Karachi	230,432	.....	230,432	14,309	.....	14,309	9,016	.....	9,016	45,449	.....	45,449	
22	Hyderabad	258,889	.....	258,889	25,404	.....	25,404	2,941	.....	2,941	9,361	.....	9,361	
23	Thar-Parkar	51,954	.....	51,954	36,146	.....	36,146	334	.....	334	24,696	.....	24,696	
24	Nawabshah	30,271	.....	30,271	46,326	.....	46,326	2,753	.....	2,753	58,048	.....	58,048	
25	Larkana	363,540	.....	363,540	113,904	.....	113,904	3,954	.....	3,954	1,28,373	.....	1,28,373	
26	Sukkur	36,617	.....	36,617	122,102	.....	122,102	584	.....	584	120,836	.....	120,836	
27	Upper Sind Frontier	73, 47	.....	73, 47	73,962	83	73,985	98	.....	98	94,821	1,314	96,135	
	Total, Sind	1,041,137	.....	1,041,137	432,243	83	432,276	15,685	.....	15,685	575,934	1,344	577,278	
	Grand Total	2,904,567	325,531	3,000,149	1,893,632	39,690	1,933,322	40,663	2,639	43,303	8,478,608	134,776	8,613,384	

* Of this area 569 acres in Belgaum, 14,304 in Ratnagiri and 20,836 acres in Kanara were under late rice.

† Of this area the following districts cultivated Jowar as a rabi crop. —

District	Acres	District	Acres	District	Acres
Ahmedabad	22,137	Broach	129,860	West Khandesh	6,738
Kaira	264	Surat	16,454	Nasik	41,450
Panch Mahals	10,876	East Khandesh	.....	Nagar	903,054
				Poona	6,738
				Sholapur	1,430,797
				Satara	808,605
				Belgaum	250,049
				Bijapur	1,212,157
				Dharwar	900,677
				Thana	504

the Bombay Presidency, 1921-22.

Cereals and pulses—continued.													District.	Serial Number.
5. <i>Cumbu or Bajra</i> (millet).			6. <i>Bajra or Marua</i> .			7. <i>Maize</i> .			8. <i>Gram (pulses)</i> .					
Reported.	Estimated.	Total.	Reported.	Estimated.	Total.	Reported.	Estimated.	Total.	Reported.	Estimated.	Total.			
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
150,763	20,000	171,763	2,098	71	2,769	4,750	80	4,266	24,307	1,420	25,617	Ahmedabad	1	
185,137	18,905	204,042	48,110	5,078	46,187	1,200	102	1,302	14,703	515	15,278	Kaira	2	
31,127	9,015	40,142	17,847	2,953	10,810	97,908	40,690	138,726	45,908	12,608	68,516	Panch Mahals	3	
15,241	79	15,399	268	..	268	80	....	80	..	109	2,641	Broach	4
5,785	18	5,771	11,620	814	11,815	19	11	10	2,098	38	2,131	Surat	5	
303,031	48,998	442,007	71,450	8,426	70,653	103,857	41,193	144,983	89,613	14,780	104,393	Total.		
II—Deccan.														
308,290	548	204,838	10,841	53	10,894	10,203	180	1,449	33,696	668	34,394	West Khandesh	6	
330,730	....	850,760	60	....	60	1,645	....	1,645	8,577	....	8,777	East Khandesh	7
070,011	2,274	972,356	110,984	2,259	118,123	3,601	128	3,789	68,518	257	62,228	Nasik	8	
1,041,908	3,691	1,043,310	21,995	..	24,986	2,169	11	2,167	33,076	468	34,146	Ahmednagar	9	
630,724	3,660	584,318	35,830	2,816	38,606	2,220	12	2,232	37,942	108	38,450	Poona	10	
261,808	....	261,808	14	..	14	12,414	..	12,414	28,438	....	28,438	Sholapur	11
425,366	10,585	436,651	48,052	3,411	46,493	10,235	828	11,063	46,981	2,012	48,993	Satara	12	
3,909,901	20,682	4,030,383	225,617	8,509	284,130	43,594	1,185	43,763	261,781	3,940	265,780	Total		
III—Karnatak.														
138,921	6,045	144,966	31,615	5,735	37,250	17,871	377	18,248	30,822	1,404	31,726	Belgaum	13	
339,317	419	869,406	140	8	148	2,300	..	2,300	35,768	223	36,994	Bijapur	14	
6,312	2,363	8,674	43,110	284	43,394	45	..	45	46,620	1,030	47,650	Dharwar	15	
534,522	8,823	643,345	71,765	6,022	80,787	20,315	377	20,693	118,704	2,666	119,960	Total.		
IV—Konkan.														
..	..	..	43,712	1,412	45,024	4	2	5	537	5	542	Thana	16
..	..	..	74	..	74	..	..	..	..	..	..	Bombay Suburban	17
..	..	..	37,671	1,536	39,407	1	..	1	241	1	242	Kolaba	18
..	..	..	32,675	100,326	141,001	..	..	..	13	54	73	Ratnagiri	19
..	..	..	3,578	..	3,578	99	..	99	335	..	336	Kanara	20
..	..	..	130,803	112,174	333,932	104	2	106	1,423	60	1,483	Total	
4,937,314	76,314	5,005,738	491,045	13,131	637,777	168,870	48,678	209,546	496,610	21,445	487,955	Total, Presidency proper.		
SIND.														
18,165	....	16,168	435	....	435	1,294	..	1,294	731	....	731	Karachi	21
163,290	....	170,219	..	....	..	153	..	153	387	..	397	Hyderabad	22
640,055	....	640,055	3	....	2	1,201	..	1,201	849	..	349	Thar-Parkar	23
143,702	....	143,702	1	....	1	135	..	155	16,819	....	16,819	Nawabshah	24
4,710	....	4,710	..	....	..	..	..	..	32,703	....	32,703	Larkana	25
20,003	....	20,003	10	..	10	2	..	2	30,709	..	30,709	Bukkur	26
90,312	10	90,323	1	..	1	22	..	22	94,016	....	94,016	Upper Sind Frontier	27
1,107,346	10	1,107,354	478	..	473	2,527	....	2,527	174,714	....	174,714	Total, Sind.	
6,034,632	76,404	6,113,062	491,126	136,131	636,256	169,687	48,678	212,373	641,234	21,445	653,669	Grand Total.		

TABLE III.

Serial No	District.	Cereals and Pulses—concluded.									10. Linseed.			11. Sesamum (Til or Jangli).		
		9. Other food-grains, including pulses.			Total.			Reported.	Estimated.	Total.	Reported.	Estimated.	Total.			
		Reported.	Estimated.	Total.	Reported.	Estimated.	Total.									
1	2	27	28	29	30	31	32	33	34	35	36	37	38			
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.			
PRESIDENCY PROPER.																
<i>I.—Gujarat.</i>																
1	Ahmedabad	61,139	5,867	71,006	635,156	90,641	926,797	151	...	151	14,786	3,469	18,254			
2	Kaira	115,838	14,726	130,564	499,464	47,277	546,741	23	...	23	6,471	781	7,252			
3	Panch Mahals	65,214	15,402	80,616	357,820	100,682	458,502	81	2	83	15,889	2,687	18,576			
4	Broach	68,618	1,476	70,094	317,707	8,629	326,336	...	...	...	12,451	14	12,465
5	Surat	50,270	1,704	51,974	293,571	10,081	303,652	...	...	...	1,874	17	1,891
	Total	366,273	39,174	404,447	2,297,688	267,193	2,564,881	265	2	267	51,489	6,988	58,477			
<i>II.—Deccan.</i>																
6	West Khandesh	129,942	1,461	131,403	876,304	6,699	883,003	6,351	88	6,439	58,165	425	58,590			
7	East Khandesh	285,627	...	285,627	1,054,770	...	1,054,770	1,169	...	1,169	26,723	...	26,723			
8	Nasik	203,487	1,431	204,918	1,603,108	6,117	1,611,225	14,400	37	14,437	16,624	15	16,639			
9	Ahmednagar	146,214	1,805	148,019	2,267,285	17,059	2,284,344	9,748	307	10,145	15,081	81	15,762			
10	Poona	69,352	3,553	72,905	1,637,380	23,119	1,700,500	616	2	618	6,687	100	6,787			
11	Sholapur	79,088	...	79,088	1,893,059	...	1,893,059	6,789	...	6,789	5,191	...	5,094			
12	Satara	213,656	2,250	215,906	1,402,103	54,610	1,456,713	2,870	163	3,033	45	13	418			
	Total	1,156,396	17,290	1,173,686	10,784,519	110,504	10,895,023	49,082	632	49,714	129,169	664	129,833			
<i>III.—Karnatak.</i>																
13	Belgaum	222,270	8,837	231,107	1,348,371	44,872	1,393,243	3,808	...	3,808	2,738	14	2,752			
14	Bijapur	162,579	379	162,958	2,401,115	6,274	2,407,389	46,311	187	46,498	16,079	16	16,095			
15	Dharwar	372,361	7,384	379,745	1,477,651	38,983	1,516,634	17,593	107	17,700	6,846	259	6,836			
	Total	657,210	16,599	673,809	5,227,137	80,129	5,317,265	67,712	294	67,906	26,324	321	26,645			
<i>IV.—Konkan.</i>																
16	Thane	35,996	1,343	37,339	382,111	10,274	402,385	...	...	...	1,310	38	1,348
17	Bombay Suburban	11	...	11	12,117	4,036	16,153	...	...	...	4	...	4
18	Kolaba	36,939	999	37,938	322,478	22,072	344,550	...	...	...	2,210	76	2,286
19	Ratnagiri	39,148	140,202	179,350	147,519	515,076	602,595	...	...	...	1,244	3,766	5,010
20	Kanara	6,263	...	6,263	171,497	...	171,497	13	...	13	27	...	27			
	Total	118,463	142,544	261,007	1,046,723	551,458	1,598,180	13	...	13	4,596	3,870	8,466			
Total, Presidency proper.		2,297,500	215,468	2,512,968	19,368,066	1,009,233	20,377,300	111,641	978	112,619	29,817	11,823	23,640			
SIND.																
21	Karachi	20,185	...	20,185	339,323	...	339,323	...	...	...	9,022	...	9,022
22	Hyderabad	548	...	548	466,843	...	466,843	...	...	...	2,906	...	2,906
23	Thar Parkar	6,107	...	6,107	760,804	...	760,804	1	...	1	8,068	...	8,068			
24	Navabshah	14,801	...	14,801	348,541	...	348,541	...	...	...	4,652	...	4,652
25	Larkana	141,648	...	141,648	639,292	...	639,292	3	...	3	5,803	...	5,803			
26	Sukkur	36,509	...	36,509	383,251	...	383,251	...	...	...	3,297	...	3,297
27	Upper Sind Frontier	43,666	...	43,666	470,636	1,267	482,903	...	...	...	3,206	...	3,206
	Total, Sind	262,464	...	262,464	2,610,689	1,267	2,611,956	3	...	3	27,438	...	27,438			
Grand Total		2,559,964	215,468	2,775,432	22,273,755	1,010,500	23,284,255	111,644	978	112,622	29,844	11,823	23,678			

continued.

Oil-seeds.												District.	Serial No.
12. Rape and Mustard.			13. Groundnut.			14. Coconut.			15. Castor Seed.				
Reported.	Estimated.	Total.	Reported.	Estimated.	Total.	Reported.	Estimated.	Total.	Reported.	Estimated.	Total.		
39	40	41	42	43	44	45	46	47	48	49	50	2	1
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.		
3,906	323	4,329	5,577	.....	5,577	.....	.....	.....	11,416	845	11,761	Ahmedabad.	1
549	2	551	89	64	948	.....	.....	.....	9,197	1,281	10,478	Kaira.	2
899	110	1,009	14,065	1,681	15,728	.....	.....	.....	2,597	1,120	3,687	Panch Mahals.	3
137	.....	137	151	.....	151	.....	.....	.....	1,915	50	1,905	Broach.	4
338	.....	338	876	83	908	33	.....	33	10,630	915	10,996	Surat.	5
5,885	434	6,319	18,958	1,768	20,710	33	.....	33	35,776	3,111	38,888	Total.	
												<i>II.—Deccan.</i>	
3,908	27	3,935	6,980	35	7,024	.....	.....	.....	31,084	299	32,333	West Khandesh.	6
39	.....	39	75,594	.....	75,594	1	.....	1	610	.....	610	East Khandesh.	7
834	.....	834	10,191	11	10,203	2	.....	2	.....	.....	.....	Nasik.	8
5	.....	5	4,915	49	4,964	.....	.....	.....	.....	.....	.....	Ahmednagar.	9
35	.....	35	16,983	687	17,669	4	.....	4	57	.....	57	Poona.	10
.....	.....	.....	88,768	.....	88,768	.....	.....	.....	1,354	.....	1,354	Sholapur.	11
.....	.....	.....	77,449	5,178	82,627	39	.....	39	326	6	332	Satara.	12
3,310	27	3,337	232,318	5,908	238,226	39	.....	39	24,181	305	24,486	Total.	
												<i>III.—Konkan.</i>	
.....	.....	.....	11,588	144	1,1730	5	.....	5	1,459	6	1,465	Belgaum.	13
444	.....	444	988	3	991	711	2	713	.....	.....	.....	Bijapur.	14
233	.....	233	1,210	6	1,216	504	.....	504	8,528	847	4,175	Dhule.	15
607	.....	607	18,782	163	18,945	1,230	2	1,232	5,297	353	5,620	Total.	
												<i>IV.—Konkan.</i>	
26	.....	26	28	.....	28	236	.....	236	178	10	188	Thana.	16
.....	.....	.....	.....	.....	.....	807	.....	807	.....	.....	.....	Bombay Suburban	17
.....	.....	.....	3	.....	3	993	.....	993	36	.....	36	Kolaba.	18
.....	.....	.....	48	50	98	4,297	18,771	23,068	.....	.....	.....	Ratnagiri.	19
4	.....	4	108	.....	108	11,806	.....	11,806	89	.....	89	Kanarp.	20
30	.....	30	161	50	351	17,659	18,771	36,430	273	10	283	Total.	
9,869	461	10,330	295,078	7,769	302,847	18,331	18,773	37,104	65,495	3,779	69,274	Total, Presidency proper	
												<i>SIKD.</i>	
29,249	.....	29,249	.....	.....	.....	43	.....	43	125	.....	125	Karachi.	21
23,523	.....	23,523	.....	.....	.....	.....	.....	.....	.....	.....	.....	Hyderabad.	22
14,608	.....	14,608	.....	.....	.....	.....	.....	.....	4,608	.....	4,608	Thar Parkar.	23
20,742	.....	20,742	.....	.....	.....	.....	.....	.....	.....	.....	.....	Rawalshahi.	24
115,427	.....	115,427	.....	.....	.....	.....	.....	.....	.....	.....	.....	Larkana.	25
21,233	.....	21,233	.....	.....	.....	.....	.....	.....	.....	.....	.....	Sukkur.	26
83,397	.....	83,397	.....	.....	.....	.....	.....	.....	.....	.....	.....	Upper Sind Frontier	27
327,133	.....	327,133	.....	.....	.....	43	.....	43	4,715	.....	4,715	Total, Sind.	
387,084	461	387,545	295,078	7,769	302,847	18,374	18,773	36,643	70,213	3,779	73,992	Grand Total.	

TABLE III—

Serial No	District.	Oil-seeds.						Condiments and Spices			18. Sugarcane		
		16. Others			Total			17. Condiments and Spices.			18. Sugarcane		
		Reported.	Estimated	Total	Reported.	Estimated	Total	Reported	Estimated	Total	Reported.	Estimated	Total.
		51	52	53	54	55	56	57	58	59	60	61	62
	PRESIDENCY PROPER.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
	<i>I—Gujarat.</i>												
1	Ahmedabad	68	....	68	34,293	4,180	38,399	1,986	108	1,794	623	221	844
2	Kaira	..	....	..	10,533	2,129	12,662	2,329	161	2,490	111	8	119
3	Panch Mahals	8,573	1,127	4,999	37,042	6,707	43,749	1,523	464	1,977	55	..	55
4	Broach	221	8	229	14,375	72	14,447	446	..	446	24	..	24
5	Surat	182	2	184	13,079	397	14,048	1,414	171	1,585	2,853	68	2,920
	Total	4,045	1,137	5,180	116,383	13,410	129,792	7,400	694	8,094	8,065	297	3,062
	<i>II.—Deccan.</i>												
6	West Khândesh	11,374	150	11,524	105,718	1,049	107,765	7,319	23	7,292	868	..	868
7	East Khândesh	..	..	..	104,089	..	104,089	14,111	..	14,111	398	..	398
8	Nasik	74,522	1,503	76,025	118,373	1,556	119,929	9,661	40	9,691	4,516	13	4,531
9	Ahmednagar	9,258	75	9,333	39,007	602	39,609	4,101	69	4,170	6,961	..	6,961
10	Poona	19,896	1,335	20,271	43,117	2,024	45,141	12,907	57	12,964	11,394	..	11,394
11	Sholapur	3,839	..	3,839	56,479	..	56,479	8,095	..	8,095	1,273	..	1,273
12	Sátara	9,990	417	10,407	90,782	5,775	96,557	22,747	1,723	24,470	7,158	1,312	8,470
	Total	127,669	3,630	131,299	658,658	11,016	669,674	79,831	1,917	80,748	32,526	1,227	23,653
	<i>III.—Marathas.</i>												
13	Bolgaum	4,945	1,242	6,187	24,622	1,406	26,028	21,493	214	21,707	10,068	259	10,265
14	Bijapur	3,856	11	3,867	99,097	211	99,308	3,836	6	3,842	758	1	757
15	Dhârwar	3,092	45	3,137	32,098	794	32,892	62,678	850	63,528	1,452	44	1,496
	Total	11,893	1,298	13,191	126,715	2,421	129,136	87,960	870	88,830	12,214	304	12,518
	<i>IV.—Konkan.</i>												
16	Thána	4,932	241	5,173	6,710	289	6,999	1,922	28	1,948	857	..	857
17	Bombay Suburban	15	..	15	828	..	828	7	..	17	..	..	..
18	Kolápa	689	11	700	3,930	87	4,017	168	1	169	25	1	26
19	Ratnâgiri	4,524	17,364	22,188	10,413	39,941	60,354	836	3,652	4,488	423	200	623
20	Kánara	210	..	210	12,110	..	12,110	4,750	..	4,750	2,967	..	2,967
	Total	10,690	17,616	28,306	33,960	40,317	74,306	7,789	3,679	11,467	3,962	201	4,003
	Total, Presidency proper	154,295	23,531	177,826	935,640	67,164	992,813	181,919	7,350	189,269	62,217	2,129	64,386
	SIND												
21	Karachi	1	..	1	38,488	..	38,488	461	..	461	930	..	930
22	Hyderabad	18	..	18	86,172	..	86,172	479	..	479	998	..	998
23	Thar Parkar	1,425	..	1,425	29,380	..	29,380	616	..	616	343	..	343
24	Nawdibehâh	657	..	657	35,050	..	35,050	157	..	157	41	..	41
25	Lârkána	3,470	..	3,470	124,201	..	124,201	2,320	..	2,320	151	..	151
26	Sukkur	109	..	109	24,639	..	24,639	975	..	975	401	..	401
27	Upper Sind Frontier	3	..	3	87,384	..	87,384	187	..	187	20	..	20
	Total, Sind	5,673	..	5,673	376,214	..	376,214	5,115	..	5,115	2,894	..	2,894
	Grand Total	169,970	23,681	193,651	1,310,853	67,164	1,278,027	187,064	7,350	194,414	55,091	2,129	67,280

continued.

Sugar.						Fibres.						District.
19. Others.			Total.			20. Cotton.			21. Jute.			
Reported.	Estimated.	Total.	Reported.	Estimated.	Total.	Reported.	Estimated.	Total.	Reported.	Estimated.	Total.	
68	64	65	66	67	68	69	70	71	72	73	74	
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Presidency Propr.
		26	639	251	860	219,605	48,055	262,760				I.—Gujarat.
			111	8	119	88,198	3,449	41,647				Ahmedabad.
			55		55	23,678	9,968	27,536				Kaira.
		9	119		119	216,819	5,700	221,019				Amich Mahals.
882	1	383	3,384	69	3,803	1,9,858	4,171	124,024				Broach.
												Surat.
	1	404	4,159	269	4,459	610,643	60,333	676,976				Total.
												II.—Deccan.
		28	889		889	353,740	1,059	355,699				West Khandesh.
			888		888	783,271		783,271				East Khandesh.
			4,618	16	4,634	61,534		69,534				Asik.
		11	6,962		6,962	59,892	355	60,037				Ahmednagar.
147		147	11,511		11,511	3,056		3,056				Poona.
1		15	1,398		1,398	10,178		16,178				Sholapur.
1		1	7,169	1,812	8,471	12,642	88	12,730				Nitara.
		107	32,729	1,327	34,056	1,292,133	2,397	1,294,530				Total.
												III.—Karnatak.
		20	10,026	250	10,276	154,308	6,053	160,361				Belgaum.
		36	792	1	793	240,835	810	241,171				Bijapur.
61		61	1,618	44	1,662	431,719	10,020	442,339				Dharwar.
		117	12,381	294	12,675	846,362	17,618	863,980				Total.
												IV.—Koskan.
		9	359		359							Belga.
												B. mbya Suburban.
		13	37	1	38							Kolaba.
			421	200	621	2	6	8				Natnigiri.
			2,997		2,997	1		1				Nanara.
		14	3,816	201	4,017	9	6	9				Total.
	1	83	65,028	3,130	68,158	2,7,6,18	20,254	2,82,685				Total, Presidency proper.
												Surat.
		183	1,063		1,063	106		106				Karachi.
		16	1,014		1,014	28,078		33,078				Hyderabad.
		4	317		317	53,448		53,448				Thar Parkar.
			41		41	47,410		47,410				Nawabshah.
		271	622		622	107		107				Larkana.
2,879		2,579	3,980		2,980	1,3-3		1,3-3				Sukkur.
9		9	20		29	345		345				Upper Sind Frontier.
3,143		3,143	6,028		6,028	141,175		141,175				Total, Sind.
3,863	1	4,064	69,054	3,130	72,184	2,994,370	20,254	2,976,500				G and Total.

TABLE III--

District.	Fibres.									Dyes.									Opium.		
	23. Others.			Total			25 Indigo			24. Others.			Total.			21. Opium.					
	Re-ported.	Esti-mated.	Total	Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.			
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92			
PRESIDENCY PROVINCES																					
I.—Gujarat																					
Ahmedabad	2,021	38	2,059	221,718	48,093	269,811	..	..	..	..	..	852	70	922	682	70	752	..
Kaira	3,638	364	4,002	41,888	3,703	45,591	..	..	..	..	..	485	78	563	488	78	566	..
Panch Mahals	4,309	1,216	5,525	6,808	27,970	34,778	..	..	..	..	..	..	..	..	..	..	..	..
Brosach	122	..	122	216,441	5,700	222,141	..	..	..	..	..	..	..	..	..	..	..	..
Surat	2,604	42	2,646	123,517	4,213	127,730	..	..	..	..	..	..	..	..	..	..	..	..
Total	12,807	1,640	14,447	620,510	61,073	681,583	..	..	..	1,145	148	1,293	1,145	148	1,293	..	..	..
II.—Deccan.																					
West Khândesh	9,072	92	9,164	362,812	2,051	364,863	13	..	12	25	..	25	87	..	87	..	..	..
East Khândesh	7,125	..	7,125	790,390	..	790,390	23	..	23	1,744	..	1,744	1,707	..	1,707	..	..	..
Nasik	4,495	16	4,511	68,029	16	68,045	..	..	..	4,670	49	4,719	4,670	49	4,719	..	..	..
Ahmednagar	10,611	147	10,758	70,193	502	70,695	..	..	..	109,398	1,027	110,425	109,398	1,027	110,425	..	..	..
Poona	3,215	91	3,306	6,301	91	6,392	..	..	..	77,414	675	78,089	77,414	675	78,089	..	..	..
Sholapur	12,711	..	12,711	39,889	..	39,889	..	..	..	109,071	..	109,071	109,071	..	109,071	..	..	..
Sâtara	7,262	238	7,500	10,501	321	10,822	..	..	..	27,328	684	28,012	27,328	684	28,012	..	..	..
Total	54,821	584	55,405	1,346,524	2,981	1,349,505	35	..	35	329,951	2,385	332,336	329,951	2,385	332,336	..	..	..
III.—Karnatak																					
Belgaum	9,607	262	9,869	163,915	6,314	170,229	..	..	..	26,407	366	26,773	26,407	366	26,773	..	..	..
Bijapur	6,170	19	6,189	263,493	895	264,388	..	..	..	69,593	551	70,144	69,593	551	70,144	..	..	..
Dhârwar	5,142	167	5,309	438,801	10,777	449,578	..	..	..	58,061	1,317	59,378	58,061	1,317	59,378	..	..	..
Total	22,919	448	23,367	866,219	17,986	884,205	..	..	..	174,059	2,383	176,442	174,059	2,383	176,442	..	..	..
IV.—Konkan.																					
Thâns	872	108	980	872	108	980	..	..	..	..	..	..	..	..	..	..	..	..
Bombay Suburban	1	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Kolaba	199	5	204	199	5	204	..	..	..	..	..	..	..	..	..	..	..	..
Ratnâgiri	2,468	7,874	10,342	2,470	7,880	10,350	..	..	..	..	..	..	..	..	..	..	..	..
Kânara	180	..	180	180	..	180	..	..	..	..	..	..	..	..	..	..	..	..
Total	3,699	7,987	11,686	3,003	7,965	10,968	..	..	..	..	..	..	..	..	..	..	..	..
Total, Presidency proper	88,387	10,149	98,536	2,948,068	90,408	3,038,476	35	..	35	505,152	4,768	509,920	505,152	4,768	509,920	..	..	..
Stray.																					
Kardahi	34	..	34	140	..	140	..	..	..	5	..	5	5	..	5	..	..	..
Hyderabad	139	..	139	38,217	..	38,217	..	..	..	5	..	5	5	..	5	..	..	..
Thar Parkar	64	..	64	58,910	..	58,910	..	..	..	..	..	..	..	..	..	..	..	..
Navsâbhâh	117	..	117	47,527	..	47,527	1,877	..	1,877	..	..	..	1,817	..	1,817	..	..	..
Lârkânâ	50	..	50	157	..	157	74	..	74	392	..	392	468	..	468	..	..	..
Sâkkr	2	..	2	1,285	..	1,285	749	..	749	180	..	180	929	..	929	..	..	..
Upper Sind Frontier.	4	..	4	340	..	340	..	..	..	..	..	..	..	..	..	..	..	..
Total, Stray	410	..	410	141,588	..	141,588	2,640	..	2,640	562	..	562	3,222	..	3,222	..	..	..
Grand Total	94,377	10,149	104,526	2,900,658	90,408	3,082,066	2,676	..	2,676	505,714	4,790	509,404	505,714	4,790	509,404	..	..	..

continued.

Drugs and Narcotics.																			District.
28. Coffee.			27. Tea.			28. Tobacco.			29. Cinchona.			30. Indian Hemp.			31. Others.			3	
Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.	Re-ported.	Esti-mated.	Total.		
98	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110		
Acres	Acres	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.		Acres.
...	4,170	57	4,169	...	...	...	...	...	...	...	...	...	...
...	41,779	2,181	43,960	...	...	...	...	...	...	...	...	...	...
...	1,217	237	1,454	...	...	...	...	...	...	...	...	...	...
...	2,746	13	2,760	...	...	...	...	...	...	...	13	...	23	
...	1	...	1	675	87	712	...	...	...	...	...	...	...	1	...	1	
...	1	...	1	50,558	3,525	53,081	...	...	...	...	...	...	...	14	...	14	
II.—Deccan.																			
...	49	4	497	...	...	...	...	...	...	...	30	...	30	
...	1,099	...	1,809	...	...	...	...	...	...	...	264	...	264	
...	524	...	534	...	...	...	...	...	...	...	328	...	328	
...	1,368	10	1,378	...	...	...	328	...	328	...	152	...	152	
...	771	...	771	...	...	...	...	...	...	...	151	1	152	
...	1,798	...	1,798	...	...	...	...	...	...	...	148	...	148	
2	...	2	21	...	21	5,870	209	9,168	...	...	...	...	...	...	699	23	621	621
2	...	2	21	...	21	15,631	307	16,938	...	...	...	328	...	328	1,702	33	1,735	1,735
III.—Karnatak.																			
...	37,538	216	37,554	...	...	...	...	...	...	...	405	6	410	
...	1,548	1	1,549	...	...	...	...	...	...	...	52	...	53	
...	459	2	461	...	...	...	...	...	...	1,035	7	1,043	1,043	
...	39,345	219	39,564	...	...	...	...	...	...	2,062	12	2,104	2,104	
IV.—Koskan																			
...	478	...	478	
...	
...	436	...	436	
...	1,310	3,768	5,008	5,008	
43	...	43	...	...	...	...	...	...	...	...	...	...	...	...	17,924	...	17,924	17,924
63	...	63	...	...	...	...	...	...	...	...	...	...	...	...	20,138	3,788	23,896	23,896
66	...	66	22	...	22	105,602	3,041	108,553	...	...	...	328	...	328	29,636	3,603	27,739	27,739
Total, Presidency proper.																			
BOND.																			
...	49	...	49	...	...	...	...	...	...	...	...	...	...
...	4,231	...	4,231	...	...	...	...	...	...	...	...	...	...
...	833	...	833	...	...	...	...	...	...	...	...	...	...
...	2,673	...	2,673	...	...	...	...	...	...	...	...	...	...
...	1,675	...	1,675	...	...	...	...	...	...	...	83	...	83	
...	2,453	...	2,453	...	...	...	...	...	...	...	2	...	3	
...	95	...	95	...	...	...	...	...	...	...	...	...	...
...	11,667	...	11,667	...	...	...	...	...	...	...	69	...	69	
...	117,009	3,041	120,130	...	...	...	328	...	328	31,014	3,603	27,337	27,337	
45	...	45	22	...	22	117,009	3,041	120,130	...	...	...	328	...	328	31,014	3,603	27,337	27,337
Total, Sind.																			
Gawal Total.																			

TABLE III-

Serial No.	District.	Drugs and Narcotics— <i>conold.</i>			32—Fodder crops			33—Fruits and Vegetables including root crops.			34—Miscellaneous		
		(25-31) Total.									A.—Food.		
		Reported	Estimated	Total	Reported	Estimated	Total	Reported	Estimated	Total	Reported	Estimated	Total
1	2	111	112	113	114	115	116	117	118	119	120	121	122
		Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
A—BOMBAY PRESIDENCY PROVINCES.													
I—Gujarat.													
1	Ahmedabad	4,109	87	4,196	88,492	15,319	101,811	50,747	780	51,527	1,017	6	1,023
2	Kaira	41,773	2,181	43,954	100,831	5,965	118,796	41,867	9,854	44,811	330	25	355
3	Paçch Mahals	1,217	23	1,240	43,648	14,132	57,780	4,730	775	5,505	6	..	6
4	Bronch	2,759	13	2,772	51,258	1,868	53,126	5,737	130	5,867	7	..	7
5	Surat	97	57	154	298,377	7,561	305,938	37,917	837	38,754	1	..	1
	Total	50,541	2,525	53,066	532,106	46,165	618,271	124,047	5,477	129,524	1,361	41	1,402
II—Deccan.													
6	West Khândesh	73	4	77	1,281	..	1,281	12,235	49	12,284	55	1	56
7	East Khândesh	2,073	..	2,073	5,257	..	5,257	34,374	..	34,374	24	..	24
8	Nasik	852	..	852	90,040	..	90,040	36,232	45	36,277	138	..	138
9	Ahmednagar	1,945	10	1,955	16,445	29	16,474	51,554	98	51,652	314	1	315
10	Poona	952	1	953	83,363	370	84,233	41,302	108	41,410	5,604	327	5,931
11	Sholapur	1,846	..	1,846	90,308	..	90,308	29,846	..	29,846	60	..	60
12	Sâtara	9,492	215	9,707	400,922	10,876	411,798	75,606	2,008	78,614	593	14	607
	Total	17,484	330	18,014	688,095	11,275	709,370	288,123	2,368	290,491	6,80	343	7,141
III—Karnatak.													
13	Belgaun	27,743	221	27,964	130,142	1,328	131,470	31,583	1,804	33,387	49	..	49
14	Bijapur	1,600	1	1,601	7,397	26	7,423	29,156	33	29,189	595	7	602
15	Dhârwar	2,084	9	2,103	70,878	797	71,675	28,763	780	29,543	..	..	..
	Total	41,427	231	41,658	208,417	1,351	210,268	99,402	2,317	102,719	644	7	651
IV—Kantata.													
16	Thâna	473	..	473	189,390	3,539	192,929	7,305	113	7,418	..	..	..
17	Lonisly Suburban	..	..	..	14,681	4,934	19,615	1,724	406	2,130	..	..	..
18	Colaba	486	..	486	33,496	1,644	35,140	8,036	211	8,247	..	..	..
19	Natungrî	1,240	3,768	5,008	23,860	70,394	94,254	7,734	23,469	31,203	..	..	..
20	Sânara	17,907	..	17,907	38,436	..	38,436	7,765	..	7,765	..	..	..
	Total	20,171	3,768	23,939	278,643	79,571	378,214	52,555	24,139	77,694	..	..	..
	Total, Presidency proper.	129,914	6,854	136,768	1,777,069	130,162	2,010,231	635,530	34,321	669,851	8,796	361	9,157
B—SIND.													
21	K rîshî	49	..	49	85,764	..	85,813	8,07	..	8,07	6	..	6
22	Hyderabad	4,231	..	4,231	1,497	..	1,497	14,009	..	14,009	..	..	..
23	Thar Pârkat	384	..	384	27,497	..	27,881	2,193	..	2,193	6	..	6
24	Mawâtahâh	2,673	..	2,673	29,071	..	29,071	2,653	..	2,653	..	..	..
25	Verkân	1,741	..	1,741	1,190	..	1,190	7,711	..	7,711	20	..	20
26	Bokkur	2,455	..	2,455	433	..	433	11,062	..	11,062	15	..	15
27	Upper Sind Frontier	99	..	99	25	..	25	4,784	..	4,784	..	..	..
	Total, Sind	11,665	..	11,665	135,175	..	135,175	51,534	..	51,534	46	..	46
	Grand Total	141,579	6,854	148,433	1,912,244	130,162	2,041,393	687,064	34,321	721,385	8,842	361	9,203

—concluded.

Crops.			85.—Grand Total.			86.—Area cropped more than once.			87.—Net area cropped during the year.			District.	1
B.—Non-Food.			Reported.	Estimated.	Total.	Reported.	Estimated.	Total.	Reported.	Estimated.	Total.		
Reported.	Estimated.	Total.										126	127	128	129	130	131	132	133	134
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	2
804	...	894	1,318,371	153,431	1,371,803	15,275	432	16,707	1,503,696	151,969	1,555,665	Ahmedabad.	1
88	4	70	745,619	87,874	813,493	19,828	703	20,531	739,791	66,871	706,663	Kaira.	2
4	...	4	474,024	128,163	602,188	68,634	18,434	87,072	405,090	109,734	514,814	Panch Mahalis.	3
64	...	64	611,495	16,513	627,977	779	...	779	610,696	16,312	626,998	Broach.	4
111	10	121	771,998	23,649	795,647	43,689	763	44,453	738,313	23,857	762,170	Surat.	5
639	14	653	3,834,977	368,138	4,203,115	149,592	20,335	169,927	3,876,476	387,793	4,264,269	Total:	
II.—Deccan.													
11	...	11	1,374,123	11,778	1,385,901	28,085	86	38,172	1,338,038	11,690	1,349,728	West Khândesh.	6
137	...	137	2,007,456	...	2,007,456	20,831	...	20,831	1,986,625	...	1,986,625	East Khândesh.	7
6	...	6	1,335,644	9,849	1,345,493	25,730	35	25,771	1,509,908	9,813	1,509,721	N&sk.	8
81	...	81	2,597,146	19,397	2,587,749	52,838	397	53,235	2,514,235	19,010	2,533,245	Ahmednagar.	9
726	...	726	1,831,577	25,772	2,007,349	60,559	423	100,011	1,882,018	25,320	1,907,338	Poona.	10
28	...	28	2,210,069	...	2,210,069	39,974	...	39,974	2,179,195	...	2,179,195	Sholâpur	11
8	...	8	2,067,739	77,594	2,145,333	129,313	6,612	135,925	1,928,627	70,682	1,999,309	Sâtârâ.	12
1,002	...	1,002	14,143,733	144,227	14,287,960	413,906	7,972	421,878	13,728,847	186,816	13,915,663	Total.	
III.—Karnatak.													
8	...	8	1,797,655	56,533	1,854,188	35,109	176	35,285	1,762,647	56,407	1,819,054	Balgam.	13
263	...	263	2,371,917	7,965	2,379,882	9,627	6	9,633	2,363,250	7,960	2,371,210	Bijâpur.	14
2	...	2	2,169,436	54,160	2,223,596	16,914	128	17,042	2,152,554	54,034	2,206,588	Dhârwar.	15
263	...	263	6,839,007	119,793	6,958,735	61,549	207	61,756	6,771,458	119,421	6,890,879	Total.	
IV.—Konkan.													
1,343	...	1,343	590,950	14,369	605,319	5,379	26	5,405	574,934	14,343	589,277	Thâna.	16
263	...	263	39,639	8,528	48,167	239	...	238	29,401	8,528	37,929	Bombay Suburban	17
29	...	29	369,794	24,021	393,815	9,479	271	9,750	360,315	23,760	384,075	Kolâba.	18
2	6	8	168,347	663,716	832,063	11,046	38,228	49,274	163,501	634,788	837,089	Râmâgîrî.	19
2,108	...	2,108	267,631	...	267,631	19,671	...	19,671	239,160	...	239,160	Kânara.	20
2,765	6	2,771	1,430,961	710,633	2,141,594	45,690	39,225	84,915	1,385,181	671,407	2,056,588	Total.	
5,619	20	5,639	26,237,089	1,361,575	27,598,664	669,737	67,449	737,186	25,667,541	1,294,436	26,961,977	Total, Presidency proper.	
SIND.													
4	...	4	433,346	...	433,346	31,355	...	31,355	433,491	...	433,491	Karîshî.	21
36,644	...	36,644	539,610	...	539,610	8,462	...	8,462	531,148	...	531,148	Hyderabad.	22
2,203	...	2,203	877,249	...	877,249	10,543	...	10,543	866,706	...	866,706	Thar Pârkar.	23
...	...	...	466,839	...	466,839	13,897	...	13,897	453,942	...	453,942	Nawâbahâh.	24
1,461	...	1,461	979,040	...	979,040	189,060	...	189,060	790,980	...	790,980	Larkânâ.	25
606	...	606	433,630	...	433,630	25,851	...	25,851	399,679	...	399,679	Sukkur.	26
206	...	206	575,599	1,237	576,836	80,653	...	80,653	511,947	1,267	513,214	Upper Sind Frontier.	27
31,033	...	31,033	4,367,368	1,297	4,368,665	332,430	...	332,430	4,034,638	1,267	4,035,905	Total, Sind.	
36,822	20	36,842	30,606,001	1,363,163	31,969,164	1,069,618	67,439	1,097,057	29,603,524	1,266,723	30,870,247	Grand Total.	

TABLE IV.—Area under different sources of irrigation and crops

No	Districts	Area irrigated from									
		1.—Government canals.		2.—Private canals.		3.—Tanks.		4.—Wells.		5.—Other sources.	
		Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.
1	2	3	4	5	6	7	8	9	10	11	12
A.—PRESIDENCY PROPER											
<i>Gujardt.</i>											
		Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
1	Ahmedabad	17,688	831	2,438	.....	11,105	52	39,179	989	5,914	12
2	Kaira	8,538	831	.....	.....	1,330	.....	27,617	1,865	383	80
3	Panch Mahals	1,124	.....	.....	.....	145	.....	2,897	1,673	.....	.....
4	Broach	.....	.....	.....	.....	.....	.....	804	.....	.....	.....
5	Surat	.....	.....	.....	.....	1,985	.....	5,914	345	55	.....
	Total	27,228	682	2,438	.....	14,615	52	76,411	4,391	3,658	92
<i>Deccan.</i>											
6	West Khândesh	9,708	.....	4,068	141	147	.....	18,454	62	337	.....
7	East Khândesh	3,046	.....	3	.....	22	.....	27,848	.....	496	.....
8	Nasik	31,142	1,822	871	.....	1,398	.....	49,348	5,771	293	8
9	Ahmadnagar	62,674	6	1,177	.....	.....	.....	93,331	524	.....	.....
10	Poona	68,353	.....	2,569	.....	2,553	.....	77,672	.....	1,167	.....
11	Sholapur	21,068	.....	149	.....	.....	.....	99,463	.....	19	.....
12	Sâtara	10,061	3,844	28,951	1,623	796	.....	58,150	2,118	6,208	189
	Total	195,516	5,702	27,783	1,664	4,911	.....	337,164	8,473	6,479	142
<i>Kandlak.</i>											
13	Bolgaum	7,814	.....	3,778	.....	18,872	190	33,163	1,038	2,844	183
14	Bijapur	20	.....	63	.....	170	.....	13,089	.....	75	.....
15	Dhârwar	6,477	.....	60	.....	63,763	707	1,562	25	2,606	28
	Total	14,311	.....	3,904	.....	22,810	897	47,814	1,063	5,525	160
<i>Konkan.</i>											
16	Thâna	.....	.....	.....	.....	758	.....	5,259	.....	20	.....
17	Bombay Suburban District	.....	.....	.....	.....	.....	.....	222	.....	.....	.....
18	Kolâba	.....	.....	.....	.....	.....	.....	486	.....	290	.....
19	Batnâgiri	.....	.....	1,760	2,500	808	1,005	5,628	11,260	2,377	4,756
20	Kârnâra	.....	.....	2,295	.....	5,721	.....	1,189	.....	7,301	.....
	Total	.....	.....	4,045	3,500	7,332	1,005	12,732	11,260	10,418	4,756
	Total A	237,128	6,384	49,164	5,164	29,818	2,555	523,961	25,177	29,050	5,149
B.—SIND.											
21	Karachi	253,214	.....	.....	.....	.....	.....	5,431	.....	62,681	.....
22	Hyderabad	599,987	.....	.....	.....	.....	.....	.....	.....	11,100	.....
23	Thar Pârkar	314,161	.....	.....	.....	.....	.....	122	.....	.....	.....
24	Nawâbahâh	396,690	.....	.....	.....	.....	.....	11,379	.....	302	.....
25	Lârkiânâ	550,199	.....	.....	.....	.....	.....	2,122	.....	15,307	.....
26	Sukkur	242,833	.....	.....	.....	.....	.....	16,379	.....	19,673	.....
27	Upper Sind Frontier	481,868	.....	2,388	.....	4,900	.....	1,312	.....	88,648	.....
	Total B	2,777,960	.....	2,388	.....	4,900	.....	30,196	.....	127,971	.....
	Grand Total	3,015,148	6,384	50,552	5,164	104,618	2,555	563,157	25,177	39,021	5,149

irrigated in the Bombay Presidency for the year 1921-22.

Total (1-6).		Crops irrigated,								District.	No.
		1.—Rice.		2.—Wheat.		3.—Barley.		4.—Jowar.			
Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.		
13	14	15	16	17	18	19	20	21	22	2	1
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.		
A.—PRESIDENCY PROVINCE.											
<i>Gujarat.</i>											
78,566	1,584	38,048	400	33,441	408	5,411	122	1,278	308	Ahmedabad	1
87,023	1,706	2,878	824	4,481	138	880	216	119	15	Kaira	2
4,108	1,072	147	.....	1,909	189	220	.....	.....	.....	Panch Mahals	3
804	.....	11	.....	2	.....	.....	.....	.....	.....	Brosch	4
7,964	345	1,728	.....	2	.....	.....	.....	.....	.....	Surat	5
124,443	5,127	47,801	724	39,885	2,015	6,511	338	1,801	221	Total	.....
<i>Deccan.</i>											
82,712	208	1,100	.....	18,978	121	.....	.....	153	5	West Khândesh	6
81,433	.....	305	.....	13,947	.....	.....	.....	19	.....	East Khândesh	7
75,048	7,686	1,649	.....	20,122	2,882	.....	.....	152	.....	Nasik	8
117,182	590	671	1	28,279	87	106	3	36,104	288	Ahmednagar	9
152,706	.....	3,409	.....	13,698	.....	393	.....	69,281	.....	Poona	10
110,677	.....	1,865	.....	16,225	.....	599	.....	62,181	.....	Sholapur	11
104,166	7,622	9,961	469	18,853	908	1,247	80	23,911	1,956	Sâtara	12
639,872	16,981	18,790	470	188,997	3,743	2,345	88	201,760	2,368	Total	.....
<i>Karnatak.</i>											
66,389	1,361	21,055	105	1,091	.....	1,014	282	3,368	295	Belgaum	13
13,463	.....	624	.....	303	.....	3,981	.....	5,166	.....	Bijapur	14
64,478	788	60,231	714	59	.....	.....	.....	.....	.....	Dhârwar	15
144,104	2,119	81,880	909	1,453	.....	4,995	262	8,664	295	Total	.....
<i>Konkan.</i>											
6,037	.....	.....	.....	.....	.....	.....	.....	.....	.....	Thâs	16
222	.....	.....	.....	.....	.....	.....	.....	.....	.....	Bombay Suburban District	17
708	.....	.....	.....	.....	.....	.....	.....	.....	.....	Kolâpa	18
10,556	21,112	3,578	7,152	.....	.....	.....	.....	.....	.....	Râtnâgiri	19
17,006	.....	13,337	.....	.....	.....	.....	.....	.....	.....	Kânara	20
34,827	21,112	17,412	7,152	.....	.....	.....	.....	.....	.....	Total	.....
937,005	44,409	166,464	9,255	170,245	5,763	13,761	633	211,705	2,764	Total A	.....
B.—SIND.											
310,876	.....	330,433	.....	11,361	.....	2,365	.....	4,097	.....	Karachi	21
531,147	.....	263,689	.....	26,464	.....	2,941	.....	8,914	.....	Hyderabad	22
314,333	.....	51,000	.....	33,301	.....	221	.....	15,262	.....	Thar Pârthar	23
402,371	.....	30,371	.....	36,039	.....	2,115	.....	68,325	.....	Nawâbehah	24
667,519	.....	263,543	.....	72,246	.....	1,162	.....	61,047	.....	Lârkânâ	25
262,976	.....	25,517	.....	67,594	.....	254	.....	90,754	.....	Sukkur	26
311,947	.....	73,747	.....	73,662	.....	93	.....	94,821	.....	Upper Sind Frontier	27
2,922,419	.....	1,044,442	.....	308,169	.....	15,788	.....	291,160	.....	Total B	.....
3,919,424	44,430	1,200,906	9,255	478,504	5,763	20,537	633	602,865	2,764	Grand Total	.....

TABLE

No.	District.	Crop									
		5.—Bajra.		6.—Maize.		7.—Other cereals and pulses		8.—Sugarcane		9.—Other food crops.	
		Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.
1	2	23	24	25	26	27	28	29	30	31	32
A.—PRESIDENCY PROPER.											
<i>Gujarat.</i>											
1	Ahmedabad	.....	.....	581	17	2,451	8	543	.....	3,374	78
2	Kaira	10	.....	28	.....	857	7	111	8	.....	.....
3	Panch Mahals	.....	.....	51	.....	603	38	55	.....	969	199
4	Broach	.....	.....	.....	.....	5	.....	22	.....	369	.....
5	Surat	.....	.....	.....	.....	.....	.....	2,863	08	2,194	241
	Total	10	.....	586	17	3,976	63	3,858	76	6,006	513
<i>Deccan.</i>											
6	West Khândesh	274	.....	1,996	..	3,012	.....	684	.....	4,836	58
7	East Khândesh	.....	.....	155	..	1,323	.....	398	.....	8,077	.....
8	Nâsik	8,163	.....	1,159	.....	6,543	234	4,429	50	24,941	3,628
9	Ahmednagar	24,159	8	1,947	6	10,478	49	6,881	.....	13,111	82
10	Poona	25,287	.....	2,212	.....	9,009	.....	11,386	.....	24,433	.....
11	Sholâpur	6,890	.....	10,086	.....	2,754	.....	1,283	.....	17,360	.....
12	Sâtâra	19,788	946	3,807	371	9,859	418	7,132	1,306	15,166	753
	Total	78,643	953	21,362	377	42,909	701	32,303	1,365	107,552	4,600
<i>Karnâtak.</i>											
13	Belgaum	151	.....	12,455	1	6,790	49	9,978	280	9,056	203
14	Bijâpur	21	.....	2,399	.....	557	.....	766	.....	.....	.....
15	Dhârwar	.....	.....	4	.....	749	.....	1,452	44	.....	.....
	Total	172	.....	14,858	1	8,096	49	12,196	304	9,056	203
<i>Konkan.</i>											
16	Thâna	.....	.....	.....	.....	.....	.....	357	.....	4,029	.....
17	Bombay Suburban District	.....	.....	.....	.....	.....	.....	.....	.....	159	.....
18	Kolâba	.....	.....	.....	.....	.....	.....	14	.....	601	.....
19	Batnâgiri	.....	.....	.....	.....	1,669	3,338	423	846	2,856	5,710
20	Kânara	.....	.....	.....	.....	439	.....	2,225	.....	800	.....
	Total	.....	.....	.....	.....	2,108	3,338	3,119	846	8,143	5,710
	Total A	78,825	953	30,805	305	67,139	4,141	51,491	2,551	130,786	10,926
B.—SIND.											
21	Karachi	19,669	.....	1,269	.....	19,289	.....	930	.....	11,478	.....
22	Hyderabad	169,239	.....	163	.....	5,414	.....	998	.....	13,497	.....
23	Thar Pârkar	142,405	.....	1,201	.....	3,409	.....	341	.....	2,910	.....
24	Nawâbah	147,730	.....	165	.....	8,979	.....	41	.....	3,813	.....
25	Lânkana	3,420	.....	.....	.....	33,998	.....	151	.....	8,290	.....
26	Sukkur	37,973	.....	2	.....	65,402	.....	376	.....	14,103	.....
27	Upper Sind Frontier	89,313	.....	22	.....	189,087	.....	30	.....	4,781	.....
	Total B	608,719	.....	2,663	.....	272,276	.....	2,857	.....	57,174	.....
	Grand Total	688,544	953	32,607	306	828,415	4,141	64,348	2,551	187,960	10,926

No. IV—concluded.

Irrigated—contd.										District.	No.
10.—Cotton.		11.—Other non-food crops.		(1-11) Total.		12.—Deduct area cropped with irrigation more than once.		13.—Not irrigated area.			
Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.	Reported.	Estimated.		
38	36	35	38	37	38	39	40	41	42	2	1
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.		
										A—PRESIDENCY PROPER.	
										<i>Gujarat.</i>	
..	..	2,881	88	75,247	1,394	1,651	10	73,696	1,884	Ahmedabad ..	1
..	..	22,733	1,030	38,536	1,780	664	..	37,872	1,790	Kaira ..	2
..	..	112	36	4,168	1,672	..	..	4,168	1,672	Panch Mahals ..	3
..	..	395	..	804	..	..	..	804	..	Broach ..	4
..	..	1,142	36	8,018	345	64	..	7,954	345	Surat ..	5
										Total ..	..
										<i>Deccan.</i>	
..	..	8,937	19	37,648	203	4,830	..	32,712	203	West Khândesh ..	6
..	..	8,337	..	33,311	..	1,923	..	31,388	..	East Khândesh ..	7
871	..	14,328	1,139	90,945	7,679	14,999	47	75,946	7,632	Nasik ..	8
168	..	12,880	98	1,33,668	680	10,454	50	1,17,183	680	Ahmednagar ..	9
95	..	20,624	..	1,79,631	..	26,915	..	1,69,708	..	Poona ..	10
1,445	..	22,341	..	1,43,139	..	23,463	..	1,19,677	..	Sholapur ..	11
48	..	15,613	1,128	1,20,704	5,371	25,538	749	1,04,166	7,622	Sâtara ..	12
										Total ..	..
										<i>Karadik.</i>	
541	..	7,433	212	73,870	1,477	7,681	116	66,289	1,361	Belgaum ..	13
45	..	2,609	..	15,461	..	2,060	..	13,401	..	Bijapur ..	14
..	..	4,093	..	64,518	783	45	..	64,473	783	Dhârwar ..	15
										Total ..	..
										<i>Konkan.</i>	
..	..	1,651	..	6,037	..	..	..	6,037	..	Thâna ..	16
..	..	64	..	323	..	..	..	259	..	Bombay Suburban District ..	17
..	..	70	..	885	..	170	..	706	..	Kolaba ..	18
..	..	2,133	4,245	10,646	21,502	90	180	10,556	21,119	Ratnâgiri ..	19
..	..	112	..	17,018	..	7	..	17,000	..	Kânara ..	20
										Total ..	..
										Total A ..	..
										B—SMRD.	
106	..	23,453	..	3,39,769	..	19,413	..	3,10,356	..	Kardoli ..	21
39,217	..	63,011	..	5,69,607	..	8,160	..	5,61,447	..	Hyderabad ..	22
53,377	..	18,397	..	3,21,973	..	7,083	..	3,14,890	..	Thar Pârthar ..	23
4,7324	..	60,027	..	4,23,203	..	13,987	..	4,09,216	..	Nawâbehâh ..	24
107	..	34,685	..	6,03,338	..	40,719	..	5,62,619	..	Lârkhâna ..	25
310	..	16,041	..	3,07,630	..	18,963	..	2,88,667	..	Sukkur ..	26
345	..	37,413	..	5,73,569	..	60,639	..	5,12,930	..	Upper Sind Frontier ..	27
										Total B ..	..
										Grand Total ..	..

TABLE V—Estimated Output of principal Kharif and Rabi crops in parts of 100 (100 denoting a normal crop) in the Bombay Presidency during the year 1921-22.

No.	District.	Kharif.										Rabi.						Pere nis suga can	
		Jowar.	Bajra.	Paddy.	Kodra.	Rajm.	Verr.	Twr.	Urbh. Mag and Makh.	Peanut.	Cotton.		Jowar.	Wheat.	Gram.	Tobacco.	Linsed.		Rape and Mustard.
											Early.	Late.							
1	Ahmedabad	67	42	78	67	83	67	38	50	33	...	67	42	88	75	88	38	88	6
2	Kaira	57	50	78	63	78	...	75	50	50	...	42	75	78	71	75	8	67	67
3	Panch Mahals	75	67	92	75	83	60	83	67	50	...	50	67	92	92	67	63	63	50
4	Broach	83	58	67	67	83	...	67	67	75	...	67	75	88	67	75	67	...	50
5	Surat	81	67	88	68	85	78	78	74	69	...	58	86	75	75	88	...	88	75
6	West Khandesh	83	83	68	75	75	88	75	83	88	...	92	92	75	92	75	75	75	75
7	East Khandesh	108	92	...	...	78	92	108	92	108	100	...	108	88	88	100	75	...	92
8	Nasik	67	78	83	...	75	50	67	42	54	88	...	100	75	49	50	67	...	75
9	Ahmednagar	84	38	50	25	67	50	25	33	38	68	...	58	49	49	67	25	...	88
10	Poona	88	50	92	58	92	75	25	38	58	83	...	75	58	58	67	46	...	88
11	Sholapur	58	42	75	83	50	92	42	68	58	50	...	83	75	58	88	68	...	50
12	Satara	75	75	75	67	67	67	67	67	67	68	...	88	75	67	85	75	...	75
13	Belgaum	96	67	96	75	88	88	67	67	67	...	75	96	88	74	88	67	...	75
14	Bijapur	75	50	67	88	88	33	50	58	67	...	67	88	67	50	67	67	...	83
15	Dhule	75	58	50	...	68	50	50	54	58	...	67	67	75	58	48	58	...	67
16	Thana	83	...	100	92	62	88	88	88	83	...	...	...	83	...	...	...	...	92
17	Bombay Suburban	...	...	108	...	100	100	...	100	100	...	...	...	...	...	...	...	...	...
18	Kolaba	88	...	92	92	100	100	88	88	92	...	...	...	88	...	...	...	...	83
19	Batnagiri	...	...	100	100	88	88	88	92	100	...	...	...	88	...	...	...	...	92
20	Kanara	50	...	88	...	88	...	67	71	67	...	...	...	67	...	...	...	...	88
21	Karachi	75	67	75	...	58	68	...	67	58	...	58	...	67	67	50	...	58	58
22	Hyderabad	68	71	75	...	75	...	...	71	50	...	50	...	73	68	50	...	50	75
23	Thar Parkar	58	68	50	...	50	50	...	38	46	...	58	50	50	50	50	...	42	33
24	Nawabshah	50	50	67	...	...	...	...	...	58	...	67	...	67	67	67	...	67	67
25	Larkana	58	50	58	...	...	50	...	54	50	...	50	...	67	88	50	...	33	50
26	Sukkur	67	67	67	...	67	67	...	67	67	...	67	...	75	67	75	...	67	67
27	Upper Sind Frontier	67	75	92	...	...	...	...	67	67	...	67	67	88	75	108	...	88	83

TABLE VI.—Area under food-grain crops (cereals and pulses) in each District of the

Serial Number.	District.	Cereals.							
		Rice.							
		1921-22.		1920-21.		1919-20.		1921-22.	
		Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.
1	2	3	4	5	6	7	8	9	10
A.—PRESIDENCY PROPR.									
<i>Gujarat.</i>									
1	Ahmedabad	65,925	33,738	50,592	9,815	51,599	23,243	243,720	56,867
2	Kaira	74,409	33,809	61,018	3,909	81,589	37,188	16,881	4,510
3	Panch Mahals	77,066	36,120	62,736	2,826	70,484	34,639	23,229	7,644
4	Broach	17,906	4,737	12,764	1,282	18,541	4,937	52,973	11,823
5	Surat	100,300	51,689	94,472	35,477	96,547	64,612	15,072	9,501
	Total, Gujarat	335,596	170,153	281,582	53,369	316,767	169,669	354,929	84,343
<i>Deccan.</i>									
6	West Khandesh	45,684	18,563	44,421	14,170	41,194	18,255	134,461	33,176
7	East Khandesh	660	265	784	129	883	426	40,292	12,524
8	Nasik	66,646	26,776	67,593	26,816	66,272	29,290	112,797	16,133
9	Ahmednagar	16,836	8,931	16,024	8,180	16,892	6,356	107,850	18,283
10	Poona	85,979	35,172	89,452	33,634	84,855	45,346	50,470	6,805
11	Sholapur	6,198	1,735	7,698	1,178	11,544	2,385	25,442	7,753
12	Satara	50,103	17,598	55,177	19,842	54,249	22,522	42,598	13,180
	Total, Deccan	270,006	105,080	281,059	98,949	275,389	124,500	513,860	108,894
<i>Karnatak.</i>									
13	Belgaum	111,912	53,171	111,766	48,922	111,398	38,687	111,082	23,402
14	Bijapur	6,489	1,683	4,232	1,109	5,814	1,738	174,071	15,719
15	Dharwar	180,038	33,090	181,286	38,995	122,868	39,901	344,919	44,964
	Total, Karnatak	298,439	87,944	297,284	89,126	240,170	74,223	632,072	84,085
<i>Konkan.</i>									
16	Thana	315,585	169,063	310,080	145,350	331,972	177,842	85	16
17	Bombay Suburban	16,068	9,325	16,623	8,869	...	...	...	...
18	Kolaba	267,910	144,719	273,007	134,086	273,599	184,099	...	...
19	Batnaguri	341,277	155,845	337,695	127,620	339,511	168,025	...	...
20	Kanara	180,887	82,394	169,635	78,392	159,739	89,806	...	...
	Total, Konkan	1,101,677	580,846	1,096,613	493,797	1,098,871	617,772	85	15
	Total, Bombay Presidency	1,955,718	923,873	1,905,948	734,541	1,931,197	986,167	1,500,946	278,309
B.—SIND.									
21	Karachi	230,432	111,016	238,302	65,958	243,086	75,965	14,399	2,046
22	Hyderabad	258,869	108,585	265,835	78,968	269,052	117,710	25,464	4,651
23	Thar Parkar	51,384	15,311	47,009	23,581	91,532	40,457	36,198	16,479
24	Nawabshah	80,271	18,933	47,769	6,824	38,120	11,913	46,326	16,727
25	Larkana	363,540	164,730	417,893	175,042	351,213	188,160	113,864	23,992
26	Sukkar	35,807	11,682	74,914	6,171	47,844	15,547	122,102	33,651
27	Upper Sind Frontier	73,747	36,213	94,451	25,299	72,011	32,148	78,985	27,534
	Total, Sind	1,044,430	464,470	1,235,173	386,843	1,112,364	481,690	422,276	125,840
	Grand Total	3,000,148	1,388,343	3,141,121	1,121,384	3,044,061	1,468,067	1,934,222	404,148

Cereals—continued.

Wheat.				Barley.			
1928-29.		1919-20.		1921-22.		1920-21.	
Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.
11	12	13	14	15	16	17	18
77,868	11,413	126,246	30,677	6,625	2,346	6,078	2,175
4,614	1,377	10,606	3,166	1,203	547	1,170	379
1,862	768	17,116	3,613	6,013	1,476	397	86
12,116	1,061	36,487	7,922	...	...	...	...
10,961	1,361	18,046	2,749	...	...	...	...
107,312	15,990	206,400	46,227	12,641	4,368	8,245	2,659
152,043	20,660	117,677	37,086	...	...	...	...
84,065	7,701	36,683	13,513	...	...	...	...
106,667	18,232	180,904	46,653	...	...	...	...
46,346	18,848	160,001	85,573	237	46	101	32
62,860	6,799	66,366	17,212	437	121	566	126
24,708	6,990	23,702	11,523	1,800	295	998	203
46,828	9,100	46,796	14,609	2,914	929	5,139	723
460,627	82,320	640,621	175,835	6,438	1,391	6,854	1,084
97,362	16,624	104,535	24,468	2,276	1,039	1,782	218
133,735	8,091	160,269	29,660	3,126	1,215	2,772	1,002
307,163	46,607	304,694	51,061	36	...	37	6
588,160	70,383	669,498	99,159	6,438	2,354	4,691	1,226
124	16	130	22	...	...	...	...
...
...
...
124	15	130	23	...	...	...	...
1,106,313	168,707	1,316,649	322,743	22,717	8,013	19,690	4,949
11,680	1,701	14,751	4,205	9,016	3,681	8,239	2,542
22,687	4,208	23,277	8,325	2,841	669	1,702	365
11,403	2,586	79,187	26,905	334	111	377	55
49,168	2,799	60,048	20,136	2,759	563	2,607	371
63,649	16,540	132,100	42,980	3,954	846	3,960	641
96,892	15,803	165,658	32,677	534	39	445	65
77,821	20,256	99,892	26,736	98	33	104	21
845,900	66,977	964,513	165,812	19,685	5,862	17,434	3,980
1,462,303	234,684	1,981,162	478,656	43,802	13,396	37,124	8,939

Cereals—continued.

1919-20.		1921-22.		1920-21.		1919-20.	
Area in acres.	Output in tons.	Area in acres.	Output in tons.	Area in acres.	Output in tons.	Area in acres.	Output in tons.
19	20	21	22	23	24	25	26
6,483	8,099	338,288	107,036	288,566	47,140	803,650	109,903
595	230	48,842	12,773	36,733	5,599	30,629	10,845
6,266	1,465	13,380	4,131	12,459	2,920	10,724	2,844
...	...	166,759	65,074	165,421	21,387	124,381	52,205
...	...	113,588	29,401	97,092	24,849	98,426	25,958
13,843	4,795	675,807	219,468	599,211	111,995	568,310	202,515
...	...	148,885	37,211	118,419	42,978	110,324	32,120
...	...	967,149	121,182	342,651	38,434	344,589	107,547
...	...	74,862	11,699	109,635	4,485	81,232	12,745
571	256	903,054	86,693	1,186,837	71,220	1,149,084	205,761
822	208	808,652	89,896	891,932	165,161	807,094	147,098
1,609	403	1,480,767	234,188	1,497,959	153,773	1,278,522	259,050
8,968	1,180	684,756	167,224	701,117	108,760	613,345	168,976
6,970	2,042	4,868,125	738,093	4,848,460	579,811	4,384,140	923,297
1,577	742	704,674	227,601	693,107	207,122	687,880	206,552
2,951	1,424	1,629,414	263,922	1,690,620	83,864	1,570,197	307,509
770	138	662,262	135,044	569,905	162,210	591,207	203,965
5,293	2,304	2,996,350	624,567	2,963,641	453,196	2,849,374	718,086
...	...	504	112	490	100	423	87
...	...	2	...	1	...	1	...
...	...	396	35	178	48	640	171
...	...	902	147	669	148	1,064	258
25,611	9,141	8,041,184	1,581,275	8,401,981	1,145,150	7,802,888	1,844,456
18,480	7,060	45,649	18,192	10,994	2,131	29,487	9,223
4,037	1,168	9,351	4,487	6,968	2,675	9,152	4,128
479	168	24,626	6,419	11,103	2,436	25,848	9,784
3,897	740	88,643	21,753	86,433	16,591	86,972	24,243
4,764	788	188,873	45,746	199,528	18,325	159,515	40,842
407	86	120,636	35,834	112,182	12,821	156,811	36,403
135	32	96,065	23,477	71,179	10,227	136,195	25,232
32,049	10,027	578,848	155,908	408,385	65,206	604,980	149,655
57,660	19,168	8,615,032	1,737,183	8,810,366	1,210,356	8,407,868	1,994,311

Cereals—continued.

Bays.							
1921-22.		1920-21.		1919-20.		1921-22.	
Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.
27	28	29	30	31	32	33	34
171,782	26,833	120,672	15,104	193,307	60,409	2,769	1,480
204,043	44,180	123,699	28,547	185,292	67,881	48,197	23,755
45,142	11,034	40,538	7,464	46,637	10,001	16,810	8,876
15,320	2,790	9,853	1,024	12,813	3,518	263	146
5,771	1,258	6,029	1,346	6,496	1,508	11,343	4,310
442,007	80,140	800,786	43,565	444,075	143,267	79,982	38,567
863,883	68,685	817,730	106,279	368,710	82,344	10,894	3,288
850,760	71,638	820,202	41,743	335,874	74,972	60	331
972,324	118,401	565,731	31,502	913,260	110,566	113,123	35,766
1,045,899	55,405	218,644	10,786	759,136	70,533	24,338	6,681
584,318	47,104	454,085	31,162	548,556	75,924	38,606	14,649
261,898	15,649	125,907	22,662	260,377	18,703	14	3
436,851	54,165	312,505	25,115	420,512	45,878	46,493	12,464
4,020,983	431,247	2,316,804	270,249	8,646,425	478,920	234,126	73,177
144,968	20,910	81,030	7,238	119,558	13,769	37,250	14,363
289,806	27,848	119,561	5,714	289,394	34,883	143	19
8,574	2,231	8,421	1,128	6,955	933	48,394	5,076
548,848	50,987	209,012	14,080	415,917	49,585	60,787	19,458
.....	...	1	...	.....	...	48,024	15,186
.....	...	...	...	.....	...	74	24
.....	...	...	...	.....	2	39,407	14,064
.....	...	...	...	.....	...	141,801	44,030
.....	...	...	...	.....	...	3,576	1,420
.....	...	1	...	.....	2	232,982	74,674
5,005,738	568,374	2,625,603	332,914	4,506,419	671,772	627,777	205,876
16,162	3,333	12,354	1,324	16,981	2,080	455	142
169,228	38,831	151,237	37,810	167,461	59,050	...	...
640,085	83,303	510,228	92,333	539,239	44,378	...	1
143,762	30,901	133,770	15,843	114,233	15,675	...	...
4,710	832	3,724	872	3,089	493	...	...
23,053	3,300	25,694	2,267	25,393	5,101	...	4
99,338	23,944	107,994	14,463	97,772	18,332	1	...
1,107,354	187,743	937,001	184,400	964,573	145,109	478	147
6,113,092	766,117	3,763,604	497,314	5,461,292	817,681	628,255	206,023

Cereals—continued.

Ragi.				Maize.			
1920-21.		1919-20.		1921-22.		1920-21.	
Area in acres	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.
35	36	37	38	39	40	41	42
2,918	482	1,986	962	4,855	1,670	5,688	1,212
59,550	9,589	40,369	21,625	1,302	419	1,686	14
11,647	2,438	10,321	5,980	188,726	36,860	146,453	38,641
86	...	197	132	80	28	91	1
10,738	6,762	11,432	5,512	26	14	32	1
84,339	19,261	64,305	34,221	144,989	38,921	152,944	40,009
8,273	1,662	10,069	4,043	10,449	2,868	6,729	1,286
...	...	88	15	1,645	654	1,297	271
110,274	34,882	105,466	36,724	3,789	787	7,042	2,002
22,113	4,044	21,044	6,380	2,167	932	3,302	3,671
83,473	11,694	86,204	13,333	2,232	1,114	3,168	1,406
100	20	65	9	12,414	4,286	15,127	6,667
43,722	11,711	45,863	18,863	11,663	3,806	11,674	3,431
228,955	64,213	216,719	74,356	43,769	14,447	58,829	18,636
37,530	12,470	37,988	11,172	16,248	9,284	17,605	6,089
98	10	61	17	2,899	1,339	2,527	1,070
40,361	12,614	40,928	14,618	45	...	16	2
77,994	25,094	78,952	25,807	20,692	10,623	20,148	7,161
46,451	13,886	47,491	16,325	6	1	8	1
66	20	...	...	.....	.....	...	...
40,894	13,382	39,606	14,146	1	.....	1	...
116,782	32,987	138,786	42,887	...	.....	...	...
3,561	1,275	4,766	2,601	99	.....	70	19
209,753	61,550	230,698	75,979	106	31	79	20
596,541	169,118	593,674	210,363	209,546	64,092	226,500	65,215
559	175	630	243	1,294	406	1,574	408
3	1	9	2	159	66	111	26
1	...	...	...	1,201	403	674	70
2	...	2	...	155	45	157	14
1	...	1	...	.....	...	...	...
67	6	28	6	2	1	1	...
...	...	1	...	22	8	42	12
623	82	722	251	2,827	973	2,769	530
697,154	169,300	593,896	210,614	212,373	65,070	229,259	66,445

Cereals—continued.

Kodra.							
1919-20.		1921-22.		1920-21.		1919-20.	
Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.
43	44	45	46	47	48	49	50
6,640 1,188 142,219 17 22	2,559 375 64,129 9 15	3,749 76,628 25,122 9,024 15,694	1,478 27,226 9,511 2,750 7,650	12,678 108,684 16,208 7,849 15,793	2,408 17,986 3,409 621 6,677	18,372 120,301 21,320 7,543 18,289	6,671 89,918 10,755 8,453 8,328
160,096	67,087	130,112	48,610	161,407	31,085	180,825	98,024
11,155 1,334 5,624 4,762 2,697 15,190 13,180	4,145 440 1,294 2,792 1,489 8,103 5,092	16,218 28 ... 36 682 50 48	4,924 8 ... 3 131 18 10	14,166 173 823 6 84	3,794 11 147 1 20	18,133 87 219 30 79	7,286 21 78 7 18
54,092	23,305	17,097	5,084	15,250	3,973	18,548	7,410
17,685 2,265 18	8,413 1,213 6	177 143 82	47 17 ...	206 4 6	47	264 286 8	71 69 1
19,908	9,632	402	64	216	47	558	141
13 5 103	3 1 .. 21	5,823 5,823 60,416 ...	1,524 .. 1,908 21,577 ...	6,074 ... 6,588 61,964 ..	1,490 ... 1,964 17,123 ...	6,147 ... 6,570 63,263 ...	2,991 ... 3,520 28,307 ...
124	25	73,062	25,004	74,626	20,577	75,980	35,318
224,280	100,049	219,583	78,772	261,499	55,682	275,911	141,893
699 110 1,065 179 2 21	258 36 475 32 1 8	... ... 685 ... ... ... ...	... ... 248............	.....................	.....................	.....................	.....................
3,276	610	685	248	...	...	...	...
226,556	100,859	220,268	79,020	251,499	55,682	275,911	141,893

Cereals—continued.

Other Cereals.							
1921-22.		1920-21.		1919-20.		1921-22.	
Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.
51	52	55	56	53	54	57	58
82,400	18,035	10,192	1,888	15,801	7,063	1,672	188
8,921	2,912	8,337	1,474	12,184	6,373	21,896	5,062
80,914	13,359	22,127	5,996	21,456	10,586	6,741	1,429
186	41	81	32	189	65	12,591	2,249
2,127	866	1,866	666	1,974	1,269	16,968	8,870
74,498	30,206	42,596	10,056	51,554	26,306	58,568	12,248
85,573	9,086	22,194	3,983	28,344	10,249	19,718	6,337
1,864	610	1,584	159	1,505	366	81,371	14,566
44,476	10,053	33,901	9,120	30,693	9,456	13,838	5,380
30,901	4,613	13,836	2,649	33,784	8,700	28,861	3,101
85,652	7,918	29,277	8,758	28,291	9,734	14,872	1,566
6,813	1,764	2,672	616	4,927	1,069	88,080	6,369
59,521	14,763	79,627	16,811	73,853	21,163	49,685	19,936
214,800	48,772	183,101	36,994	201,407	60,707	101,370	57,745
114,038	36,594	85,399	16,140	89,120	21,582	45,249	12,968
27,444	5,369	18,707	1,468	16,017	3,477	15,680	14,074
109,342	18,356	120,417	30,374	104,889	28,508	48,127	12,891
250,824	60,319	224,523	47,982	209,826	53,568	169,056	89,923
13,321	5,399	13,541	5,289	12,711	5,958	4,803	660
10	8	5	2	...	...	...	...
26,083	13,793	27,739	11,764	27,438	13,264	1,295	197
65,235	21,938	67,443	23,655	53,519	21,503	1,444	238
86	48	..	..	...	...	...	...
104,736	40,582	108,783	40,710	93,668	41,425	7,542	1,095
644,868	179,879	558,953	185,742	556,455	181,006	426,531	111,011
82	28	61	20	102	31	...	...
25	9	26	9	66	21	...	...
3	1	480	51	368	203	73	16
2,211	657	395	57	387	94	8	1
547	143	673	97	516	113	...	...
4,159	790	2,141	333	2,957	608	...	...
4,967	1,655	2,240	675	3,340	1,344	...	...
12,095	3,248	6,016	1,244	5,226	2,414	76	17
656,951	183,163	564,969	136,936	564,681	183,420	426,607	111,028

Pulses.

Twr.				Gram.			
1920-21.		1919-20.		1921-22.		1920-21.	
Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.
59	60	61	62	63	64	65	66
2,170	136	2,820	467	25,817	5,218	9,656	1,207
23,769	760	24,412	6,267	15,272	3,139	454	56
8,146	691	9,450	1,816	58,516	14,476	4,914	670
9,229	1,235	9,785	1,744	2,641	441	390	7
12,486	2,145	14,871	3,158	2,181	857	1,511	170
55,800	4,998	61,818	13,451	104,363	23,631	16,925	2,010
14,000	3,498	15,707	5,049	34,294	6,523	31,388	3,193
32,864	3,623	34,742	12,468	8,577	1,669	6,089	886
11,882	2,971	17,737	5,068	62,226	6,044	53,705	6,143
9,195	672	33,727	9,701	34,146	3,767	19,314	2,470
10,218	820	8,913	2,130	38,450	4,422	42,573	7,098
19,842	2,809	57,422	4,329	28,438	2,986	23,192	1,504
37,729	8,435	52,733	16,479	56,999	9,397	67,972	7,234
135,250	22,728	223,051	55,164	265,730	36,809	249,123	23,578
45,966	3,217	59,892	12,816	31,726	4,844	28,559	2,430
32,852	4,608	63,076	18,517	36,984	4,181	41,935	2,295
41,492	11,114	47,793	8,534	47,660	6,211	46,285	6,869
119,710	23,919	170,761	34,897	116,360	15,236	116,779	11,534
5,350	786	4,822	687	342	128	984	189
1,444	220	1,357	164	242	83	285	41
1,284	170	1,674	225	72	11	104	10
...	...	96	12	326	47	218	27
8,078	1,126	7,949	1,068	1,462	214	1,641	217
316,638	52,791	466,079	104,580	437,955	75,890	384,427	42,339
...	...	...	...	731	103	740	121
...	...	...	...	837	65	85	7
8	6	51	6	349	39	175	10
5	1	...	...	16,819	2,402	6,021	801
...	...	...	...	22,703	1,772	19,108	1,802
...	...	...	...	39,709	5,191	16,199	1,134
...	...	...	...	94,016	28,540	50,545	6,813
13	7	51	6	174,714	38,113	92,873	10,713
316,941	52,798	466,130	104,586	662,669	114,002	477,300	53,057

Pulses—concluded.

Gram.		Other Pulses.					
1919-20.		1921-22.		1920-21.		1919-20.	
Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.
67	68	69	70	71	72	73	74
15,288	3,371	33,185	4,641	27,045	1,562	27,321	4,54
4,481	600	23,217	2,735	16,035	189	19,013	2,50
64,638	13,089	17,839	3,417	72,106	573	17,073	3,04
2,003	384	45,543	9,815	30,406	8,529	37,401	7,84
2,025	327	18,490	3,778	12,980	2,012	14,853	2,78
88,435	17,771	141,274	24,385	100,572	7,865	115,660	21,03
21,781	11,868	59,894	18,564	59,981	5,543	60,490	16,53
6,390	1,505	252,761	62,145	221,398	26,181	220,740	44,34
67,302	12,166	141,609	22,135	118,441	7,317	163,258	27,91
67,260	10,816	89,317	6,968	28,002	1,673	109,116	13,48
61,037	12,152	51,149	4,604	46,248	7,218	77,545	13,12
36,362	4,043	31,145	3,043	10,533	733	21,688	2,48
69,192	9,460	114,544	18,785	95,937	9,311	108,742	16,22
329,324	62,010	740,419	131,249	574,330	58,375	763,459	134,113
37,403	3,811	71,613	12,030	80,336	7,680	90,222	11,082
44,342	5,136	69,690	7,828	46,659	8,031	61,442	7,633
46,691	6,046	122,194	16,929	113,569	17,247	119,634	18,175
128,936	15,043	263,497	35,787	240,664	27,938	271,298	36,940
935	138	13,391	2,392	12,836	1,374	12,282	1,339
224	29	1	688	5,673	943	4,621	787
128	17	52,250	9,033	6,805	8,022	61,132	6,142
211	26	6,177	916	7,447	1,272	8,243	1,800
1,498	210	76,606	13,169	93,767	12,111	86,183	10,068
648,193	95,034	1,221,796	204,561	1,009,293	116,289	1,236,600	202,151
646	46	20,102	2,545	18,530	2,470	26,239	3,091
101	9	523	110	332	47	6,672	739
199	18	5,346	432	2,338	173	5,639	516
13,463	1,415	12,637	1,326	19,130	2,535	14,720	1,973
14,079	1,575	141,001	22,155	105,865	10,333	140,529	20,359
27,431	2,572	31,360	5,705	20,331	1,947	33,791	4,049
64,117	14,639	38,699	5,979	31,673	5,176	38,339	5,563
120,631	20,524	219,603	38,802	190,753	22,730	265,979	36,370
668,324	115,558	1,471,404	243,383	1,209,046	129,019	1,502,579	233,621

Bombay Presidency and its estimated Outturn during 1921-22 and preceding two years.

Total, Cereals and Pulses.						District.	Serial Number.
1921-22.		1920-21.		1919-20.			
Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.	Area in acres.	Outturn in tons.		
75	76	77	78	79	80	2	1
A.—PRESIDENCY PROPER.							
<i>Gujarat.</i>							
925,797	254,475	614,711	94,674	763,512	257,771	Ahmedabad ...	1
540,711	161,070	446,862	65,217	533,568	227,219	Kaira ...	2
468,482	148,432	838,488	66,886	437,783	163,126	Panch Mahals ...	3
326,236	99,957	248,288	40,218	243,287	82,325	Broach ...	4
803,655	116,179	268,880	80,461	232,991	116,223	Surat ...	5
2,554,851	780,113	1,912,219	346,951	2,261,086	846,664	Total, Gujarat.	
<i>Deccan.</i>							
854,903	202,170	783,243	207,048	803,574	229,005	West Khândesh ...	6
1,054,770	285,592	961,464	114,027	982,682	255,539	East Khândesh ...	7
1,611,225	257,174	1,183,731	143,520	1,631,748	290,877	Nasik ...	8
2,384,354	190,423	1,567,957	114,116	2,859,914	370,239	Ahmednagar ...	9
1,709,969	216,498	1,662,218	269,208	1,762,371	337,774	Poona ...	10
1,893,059	275,854	1,738,142	195,954	1,722,398	312,075	Sholapur ...	11
1,466,713	322,267	1,456,511	222,043	1,502,456	325,657	Sâtara ...	12
10,695,023	1,752,978	9,948,261	1,265,910	10,765,145	2,121,159	Total, Deccan.	
<i>Karnâtak.</i>							
1,393,248	416,183	1,280,648	332,577	1,357,497	353,085	Belgaum ...	13
2,407,389	343,113	2,093,108	112,203	2,216,614	400,426	Bjâpur ...	14
1,516,633	271,791	1,378,958	326,236	1,366,445	365,877	Dhârwar ...	15
5,317,266	1,031,087	4,752,713	771,005	4,980,566	1,119,388	Total, Karnâtak.	
<i>Konkan.</i>							
403,865	194,225	397,889	162,360	416,926	205,872	Thâna ...	16
16,153	9,533	15,694	8,391	...	...	Bombay Suburban ...	17
845,550	174,953	956,637	162,330	358,383	230,730	Kolâba ...	18
662,596	352,167	668,065	309,587	658,012	267,806	Ratnâgiri ...	19
171,497	84,840	171,109	61,033	107,846	87,967	Kânara ...	20
1,596,189	715,767	1,593,384	630,271	1,596,167	732,145	Total, Konkan.	
20,305,349	4,279,945	17,606,576	3,014,137	19,582,954	4,669,356	Total, Bombay Presidency.	
B.—SIND.							
338,323	141,401	303,073	76,940	351,351	102,202	Karâchi ...	21
466,843	157,603	443,438	134,103	469,997	166,333	Hyderabad ...	22
700,804	122,772	634,085	126,265	744,159	125,900	Thar Parkar ...	23
343,641	90,908	332,497	45,339	342,461	73,653	Nawâbahâh ...	24
339,222	260,366	743,899	235,102	737,405	295,980	Larkîna ...	25
383,351	101,107	348,056	40,592	460,522	96,950	Sukkur ...	26
480,923	147,373	436,052	82,971	511,329	123,283	Upper Sind Frontier ...	27
3,617,976	1,021,430	3,246,111	731,517	3,667,164	1,006,436	Total, Sind.	
23,933,375	5,301,375	20,852,657	3,735,954	23,250,119	5,674,842	Grand Total.	

TABLE VII.—Prices (prevailing at harvest time) of Staple Articles and of Fodder at the Head-quarter Station of each district of the Bombay Presidency during 1921-1922.

No.	Station.	Rate per rupee in sers. of 80 tolas.										Price per Indian maund of 3,200 lbs.		
		Jowari.	Bajrs.	Wheat.	Rice.	Nāchān.	Gram.	†Turdaī.	Gul.	Tobacco.	Cotton, cleaned.	Dry grass.	Jowā kadhi.	
<i>Gujarāt.</i>														
1	Ahmedabad ...	5 31	4 50	4 69	4 00	...	5 37	3 62	2 75	1 00	1 62	2 2 5	2 11	
2	Raira ...	...	5 50	4 62	3 50	3 69	6 50	5 00	2 37	12 50	1 37	...	1 4
3	Pauch Malāls (Gothra) ...	*3 00	4 75	4 50	3 62	...	6 50	4 44	3 60	1 12	...	1 9 7	...	
4	Broach ...	5 06	5 12	4 37	4 50	...	5 00	4 00	2 25	2 12	1 00	2 0 0	...	
5	Surat ...	5 00	5 25	4 87	3 69	...	5 69	4 44	2 56	1 12	75	3 6 4	1 9	
	Average ...	5 84	5 02	4 61	3 86	3 69	5 81	4 30	2 69	1 59	1 13	2 4 7	1 13 1	
<i>Deccan</i>														
6	West Khāndesh (Dhulia) ...	5 81	4 94	4 31	3 87	...	5 12	4 00	2 63	3 12	1 19	1 1 1	...	
7	East Khāndesh (Jalgaon) ...	5 50	5 00	4 25	4 06	...	5 75	3 37	2 69	2 00	1 31	0 15 0	1 10	
8	Nāsik ...	...	5 56	4 06	3 87	6 00	5 50	3 06	3 06	1 00	...	0 14 3	...
9	Ahmednagar ...	6 12	5 19	4 37	4 56	...	4 51	3 94	2 81	1 12	...	...	1 2 5
10	Poona ...	5 56	4 62	4 69	4 12	...	5 06	4 37	2 62	0 94	...	2 3 6	1 8 5	
11	Sholāpur ...	3 44	6 00	5 37	4 87	...	5 56	4 37	2 37	1 00	...	...	1 1 5
12	Sātāra ...	4 81	4 50	3 81	4 19	...	4 37	4 62	2 37	1 44	...	1 1 9	1 8 10	
	Average ...	5 98	5 12	4 41	4 23	6 00	5 17	4 11	2 66	1 52	1 25	1 8 11	1 6 2	
<i>Karnatak.</i>														
13	Belgaum ...	6 37	5 87	5 25	5 00	3 31	4 75	3 06	2 94	1 31	...	1 2 2	...	
14	Bijāpur ...	7 12	6 25	5 50	4 62	...	5 62	4 37	2 69	1 44	...	...	2 3 1
15	Dhārwār ...	5 75	4 63	5 94	4 37	...	4 62	3 37	3 37	1 00	1 6	0 15 8	0 10 7	
	Average ...	6 68	5 58	5 56	4 68	3 31	4 99	3 76	3 00	1 25	1 06	1 0 11	1 6 10	
<i>Konkan</i>														
16	Thāna ...	...	4 12	3 00	4 50	...	4 56	2 94	2 50	2 00	...	...	¶...
17	Kolāba (Alibāg) ...	...	...	3 44	4 75	...	4 94	3 12	2 25	0 69	...	1 8 0	1 5 4
18	Ratnāgiri ...	5 94	5 00	3 81	5 25	6 75	4 69	3 69	2 12	1 75	...	0 18 4	0 13 6	
19	Kānara ...	6 12	...	3 62	5 12	7 50	4 44	3 19	2 12	0 81	...	...	0 15 3
	Average ...	6 03	4 56	3 47	4 90	7 12	4 66	3 23	2 25	1 31	...	1 2 8	1 0 8	
<i>Sind</i>														
20	Karāchi ...	6 50	5 75	4 19	3 66	...	5 06	4 00	2 50	1 31	1 21	1 13 9	...	
21	Hyderabad ...	6 50	6 37	4 56	3 12	...	4 37	3 37	2 50	1 50	1 25	12 4 10	2 6 5	
22	Thar-Pārkar (Mirpurkhās) ...	7 12	6 12	5 25	4 00	...	4 69	3 50	3 19	1 00	1 12	0 12 7	...	
23	Navābehāb ...	7 56	6 00	3 37	2 50	...	5 12	2 50	2 50	1 00	1 00	0 7 6	0 7 6	
24	Lārkāna ...	5 12	5 44	3 37	3 25	...	4 25	3 50	2 81	2 00	1 12	...	0 11 5	
25	Sukkur ...	5 19	5 75	4 06	3 00	...	4 56	...	3 19	2 37	...	...	1 0 4
26	Upper Sind Frontier (Jacobabad) ...	6 37	6 12	3 94	3 25	...	4 81	3 50	2 69	...	1 00	...	0 9 1	
	Average ...	6 34	5 94	4 25	3 24	...	4 69	3 48	2 77	1 61	1 12	1 5 8	1 0 7	

* For Maize.

† For Mug Dāl in the case of Sind.

‡ Nadad Station.

§ For Bajri straw.

¶ For Rice straw.

Annual Reports.

Season and Crop Report for
the year 1921-22.

GOVERNMENT OF BOMBAY.

Revenue Department.

Resolution No. P.-119.

Secretariat, Fort, Bombay.

Dated the 14th November 1922.

Letter from the Director of Agriculture No. 10977
dated 29th September 1922—Submitting a copy of the
Season and Crop Report of the Bombay Presidency for the
year 1921-22.

RESOLUTION.—Recorded.

By order of the Government of Bombay
(Transferred Departments),

A. R. DALAL,

Deputy Secretary to Government.

To

The Commissioner in Sind,
The Commissioners of Divisions,
All Collectors, including the Deputy Commissioner,
Upper Sind Frontier,
The Director of Agriculture,
The Settlement Commissioner and Director of Land
Records,
The Chief Conservator of Forests, Bombay Presi-
dency,
The Conservators of Forests,
The Accountant General,
The Finance Department,
The Public Works Department,
* The Government of India,
* The High Commissioner for India, London.

* By letter.

Sl. Rev. 1020

No. _____ of 1922.

Copy forwarded for information and guidance to

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CHAPTER IX—CONCLUSION.

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No. 12628 of 1919.

From

DR. HAROLD H. MANN, D. Sc.,
Acting Director of Agriculture, Bombay,

Poona;

To

THE CHIEF SECRETARY TO GOVERNMENT,
Revenue Department,

Bombay.

Poona, 11th October 1919.

Sir

I have the honour to submit herewith the Annual Report of the Agricultural Department for the year 1918-19.

CHAPTER I

ADMINISTRATION.

2. During the year the expenditure of the Department amounted to Rs. 12,57,000* against Rs. 9,90,000* during the year 1917-18. The increase in expenditure was mostly due to the occurrence of severe famine, and also to expenditure in connection with the scheme for the increase in food production during the year. An account of the activities of the Department in these directions is shown below. The above total also includes expenditure allotted by the Government of India in 1917 from the profits of its wheat operations, and amounting during the year to Rs. 15,830 as follows:—Rs. 10,500 spent on potato-growing and storing investigation, Rs. 1,780 on a dairy at Sukkur in Sind, Rs. 3,250 on the Veshvi Agricultural School, and Rs. 200 on experiments on making *gul* from the toddy palm. The receipts went up from Rs. 2,01,000 to Rs. 2,86,650 being a rise of Rs. 85,650. So that the net cost of the Department was Rs. 9,70,350 as against Rs. 7,89,000 in the previous year.

The permanent advance of Rs. 50,000 made by Government for financing quasi-commercial transaction was in full use during the year, and is being employed more and more by the officers of the department, chiefly in connection with propaganda work, and also with the putting down of bores for water, and the establishment of pumping plants. The following table shows the extent to which this provision has been used in the last five years:—

Year.	Advances on April 1st.	Fresh advances in the year.	Total.	Recoveries during the year.
	Rs.	Rs.	Rs.	Rs.
1914-15	13,807	49,007	62,814	36,591
1915-16	26,228	47,665	73,893	47,368
1916-17	26,520	43,174	69,694	38,171
1917-18	31,523	35,943	67,466	30,373
1918-19	37,098	38,213	75,306	35,756
1919-20	39,550			

Grants were received from the Sir Sassoon David Trust Fund during the year, amounting to Rs. 28,000. These grants were made for the following purposes:—

	Rs.
(1) Scholarships at the six Vernacular Agricultural Schools	3,000
(2) Building grant for the Lord Willingdon Vernacular Agricultural School, Veshvi (Alibag)	10,000
(3) Building silos for fodder storage	5,000
(4) Development of sugarcane industry on new canals	10,000
	<u>28,000</u>

* Figures as communicated by the Accountant General. The figures in the last year's report were arrived at from the Departmental registers.

3. Three of the four Deputy Directors, Messrs. Henderson, Gilbert and Gonehalli were absent throughout the year, and Mr. Main, the only one of the permanent Deputy Directors who remained, went on six months' leave in May 1919. Dr. Burns, Economic Botanist was on military duty till January 6th, 1919, and went on leave for the remainder of the year a few days afterwards. Mr. Schutte, the Agricultural Engineer, devoted a great deal of his time in the early part of the year to work for the Munitions Board as Deputy Controller of Agricultural Requirements, Mesopotamia (August 13th, 1918 to February 28th, 1919) and went on leave on April 26th, 1919. I myself took charge of the work of the Director of Agriculture on November 25th, 1918, Mr. Knight taking my place as Principal of the Agricultural College. So that nearly all the senior staff of the department were away from their usual work during the whole or part of the year. This has much handicapped the operations of the department, though the officers who acted in their places have worked with enthusiasm and success. The acting arrangements have been as follows :—

Office.	Permanent Holder.	Acting Officer.
Director of Agriculture.	Mr. G. F. Keatinge, C.I.E., I. C. S.	Dr. H. H. Mann.
Deputy Directors Agriculture.	Mr. T. F. Main, B. Sc.	Mr. Gul Mahomed.
	Mr. G. S. Henderson, B. Sc.	Mr. P. C. Patil, L. Ag.
	Mr. T. Gilbert, B. Sc.	Rao Sahab M. L. Kulkarni.
	Mr. V. H. Gonehalli, M. A. (Cantab.)	Mr. V. G. Gokhale, L. Ag.
Principal, Poona Agricultural College.	Dr. H. H. Mann, D. Sc.	Mr. J. B. Knight, M. Sc.
Agricultural Chemist.	Dr. H. H. Mann, D. Sc.	Mr. D. L. Sahasrabudde, B.Sc. (from June 1, 1919).
Economic Botanist.	Dr. W. Burns, D. Sc.	Mr. S. L. Ajrekar, B. A.
Agricultural Engineer.	Mr. W. M. Schutte.	Mr. G. Thiselton-Dyer, M.A., A.M.I.C.E.

Mr. J. B. Knight, M.Sc., remained as Professor of Agriculture and Mr. H. M. Chibber, M.A., as Plant Breeding Expert to Government throughout the year, the latter being admitted into the Imperial Agricultural Service from January 1st, 1919.

The following new positions were sanctioned during the year :—

- (a) Deputy Director of Agriculture for Gujarat.—To this position Mr. Bhimbhai M. Desai, one of our most experienced workers in that division, was appointed from 1st April, 1919.
- (b) Deputy Director of Animal Breeding.—To this position Mr. E. J. Bruen was appointed, but he did not take charge till after the end of the year under report.
- (c) Inspector of Agricultural Schools.—Mr. K. M. Pawar, B.Ag., the most experienced of our head masters, took charge of the duties of this position on June 5th, 1919.

4. In November 1918 the Director of Agriculture ceased to control the Co-operative Department, the Civil Veterinary Department and the Bombay Veterinary College, all of which now report direct to Government. This has allowed a greater concentration of attention on the work of the agricultural department proper.

CHAPTER II.

FOOD PRODUCTION AND FAMINE.

5. The work of the agricultural department during the year under report was dominated (1) by the general shortage of food in the world in 1918,

leading to the formation of the Food-production Committee in June, and its activities during the rest of the year, and (2) by the long, almost unprecedented, drought resulting in very severe famine both of food and fodder from September 1918 to the end of the year under report. It has been necessary to divert a good deal of the energy of the department from its normal channels into the work of dealing with these two great needs.

6. The Food-production Committee was formed in connection with the War Purposes Board in June 1918 with the Honourable Mr. G. F. Keatinge as Chairman. The whole of the correspondence in connection with the work of this committee was done in the office of the Director of Agriculture, and so far as it was effective a great deal of the execution of its resolutions were carried out by the agency of the officers of the agricultural department. From the point of view of this department the most important work recommended by the Committee and approved by Government was (1) the distribution of concentrated manures for the wheat and jowari crops at somewhat below cost price, (2) the stimulation of the full use of irrigation wells in villages where they exist, (3) the recommendation of the extensive growing of food crops instead of other crops like cotton where the area of the latter is very high. The district staff of the Agricultural Department entered with energy into the work represented by these resolutions, but the long and unexpected drought, together with the terrible scourge of influenza in September and October 1918 made the efforts less effective than they would otherwise have been. It was quickly evident indeed that the distribution of concentrated manures including oil-cakes would have to be confined to irrigated lands in most of the province, that nearly all usable wells would be used, and that the growing of food or fodder crops where possible would need little stimulation. But in spite of the difficulties the use of concentrated manures and particularly of oil-cake was introduced with much success on rabi crops—particularly *rabi Jowar* and *khapli* wheat. In some tracts, as a result, a demand has sprung up for such manures, and will probably be permanent. The most successful efforts were undoubtedly in the Deccan canal and other irrigated areas, where oil-cake manures to the following amounts were distributed :—

	Rs.
Central Division	14,231
Southern Division	730
Khandesh and Sholapur Districts	3,141

7. But all efforts devoted to production of larger quantities of food than usual were soon diverted to the production of food and fodder crops in sufficient quantity to keep men and animals alive, as a result of the long continued drought. By the middle of July the situation on account of failure of the monsoon became threatening and by the end of August it became evident that the *kharij* crop had failed over a great part of the area. Everything then depended on the arrival of the September and October rains in good amount. These failed, however, almost everywhere, and it became evident that a serious famine must result. Except in lower Gujarat, and to a less extent in Khandesh and in Sholapur, the season was unsatisfactory, and it was clear that the other activities of the department must be considered as secondary, and all possible strength concentrated in doing what lay in its power to meet the situation. Almost all the officers of the department fully realised this and devoted themselves heart and soul to carrying out the lines of work decided upon.

8. The first of these lines of work was to lend out all the pumps and engines belonging to the department for irrigation purposes for growing fodder crops, and to arrange as far as possible, that existing installations were fully utilised. Beyond this, Government made a special grant of Rs. 92,434 for the purchase of additional pumping sets for famine purpose and for working of all the pumping sets and made provision (Rs. 1,12,963) for four special installations respectively in the Narbada (two installations), Godavari and Krishna Rivers to be worked by the agricultural department on a system of sharing the fodder produce with the cultivators. The Nangaon plant (Poona District) (which has been rather a white elephant for some years) was this season worked day and night and irrigated 411 acres. The pumping installations managed by the department through the famine numbered twenty and were as follows :—

1. Shirol, Khed, Poona.
2. Bhambora, Karjat, Ahmednagar.
3. Nangaon, Dhond, Poona.
4. Agarkhed, Indi, Bijapur.
5. (Bhude) Vadgaon, Haveli, Poona.
6. (Athavale) Bibyachwadi, Haveli, Poona.
7. Modibag, Bhamburda, Poona.
8. Dapuri, Haveli, Poona.
9. Chinchwad, Haveli, Poona.
10. Malegaon, Nasik.
11. Nasrapur, Poona.
12. Patas, Poona.
13. Manjri, Haveli, Poona.
14. Rajewadi, Bhor, Satara.
15. Umbergaon, Thana.
16. Hiroj, Sholapur.
17. Retra, Karhad, Satara.
18. Gondegaon, Niphad, Nasik.
19. Zadeshwar, Broach.
20. Nikora, Broach.

On the whole about two thousand acres of fodder crops were irrigated and produced about two crores of pounds of green fodder which would not otherwise have existed or enough to keep seven or eight thousand head of cattle through the whole of the famine. The disappointing thing about a number of these pumping installations was the unreadiness of the cultivators to take full advantage of the water when available. Some sets of plant (as for instance at Bhambora on the Bhima in the Ahmednagar District) worked to far less than their full capacity. This is probably due largely to the unusualness of the offer made, and I anticipate that when a famine occurs again and the same facilities are available, every drop of water that can be used will be employed for irrigation. The exact cost of green fodder produced is available on four of these pumping installations and is as follows excluding the cost of the engines, interest and depreciation.

Place installed.	Yield per acre of green fodder.	Cost for pumping per 1,000 lbs. fodder.	*Total cost per 1,000 lbs. fodder.	Total cost per 1,000 lbs. of Government share of fodder.
	Lib.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Broach (Narbada) ...	12,500	3 11 0	10 1 0	15 2 0
Nikora (Narbada) ...	7,525	10 2 0	17 9 0	35 2 0
Gondegaon (Godavari) ...	9,166	1 7 0	5 7 0	10 14 0
Retra (Krishna) ...	3,000	9 9 0	15 4 0	30 8 0

At Retra and to a less extent, at Nikora, the engines employed, brought in a hurry, were not very efficient, but taking the other cases the cost of pumping was very low. This experiment shows what can be done even in an emergency. The weak point was that at the beginning of the famine suitable sites for pumping were not known to anyone, the matter was rushed on the cultivators in a hurry and that the machinery had to be purchased when prices were very high indeed and when all available was second hand. If only a regular survey of the rivers is made and suitable sites fixed beforehand, the cultivators educated to the use of water and to the arrangements which would be proposed, and engines and pumps rushed to those spots in November of a famine year, instead of in February, March and April as in the past season, the success of the method of producing large quantities of the best type of cheap fodder would be assured. Under these circumstances two crops could be produced between November and the following June and would be invaluable.

9. The second line of work, on which attention was concentrated on famine account, was that of shallow boring. All the boring machines belonging to department even though they were old and had previously been almost scrapped were got out and concentrated as far as possible in those famine districts where bores have given the best results in supplementing the water-supply in wells. It may at once be said that up to the present in all our experience the best results have been obtained in Upper Gujarat and in the Thana District. In the Deccan and Karnatak while water sufficient for domestic purposes can generally be obtained on a well selected site, the amount tapped by boring to greater depth than those reached by an ordinary well is not usually sufficient for irrigation. For the reason the machines were concentrated during the famine in the districts where it was

* This excludes the cost of land and labour, which the cultivators gave in exchange for one-third or one-half of the crop in different cases.

practically certain that water could be obtained. Two hundred and thirty-nine bores were made during the year. Of these one hundred and fifty-six were successful, success being considered to have been reached when five hundred gallons per hour in sand or two hundred gallons per hour in rock boring have been yielded by the bore. Of the bores completed, 85.6 per cent. were successful in Gujarat, and 89 per cent. in Thana. No boring was done in Sind, owing to the necessity of concentration in the famine areas. The 156 successful bores yielded an aggregate of 3,35,000 gallons of water per hour from the bore in the dry season, or enough to irrigate between five and six hundred acres of fodder crops through the hot weather. The average yield of water for each successful bore is shown below :—

			Yield per successful bore.
Upper Gujarat	...	..	2,778 gallons per hour.
Thana	...	...	1,577 " "
Kolaba	...	...	1,475 " "
Ratnagiri	...	...	747 " "
Dharwar	...	...	252 " "
Bijapur	...	...	600 " "
Belgaum	...	...	250 " "

The value of boring for agricultural purposes thus differs widely in the different parts of the Presidency, and it is only occasionally that one of the shallow bores (to 200 feet) that we make gives an amount of water of real value for agriculture in the Deccan or Karnatak.

10. The recent famine has been pre-eminently a famine of fodder and hence it was quickly obvious that any new and unusual resources in the way of fodder should be utilised as far as possible. The most important of these was prickly pear, which had been used as fodder at Dhond for a number of years by Rev. A. Norton and had been successfully fed to animals on a large scale in the Ahmednagar Famine of 1912. Based on that experience, and on the careful results recorded at that time by Mr. Horne (Bulletin of the Bombay Department of Agriculture No. 58 of 1913) the Collector of Ahmednagar and the Revenue Officers in Poona commenced using the fodder in large quantities. The real success of its use in the present famine has however depended on the abandonment of any kind of lamp for burning the thorn from the fodder and the substitution of the ordinary blacksmith's forge for the purpose, which was suggested by the Agricultural Department in December and came into general use in the succeeding months. The new fodder was at first unpopular and rightly so, for if not used with care, the animals are injured and die. But with greater experience, these difficulties were overcome and at one time there were 40,000 cattle living on prickly pear in the Ahmednagar District alone. At the end it became so popular that if a forge for the preparation of the fodder were put down in a famine tract, a demand for thousands of pounds per day would rise at once, as we found that it could be prepared and sold at five annas per one hundred pounds. Much help was given throughout to district officers by supplying burning apparatus, by keeping it in repair, and by keeping for three months a continuous training school for men intended to prepare the prickly pear for use. The whole experience as regards prickly pear as a fodder is being put together as a bulletin of the agricultural department and will shortly be issued. In Gujarat the fodder supply was supplemented by 17 lakhs lbs. of good fodder much better than the coarse forest grass, by the chaffing of jowar stubbles left in the fields in the coast talukas of the Surat District which would otherwise have been wasted. The stubbles were chaffed by power chaff cutters set up at four places on the Railway line and sent to other parts of Gujarat. The scheme sanctioned for the purpose by Government proved successful but owing to long railway transport and heavy packing charges of double gunny bags on account of the voluminous nature of the fodder it did not pay its way.

Many other unusual fodders were used by the people during the recent famine as has always been the case in similar visitation. It would require almost a book to give even a list of these, but among new materials I may

mention the very successful use of the sliced stalks of the plantain (Banana) plant, which have been fed to buffaloes and bullocks with great success, up to an amount of 35 pounds per day per head.

11. The next line of famine activity was the extensive stimulation of the production of fodder during the famine. The various Collectors at my suggestion, gave special facilities for the cultivation of river beds where the moisture was sufficient to produce a fodder crop. Large quantities of fodder seed for use in the cold and hot weather, chiefly maize, sundhia jowar, hundi and kalbondi jowar, etc., were purchased and distributed to cultivators with wells. The sale was made much easier by concession of 25 per cent. of the price given by the Bombay Famine Relief Committee for seed purchased through the Agricultural Department. No less than 68,500 pounds of such seed were distributed in the Central Division and 1,66,000 pounds in Gujarat. In many of our districts the activities so far described absorbed almost the whole of the time and energy of the district staff.

12. In spite of all that was being done to save cattle, it became evident that there were a large number of good cattle, which would die if they were not actually purchased from the cultivators, kept during the famine, and resold after the famine was over. In order to see whether it was possible to save these cattle without serious financial loss an experiment was carried out under Professor Knight, to purchase such cattle outright, keep them in camps and sell them when fodder again became available. 1,046 cattle were purchased in a starving condition. Many of them could hardly walk. These were restored to health and condition, being fed after the first few days on a ration consisting of 80 per cent. of prickly pear, a little dry fodder, and a small quantity of cotton seed. They have now all been sold to cultivators and no loss is anticipated to Government on the whole scheme.

13. In the early stages of the famine it became probable that when the rains came a serious shortage of certain kinds of seed would occur, and in some cases it seemed likely that valuable strains of seed would die out, particularly of rice, bajri, jowar, wheat, potatoes, etc. Government made therefore special grants amounting in all to Rs. 1,66,000 for the purchase and storage of such seed. These stores have formed a most valuable resource, and will be wholly distributed in the present *Kharif* and *Rabi* seasons. I must particularly call attention to the value of the work in the case of potatoes, where about two thirds of the acreage grown in the Poona District in the *Kharif* season of 1919 has been planted with seed stored by the Agricultural Department; otherwise the crop (as the same variety cannot now be imported from Italy) would almost have disappeared.

14. In order to make cultivation possible in the absence of cattle, the steam plough belonging to the Agricultural Department was made available in the Ahmednagar District during April and May, but was not much welcomed by the cultivators as an implement for ordinary cultivation. A Moghul tractor was also purchased, and did good work on a limited scale. In anticipation of a serious difficulty in getting the land cultivated in the *Kharif* season, a large number of implements to be worked by hand, on the lines of those suggested by Mr. Mollison after the last big famine, were prepared and their use extensively demonstrated in the famine districts, before the beginning of the monsoon. They were not however widely adopted and on the whole, it is astonishing how, in spite of the very great mortality among cattle, the cultivators have been able to get their crops into the ground this year with comparatively little delay.

15. On the whole, the experience of the recent famine indicates what a great deal can be done on the agricultural side both before the famine and in its early stages to minimise the very great loss of cattle, and to increase production in spite of the long drought. This year we were largely unprepared but it is hoped that measures may be taken in the immediate future which will not only mitigate the effects of a famine, but also enable us to utilise the small amount of rain that falls in a famine year to much greater advantage than is done at present.

CHAPTER III.

CROPS.

16. Of the very many investigations on the improvement of crops and their cultivation on hand, it will be only possible to refer to a few in which progress has reached a definite point during the past year. The first of these is *cotton*, always one of the principal objects of investigation in Bombay. At the present time as the result of many years of work, it may be stated that the following is the position.

In the Bombay Karnatak, we have succeeded in breeding two or three types of Kumpta cotton which possess qualities raising them considerably above the ordinary Kumpta cotton in use both from the point of view of the cultivators and of the trade. One of these in particular, which we term Dharwar No. 1, has now been produced in quantity sufficient to plant 5,000 acres, and its further extension will take place by its own merits. It gives an increased yield over ordinary Kumpta cotton of nearly 10 per cent.; its ginning percentage is higher by 2 per cent., and the quality of the cotton was reported on by the experts of the Cotton Contracts Board, Bombay, this year as follows:—

“The sample in spite of some ‘neppiness’ and want of silkness is a very excellent cotton, which if it continues to maintain its present characteristics and its superiority in yield should have a great future before it.”

The general cultivation of this type of cotton in the Kumpta growing districts of the Bombay Presidency would mean, I calculate, an increase in value of Rs. 26 lakhs per annum on the crops grown and I hope that this consumption will be reached in a very few years. Further selection is being carried on each year, and so the quality will at least be maintained if not improved. Other promising strains of Kumpta cotton are also in hand, and may replace the one already mentioned in certain areas. An improved Dharwar American cotton has also been obtained by selection, and will be available next year in sufficient quantity to plant 5,000 acres likewise and a pure selected Cambodia cotton seed will be similarly at the service of the cultivators to an equal extent in two years' time. We can, therefore, see as the result of our efforts in the near future, a position in which the whole of the Bombay Karnatak cotton tracts can be supplied with strains of pure, high yielding, high ginning cotton of staple above the average,—whether the conditions suit best the growing of Kumpta, Dharwar American or Cambodia cotton. The spreading of these improved types will be done largely, in association with co-operative societies and a scheme is now before Government which will allow of the organisation of this on a larger scale than hitherto.

In Khandesh and the adjoining tracts where “Neglectum” cottons are grown, little fresh investigation has been undertaken and energy has been chiefly devoted to the maintenance and extension of the so-called ‘N.R.’ cotton produced by the agricultural department, which has become so exceedingly popular all over Khandesh. Our seed farms at Jalgaon and Dhulia can only produce a limited quantity of the seed, but we have now 29 registered seed growers who multiply the seed from our farms, and this work is now taken up largely by co-operative seed societies. The present year shows 900 acres under cotton grown essentially for seed, which will produce seed capable of sowing 20,000 acres next year,—and if all is used for the purpose, our seed would cover the country in three or four years. This season the demand for farm seed was far beyond our power to supply and the rates the people are likely to pay are considerably higher than that for other seed. I think, however, that we can go much further yet in the improvement of Khandesh cotton and I intend that vigorous efforts at further selections shall be continued and extended, so that we may get a strain which shall combine higher quality with the high yield and high ginning per centage of the N. R. cotton.

In lower Gujarat—Surat and Broach—the cotton position has been going from bad to worse, and the original Broach staple, one of the best in India, has been very rapidly swamped by other types of much inferior quality, but of higher ginning percentage. This reached such an alarming stage in 1918 that

it was evident that something must be done. In parts of Surat and Broach, more than 80 per cent. of the plants in the fields were in some places of the inferior 'Ghogari' type. In the meantime, we had succeeded in selecting and maintaining partly on our farms and partly in two or three groups of villages, pure and improved types of cotton suitable on the one hand, for the Navasari, and on the other, for the Surat-areas. In fact, except for a few cultivators, the Agricultural department were at the beginning of the present year the only holders of any considerable quantity of pure Gujarat staple seed. The extremely unsatisfactory character of the last year's cotton from these districts, due to the drought in addition to the impurities, had alarmed the trade and the latter has willingly co-operated with us in an attempt to retrieve the situation. A committee of the trade and the agricultural department has been formed in Surat, and the pure improved seed has been now distributed in five groups of villages to the extent of about 6,000 acres. This has been made possible by the special appointment by Government of a Cotton Superintendent and assistants to distribute the seed, examine the fields at every stage, and finally to supervise the harvesting and ginning. The trade committee's co-operation will be essential when the sale of the *kapas* and its ginning comes on. By the means now in use, we hope to have pure selected seeds for 60,000 to 70,000 acres in hand next year. In the meantime selection is being continued, and Mr. M. L. Patil, who is in charge of the work, hopes to have a selection better than that now in use, to distribute on a small scale in the Surat area either in 1920 or in 1921.

In Broach itself the selections so far made have not been good enough to distribute on a large scale, but work is being continued. In Northern Gujarat little work has, as yet, been undertaken.

In Sind experiments with American cotton were in progress. Comparative tests of old Triumph and Punjab F.4—two of the four varieties of American cotton were made on a fairly large scale on the Mirpurkhas Seed Farm and the latter was found to yield better than the former. Owing to the favourable season none of the American cottons developed red leaf blight but in a year favourable to this disease like the one of 1917-18 F.4 showed remarkable resistance to red leaf blight to which Triumph fell an easy prey. 62,000 lbs. of F.-4 cotton seed have been given out for sowing to cultivators on the Jamrao Canal and in North Sind. Work with the isolation of superior strains from Deshi or Bhilsah cotton has sufficiently progressed to enable comparative tests of the four principal types found in it being made on a field scale in 1919-20.

17. *Sugarcane* is the crop to which, next to cotton the greatest attention has been devoted. But the work done in the year under report has been small, owing to the famine which forced us to convert a large part of our principal centre (Manjri Farm) into a fodder growing farm for the time being. This farm has however become a recognised centre for experimental work all over Western India, and the home of the latest and most improved methods for use in the Deccan tracts. During the present year an account of three years' work on the Manjri Farm has been issued. It shows how new varieties of cane of great promise have been evolved or tested there, how far more economical methods of cultivation and manuring have been found than those normally in use. These more economical methods lead to a saving of expenditure of Rs. 100 per acre and if these were universally used with the cane grown on the Deccan canals would mean a saving of Rs. 28 lakhs per annum to the cultivators without loss in yield or quality. The methods now worked out for green manuring cane with san-hemp promise to lead to a further great saving in cost of production. The use of sulphate of ammonia for topdressing cane is spreading, and it only needs more local demonstration centres in the various canals and other sugarcane growing areas to make the new methods rapidly become absolutely general.

We have such local demonstration centres at Saval-vahir near Kopergaon on the Godavari Canal, at Arbhavi on the Gokak Canal, and a small station near Amalsad in lower Gujarat. In these the methods worked out at Manjri, with such modifications as are necessary to make them suitable in other places, are used and occasional experiments in other directions are undertaken. At Saval-vahir the Manjri farm methods have been brilliantly successful and our crop was the

best in the valley though produced at Rs. 94 per acre less expenditure than that grown by the cultivators. Here the Java method of planting cane with a minimum amount of water promises to be very successful, especially on land likely to be waterlogged. In the Konkan, where the methods of sugarcane cultivation are not nearly so advanced, the principal work has been to find the most suitable varieties and to ascertain to what extent they will profitably bear high manuring. Striped Mauritius cane has great promise here, and the use of concentrated manures can now be and is recommended with confidence.

In Sind sugarcane was under trial on the Sukkur and Landhi farms. On the former comparative tests were made with striped Mauritius and Java and Lahoni, a local variety, on the Poona method. The first two grew splendidly and yielded well and were found suitable for *gul* making. In point of yield and quality the canes from stalks (roots) were equal to those from the tops. As to liability to borer attacks further trials are required. On the Landhi farm striped Mauritius sown in March was badly affected by borer and it is proposed to alter the date of sowing to see if the borer attack can be avoided.

18. *Rice*.—Work on the improvement of rice crop and of its cultivation has been carried out for a number of years, and has resulted in a fairly clear understanding of the meaning of the process of *rab*, and in the finding of successful *rab* substitutes. It is now moreover clear that if the *rab* supply is insufficient, the same result can be obtained by adding a small quantity of fish manure or sulphate of ammonia to the rabbed seed beds, a discovery which promises to be of great importance where *rab* materials are deficient. Green manuring with *san*-hemp promises to be very important and valuable on the poorer lateritic soils of Ratnagiri, though not yielding such good results in the richer lands of Kolaba. The use of green leaves as manure to the rice crop has proved very successful all over, and well selected concentrated manures almost uniformly pay on rice in the Konkan. At Kumta, where these are not used, an application of bone meal or of fish manure has increased the yield of rice by 100 per cent. at once, and this undoubtedly offers a great chance of increasing the profit to the cultivators of that district.

The problems of rice are, however, so different from those of other crops, and we have had so many disappointments with it, that it was decided this year to start a regular rice research station for the closer study of the rice plant and its problems. This has been placed at Karjat in the Kolaba district, and if the situation proves suitable, proposals will be made for making it a regular centre for this work, at any rate for a term of years. At this centre, also, has been located the work of the Plant Breeding Expert on the development and selection of new and improved strains of rice. He has selected the *kolumba* rice of the cultivators as the chief basis for his work, and already there is promise that from this he will be able to obtain much higher yielding strains than the mixture at present in use.

19. *Wheat*.—The Plant Breeding Expert appointed at the end of 1917 has decided to devote his principal attention to work on rice and wheat. So far as wheat is concerned he has only made a start, but he proposes to base his work on selection from the wheats now grown in the Deccan, for, the Pusa selections, so successful in North India, do not seem to be suitable for Peninsular India.

In Sind, where the introduction of improved wheats forms one of the chief activities of the Agricultural department, a large seed farm for the maintenance of the best types is being established in Upper Sind. So far several of these types of wheat, imported from Northern India, have done very well indeed. Both 'Pusa 12' and 'Punjab 11' have very great promise. The Deputy Director reports that in Upper Sind Pusa 12 is fast gaining in popularity, largely because of its ripening earlier than the local wheat. 'Punjab 11' is hardy enough to thrive on a poor soil provided three or four waterings are given to the standing crops, and, being awned, is not much subject to attack by birds. Work on the isolation of the better strains from the local Sind wheats is proceeding.

20. *Potatoes*.—A good deal of concentrated work has been done on potatoes, chiefly in the northern part of the Poona district, during the last three or four years, partly as a result of a special grant from the Government of India.

and also because the co-operation of a Bombay business house,—the Union Agency—who were willing to provide a portion of the staff and expenses needed. This arrangement made by Mr. Keatinge has proved most happy, and I hope that it may lead the way to many other instances of co-operation in agricultural inquiry between the Agricultural department and business men. The three years' work has led (1) to the large adoption of fumigation as a method of dealing with the potato moth, the greatest enemy of stored potatoes which otherwise often leads to a loss of 40 per cent. of the tubers in a couple of months, (2) to the investigation of the ring disease of potato, and the development from hopelessly infected material, of a pedigree strain of potato seed free from disease. This has been vitally important since importation of fresh seed from Italy ceased in 1915, (3) to the investigation of the rots of storage, leading to the possibility of keeping potatoes with little rotting right through the hot weather, which has previously been very difficult, (4) to the discovery of the nature of *tambera* disease of potato, undoubtedly the worst enemy of the *khariif* crop, and of methods for completely checking it and (5) to the devising of manurial treatment which in a number of cultivators' hands has nearly doubled the yield which they have been able to obtain. The combined result of these discoveries will almost certainly, when the havoc wrought by the present famine in this industry is got over, lead to a very large extension of the potato acreage. No one has appreciated more than the potato cultivators themselves the great importance of the discoveries made.

21. *Fodder Crops and Fodder Grasses*.—Fodder crops have had special interest during the present year, on account of the famine, but most of the work has consisted in trying to grow as large crops as possible for the special occasion. In fact the yields of fodder which can be obtained are very much higher than is usually considered good. At Surat, for instance, no less than 49,000 lbs. of green *jowar* fodder per acre were obtained in two crops. The crops of maize grown at the Manjri farm must have been equally good.

So far as new fodder crops are concerned, I may refer to *marvel* grass (*Andropogon annulatus*) which promises to have a great future in Western India, to *para* grass (*Panicum muticum*) which promises to prove very suitable for water-logged situations, and to the elephant grass (*Pennisetum purpureum*) from South Africa which shows signs of being a very large yielder. *Shevri* (*Sesbania aegyptiaca*), a leguminous fodder plant commonly used in the Deccan, has now been proved at Manjri to be capable of giving very large yields when cut much lower than is usually the case. It will, I think, when used according to the new method, be a distinct increase to our fodder resources. I hope to publish a bulletin on this matter during the coming year.

I must not omit to mention that *berseem* is now thoroughly established as a fodder crop in Sind, and the average yield on the Sukkur farm has been 43,000 lbs. of green fodder per acre in the season. Sown in September, it yields six cuttings by the May following. It grows very well everywhere in Sind where it has been tried and where water is available, and the conditions for success are described in a bulletin on the subject (Bulletin No. 91 of 1919) issued during the year. This crop is under experiment in the Presidency proper, with some promise of future use.

The Economic Botanist and his assistants have been for a number of years studying the fodder grasses of the Deccan, and particularly of the shallower lands, with a view to getting grasses which can be spread widely over such lands to improve their grazing value. A mixture of grasses has now been obtained by means of which splendid crops of grass can be grown, and the spear grass eliminated from such areas. An account of this work will, if all is well, be published in the coming year.

While dealing with fodder crops, I may refer to the fodder growing and storage operations at Kopergaon. There we have a hundred acres of land exclusively devoted to the growing of fodder crops and a shredding and power baling plant for preparing the resulting *kadbi* for storage. The idea of the farm was to store *kadbi* against a famine year. Most of our store was taken, however, by the Military department for Mesopotamia in December 1917, so that it did not

serve as large a purpose this year as would otherwise have been the case. Nearly four lakhs of pounds of dry fodder were, however, prepared there, of which three and a half lakhs of pounds were distributed to cultivators, cattle camps, and others in the famine. It is hoped that it may be possible to increase this farm and establish others similarly equipped.

The extension of the use of silos is now seriously taken up in tracts which have an excess of green fodder at one part of the year and a scarcity of any kind of fodder at another time. We have already proved that splendid silage can be made in the Deccan and that, if well made, 65 per cent. of the original green weight can be taken out after four or five months, and we have now a pattern of a silo that will suit, I think, the conditions of our cultivators. Now, it is a matter for placing demonstration silos in many parts of the country, and the Sassoon David Trustees have come forward in the past year with a grant of Rs. 5,000 towards doing so. It will take many times this amount to demonstrate the use of silos over the country, but I hope that progress will be rapid in the near future.

22. *Fruit crops.*—The work of fruit crops is under the control of the Economic Botanist, and for the last few years fairly extensive work has been undertaken on methods of cultivation, propagation, manuring and dealing with diseases of mangoes, citrus fruits, guavas, *papayas*, figs and grapes. The very valuable work done does not lead itself to summary, but such results as have been pushed to a conclusion will shortly be published. Work with fruits must necessarily be slow, and it is only rarely that a whole industry can be converted from a dying to a flourishing condition in a few years. This has, however, happened in the case of grape-growing industry of Nasik and Ahmednagar as a result of the introduction of spraying against the grape vine mildew by the Agricultural department.

23. *Artificial manures.*—I have referred in the case of several crops to methods of manuring which have proved to be very profitable, but in addition to the experiments on the farms of the Agricultural department we have an organisation for experiments with artificial manures on various crops in the fields of the cultivators. By means of these we have been able to work out formulæ for manures which have proved, by repeated trials, profitable in the case of tobacco, potatoes, onions, chillies, bananas, cotton and sugarcane. During the last year a bulletin containing these results has been published and is now available. It is a considerable advance to be able to give formulæ for all these crops which under our conditions, can be relied upon to give good and paying results.

CHAPTER IV.

ANIMAL HUSBANDRY.

24. With the appointment of a special expert in animal-breeding the work of the Agricultural department enters on a new phase. But up to the present the work done has been considerable. The Chharodi herd of Kankrej cattle is one of the finest in India and under the Civil Veterinary Department it has continued to improve and bulls have been given out on the premium system. It is hoped that now opportunity will occur for more rapid improvement still. At Surat a very fine small herd of Kankrej cows bred essentially for milk exists, and forms perhaps the best milking herd of this breed in India. At Tegur in the Dharwar District, we have a very excellent example of the way in which the poor cattle of the *mallad* tract can be graded up by good feeding and a first class Mysore bull.

The immediate programme is to extend operations to the Mysore breed at Bankapur (Dharwar) where a farm and herd will be established in the current year. The Shirpur Agricultural Association in Khandesh has, with great zeal, established the foundation of a herd of the Tapti *khillari* breed in the Satpuras, and with this we must heartily co-operate. It is our ambition to hold herds of all the really valuable breeds in the Bombay Presidency.

The question of milk supply for cities has become more acute than ever during the last year, owing to the famine and the consequent death of many

animals, and to the very heavy prevalence of rinderpest and foot and mouth diseases. The famine and rinderpest ruined, for the time being, the scheme for milk collection, and transport to Poona from Talegaon, started as an experiment in city milk supply from distant villages—but it will be re-commenced about November and definite results will be available before the close of the current year.

25. As the control of animal-breeding and the distribution of premium bulls was in the hands of the Civil Veterinary Department all through the year under report, I leave it to that department to report on the work done in these directions.

CHAPTER V.

CROP ENEMIES, PESTS AND DISEASES.

26. The enemies with which the cultivators in India are faced are many. Some of them are not recognised as such, others are only too obvious. Of the latter class are the wild pigs which form a perennial source of trouble over almost the whole of western India. Other animals do an equal or even greater amount of damage in places, but pigs are an obvious enemy everywhere and especially with some of the most valuable crops. Sugarcane is often ruined. In many places groundnut planting is impossible. I have seen a magnificent crop of potatoes almost completely spoilt. The question of dealing with them is, therefore, a most urgent one. We have succeeded in doing so by means of pig proof fencing, and more extensive trials on a larger scale will, all being well, be undertaken in the present year to see how far the very large expense involved in this pays the cultivators. We have, moreover, during the last year, undertaken a pig killing campaign in the Nira Valley with the co-operation of the cultivators in order to see how far it would pay to keep organised parties of men with dogs and guns for the purpose. A special report will be made to Government on this subject, but it may be said that the cultivators helped in the scheme enthusiastically, and profess themselves willing to bear at least a portion of the cost if it is continued. The pigs destroyed cost Rs. 6 per animal, but when it is recognised that many of them were full-grown females the cost will not perhaps be considered excessive. In a similar effort in Kanara, conducted by the local people under the patronage of the Collector, we have lent a number of guns, and are awaiting the result.

A successful campaign for the capture of wild cattle damaging the crops in the wilder tracts of Nasik was undertaken. The operations continued for twenty-five days, the animals being driven into *khedas*. Two or three herds were broken up, but the *khedas* have been left standing and if there is any need the work will be re-commenced in the next hot weather.

27. Turning to insect pests, it cannot be said that the past year has been a bad one, but even in an ordinary year the damage done by them is enormous. If we only take the loss due to the rice borer, the sugarcane borer, the various fruit flies, and the grasshoppers, especially the rice grasshoppers, it probably reaches several crores of rupees per annum. Work is being carried on energetically in the study of some of these pests by the three assistants employed for the purpose, and considerable progress has been made. It has been shown that the damage by the sugarcane borer can be almost entirely eliminated by a proper choice in the time of planting, and a bulletin will be issued immediately on this matter. The very serious grasshopper pest in the rice at Belgaum is now, after several years' campaign in co-operation with the cultivators, fully in hand, and it only needs continual watchfulness to prevent its ever being a serious pest again. The potato moth, a very serious pest of potato storage, is now recognised by the people in the principal potato district as being a conquered enemy. The aphid of lucerne, perhaps the worst pest of that plant in Bombay, can be checked, and a leaflet on the subject has been issued in the last year.

Two or three pests are under special study at present, and though it is not possible to say that they can be met, yet progress is being made. The fruit flies of mango, oranges and other fruits are a formidable problem everywhere, but Mr. Kasargode is getting together a mass of data here which we hope will

lead to success. The rice borer of the Konkan is one of the most difficult of pests to meet, and one moreover which is extraordinarily destructive. I think it may be said that we are getting nearer a means of checking this pest. The jassid hopper of the mango is ruining the mango crop both in the Presidency proper and in Sind, and though it seems probable that it can be checked by spraying with fish oil resin soap, a good deal more work on the subject is needed.

28. Plant diseases caused by fungus parasites are many and very destructive. Two or three very great successes in dealing with these can be claimed for the Agricultural Department, and work in extending the use of these remedies has continued in the year under report. The use of spraying against the mildew of the grape vine has been already referred to, as having raised a dying cultivation to prosperity again. The annual campaigns against the Koleroga of the betelnut palm in the Ratnagiri and Kanara districts have been continued in the year under report, with great success. The use of this method is now established. The employment of seed treatment of jowar against smut is not yet general but is perfectly successful, and only wants energetic pushing in the various districts which it will get with a return of normal conditions after the famine.

Further study of various other grain smuts is proceeding, as well as of the storage rots and other diseases of potato. The study of the very curious 'Khas' disease of jowar in Sind will be taken in the present year.

CHAPTER VI.

AGRICULTURAL EDUCATION.

29. The Agricultural College at Poona continues to be increasingly popular. As indicated in the previous reports, the larger part of the college buildings were taken for hospital purposes by the Military authorities in 1916, but in spite of its being conducted in very cramped quarters the college continued to attract an increasing number of students. In the early part of 1919, the college buildings again became available, and there has been an immediate very large increase in the number of students. The actual attendance rose from 137 to 170 this year, and though a portion of this rise is due to the re-establishment of the short one year course at the college, which had been suspended during the war, yet it means that the position of the college is now established. This is also shown by the growing demand for the graduates who leave the college. An increasing number of these now, on passing out of the college, go and manage their own farms. And for the rest, they are in demand by private firms, by various public departments such as the irrigation and co-operative departments, by Native States for agricultural work, as well as by the agricultural department of our own Presidency. In spite of the fact that the number of students who passed out this year (31) is higher than in any year (except two) in the history of the college, there is a dearth of agricultural graduates which we find it hard to fill.

30. During the year special grants for the development of the agricultural college were made by the Government of India as follows:—

	Rs.
Purchase of additional land for extension	95,000
Building of an Insectary	10,000
Improving the equipment of the chemical and botanical departments	20,000
	1,25,000

The improvements provided for by these grants were much needed and are in course of being arranged. It must not be supposed however that this is the end of the expenditure on the college. The college must increase much in size and must extend its activities in new directions and proposals have now been made for arrangements to provide for 250 students, and to give more specialised courses in dairying, in horticulture, and in several other directions which are not possible at present.

31. During the year one new vernacular agricultural school was opened at Veshvi near Alibag by taking over the buildings and equipment of Sardar Bivalkar's school there. We have now therefore five such schools, four in the

Presidency and one in Sind. The buildings for the new school at Godhra in the Panch Mahals are now ready, and it will be opened very shortly. And in addition it has been made possible to open three further new schools, probably during the current year, by a special grant of Rs. 1,20,000 from the Government of India towards the initial expenditure. These will be situated at Niphad (Nasik), Bagalkot (Bijapur) and probably near Karad (Satara). There is constant repetition, wherever I go, of the demand for more schools of this type. I have been only recently approached by deputations from four or five more districts for such schools, and I sincerely hope that further developments will be possible very soon. The biggest trouble is to get good and suitable teachers and we have accordingly made provision for training teachers for this work at Loni, the original and largest school.

The increase in the number of these schools and the projected further increase has necessitated the appointment of an Inspector of Agricultural Schools during the year. To this position, Mr. K. M. Pawar, B. Ag., has been appointed, the first headmaster of this type of school in the Presidency. His duties at present combine those of inspector and organiser, and with the projected new schools on hand, he finds full scope for activity.

The school in Sind, at Mirpurkhas, has not been a great success, and the number of boys there tends to diminish. It is obvious that it does not quite fulfil the want of the people or necessities of the case. The Deputy Director of Agriculture in Sind has put forward a scheme for development on slightly different lines, and I hope to examine the whole question on the spot in the very near future.

CHAPTER VII.

AGRICULTURAL ENGINEERING.

32. I have already (see paras 8 and 9) in speaking of the famine activities of the department, referred to the work in pumping and boring done by the Agricultural Engineer and his staff. This work, which appeals as directly to the cultivators as any done by the department,—and more directly than most—is a normal activity directed into famine channels in the present year. It affords us one of the most effective methods of approach to the cultivators, and without it the means, in the department's hands, of influencing the cultivators would be much reduced.

33. The third section of the activities of the Engineer's Department is that of organising mechanical cultivation on behalf of the cultivators. One of our steam ploughs was, however, taken for use in Mesopotamia by the Munitions Board, during the year,—leaving us with only one set of tackle. The famine destroyed the opportunity for the normal use of this, that is to say, for clearing new land or for dealing with land hopelessly infested with deep rooting weeds. And rather to our disappointment there was little demand for its use for ordinary ploughing in the famine tracts, where many cattle had died, in preparation for the present monsoon. In the coming year this tackle, will, all being well, be fully employed on deep ploughing in the Dharwar District.

The possibilities of motor tractors in Western India needs testing, and if successful we must find out the best type. With this in view one tractor has been obtained and has already done some work in the Deccan, and three other types have been ordered. Full tests will be made during the coming cold weather, and it is hoped that we shall come to some definite conclusions early in 1920.

In general I may say that the department of the Agricultural Engineer must expand. Assistance in pumping for agricultural purposes is much appreciated. The demands for boring are increasing every year. Mechanical cultivation has possibilities of going ahead far beyond anything which can be seen at present. All this will need great energy and organising capacity, and is beyond the power of one agricultural engineer, however well qualified. It must be undertaken if progress is not to be seriously held back.

CHAPTER VIII.

PROPAGANDA.

34. All the work of the agricultural department finds its natural end in being able to get the discoveries of our experts and workers put into practice by the cultivators and farmers of our presidency. Hence the efficiency of our propaganda work measures the real utility of all the experimental energy expended. We have hence, a considerable staff engaged on this work, though it is not nearly as large as we can profitably employ. It is controlled by the five deputy directors, who have under them divisional superintendents, and agricultural overseers in most of the districts now. Through them we are able to reach *some* parts of the districts, but our staff is still spread very thin, and needs very much supplementing when suitable men are available.

35. I must refer to the Deputy Directors' accounts of their work appended to this report, for a detailed account of the work undertaken. It is done by means of depots all over the districts for the hire of implements, by demonstration farms and plots in many parts of the country particularly in the Central Division, by personal work by the overseers themselves especially in the distribution of seeds, manures, implements or material for the prevention of plant diseases and by shows and demonstrations, though these last were suspended in the past year owing to the prevalence of famine.

Agricultural associations have been organised in many parts of the country, and many of them have done excellent propaganda work. We are much indebted to the devotion of local men who take a great interest in agricultural development and also the local officials who help much in the matter. These associations have been specially successful in Khandesh, and in some parts of the Southern Division (Dharwar, Athni, Chikodi, etc.) Three of the most important of these carry on agricultural magazines in vernacular. The Deccan Agricultural Association continues to bring out the monthly 'Shetki and Shetkari' in Marathi. The Dharwar Agricultural Association publishes the 'Vakkaligaru Vakkalitanavu' in Kanarese, and the Broach Agricultural and Industrial Association issues quarterly the 'Gujarat Agricultural and Industrial Quarterly' in Gujarathi. A monthly Marathi magazine with special reference to Konkan conditions has recently been started at Alibag under the patronage of the department. As regards agricultural associations in general I am convinced that much more use can be made of them than is done at present, and that they can be much better organised. They usually represent real keenness and contain the best cultivators in the country. I hope to place the proposal in this matter shortly before Government.

36. The following publications have been issued by the Agricultural Department during the year under report:—

Bulletins.

No. 91 of 1919.—The cultivation of berseem in Sind; Experiments at Sukkur.

(In Press.)

No. 92 of 1919.—Classification and description of the Jowars of the Bombay Karnatak.

No. 93 of 1919.—Palm Gul manufacture in the Bombay Presidency (principally Date Palm).

Leaflets (with vernacular versions.)

No. 6 of 1918.—Increasing the production of irrigated wheat and jowar.

No. 7 of 1918.—Prickly pear as fodder.

No. 8 of 1918.—The Ring or Bangdi disease of potato.

No. 9 of 1918.—The cultivation of Cape Gooseberry or Tiparea.

No. 10 of 1918.—Maize as an emergency fodder crop.

No. 11 of 1918.—Fodder crops for the hot weather.

No. 1 of 1919.—Plantain stalks as fodder for cattle in famine years.

- No. 2 of 1919.—Prickly pear as fodder. (Supplementary to leaflet No. 7 of 1918; revised leaflet issued on the authority of the Director of Agriculture, Superintendent, C. V. D., the Collectors of Poona and Ahmednagar and Rev. A. Norton, Dhond).
- No. 3 of 1919.—Cultivation of cambodia cotton as a Mungari (kharif crop) in the light red lands of the Southern Maratha Country.
- No. 4 of 1919.—Lucerne Aphis.
- No. 5 of 1919.—Diarrhœa in cattle (issued under the authority of the Superintendent, C. V. D.).

Beyond these the members of the staff have contributed very much to the vernacular agricultural magazines, to the Agricultural Journal of India, and to other publications.

CHAPTER IX.

CONCLUSION.

37. The famine has been the dominating factor in the year's work of the agricultural department, and most of the staff have risen to what was undoubtedly a great strain, but also a great opportunity. The other work has been considerably blocked by the special needs of the last season, but is being taken up again with energy now that the new season promises abundant harvests. I wish, however, to place on record my appreciation of the arduous and successful work accomplished by many of the agricultural staff during the last year, when for the first time since the agricultural department was reorganised on a fairly large scale we had to meet a really extensive famine and all that this means.

I have the honour to be,

Sir,

Your most obedient servant,

HAROLD H. MANN,
Ag. Director of Agriculture.

APPENDIX A.

REPORT OF THE POONA AGRICULTURAL COLLEGE FOR THE
YEAR 1918-19.

1. This is the eleventh report of the Poona Agricultural College as a separate institution. Most of the College buildings continued to be used by the Military Authorities as a War Hospital throughout the College session. From April 1st the hospital was discontinued and the necessary alterations in the buildings begun. We were able to move in May and began our new session in the buildings. The temporary huts erected for additional hospital accommodation and the bungalow of the Professor of Agriculture are still in charge of the Military Authorities.

The difficulties of carrying on the College without the buildings has been dwelt on in previous reports and much credit is due to staff and students for the uncomplaining spirit in which they carried on their work in the face of these difficulties and inconveniences. All rejoice now that peace has come and things at the College are resuming their normal course.

By its steady growth, the College has now reached a size that taxes the accommodations of hostel, laboratories and equipment. With regard to the first, the rooms of the hostel are completely full and an overflow has been accommodated in one of the temporary huts kindly loaned by the Military authorities.

COURSES.

The second batch of graduates who have been able to take the advantage of optional courses was graduated in April.

The election of optional was as under :—

Name of optional.	B. Ag.	Diploma.
(A) Agricultural Economics, Land Development and Intensive farming.	14	4
(B) Stock breeding, feeding and management including dairying.	4	...
(C) Advanced applied Botany	1	1
(D) Advanced Agricultural Chemistry	6	...
(E) Advanced Agricultural Entomology	2	...

While the new syllabus for these courses leaves much to be desired still the system of offering optionals is working quite satisfactorily. Some caution is necessary to maintain all the optionals on the same grade otherwise there is danger that choice will be made in what is considered the easiest course.

In the Agricultural optional the principle of specialization was carried still further in intensive farming and the candidates were offered six types of Agriculture for the specialization as follows :—

- (I) Sugar-cane growing and *gud* preparation, including chemistry of sugar-cane ;
- (II) Rice cultivation ;
- (III) Cotton growing including classing and selection ;
- (IV) Wheat cultivation ;
- (V) Vegetable growing ;
- (VI) Spices and Narcotics.

The sugar-cane was the favourite of the year and eight men selected it. Cotton stood next with six candidates. Special tours and special reading courses were arranged for each group. It is felt that the men in their special lines are at least one year ahead of the former B. Ags. All lectures were common to the whole of optional A, but only by tours, field work and reading, were the special men given extra instruction, demonstrations and practice in cultivation of their chosen crop.

COLLEGE STAFF.

Several changes occurred in the staff of the College during the year. Dr. Mann was Principal till November 25th when he was called to act as Director of Agriculture. He was on deputation for advising Messrs. Tata Iron and Steel Works at Sakchi from September 20th to November 11th during which I held charge. Since November 26th I have been acting Principal in addition to my usual duties.

The Agricultural Chemist's charge during Dr. Mann's deputation was held by Mr. Tamhane, M.Sc., Senior Laboratory Assistant. But when Dr. Mann assumed the Director's duties, he retained charge of the Agricultural Chemist's office and completed the teaching of that session. On June 1st, 1919, Mr. D. L. Sahasrabudhe, L.Ag., B.Sc., was appointed to act as Agricultural Chemist.

Dr. W. Burns relinquished his commission in the India Army Reserved and joined the College on January 6th. He was granted six months' leave from January 15th. The arrangements made while he was on Military duty for carrying on his work were again adopted during his leave, viz., Mr. S. L. Ajrekar acting as Economic Botanist and Professor of Botany, Mr. G. S. Kulkarni acted Assistant Professor of Mycology.

The Assistant Professor of Physics and Mathematics, Mr. S. S. Godbole, was obliged to take leave from August 15th owing to ill-health and has not yet been able to rejoin. Mr. N. V. Kanitkar acted in this capacity during the remainder of the year.

Mr. G. B. Patwardhan was confirmed in his appointment as Assistant Professor of Botany on January 1st, 1919.

Mr. G. K. Ranade, Assistant Professor of Agriculture, was on privilege leave from June 1st to August 31st and Mr. K. M. Pawar acted.

Mr. B. M. Desai, Assistant Professor of Animal Husbandry, acted Deputy Director of Agriculture from October 26th to February 26th and Mr. B. P. Wagholkar was called from Jalgaon Farm to act for Mr. Desai. Upon the expiration of Mr. Desai's acting service as Deputy Director he was sent on special famine service to Gujarath and Mr. Wagholkar officiated as Manager of the Dairy.

We regret the death of Mr. F. Gracias who passed away on September 27th, from influenza. He was succeeded by Mr. E. B. Joshi as Lecturer in Veterinary and the services of Mr. S. N. Nadgir were secured from the Civil Veterinary Department as demonstrator in Veterinary Science.

Under the new arrangement of posts for the Agricultural and Animal Husbandry Branches, which established a lectureship and two demonstrators in each, the following appointments were made :—

Animal Husbandry.—Lecturer, Mr. H. G. Baluch; Senior Demonstrator, Mr. B. B. Jamaspjina; Junior Demonstrator, Mr. V. G. Desai.

Agriculture.—Lecturer, Mr. V. S. Kulkarni; Senior Demonstrator, Mr. H. M. Desai; Junior Demonstrator, Mr. A. A. Vasavada. Previous to this Mr. K. M. Pawar as Superintendent, Agricultural College Farm, had assisted in the lectures.

In the Chemical Branch vacancy as lecturer in chemistry caused by the appointment of Mr. N. V. Kanitkar doing duty as acting Professor of Physics and Mathematics was given to Mr. V. G. Patwardhan, B. Ag., B.Sc.

STUDENTS.

The number of students of the entering class is about the same as in two preceding ones. But the large Junior B.Ag. and Senior B.Ags. classes together and 23 Short-course students brings the total to the highest figure yet reached. Actual details for last seven years are given below :—

	1913.	1914.	1915.	1916.	1917.	1918.	1919 July.
First-year students ...	43	36	35	54	58	61	60
Second-year students ...	25	31	29	23	36	39	46
Third-year students ...	26	27	31	35	23	35	38
Short-course students ...	15	22	27	Not held	Not held	Not held	23
Special and post-graduate students.	1	1	2	3	7	2	3
Total ...	110	117	124	115	124	137	170

The figures show the progress of the college.

The students during the last five years come from the following places :—

	1915.	1916.	1917.	1918.	1919.
Bombay Presidency { Deccan	20	14	9	19	27
{ Southern Maratha					
{ Country and Konkan	45	44	50	42	49
{ Gujarat	35	29	36	36	43
{ Sind	7	9	9	7	7
Assam	1	1	1	1	3
Central India	3	3	1	3	3
Nizam's Dominions	3	4	6	6	8
South India and Ceylon... ..	7	6	5	13	16
Burma	1	2	5	6	7
United Provinces	2	3	2	2	1
Berar ... ..	...	...	...	1	...
Bengal ... ..	...	...	...	1	4
Central Provinces ... ..	...	...	...	...	5

The number of students from the Deccan which had declined has now recovered.
Arranged according to communities as follows :—

	1915.	1916.	1917.	1918.	1919.
Brahmins	55	49	55	61	68
Marathas	5	4	4	6	16
Lingayat	4	3	2	2	1
Patidars (Gujarat)	3	4	10	13	12
Jains ... ..	...	...	...	...	6
Other Hindus ... ..	...	...	...	...	33
Mahomedans	12	10	8	4	9
Parsis	15	15	12	7	5
Christians	1	1	...	...	7
Ceylon students ... ..	...	...	...	...	6
Burmese ... ..	...	...	...	...	7
Others	29	29	33	44	...

These students may be divided into three classes:—

(a) By far the larger number are qualified to study for, and intend to take the agricultural degree of the Bombay University. The qualification on which the Bombay University insists namely the Previous Examination or its equivalent, is insisted on in the case of practically all students from the Bombay Presidency itself and no student can, of course, appear for the University Agricultural degree without it.

(b) The second class consists of a few students who are not admissible to the University Examinations, but who are taking the regular course, along with the first class of students. These exceptions arose from the fact that it had been decided by Government to allow scholars to be received from Sind who have only passed the Matriculation Examination, provided that they were to receive the same course and pass by the same standard as the University demands. Under the ruling, students have been received every year since 1908. At the same time some applications were received from Government in India and Ceylon to be allowed to send students and from private persons outside the Presidency for admission to the college, where the applicants were not fully qualified for the University Course. Where there was evidence to show such students could properly follow the course a small number have been admitted.

	Admitted in 1915	Admitted in 1916.	Admitted in 1917.	Admitted in 1918.	Admitted in 1919.
Nizam's Dominions ... ..	...	1	2	1	...
Sind	1	1	...	...	...
Bombay Presidency and Native States subordinate to it	2	5	...	3	...
Ceylon ... ..	...	1	1	2	1
United Provinces ... ..	...	2	...	...	...
Central Provinces ... ..	...	...	...	...	1
Coorg ... ..	...	1	...	...	...
Madras Presidency ... ..	...	1	...	2	...
Burma ... ..	...	...	...	...	2

(c) In the third place we have the Short-course students already referred to, which was reopened in June 1919.

In addition to these three classes we are occasionally requested to undertake the training of men for special purposes. We admitted in 1916 a young man in training for botanical work under the department of Agriculture, Burma. We also have men doing post-graduate or special work in botany, chemistry and dairying.

UNIVERSITY AND OTHER EXAMINATIONS.

At the University Agricultural Examinations held in 1919 the number of candidates shown in the following list were presented with results as indicated.

	Sent up	Passed.	Failed.	Percentage of passes.
First Examination in Agriculture ...	50	38	12	76
Bachelor of Agriculture Examination ...	30	27	3	90

A special college examination of the students (referred to above) not entitled to take the University Examination, was held in April 1919 with the following results:—

	Presented.	Passed	Failed.
First Examination in Agriculture ...	4	3	1
Final Examination for Diploma in Agriculture ..	5	4	1

The number of students who passed through the regular course at the College and succeeded in obtaining the University Degree or the College Diploma (which is of similar standard and represents the same character of man) is as follows during the past eleven years:—

Years.	Degree.		College Diploma.		Total.		
	Entered.	Passed.	Entered.	Passed.	Entered.	Passed.	Percentage.
1909 ...	34	26	...	...	34	26	76.4
1910 ...	39	36	...	...	39	36	92.3
1911 ...	22	20	5	5	27	25	92.2
1912 ...	27	22	1	1	28	23	82.1
1913 ...	19	14	4	3	23	17	73.9
1914 ...	23	18	3	3	26	21	80.7
1915 ...	21	20	6	5	27	25	92.5
1916 ...	29	23	2	2	31	25	80.6
1917 ...	30	30	5	5	35	35	100.0
1918 ...	20	18	1	1	21	19	90.4
1919 ...	30	27	5	4	35	31	88.5

SCHOLARSHIPS.

The number of scholarships offered by Government at this College is now fifteen per annum. Candidates, who have passed the Previous Examination of the Bombay University or obtained the certificate from the Principal of an Arts College, which the Bombay University now accepts instead of that examination are selected by the Director of Agriculture in consultation with the Principal of the College. These scholarships are given by preference to the sons of cultivators and are awarded for three years. The Director of Agriculture is empowered to give an additional year's scholarship to a limited number of Matriculates available in an Arts College while studying for the First Arts certificate.

During the last six years scholarships have been awarded to candidates from the various districts as follows:—

	1914.	1915.	1916.	1917.	1918.	1919.
Deccan	2	...	3	3	3	5
Southern Maratha Country ...	4	5	5	7	2	4
Gujarat	4	2	2	3	6	5
Konkan	5	6	3	2	1	2

The students from Sind have been on a different basis. They have been appointed by the Commissioner in Sind and were not required to have passed the Previous Examination in every case. We have now at the College two such scholars from Sind in the Third year. In the spring of 1918 it was decided in future to send Sind scholars to the Lyallpur Agricultural College instead of to Poona.

Other Governments and the public bodies have utilized the college for the training of scholars. The number so admitted since 1912 has been as follows:—

	1914.	1915.	1916.	1917.	1918.	1919.
Baroda Government ... ..	...	1	...	1	...	...
Aundh State ... ..	...	1	...	...	...	...
Rajpipla State ... ..	...	...	...	...	1	1
Junagadh State ... ..	...	...	3	3	...	...
Dewas State	1	...	...	...	...	...
Indore State	1	...	1	...	...	...
Mysore State	1	...	...	...	...	...
Porbandar ... ..	...	...	...	...	...	1
Burma ... ..	...	...	1	4	1	...
Cochin ... ..	...	...	...	...	1	1
Ajmere Merwar ... ..	...	...	...	...	...	1

LIBRARY.

The growth of the college library is very satisfactory. Eleven years ago it did not exist. On the separation from the College of Science being completed, a number of books (chiefly old and out-of-date) on Agriculture, Botany, and Veterinary Science were handed over to us and formed a nucleus for the future. A special grant of Rs. 6,000 per annum was made in 1909 for library purposes, and was continued during the following years. Since that time the annual grant has been Rs. 2,500. With the funds thus made available and a number of presentations of books, the library has rapidly increased. The number of books in it at the end of last ten years has been as follows:—

1908-09	1,182	1914-15	7,638
1909-10	2,780	1915-16	8,390
1910-11	4,000	1916-17	9,143
1911-12	5,040	1917-18	9,853
1912-13	5,943	1918-19	10,191
1913-14	6,840		

It is freely consulted not only by college students but by gentlemen from all parts of the Presidency, and every effort is made to make it increasingly useful to the public. It is now known and valued in every part of the Bombay Presidency at least.

COLLEGE DAIRY.

During the year the Government Civil Dairy at Kirkee has been under the control of the college and the Manager of the Dairy is Assistant Professor of Dairying. This has been used for several years as a teaching centre, in future it will be available in greater measure than hitherto, as this is now recognised as one of its primary functions.

VETERINARY DISPENSARY.

The District Veterinary Dispensary at Bhamburda has as usual been carried on as a College Dispensary for the year. Charge of the Dispensary was in the hands of Mr. F. Gracias, G.B.V.C., till his death and afterwards by Mr. B. B. Joshi, G.B.V.C., assisted by Mr. S. N. Nadgir, G.B.V.C., as Resident Veterinary Officer.

The total number of patients treated during the year under report was 2,051 as against 2,019 reported last year. Of the total, 416 were in-patients, and the remainder 1,635 were treated as out-patients as against 328 and 1,711 respectively, of the previous year's report.

The daily average attendance of both in and out-patients was 14.99 and 23.00 respectively, as against 14.68 and 21.20 respectively, of the preceding year.

Free patients numbered 1,043 this year as against 1,092 of the previous year and private patients came up to 1,008 and their treatment was paid for as against 917 of the preceding year.

Agricultural and non-agricultural animals treatment during the year totalled 1,106 and 945 respectively, as against 1,208 and 831 respectively, of the last year.

Twenty-two cases of rabies were brought to the Hospital suspected for the disease during the year as against twenty reported last year. Out of the number twelve were positive and the remainder ten were negative.

Twelve castrations were performed during the year as against ten last year. Of the number two were ponies, eight bulls, one ram and one dog.

Forty-four outbreaks of epidemic diseases were attended in the Haveli and Mulshi Petha during the year under report as against 82 outbreaks attended last year. There were 25 rinderpest, 14 foot and mouth disease.

Haemorrhagic Septicaemia and one of Pneumopericarditis in fowls and one of contagious Pustular Dermatitis in goats. Reference to John's disease being discovered amongst the College dairy buffaloes has been made in the report of the last year. Since then some suspected cases have been observed amongst cows and two of which were confirmed during June 1919.

The Veterinary Assistant gave valuable help in selecting and caring for the bullocks of the College cattle camps.

COST OF WORKING THE COLLEGE.

The working cost of the College appears in the following statement. It should be noted that as nearly the whole staff have other duties than teaching, it becomes impossible to give the exact cost in this respect, hence estimates have been listed.

Statement showing items of the cost of the Agricultural College for 1918-19, including Veterinary Dispensary.

	Rs.	a.	p.
1. Teaching staff (estimate for time devoted to teaching and preparation only)	36,981	8	0
2. Establishment	2,414	15	2
3. Apparatus	2,693	12	0
4. Scholarships	9,075	0	0
5. Net cost of College farms and dairy	38,210	6	3
6. Travelling for educational purposes of staff establishment and students	3,928	1	1
7. Miscellaneous	2,988	4	7
Total expenditure	96,291	15	1
Credit recoveries—			
	Rs.	a.	p.
College fees	425	0	0
Hostel rent	2,190	0	0
Veterinary fees	200	0	0
	6,615	0	0
Net cost	89,676	15	1

as the number of students for the year was 137, the average cost per student is approximately Rs. 654 per year.

J. B. KNIGHT,
Acting Principal,
Poona Agricultural College.

APPENDIX B.

REPORT OF THE MARATHI AGRICULTURAL SCHOOL,
LONIKALBHOR, POONA DISTRICT, FOR 1918-19.

Origin and objects.—It will be remembered that this school was started in 1910 in Poona as a result of a keen demand for a good practical Agricultural training in vernacular to farmers' sons who could not afford to get sufficient English education beforehand to go to Agricultural colleges where excellent arrangements were obtainable for higher Agricultural training. The school was started as a free Agricultural boarding institution where practical farm work along with other training could be given with the final object that boys passing out should go back and improve their own estates at home.

The course is one of two years and students who generally possess certain extent of land and have at least passed the fourth Marathi standard are admitted provided they are between 14 to 17 years of age.

Location.—When it started it was located near the Agricultural College, Poona, till permanent lands and buildings were ready for it. It was removed in November 1913 to its present permanent location in the jurisdiction of the village of Lonikalbhor about ten miles from Poona. This tract abounds in a variety of garden cultivation typical of this side such as a number of profitable vegetables both indigenous and foreign and vast areas of sugarcane, and this is a great advantage as it affords a nice field for demonstration. The other advantage is that the school gets a rural atmosphere which is an essential feature such a school should not miss.

There are specially constructed buildings for the school. The main building is like a substantial Deccan cultivator's *Wada* with a spacious quadrangle in the middle, the students and staff residing in close neighbourhood. This fact facilitates close personal supervision over the boys. The number of buildings is slowly increasing in accordance with new branches of work which have been also taken up. During the year under report a good pucca silo measuring about 11 feet in height and 10 feet in diameter has been constructed at a cost of Rs. 450. This has cost a little more than it ought to in usual years due to the fact that the cost of labour and building material has run very high. The result of silaging has been very promising indeed. A total quantity of 17,768 lbs. of green maize was put in and a net silage of excellent colour weighing about 13,743 lbs. was received back. This works out at about 76.5 per cent. A practically new pucca Dutch Barn of moderate means has also been constructed. The existing buffalo shed has been substantially repaired and a decent pucca fodder trough has been added.

The sanitation of the estate has also been vastly improved by the construction of a long system of pucca concrete drains round the main buildings. This will reduce to a large extent the stagnation and soaking of rain water round the buildings and consequently help a good deal to keep up the healthy nature of the estate. Other improvements to some buildings have also been sanctioned and it is hoped will be taken up soon.

The Farm.—The farm land was originally a resigned piece of land overgrown with Bahul trees and shrubs and then gone into the class of forest land. This was specially taken up with a view to demonstrate what could be done with perseverance and skill in land management to improve and reclaim to advantage an area of apparently no agricultural value. The land on the whole has now very considerably improved and is now growing fairly good crops. The addition of humus specially in the form of crops of Sann Hemp (*Crotalaria gentia*) plowed under the soil and also farm yard manure coupled with timely and thorough soil tillage have been the only methods so far adopted. During the year about eight acres of land have been levelled and laid into terraces. A further area of about 3 acres will be taken in the next year and treated the same way. Almost the whole land is now under terraces except a few acres which will, as said above, be taken up soon.

The whole area is irrigable by the Mutha Left Bank canal and a small portion by a n Oil engine and pump set up at the school for teaching boys.

Owing to indifferent rains in 1917-18 and failure of rain in 1918-19 the whole farm area had to be irrigated by the canal water or we would have had no crops at all. This has meant very considerable strain on the students and staff and also the soil.

Boys.—The boys at present number 45 and are derived from the various Districts as under :—

District	First year.	Second year.
Poona	1	2
Ahmednagar	2	2
East Khandesh	15	1
West Khandesh	1	1
Sholapur	1	0

District.	First year.	Second year.
Nasik ...	1	2
Bijapur ...	0	1
Thana ...	0	1
Kolhapur State ...	2	0
Sangli State ...	0	1
Ramdung State ...	1	0
Nizam's State ...	0	1
Berars ...	2	3
Central Provinces ...	1	1
Total ...	29	16
Total of both years ...	45	
Arranged according to castes the boys stand as follows :—		
Brahmins ...	...	21
Non-Brahmins ...	...	24
(including Marathas 18, Kunbis 2, Teli 1, Gosavi 1, Gurav 1, and Mali 1.)		
		45

The number of applications for admissions has been increasing year by year. The above is the result of a selection out of the various applications. Enquiries for admissions keep coming on even till the end of July but have to be informed to apply next year. The points observed in selection of boys mainly are that they should belong to substantial but actually cultivating or land-holding classes, provided of course that he possesses the other necessary qualifications of age and previous education, etc.

Help from outside.—The school was supported by a number of District Local Boards and during the past seven years the following subsidies have been received :—

	1912-13.	1913-14.	1914-15.	1915-16.	1916-17.	1917-18.	1918-19.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
West Khandesh ...	...	...	...	54	...	54	...
East Khandesh ...	72	...	72	216	432	432	432
Poona ...	720	...	...	792	144	144	144
Nasik ...	216	288	...	788	500	500	500
Ratnagiri ...	216	...	...	144	216	72	...
Satara ...	432	504	288	72	72	216	144
Sholapur ...	420	504	288	72	...	216	216
Ahmednagar ...	...	840	72	144	288	360	360
Thana ...	72	144	72	...	72	...	...
Bijapur ...	72	...	...	...	...	...	...
Kolaba ...	72	...	...	...	...	...	...
Belgaum ...	...	72	144	72	72	72	...
Total ...	2,292	2,352	936	2,354	1,796	2,066	1,796

The course of instruction.—The curriculum has remained as before. It involves as explained last year at least half the working time of each boy being spent in farm work, in gardening or other practical work. The boys do all the work on the whole estate.

The first year boy learns the manipulation of all the farm implements and tools both indigenous as well as introduced and kept at the school and also acquaints himself with all other farm operations so that by the next year he should be able to do all necessary work on his allotted areas. The second year boys have a plot of about 10 gunthas of land allotted to each on which they grow a variety of dry and irrigated crops. Except on occasions which require help or when certain important operations such as transplanting, etc., are to be demonstrated and got done by all, each boy works on his plot quite alone. He is made to feel that he is solely responsible for his crop. Each boy also keeps a diary of daily work and a plot sheet wherein he jots down the work done and the charges incurred. This helps him at the end of the crop to find out his profit or loss.

The subjects taken up are :—

(1) The principles of agriculture ; (2) Nature study mainly taught practically including elementary Botany and Entomology in relation to crop growing ; (3) Agricultural Arithmetic, mensuration and elements of surveying ; (4) Reading and writing vernacular ; (5) Physical geography including elementary climatology ; (6) Village Life including Sanitation, Secondary occupations and (7) Citizenship which includes questions as to the rights of farmers, local and village Government in this part of India, obtaining money by *takavi*, Co-operative credit.

Usually Saturday mornings are utilized for taking trips to neighbouring farms and villages round about having typical fruit and vegetable gardens, etc. In the Christmas holidays each year the second year students take a more extensive tour through some part of the Bombay Presidency. During the year under report they had a very interesting and very instructive tour to Jambhul, Bassein, Bombay, Amalsad, Surat, Jalgaon, Nasik, Kherwadi, Kopergaon, and Rahuri where they studied the various kinds of vegetable, fruit, and the dry crops of those tracts. Such a tour has been found to be very essential towards giving the boys a broader outlook and instilling a spirit of love for new things and ambition to do better.

There is a small poultry yard started in 1917 and continued. It contains at present only country birds. In a few days time we will have a pen of white Leghorns which will be kept pure. A special run and house, etc., are almost ready to receive them.

The course of studies and work is a hard and practical one and unless a boy is ready to do every kind of work with his own hands and engage himself in what is usually supposed menial occupation he does not want to stop. So there is sometimes a leakage at first. Nevertheless it is essential to maintain this tone if at all the school is to serve the purposes for which it is intended. The number of applications has, like last year, been much greater than we could admit.

Health of the Estate.—Leaving aside small ailments at the start on account of change in climate, etc., there has been no other trouble of sickness except the world-wide epidemic of Influenza. Nearly all boys, servants and others had an attack. But thanks to the almighty one and all recovered. Mention must be made of the special trouble the College Doctor took at this time. The epidemic days were a great trial to the members of the school staff indeed.

Examinations and results.—At the end of the school year in April 1919 the boys underwent a thorough examination from Messrs. B. P. Wagholkar of the Agricultural College Dairy and V. G. Patwardhan of the Agricultural College. As a result 23 certificates were granted to boys who had completed their two years training and passed the final year's examination. The examiners' remarks were as follows:—

"On the whole it seemed that the teachers had taken pains to explain the subjects but the calibre of the majority of students to grasp their principles (especially with regard to nature study) was found to be rather low though some of the grown up students were intelligent enough to understand them.

The students were specially quite well up in the practice of Agriculture. They showed to have gained the benefit from the Agricultural Tours with respect to the comparative study of crops. They knew the use of the usual Foreign implements thoroughly but owing to the lack of some indigenous implements such as the Deccan plow, hoes etc., comparative study was slightly defective.

B. P. WAGHOLKAR.

V. G. PATWARDHAN."

Nearly a hundred and twenty students have by now passed out from the school. Many of them are farming on their own lands, some are engaged in the Agricultural Department, some in Agricultural Associations. An effort is made to keep in touch with as many as possible. A reunion of old boys was held this year. A special meeting wherein were considered several difficulties the boys meet with in their vocations and suitable solutions given, was held under the chairmanship of Mr. Pawar, the late Head Master of this school. It is proposed to make this a special annual event whereby we shall be able to keep in close touch with the work of all the past students. On the day of declarations of results the school held its Annual Social gathering. Various competitions were on and a number of prizes were distributed. Professor V. B. Naik, M. A., of the Fergusson College and Superintendent of the New English School of Poona, addressed the boys and exhorted them to try and do their farming intelligently and carefully and thus increase the resources of their country.

The Staff.—The School Staff have worked with commendable zeal and efficiency throughout the year.

HAROLD H. MANN,
Acting Director of Agriculture.

THE BALANCE SHEET.

<i>Receipts.</i>		THE BALANCE SHEET.		<i>Expenditure.</i>	
Received from	Amount.	Spent for	Amount		
Poona Treasury ...	13,752 2 10	Boarding expenses ...	5,081 13 5		
Principal's Office ...	500 0 0	Conservancy ...	177 0 0		
Sale-proceeds, and Mis. recoveries ...	1,164 10 1	Cultivation ...	759 13 0		
Plow hire ...	148 7 0	Draining and Levelling ...	200 0 0		
Local Board Grants ...	1,796 0 0	Food grain and Fodder ...	670 0 0		
		Fruit and vegetable Garden ...	100 0 0		
		Miscellaneous Expenditure..	550 0 0		
		Oil Engine and pump ...	300 0 0		
		Petty construction ...	1,490 0 0		
		Purchase of books ...	20 0 0		
		" Furniture ...	15 0 0		
		" Implements ...	99 15 10		
		Livestock purchase ...	451 0 0		
		Manure purchase ...	493 3 9		
		Poultry farming ...	150 0 0		
		Student's tour... ..	153 4 0		
		Workshop ...	470 15 0		
		Water supply ...	131 3 0		
		Pay of the school Establish-ment ...	2,522 9 4		
		T. A. of " ...	365 11 4		
		Postage ...	44 1 0		
		Remittances to the Poona Treasury ...	2,609 1 1		
Total ...	17,361 3 1	Total ...	16,861 3 11		

HAROLD H. MANN,
Acting Director of Agriculture,
Bombay Presidency,
Poona.

APPENDIX C.

WORK DONE UNDER THE DEPUTY DIRECTOR OF AGRICULTURE,
GUJARAT DIVISION, IN 1918-19.

This Division consists of the five districts of Gujarat, *viz.*, Surat, Broach, Panch Mahals, Kaira and Ahmedabad.

As the charge of ten districts with one officer was considered to be very heavy representations were made to Government from time to time for splitting it up into two charges and giving them in charge of two separate Deputy Directors by creating one more post of a Deputy Director; but owing to some reason or the other it was not found possible to do so in past years. In the beginning of November 1918 Mr. P. C. Patil, Deputy Director of Agriculture, N. D., went on three months' privilege leave, and I was appointed to act in his place. During these three months along with the other ordinary work, the work in connection with the famine was so much developed in Deccan and Gujarat, that on Mr. Patil's return from leave it was considered desirable to have a separate officer to look after the work in the five Gujarat Districts, and on my being relieved from the acting post, temporary arrangements were made by the Director of Agriculture to place me in independent charge of these five Districts with the designation of "Special Agricultural Famine Officer, Gujarat", till Government notified my appointment as Deputy Director of Agriculture for this Division in the middle of August 1919. Thus I hold an independent charge of this Division from the month of November 1918.

The following Agricultural Stations with the subordinate staff at present exist in this Division :—

No.	Name of the Farm.	Area.	Staff on the Farm.
		A. G.	
1	Surat	292 15 (156 0 arable)	1 Superintendent (Graduate). 2 Graduate Fieldmen. 4 Non-graduate Fieldmen.
2	Nadiad	44 0 (37 0 arable)	1 Overseer (Non-graduate). 1 Non-graduate fieldman.
3	Dohad	57 22	1 Superintendent (Graduate). 1 Graduate Fieldman 1 Non-graduate Fieldman.
4	Broach	24 19	Managed by the District Agricultural Overseer, Broach, under supervision of the Divisional Superintendent of Agriculture, N. D.
5	Sunev Plot	4 0	Do. do.
6	Amalsad Sugarcane Farm	19 12 (11 25 arable)	1 Overseer (Non-graduate). Under supervision of the D. S. N. D.
7	Nadiad Agricultural Association Plot	2 0	1 Overseer (Non-graduate). Under supervi- sion of the D. S. N. D.

In addition to the work on the above farms and the districts, a special man for cotton breeding, etc., is maintained. The Entomological Assistant's post has been allotted to this Division.

The following statement shows the total strength of the superior staff working under the Deputy Director of Agriculture in this Division :—

No.	Name of the post.	Gazetted or Non-gazetted.	Remarks.
1	Divisional Superintendent of Agriculture, N. D.	... Gazetted.	
3	Superintendents of Farms	... Non-gazetted.	
1	Cotton Fieldman	... Do.	
1	Entomological Assistant	... Do.	
6	District Agricultural Overseers and Graduate Fieldmen.	... Do.	
9	Non-graduate Fieldmen on Farms and in Districts	... Do.	
3	Graduates under training	... Do.	
	Temporary.		
1	Cotton Superintendent	... Gazetted.	
4	Graduate Assistants	... Non-gazetted.	

In addition to the above, there are 4 permanent Kamgars and several Depot-keepers and ploughmen engaged for demonstrational purposes, etc.

The work summarized below is divided into five parts :—

I.—Work on Agricultural stations.

II.—Special work in cotton breeding and the work of the Entomological Assistant.

III.—Work of the temporary establishment in cotton.

IV.—Work in the District.

V.—Special work in the Famine.

I.—Work on Agricultural Stations.

(1) SURAT AGRICULTURAL STATION.

Seed Selection and Plant Breeding.

Cotton.—Out of the two selected strains of cotton, *viz.*, Selection I-A and Selection II reported in the last year's report, Selection II was rejected and only Selection I-A is kept up as it proved to be superior to Selection II and the Deshi Broach in point of yield, high ginning percentage and staple. Almost the whole area of 64 acres and 12 gunthas under cotton on the Farm was sown with this variety which produced on an average 405½ lbs. of seed cotton per acre even though the season was unfavourable. All the seed secured from this area was distributed in a compact area of the villages round about the Farm, and the resulting seed 80,355½ lbs. from this group of villages was secured and distributed in five groups of villages. The total area sown with the seed comes to 6,008 acres during the current season.

For the purposes of demonstration, this variety was tested side by side with the bazar seed and the yield from this was 20 per cent. higher than that of the bazar seed.

Jowar.—In this case the Farm selected seed in a year of scanty rainfall showed its superiority to a greater extent over the bazar seed. In the case of Perio jowar, the average yield gave an increase of 45 per cent. in grain and 59 per cent. in net profit; while in the case of Chapti the increase in grain was only 6 per cent. although the increase in net profit was 25 per cent. The demand for Farm jowar seed is increasing every year as will be seen from the fact that this year 5,468½ lbs. of jowar seed of all varieties was distributed as against 2,085½ lbs. distributed last year.

Manurial.—The same manurial experiments as those of last year were continued during the year under report, and though the season was not favourable, they go to prove the same results, *viz.*, that the periodical application of poudrette and night-soil increases the yield of jowar and cotton to a great extent. Similarly, top-dressing jowar with commercial fertilizers increased its yield by 26 per cent., but owing to the high prices of these fertilizers the cost of application becomes prohibitive.

Fodder Experiments.—In the Athwa area, we are growing fodder jowars since some 4 years past on about 6 acres. A piece of land measuring 3 acres is being sown with these jowars since last 4 years and the crop of Perio jowar on this yielded during the year 49,027 lbs. green weight per acre in two cuttings,—a fact showing what could be achieved even in a year of drought with better methods of tillage and manuring.

In the year under report ensilage was made as usual in 2 pucca masonry silos. Jowar was the material used for this purpose in both the silos, and the percentage of useful silage to the green weight was 63·7 and 50·7 in the two cases. The less amount of good stuff was obtained in the latter case because of the silo pit being very old and cracky which allowed an access of moisture and air in the pit. The cost of ensilage was Rs. 11-5-3 and Rs. 15-2-3 per 1,000 lbs. in the two different cases respectively. The higher cost as compared with that of the last year is due to higher wages, irrigation and heavier manuring during the year. The ensilage is being fed to dairy and work cattle during the hot months with good results.

The Kankrej's Breeding Herd.—A herd of Kankreji animals is maintained chiefly for the purpose of breeding good animals. The strength of the herd on 1st April 1919 was 102 as against 112 on the same date of 1918 and the total milk yield from 38 cows was 84,277½ lbs. as against 73,245 lbs. from 33 cows of the last year. Out of these, 6 cows were reported to be poor yielders; 5 of which were subsequently sold off and one was simply retained in the herd with a view to watch the performance of her progeny by a particular sire. One heifer calved during the latter part of the year and has not done well. Excluding these seven, the total milk yield of 31 cows amounted to 80,287½ lbs. giving an average of 2,589 lbs. 14 ozs. per cow per annum as against 2,674 lbs. 9 ozs. of the last year. The slight fall in yield is in fact due to several factors peculiar to the year under report, which are summarized below:—

- (1) Deficiency of green forage for the cattle.
- (2) The cattle had to be kept mostly on Jowar Kadbi on account of the general scarcity of hay.
- (3) Feeding of chaffed stubbles for some time.
- (4) A cow had to suckle twins and hence her milk yield was much less than normal.
- (5) The influenza epidemic which necessitated frequent changes in milking hands; etc.

It will be interesting to note here that an old cow in her 9th lactation tops the list of high yielding animals, with 4,255½ lbs. Cow Bhuli in her first calving seems to be a good yielder, and curiously enough shows the highest yield of 491½ lbs. in the 10th month after her calving.

During the year under report there were 10 births and 5 deaths as against 19 births and 5 deaths during the past year. 36 animals in all were sold during the year for a total sum of Rs. 4,916-4-0. Out of these 15 bulls sold to the Java Government fetched Rs. 4,000 which gives an average of Rs. 266 per head. Of these 4 were below 18 months of age. The rest comprising 3 stud bulls were given to cultivators on moderate terms, and 18 very old and undesirable animals were sold off for Rs. 535. The demand for the Farm bred animals has so much increased of late that it is not possible to meet it wholly.

(2) DOHAD FARM.

Though some of the Farm crops have yielded fairly well, it is not advisable to take any account in this summary, as it was a very bad famine year in the tract and as the Farm crops were irrigated from the Muvalia Tank during the rainy season,—a facility which was not available to other cultivators of the tract.

However, the selection work in wheat was continued on a plot, specially hired on the right bank canal, as the left bank canal which fed the Farm failed to give any irrigation water from October, in order that the strains and the acclimatised seeds of past years may be preserved.

During the year under report the Farm has taken up a very important line of work, *viz.*, that of imparting agricultural knowledge both practical and theoretical to the boys of the Government Primary Vernacular Bhul School with the approval of the Educational Department. A curriculum of short course was drawn up for the boys of the VI and VII standards of this school which is just in the neighbourhood of the Farm. One lecture in theoretical and two in practical agriculture are given per week to the boys of each of the above two standards.

These classes were commenced only from 24th January 1919. The number of boys attending the short course is 7 from standard VI and 14 from standard VII. The experiment is a new one and its progress will be watched carefully.

(3) TEMPORARY PLOTS.

There are three plots in all, *viz.*, (1) Amalsad Plot, (2) Broach Farm and (3) Nadiad Agricultural Association Plot. On the first two of these, special experiments are carried on.

(1) *Amalsad Plot*.—This is situated in the best garden tract of the Surat District, where many of the valuable garden crops are grown. As laid down in the last year's report, the main object of this Farm is to check red rot by any means in the local Malbari cane (which is an early ripening and good yielding soft cane and for which the cultivators have a fancy) by investigating its causes; but if the efforts are not crowned with success, then to try to introduce superior varieties of sugarcane which are more or less red-rot resistant.

Out of the nine varieties tried, *viz.*, (1) Malbari, (2) Pundya, (3) Stripped Mauritius, (4) Bangdya, (5) Bassein Red, (6) J. 247, (7) Manjav, (8) Red Mauritius, and (9) Kha'ya, Stripped Mauritius and Manjav seem to be promising ones. Of these nine varieties, Bassein Red, J. 247, Manjav and Red Mauritius were not at all affected with red rot; while Stripped Mauritius had only 15 per cent. as against 65 per cent. in Pundya which tops the list, giving the highest yield of *Gul*; while Malbari had none at all in the different plots, as it ripened earlier than all the rest before the disease made its appearance.

The results are not worth mentioning, as the season was very unfavourable with only one-third of the rainfall of the tract.

(2) *Broach Farm*.—As stated in the last year's report the analytical work in Goghari and Broach Deshi cotton was continued, and even though the season was very unfavourable with only one-third the rainfall of its normal average, the Farm was fortunate enough in preserving the fixed superior strains isolated last year and of further selecting unit plants from Lalio, Wagad and Goghari, as the famine conditions further north were even worse than those of Broach. 13 Strains of Lalio, 35 of Wagad and 8 of Goghari were isolated for further trial.

II.—Work done by Special Assistants.

Cotton Branch.—On the Surat Agricultural Station the selected strains were compared with Surti-Deshi and the work of unit selection was continued to see if possible a further improvement. The mass selected sample of Selection I-A has maintained very high ginning percentage as compared with that of the Deshi. If the higher yield of seed-cotton, the higher ginning percentage and the higher valuations of lint are taken into account in Selection I-A, it would yield extra profits of Rs. 45-6-4 (roughly 29 per cent.) over the Surti-Deshi.

The season was exceptionally early for cotton and the ginning percentage was high.

Out of the unit selected strains, 4 of Selection I-A, 5 of Selection II, 10 of 1027 A. L. F. and one of 1018 P.G. have been retained. Out of these strains the seeds of the important strains are being tried this year on a large scale.

It will be interesting to observe that a strain from 1027 A. L. F. with a staple superior to that of Navsari and almost equal to that of middling American, combined with high ginning percentage, has been evolved in the last three years. It will be further tested for comparing the yield on a field scale. This seems to be a promising strain for the Navsari tract.

Selection of unit plants of Laho, Waged and Goghari was continued at Broach, as there was famine in the Ahmedabad District. 13 Strains of Laho, 35 of Waged and 8 of Goghari have been isolated for further trials.

Examination of the composition of cottons obtained in the several Gujarat Districts was made as usual from 55 samples collected at different ginning factories. The results of analyses indicate the following observations:—

Ahmedabad District.—24 Samples were examined. In Laho cotton the highest mixture of Goghari was nearly 72 per cent. Excepting the samples from Viramgam, a considerable mixture of Goghari was found in the samples passed as Waged. One sample of Mathio from Ranpur showed as high as 80 per cent. of white flowered variety.

Kaira District.—7 Samples were examined: Pure Neglectum from Malva side appears to have been brought for mixing. A sample of Kanvi showed 4 per cent. mixture of Neglectum. The local Kanvi is showing an increased percentage of Goghari.

Broach District.—13 Samples were analysed. The lowest percentage of Goghari observed was 65.38. This certainly shows that its mixture is increasing rapidly, and practically the whole crop is now of Goghari with a sprinkling of Broach-Deshi.

Surat District.—11 Samples were examined. All showed a mixture of Goghari varying from 4.21 to 18.18 per cent.

On examination of the standing crop of cotton of several villages of Bardoli Taluka, it was observed that pure Goghari was grown to a large extent in some of the villages. The seed was brought from the Broach District and the resulting local produce from introduced seed was separately ginned for securing seed for further sowings.

Organized efforts are being made this year to check the further spread of this variety in the Surat District.

Entomological Branch.—The services of the Entomological Assistant were partly utilized in Famine duties at Broach and partly in preserving and storing large quantities of rare and valuable seeds of cereals, pulses, oilseeds and cotton varieties. He also attended the biennial Entomological Conference at Pusa. The account of the more important pests that were treated by him is as follows:—

Katra (Hairy caterpillar).—This pest was more prevalent on maize crop in the District of Panch Mahals. It was checked considerably on the Dohad Farm by the use of light traps and bagging. As many as 3,192 Katra moths were entrapped by light traps and 92,000 hairy caterpillars were bagged and destroyed. Tachinid Fly parasites and predacious wasps were investigated and encouraged. In the District, bagging demonstrations of catching hairy caterpillars were made and bags were supplied to the cultivators.

Jowar Moth borer.—This pest was rather more or less prevalent on Jowar crop in the District; but on Government Farm it was very insignificant. The removal of affected shoots in the early stage of the crop was resorted to.

Aphis.—This being a year of drought, the pest was very common in the District on several crops. On Government Farms the colonies of Aphis on Jowar crop were sprayed with an Incosopol solution in the proportion of 5 ozs. to 4 gallons of water, which was successful in killing most of the colonies. Lady bird beetles and other predacious insects were also found to keep the pest in check.

Ratadia disease of Jowar.—This pest generally becomes more prevalent in Surat District on Kharif Jowar in a year of drought. This is caused by the colonies of very small mites. A spraying demonstration of Incosopol and sulphur in the proportion of 4 ozs. Incosopol, 2 ozs. of sulphur sublimed powder and 4 gallons of water was made in an area of one acre of Jowar crop at Vijalpur in Surat District, which was successful in annihilating most of the colonies of mites. The cost of such a spraying came to Rs. 2-5-0 per acre.

Cotton pests.—Two pests were more prevalent on cotton during the year. In the beginning the crop had caterpillars on top shoots which were greatly controlled on Government Farms by nipping off affected shoots. As many as 18,000 affected top shoots of cotton were nipped off and put in parasite boxes for the parasites to emerge and do their beneficial work.

As for the Boll-worms, Bhinda was used as a trap crop, but it did not thrive well due to a scanty rainfall, however, affected shoots and pods were removed from time to time and destroyed.

An Entomological exhibition was made at Godhra during the year, and the life history and remedial measures of common pests were explained to the cultivators with the help of the magic lantern slides.

Vernacular and High School boys of the Surat City and surrounding village schools were shown the entomological museum and explained the insect life for Nature study.

III.—Work of the temporary Establishment in Cotton.

There was a cry from the trade and the public since long that the mixture of Goghari cotton is increasing every year in the best Surti-Broach cotton tract of the Surat District. During the year under report, having received reliable information about the growing of Goghari cotton by some villagers, in the heart of the well-known Navsari tract growing the best Surti-Broach cotton, and fearing that if no prompt action is taken the whole tract will be hopelessly mixed with Goghari, I deputed the Cotton Fieldman to make full enquiries and report in details on the reported Goghari introduction. This report which confirmed the statement in an alarming degree, was forwarded to the Director of Agriculture who took prompt action in the matter in anticipation of Government sanction. In this connection he visited Surat twice and formed a representative Committee of traders and gin-owners to assist the Department in checking the further spread of Goghari cotton in this tract by increasing and distributing the seed of one of the best strains of the Surat Farm improved cottons, thus eliminating the local mixed seed of the tract. For this purpose, Government was pleased to create a special temporary staff of one Cotton Superintendent (Gazetted) with four Graduate Assistants. Every trial was made to secure as much seed of this strain, *viz.*, Selection I-A, as possible. During the current season 80,355½ lbs. of seed was secured and distributed in five groups of villages. The total area sown by this seed is 6,008 acres. It is intended to buy all the resulting seed from the above area and distribute it on a large scale in this tract.

The above staff is employed in supervising and controlling all the operations, *viz.*, (a) of distributing seed, (b) of sowing, (c) of watching the growth and observing other peculiarities of soil, climate and cultivation, and finally (d) of collecting the resulting produce, getting it ginned, and securing the seed for future sowings.

Necessary alteration in the above lines of work will be made, if experience requires it.

IV.—District Work.

This section covers a large range of an important propagandistic work and is mainly carried on by the Divisional Superintendent and his staff. This may be divided into the following sub-heads:—

- (1) Agricultural shows and demonstrations.
- (2) Agricultural depôts.
- (3) Demonstration plots.
- (4) Distribution of seeds, implements, etc.
- (5) Special work.
- (6) Agricultural Associations.
- (7) Publication of agricultural matters.

(1) *Agricultural Shows and Demonstrations.*—As usual shows and demonstrations were proposed to be held in the Division, but owing to famine all of them were dropped except the one at Godhra which was held along with the District Darbar as desired by the Collector. It was attended by 750 cultivators of all calibre from the whole District who seemed to be very much impressed and interested in what they saw. The Show was arranged on some such similar lines as those of last year.

(2) *Agricultural Depôts.*—During the year under report, four more depôts than those reported in the last year's report were opened.

Of the above depôts, one at Thasra was closed in August 1918, and the other two—one at Matar and the other at Lasundra—were closed towards the end of February 1919, as they did not work at all.

It was intended to transfer these depôts to some other promising centres, but on account of Famine conditions the idea was postponed, and the Depôt-keepers' services were utilized in the famine operations.

The following statement shows the value of implements stocked and the amounts of hire earned :—

Name of Depot.	Taluka.	District.	Implements		Hire collected during.			Hire charges earned during 1918-19 from each Depot
			No	Value	1916-17.	1917-18.	1918-19	
1	2	3	4	5	6	7	8	9
				Rs. a. p.		Rs. a. p.	Rs. a. p.	Rs. a. p.
1. Matar	Matar	Kaira	6	239 0 0	Opened in April 1917.			48 12 0
2. Thasra	Thasra	Do	3	114 0 0	Do.			6 4 0
3. Lasundra	Do.	Do.	7	308 0 0	Do.	255 0 6		116 15 0
4. Prantij	Prantij	Ahmedabad	5	180 18 0	Do.			9 0 0
5. Godhra	Godhra	Panch Mahals	21	836 0 0	Do.		223 12 0	91 12 0
6. Dohad	Dohad	Do.	23	851 4 0	Do.			18 9 0
7. Jamaspur	Daskroi	Ahmedabad	4	144 10 0	Opened in October 1918			0 9 0
8. Naroda	Do	Do.	2	58 4 0	Do.			2 6 0
9. Hoiol	Hoiol	Panch Mahals	13	324 11 0	Opened in July 1918.			11 14 0
10. Bulsar	Bulsar	Surat	..	220 0 0	Do.			.. ..
		Total	..	2,371 10 0		255 0 6	223 12 0	223 12 0

The amount of the hire earned during the year shows an increase of Rs. 37-11-6 over that of the previous year.

(3) *Demonstration Plots.*—In the year under report 37 plots were arranged for in this Division. But owing to famine 24 failed to give results worth noting, of which nine were of sugarcane which was fed to cattle as fodder by their owners.

The following list shows the distribution of the plots in the different districts of Gujarat :—

Name of the district in which the plots are situated.	No. of plots.	Area		Object of demonstration.
		Acres	Gunthas.	
1. Surat	4	2	35	For varietal, manual, rotational, deep-ploughing, etc., experiments.
2. Kaira	5	4	20	
3. Panch Mahals	20	61	10	
4. Ahmedabad	8	2	14	
Total	37	70	39	

(4) *Distribution of Seeds and Implements.*—In the year under report 200,179 lbs. of castor seeds and other seeds and implements worth Rs. 2,441-4-3 were distributed. The following statements show the distribution in each case :—

Cotton Seed Distribution.

	1915-16.	1916-17.	1917-18.	1918-19.
	Lbs.	Lbs.	Lbs.	Lbs.
Agricultural Stations	11,964	89,998	84,751	43,266
Depôts in Gujarat	33,956	38,698	65,129	89,308

Distribution of other seeds.

	1915-16.	1916-17.	1917-18.	1918-19.	
	Lbs.	Lbs.	Lbs.	Lbs.	
Agricultural Stations	9,609	20,586	55,123	52,639	The figures in the column for 1918-19 include— 5,468 lbs. of Jowar varieties. 11,045 " Sundhia Jowar seed. 21,612 " Maize seed. 10,820 " San seed.
Depôts in Gujarat	9,087	6,438	56,495	147,540	
	19,646	26,974	111,618	200,179	128,000 " Sundhia seed. 14,155 " Castor seed. 3,070 " Gram seed.

Prior to the failure of the season, it was decided to distribute castor and wheat seeds at certain concessions in order to encourage their cultivation. 1,021 lbs. of castor seeds were already distributed in the southern Talukas of the Surat District. Accordingly, 288,000 lbs. of wheat seed was also stored in Dohad for distribution to Bhil cultivators on the Tagavi system as was done last year. But as rains failed, Rabi sowings could not be done, and the whole of the seed stored was sold off at a clear profit of Rs. 750 to Government.

The increased distribution shows the increased attention paid by the cultivators to the Departmental work.

Distribution of Implements.

		1913-19.	
		Rs. a. p.	
At Agricultural Stations	...	1,149	18 9
At Depôts in Gujarat	..	1,291	6 6
		3,441	4 3

(5) *Special work.*—The scheme organised in 1914-15 to distribute improved cotton seed and market its produce by a joint sale Committee was continued and 15,173 lbs. seed of Selection I-A was distributed in the Athwa group as detailed below :—

Village.	Variety.	Quantity of seed.	Area.
		lbs.	A. g.
1 Althan	Selection I-A	2,983	164 14
2 Bhatar	Do.	1,244½	103 85
3 Bharthana	Do.	5,320	481 7
4 Athwa	Selection II	834½	51 6
5 Umra	Do.	2,622	100 0
6 Fyplod	Do.	1,634	168 26
7 Bharnad	Do.	532	67 9
Total seed		15,172½	1,134 17

The Divisional Superintendent with the Committee as usual arranged to sell the resulting produce to Messrs. Hatimbhai and Company's Mills at Surat on the same terms as those usually offered by the Hon'ble Mr. Purshottamdas of Messrs. Narandas Rajaram and Company, as the latter was unwilling to carry on the transaction. But after selling the first lot of 47 Bhars 16 maunds and 10 srs. (=43,482 lbs.) and getting it ginned, the Committee disagreed and was dispersed by the Divisional Superintendent, allowing the cultivators to sell off their produce wherever they liked. By the time I got this information, some of the villagers sold off their cotton about 65 Bhars (=59,230 lbs.) to a Gin-owner Mr. Kapadia, and others were going to follow suit, had it not been for my running down from Broach and persuading those that had not sold to hold off their sale till I could arrange their sale. An auction sale of the remaining produce was arranged for which brought Rs. 30 per Bhar more to the cultivators and the resulting seed was secured from the buyers at market rate. Mr. Kapadia was approached with a request to heap the Kapas that he bought separately and sell the seed to the Department at market rate which he kindly accepted. The ginning at both these places was done under the supervision of the Department which was thus able to secure about 80,000 lbs. of seed just enough to sow about 6,000 acres, and a critical situation was saved.

(6) *Agricultural Associations.*—There are 12 Agricultural Associations, in all, of which three are District Agricultural Associations, and the rest nine Taluka Agricultural Associations. Of these, the one at Broach published a quarterly magazine with a large circulation. The Nadiad one owns a Farm and those in Panch Mahals organised a show and are maintaining Depôts for implement hiring.

(7) *Publication of Agricultural Matters.*—A quarterly Agricultural Magazine is regularly published by the Broach Agricultural Association and 1,312 copies are issued. The agricultural matter published is mostly supplied by the Gujarat staff. An article on famine fodder of the Nalkantha was written by Mr. Pathak, District Agricultural Overseer, Ahmedabad, for the Pusa Journal.

V.—Special Famine Work.

Hopes were entertained by all that the situation will be saved by late September and October rains, and no great move was made to combat the impending famine. But when those hopes were not realized, efforts were made to collect and distribute seed of Sundhia Jowar (Andropogon Sorghum) and other seeds such as Maize, luterne and other fodder Jowars for growing fodder in famine-stricken parts where irrigation facilities

existed, either from wells or rivers. Later on when these conditions developed into severe famine conditions, all the staff that could be spared from the Farms and District was utilized in special agricultural famine operations undertaken by the Department. Towards the end of January 1919 a Special Agricultural Famine Officer was appointed for Gujarat with independent charge of the Gujarat Districts. These operations may be subdivided into.—

- (a) Procuring and selling seeds of fodder crops at concession rates and at cost price.
- (b) Growing Sundhia fodder jowar on the Nurbada Bet lands under Departmental control.
- (c) Purchasing and stocking seeds of those varieties which are likely to go extinct or are not within easy reach of the cultivators.
- (d) Demonstrating the use of Prickly Pear as fodder wherever it could be had in large quantities.
- (e) Chaffing and supplying Jowar stubbles as fodder to the affected parts.

(a) *Procuring and selling seeds of fodder crops at concession rates and at cost price.*—People having realized famine conditions at once tried to grow fodders under irrigation wherever possible. But the prices of seeds went so high as to be out of reach of ordinary cultivators. But the Bombay Famine Relief Committee came to their relief and gave a concession of 25 per cent. on the cost price for poor cultivators. Thus the total seed distributed at 25 per cent concession came to 1,802 Maunds (=72,080 lbs.), and the total amount of concession given amounted to Rs. 2,496-10-0. In addition to the above 57,120 lbs. of Sundhia seed and 21,612 lbs. of maize and other seeds were sold at cost price to well-to-do cultivators and others.

(b) *Growing Sundhia Fodder Jowar on Bet lands at Zadeshwar and Nikora on the Nurbada River.*—This was a totally new scheme suggested, which could, if successful, supply a very nourishing fodder near at hand at a comparatively low price as compared with the forest grass. The scheme was sanctioned very late, and with the greatest exertion day and night that the Department succeeded in growing a total area of 220½ acres at a cost of Rs. 29,292-1-6. The total yield of green fodder was 2,433,077 lbs. and it realized Rs. 17,110-11-7. Had the scheme been taken up from October-November, the results would have been a financial success. A separate report has already been submitted to Government by the Director of Agriculture with his No. 10006, dated 9th August 1919.

(c) *Purchasing and stocking seeds of varieties likely to go extinct or which are not within easy reach of cultivators.*—16,000 lbs. of Bhavnagar Bajro seed was purchased and stocked at Nadiad. Almost the whole of this has been distributed. 480 lbs. of Sutaral rice, 640 lbs. of Kamod rice and 2,495 lbs. of Jirasal rice—the produce of the Dohad Farm was reserved and distributed as seed.

(d) *Demonstrating the use of Prickly Pear as cattle food.*—There is not much of prickly pear in this Division, but wherever it was found to be in sufficient quantities, e. g., Jambusar Taluka of the Broach District and in the Panch Mahals, demonstrations of how to prepare its fodder were held and several cattle in both the above tracts were mostly fed on it.

(e) *Chaffing and Supplying Jowar stubble as fodder to the affected parts.*—In addition to the above remedial measures taken to supply fodder, a trial was made to collect Jowar stubbles (which ordinarily go to waste) and supply to the affected parts with the chaff of these stubbles. The cultivators of South Gujarat where Jowar had overgrown in height, only cut and removed the tops of Jowar plants of convenient length and allowed the stubbles varying in length from 4 to 6 feet to remain in the fields. These stubbles were first purchased, chaffed and fed to Amalsad and Surat Farms bullocks for several days. When it was found that these well-fad cattle ate and lived on this stuff, the matter was brought to the notice of the Director of Agriculture who consulted the Commissioner in the matter and being assured by him as regards the demand and supply of waggons ordered the operations on a large scale for supplying the stuff to the famine-stricken districts. Accordingly, several power chaff-cutters were put at different stations on the B. B. & C. I. and T. V. Railways, and a total quantity of 1,754,189 lbs. of chaffed stuff was supplied to the famine-stricken parts in Gujarat north of the Nurbada River. A detailed report will be separately submitted as soon as the accounts are adjusted with the persons to whom the stuff was sent.

Mr. Khandubhai Bhagwanji Naik, District Agricultural Overseer, Panch Mahals, has worked very hard and intelligently in conducting the famine operations in his District, specially in distributing seeds both of fodder crops and others, and in assisting the Collector in his grass operations, and he deserves to be specially mentioned for all that he has done in this Famine.

BHIMBHAI M.,

Surat, 15th September 1919.

Deputy Director of Agriculture, Gujarat.

APPENDIX D.

WORK DONE UNDER THE DEPUTY DIRECTOR OF AGRICULTURE,
CENTRAL DIVISION, POONA, DURING THE YEAR 1918-19.

The charge of Northern and Central Divisions was held by me till the 24th of October 1918 when I went on leave for three months. Mr. Bhimbhai M. Desai, the Divisional Superintendent of Agriculture, N. D., acted in my absence. On return to duty I continued in charge of the Central Division only, Northern Division being kept with Mr. Bhimbhai M. Desai as Special Agricultural Famine Officer, Gujarat. Mr. V. K. Kogekar continued to act as Divisional Superintendent of Agriculture, C. D., except when on leave for 1½ months from 4th May to 18th June 1918 when Mr. Athalye acted as Divisional Superintendent. Mr. G. N. Shasrabuddhe held the charge of the Canal Division throughout the year except when on leave for two months from 19th September to 19th November when Mr. S. B. Jadhav acted for him as Sugarcane Expert.

The following summary of work deals only with the work done in the Central Division, the work in the Northern Division being separately reported on by Mr. Bhimbhai M. Desai.

Due to scanty and ill-distributed rains in the season, both Kharif and Rabi crops in most parts of the Division did not come up well. In Khandesh and Western parts of Nasik District some crop was harvested; Ahmednagar, Eastern part of Nasik, and whole of Poona and Ahmednagar Districts were very bad. The season told on the outturns of the Government farms as well.

The whole staff in the Division was practically put on famine work which will be described hereafter.

The summary is divided into work on:—

- (i) Crops.
- (ii) Extension work.
- (iii) Famine work.
- (iv) Miscellaneous work in connection with Famine.
- (v) Remarks.

(I) CROPS.

Cotton.

The general organization for the supply of N. R. cotton seed, described in previous reports, has been followed. Pure stock seed is produced on the Government Farm at Jalgaon (East Khandesh). To multiply the seed on as large a scale as the staff can handle, it is grown on 29 registered seed growers' plots. To supplement Departmental activities in this direction Jalgaon Farm seed is also supplied to 10 seed growers of the Agricultural Associations and 17 seed growers of the Co-operative Seed Societies in Khandesh, care being taken to purify crops belonging to all such seed growers.

The farmer has been getting more outturn per acre as the variety is more prolific. He is obtaining better price for his kapas due to its higher ginning and whiter colour. With the recent growth of the Co-operative Cotton Markets encouraged by the Revenue and Agricultural Departments and looked after by the Co-operative Department Cotton, especially N. R. is beginning to fetch still higher prices to the cultivator taking his seed-cotton to such Co-operative markets.

During the year under report 42,544 lbs. of pure stock seed was produced on the Jalgaon Farm. All this was used for multiplying the seed as above described. After leaving part of the produce to the seed growers about 59,149 lbs. of seed was received back from them for general distribution among the farmers. The total distribution of N. R. Cotton seed during the year under report amounted to 101,069 lbs.

Mass selection.—With a view to continue selection of seed and to sow only the selected seed on the Seed Farm every year, seed from high yielding and better ginning plants from the crop of the seed grown from previously selected plants, is collected sufficient for a samil plot, the seed from which is multiplied in subsequent years in large plots to supply the requisition of the whole farm. This is done year after a year since 1915-16, as a result of which our mass selected N. R. gins ½ to 1 per cent more than ordinary N. R. This has influenced the ginning percentage of Farm cotton which ginned last year 40%.

Unit selection.—With a view to find out still higher ginning strains in N. R. unit selection work is also undertaken during the last three years. This work was commenced with 100 plants selected by observation for better yield and high ginning. For further

work actual ginning and weight of seed cotton from each of the selected plants, are taken. The following plants kept for 1919 show decided increase in ginning:—

I.—Unit selection of 1916-17.

Plant No.	Ginning per cent. 1916-17.	Ginning per cent. 1917-18.	Ginning per cent. 1918-19.
1	37.40	45.83	40.0
3	42.91	45.45	43.24
4	41.07	45.45	42.10
8	40.89	50.0	41.66

II.—Unit selection of 1917-18.

Plant No.	Ginning per cent. 1917-18.	Ginning per cent. 1918-19.
1	44.44	37.40
2	42.85	39.60
3	34.61	42.91
4	33.33	41.07
5	44.44	43.0
6	48.00	40.72
7	43.24	43.29
8	38.63	40.96

III.—Unit selection of 1918-19.

Plant No.	Ginning per cent. 1918-19.
7	38.10
15	38.28
57	38.0
63	38.10
66	38.40
69	38.28
73	38.22

Four types of N. R., separated according to colour of the seed and adhesiveness of lint on to the seed, tried for the last three years show that the colour of the seed is not a constant factor in N. R. Types showing different shades of colour in seed showed no difference in yield nor in ginning. The loose seeded type, however, has ginned 45% against 37 to 40 in case of ordinary N. R. for the last two years and it is now put on a field scale for comparison at Jalgaon with N. R. and other cottons, the trials of which have come to a stage when they have to be confirmed on a field scale. The following statement shows ginning of these types.

Name of the type.	Ginning per cent.		
	1916-17.	1917-18.	1918-19.
1 N. R. green seeded	38.05	35.51	35.45
2 N. R. black seeded	40.97	38.06	38.25
3 N. R. loose seeded	38.86	45.20	44.68
5 N. R. general	37.50	37.50	38.00

Comilla Bani crosses.—Number of *Comilla Bani* crosses were made about ten years ago. These were grown year after year till last year when out of a number of crosses only seven were taken as fixed. These were carefully gone over by the Imperial

Cotton Specialist last year who took them as practically fixed. The following shows the outturns, ginning and valuation of these seven crosses tried on field scale (4 on 20 guntha and 3 on 10 guntha plots each).

Serial No.	Name of cross.	1916-17.			1917-18.			1918-19.			Remarks of the cotton supervisor on fibre for 1918-19.
		Yield per line.	Ginning per cent.	Valuation per Bombay Khandi.	Yield per line.	Ginning per cent.	Valuation per Bombay Khandi.	Yield per acre.	Ginning per cent.	Valuation per Bombay Khandi.	
1	B II P 8 ¹²	Lbs. 4 Tolas 8½	87.7	480	Lbs. 8½	85.87	450	Lbs. 290	85.80	490	Soft and long like Broach with good ginning.
2	B I P 4 ^{9/15}	8 10	86.88	460	8½	86.56	440	254	86.58	440	Soft and long like Ghogari with good ginning.
3	B VI 1 ¹	6 5	87.5	475	7½	80.17	400	190	80.20	440	Soft and long like Ghogari with fair ginning.
4	B IV 5 ⁴	4 15	84.6	475	8½	85.04	490	156	85.25	470	Do. do.
5	N. R.	5 0	89.6	370	8½	88.47	360	324	89.00	370	Shorter than Khandesh.
	Broach	...	...	490	...	...	490	...	...	475	
6	B XI 6 ^{9/10}	...	...	...	...	...	Surat.	180	86.96	...	Soft and long like Broach with fair ginning.
7	B XX 14 ¹⁵	...	...	...	...	...	...	282	86.60	Not valued.	Do. do.
8	B IV 5 ⁴	...	...	...	...	...	...	140	86.90	...	Very soft and long like Broach with good ginning.

The table shows that the valuation of the first four is as good as of Broach; ginning of 8th, 7th, 2nd, 1st, and 4th is good. The yield of 1st, 2nd, is fair. It therefore seems that 1st, 2nd, 7th and 4th are likely to do well in Khandesh. The important crosses are therefore transferred to the Superintendent, Jalgaon Farm, for trial on field scale in one acre plots. It is contemplated to gin these separately and send bales (instead of samples) of lint for valuation.

Tata and sons have kindly valued the samples on 7th March 1919 sent to them as under.

Basis of valuation:—

	Rs.
(1) Surat ...	525
(2) Bani Hinganghat ...	520
(3) Fine Broach ...	475
(4) Fine Khandesh ...	390

No. 1—B. I 4^{9/15} If the seed is grown of Bani cotton grown on Khandesh soil, it has deteriorated. But if Bani is crossed with Khandesh, Khandesh has improved a good deal. Value at Rs. 440.

No. 2—B. II 8¹² This is superior to No. 1, staple being longer and the fibres also very strong. It has greatly attained the characteristic of Bani, Value Rs. 490.

No. 3—B. VI. 1¹ This is almost same as No. 1. Value Rs. 440.

No. 4—B. IV. 5⁴ This is superior to No. 1 and 3 but a bit inferior to No. 2. Value Rs. 470.

No. 5—N. R. Khandesh:— This is pure Khandesh but staple is shorter even than ordinary cotton grown in the District. Value Rs. 370.

Crude night soil:—Crude night soil as usual gave good results; the use of it is extending and it is being utilized near several Taluka Towns as Jalgaon, Bhusawal, Pachora and Chopda. While at Erandole and Amalner night soil is made into Poudrette. Near Chalisgaon and Bhadgaon Bhil cultivators make Poudrette.

Sugarcane.

The work on Sugarcane in the Central Division consists of (1) Demonstrations of growing sugarcane more economically and profitably and (2) Experimental work as cultural, manurial and varietal experiments.

The sugarcane plot at Kopergaon was splendid and we could harvest good crops. There was hardly any such plot in the valley. While looking to the outturns however we have to remember that with cultivators' farms our farm also suffered due to breach in the canal when we could not get water for 23 days.

For demonstration two plots, of 30 gunthas each, one planted and manured according to the practice of the irrigators on Godavari canal and another plot treated as advocated by the Agricultural Department, were planted. In the latter plot planting was done apart giving concentrated manure, in three doses, first two containing more quick acting manure, the total quantity of nitrogen in concentrated manure not exceeding 150 lbs. per acre. Interculture and earthing up of cane in this plot was done by implements. The results of these plots calculated per acre are given below.

Method.	Outturn per acre.		Cost of cultivation in Rs.	Net profit (+) or loss (-)	Remarks.
	Weight of outturn.	Value of outturn.			
Local method	Lbs. 9,384	Rs. a. p. 1,138 12 3	Rs. a. p. 761 13 3	Rs. a. p. 351 15 0	} The cost of cultivation includes rent of land, supervision charges, interest on outlay, etc.
Improved method	10,980	1,924 11 0	687 4 0	636 3 6	
Difference in favour of improved method.	1,546	190 14 9	94 9 3	284 4 6	

The improved method saves especially in manures, seed and after cultivation and increase outturn. The method is being pushed in the Canal Division through special staff.

In the manurial trials, groundnut cake and ground cake with Ammonium Sulphate have given very good results (for particulars see Kopergaon Farm report).

Sugarcane class was held on the farm especially for the benefit of the Secretaries of the Co-operative Credit Societies.

Java method of planting cane.—In the District this method gave very encouraging results in a partially water-logged field at Velapur (Godavari Canal) with Khadya cane. A deep drain was cut round the plot and the crop was irrigated only when it was absolutely necessary, only seven waterings being given throughout the season.

The total outturn per acre was 7,817 lbs. of gul. The value of this at Rs. 23-9-0 per palla (250 lbs.) came to Rs. 893-1-6. The cost of cultivation including water charges (at Rs. 22-8-0 per acre) came to Rs. 425-1-0, leaving net profit of Rs. 468-0-0 per acre.

Fodder.

Fodder growing at the Fodder Farm, Kopergaon.—In Kharif season Nilwa was grown on a large scale. From 70 acres and 30 gunthas, 2,44,152 lbs. of dry fodder and 9,669 lbs. of grain were obtained. The net profit per acre after paying the cost of cultivation including water charges came to Rs. 91-10-1.

In hot weather 32 acres 3 gunthas were put to Maize, Sundhia and Hundi fodder. This supplied 9,034 lbs. of dry and 161,267 lbs. green fodder. The net profit per acre came to Rs. 10-8-8.

(1) *Perennial crops.*—Lucerne, in its second year, supplied about 37,000 lbs. of green fodder and left a net profit of Rs. 110-7-4 per acre.

(2) Shevari is found to do well and when established it gives good outturns.

(3) *Marvell grass.*—This supplied 8,000 lbs. of green grass per acre and left a net profit of Rs. 50-9-8.

Manuring.—Ammonium Sulphate, groundnut cake and farm yard manure were tried in duplicate plots on jowar for fodder. Both Ammonium Sulphate and groundnut cake have left more profit than in the case of farm manure and no manure, Ammonium Sulphate being more profitable than groundnut cake.

Baling and shredding.—The machine was worked 56 days (about 6 hours a day) and produced 7,771 bales weighing 3,90,753 lbs. The average daily output was 139 bales weighing 50 lbs. each. The work is hard and the dust produced suffocates workers; hence work has to be stopped for giving the workers rest after every hour. The cost of baling including wires came to annas 3 and pies 7 per bale (i.e. 51 lbs.).

Distribution of fodder.—The farm served a very useful purpose in as much as it supplied during the year under report 352,951 lbs. of dry fodder over and above its own requirements and the neighbourhood as also the cattle camps received very timely help from this farm. The farm in addition supplied about 7,000 lbs. of fodder seeds for distribution.

(II) EXTENSION WORK.

This work covers a wide range and is increasing in popularity and extension. The work is carried through Divisional Officers and Agricultural Overseers. In some parts this kind of work is further supplemented by the Local Agricultural Associations and Co-operative Societies under the advice and supervision of the Departmental Officers.

Extension work, in the Division, is divided into

- (1) Agricultural Depots.
- (2) Seed growers plots.
- (3) Demonstration plots.
- (4) Distribution of seeds, manures and implements.
- (5) Shows and Demonstrations.
- (6) Agricultural Associations.

(1) Agricultural Depots:—These serve a very useful purpose. The depots stock and hire out improved implements and serve as Departmental agencies for sale of seeds, manures, implements, etc., at cost price.

In the following list of depots, value of implements stocked, and amount of hire earned are given:—

Serial No.	Name.	Taluka.	District.	Implements.		Hire collected during			Hire charges earned during 1918-19 from each depot.
				No.	Value.	1916-17.	1917-18.	1918-19.	
		<i>Division Proper.</i>			Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
1	Vadgaon ...	Haveli ...	Poona ...	20	653 7 6				53 13 0
2	Loni ...	Do. ...	Do. ...	11	544 12 9				139 1 0
3	College Farm.	Do. ...	Do. ...	6	275 5 5				44 3 0
4	Mandavgaon.	Birur ...	Do. ...	14	481 12 0				173 10 6
5	Peit ...	Khed ...	Do. ...	3	93 6 5				9 2 0
6	Pandeshwar ...	Purandhar ...	Do. ...	6	189 1 0				10 7 6
7	Newasa ...	Newasa ...	Ahmednagar ...	21	949 14 10				146 8 3
8	Shevgaon ...	Shevgaon ...	Do. ...	25	949 14 10				166 4 3
9	Nagar Farm	Nagar ...	Do. ...	8	332 9 0				141 15 0
10	Pimpalgaon	Shrigonda ...	Do. ...	13	406 1 4				176 2 0
		<i>Fusa.</i>							
11	Karjat ...	Karjat ...	Do. ...	4	139 8 0	1,708 13 0	1,924 5 9	1,532 2 2	19 5 0
12	Sangamner ...	Sangamner ...	Do. ...	4	155 4 0				15 3 0
13	Nasik ...	Nasik ...	Nasik ...	10	552 12 0				141 4 0
14	Deola ...	Kalvan ...	Do. ...	12	380 4 10				163 13 0
15	Sundkheda...	W. Khandesh ...	W. Khandesh ...	8	304 8 0				22 13 0
16	Shirpur ...	Shirpur ...	Do. ...	9	357 15 6				8 4 0
17	Dhulia Farm	Dhulia ...	Do. ...	6	225 0 0				4 0 0
18	Nandurbar ...	Nandurbar ...	Do. ...	3	124 8 0				5 7 0
19	Ner ...	Dhulia ...	Do. ...	5	161 0 0				11 0 0
20	Chalisgaon ...	Chalisgaon ...	E. Khandesh ...	3	324 0 0				45 8 0
21	Amalner ...	Amalner ...	Do. ...	3	321 0 0				15 0 0
22	Jalgaon Farm	Jalgaon ...	Do. ...	4	349 8 0				25 8 8
		<i>Canal Division.</i>							
23	Kopergaon Farm	Kopergaon ...	Godavari Canal	3	.....				160 11 0
24	Kopergaon ...	Do. ...	Do. ...	5	.....				93 3 6
25	Kohar ...	Pravara Canal.	Pravara Canal.	3	.....				17 1 0
26	Pohagaon ...	Godavari Canal.	Godavari Canal.	5	.....				6 12 0
27	Manjur ...	Do. ...	Do. ...	10	4,987 5 2	1,338 2 0	2,303 7 9	641 8 0	133 3 6
28	Ashwi ...	Pravara Canal	Pravara Canal.	1	.....				0 3 0
29	Osar ...	Kadwa Canal	Kadwa Canal.	4	.....				30 8 0
30	Brahmanagaon.	Gurna Canal ...	Gurna Canal ...	6	.....				161 15 6
31	Baramati ...	Bhimthadi ...	Nira Canal ...	4	.....				42 14 6
			Grand Total ...		12,107 15 9	2,942 0 0	4,397 13 8	2,173 10 3	2,173 10 3

It may be noted that three of the thirty-one depots are managed for the department by private gentlemen without any remuneration, four are managed by private gentlemen who are given 10 per cent of the hire earned in the depots as honorarium, three are managed for the department by the Agricultural Associations through their *kamgars* and remaining twenty-one are managed through departmental agencies as *kamgars* or farm Superintendents. I am much obliged to the gentlemen and Agricultural Associations who managed our depots without remuneration as also to those who managed depots on small honorarium. As usual Messrs. Farate of Mandavgaon, Shivram Patil of Peit and Mr. Machale of Pandeshwar, (an old student of Loni school) in addition to the honorary depot work gave us excellent help in other branches of district work as well.

(2) *Registered seed growers' plots.*—Like the Agricultural depots, these plots in addition to the production of pure N. R. seed, serve the purpose of introducing improved methods of Agriculture and progressive ideas and most of them serve as model demonstration plots. There are 29 registered plots in the Central Division and they supplied in the year under report (a bad year no doubt) about 59,149 lbs. of N. R. seed keeping part of the seed produced for their general area.

(3) *Demonstration plots.*—With a view to demonstrate the value of our findings on the experimental stations, whenever necessary with due modifications, and to introduce such findings in the districts demonstration plots are organized.

The important demonstration being the introduction of improved system of growing sugarcane, namely planting cane sets, 4' to 5' apart and giving concentrated manures in three doses, the total quantity of Nitrogen in concentrated manures not exceeding 150 lbs. per acre. On Kadwa and Girna Canals as also on Bandharas in Nasik and Khandesh Districts attempts were made to introduce concentrated manures as it is not still common there to use cake, fish or ammonium sulphate. As a result of these demonstrations, concentrated manures are becoming popular in a few new centres such as Brahmangaon on Girna and Niphad and Ozar on Kadwa Canals.

(4) *Distribution of seeds, manures, and implements.*—In the year under report (when war was raging) large quantities of manures were distributed with a view to increase the food supply as will be seen from the statement below. Also large quantities of seeds had to be supplied as due to famine seed was scarce. As regards implements large number of chaff-cutters were distributed in order to economise fodder. The statements do not include the business conducted by Co-operative Societies and farms managed by the Professor of Agriculture in this Division.

Distribution of seeds.

Tracts.	Seeds.	1916-17.	1917-18.	1918-19.
		Lbs.	Lbs.	Lbs.
Division Proper	Cotton seeds	134,088	129,610	101,079
	Fodder seeds .. ..	.....	.....	64,858
	Other seeds	29,575	85,268	47,743
Canal charge	Fodder seeds ... ..	.....	.....	8,680
	Other seeds	3,647	4,776	1,985
Agricultural stations in Deputy Director's charge.	Seeds ... ..	.....	.....	19,101
	Total ... ..	.....	.....	239,446

This shows that 101,079 lbs. of cotton seed, 68,538 lbs. of fodder seeds and 68,829 lbs. of other seeds were distributed during the year under report.

Distribution of concentrated manures.

Tracts.	1916-17.	1917-18.	1918-19.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Division proper	1,725 13 0	1,130 5 0	4,150 0 0
Canal charge	10,551 0 0	10,371 11 9	12,617 3 8
Agricultural stations in Deputy Director's charge.	.....	.....	169 9 7
Total ... ..	.....	.....	16,936 13 3

Distribution of implements.

Tracts.	1916-17.	1917-18.	1918-19.
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Division proper	10,845 4 3	7,544 0 9	2,326 4 0
Canal charge	1,547 0 0	5,318 7 9	1,317 14 0
Agricultural stations in Deputy Director's charge.	.....	.....	822 12 0
Total ... ..	.....	.....	4,466 14 0

Besides following implements were purchased and lent to the cattle camps and cultivators for preparing prickly pear feed and chaffing kirbi.

	Rs. a. p.
Chaff-cutters worth	8,590 10 0
Blow lamps	535 12 6
Spray pumps	160 0 0
Total	9,286 6 6

(5) *Shows and demonstrations.*—Due to famine no shows and demonstrations were held during the year under report.

(6) *Agricultural Associations.*—There are a number of Agricultural Associations in the Division. The following however are doing useful work :—

- (1) Deccan Agricultural Association, Poona.
- (2) Jalgaon Agricultural Association.
- (3) Bhusaval " "
- (4) Jamner " "
- (5) Raver " "
- (6) Dhulia " "
- (7) Shindkheda " "
- (8) Shirpur " "
- (9) Nandurbar " "
- (10) Pachora " "

The Deccan Agricultural Association is conducting a useful monthly magazine, *i.e.*, *Shetki* and *Shetkari*. Jalgaon, Bhusaval, Dhulia, Shirpur, Pachora and Shindkheda Associations have employed their own *kamgars* for Agricultural propaganda and these men are found very useful. Jalgaon, Bhusaval, Raver and Dhulia Associations distributed good deal of seeds and demonstrated the use of ploughs and chaff-cutters. They have got their own seed-growers to grow pure N. R. cotton for their members. Jamner and Shirpur Associations have opened cattle breeding farms and have maintained nice herds. Dhulia Association occasionally issues useful popular leaflets. Shindkheda, Shirpur and Nandurbar Agricultural Associations last year distributed large quantities of fodder seeds. Nandurbar Association alone distributed seeds worth about Rs. 6,000. Shahada and Junnar Agricultural Associations are keen on taking agricultural work seriously. The growth of all of the Associations (except that of the Deccan Association) is only six years old and is due to the help received from the Revenue officers like Messrs. R. S. Hiremath, G. A. Hiremath, Rothfield, Potnis and others, as also from private gentlemen like Messrs. Ransing of Dhulia and Kaji of Jamner. Deccan Agricultural Association owes its initiation and work to the Central authorities at Poona. I however think that it is time now to co-ordinate work of these associations if possible through the Central Agricultural Association at Poona.

(III) FAMINE WORK.

The year 1918-19 opened with poor and late monsoon and so kharif crops could not be sown in most parts. Whenever kharif could be sown it was sown in the month of July but with the exception of East Khandesh and scattered fields in other districts protected by irrigation, these crops withered and died for want of sufficient rains. Even the late rains were absent and hence Rabi tracts remained practically fallow including Tapti valley where most of the wheat in the Central Division is usually grown. As a result of the failure of rains water-supply in the wells ran short. The canals also felt the pinch and area under sugarcane crop had to be considerably curtailed. Intelligent cultivators worked their wells as far as possible and pulled on till about November, when they also felt anxiety for food and fodder, especially for the latter.

Food question.—Of all the districts in the Central Division Ahmednagar suffered the most. The Agricultural Department, in good seasons, instructs farmers how to grow more food and fodder. Immediate relief of bringing food from outside remains with other departments; and Agricultural Department during the famine has only to supplement such and other efforts. In the Central Division we distributed concentrated manures to increase the supply of food. A large quantity of cake was distributed mostly on the canals for applying to wheat and jowari crops. This manure responded well.

To save seed of such of the important crops as would have disappeared and also to help the cultivator in getting good seed of important staples (Kharif and Rabi) large quantities of seeds were purchased. The work is still being continued for Rabi season and so exact quantities cannot be given at this stage.

Fodder question.—Due to the scarcity of rain last season fodder was scarce throughout the Division, want of fodder being felt as early as September 1918 and the situation became more serious in subsequent months, especially from March to July 1919. In the plains of Khandesh fair amount of kadbi and wheat straw and in the hilly parts of the districts straw and forest grass was available. In the Mawal tracts of Poona and Nasik and in the Dangs of Ahmednagar fair amount of straw and forest grass was available for local needs. Cattle from the plains however went there in herds. At this time there was scarcity of drinking water and supply of water was not adequate for the incoming rush of cattle and as a result large numbers of cattle going to the forests died either in the forests or on their way back.

In the plains want of fodder was very keenly felt and if it had not been for the Government stores of grass probably 75 per cent. of the cattle from the plains would

have been disappeared. But due to the distribution of Government grass supplemented by Government and private efforts by way of bringing fodder from outside, raising green fodder locally and making use of prickly pear and forest leaves fairly large percentage of cattle was saved. The work of the Relief Committees, in Bombay, Ahmednagar, Nasik, Poona and other large and small Committees all over the Division, was found useful. The Panjarpoles in the Division saved no small number. Yet from a census taken under the orders of the Collector of West Khandesh it has come out that the number of cattle was decreased by 40 per cent. in West Khandesh. In Ahmednagar District and in the Eastern talukas of Poona this decrease must be much higher.

Our efforts to meet the situation can be divided into the following :—

- (1) To bring the help and facilities offered by the Revenue Department to the notice of the cultivators.
- (2) To help and advise the local prickly pear depots in their management.
- (3) To run departmental prickly pear depots.
- (4) To run some pumping plants departmentally and advise others to whom engineering section of the Agricultural Department had lent pumping plants.
- (5) To increase fodder supply by distributing fodder seeds.
- (6) To supply them with quick acting manures to increase the food and fodder supply.
- (7) Economising existing stock of fodder by the use of chaff-cutters, etc.

(1) and (2) Myself, the Divisional officers and the Agricultural overseers were moving in the District asking the cultivators to raise fodder, making use of the existing wells. We tried to meet their difficulties when they were in need of fodder seeds and recommended them to the Revenue authorities when they wanted Tagai for repairing wells which were out of use. While on tour prickly pear depots opened by the Revenue officers, local bodies, panjarpoles, private individuals and by Agricultural Department, were visited to supervise and standardise the preparation of prickly pear feed and feeding and such work was found very necessary and useful, improper preparation and injudicious feeding of this feed being harmful. In the early part such tours were found more useful in bringing the help and facilities offered by Government through the Revenue officers such as giving Government grass at cheap rates and Tagai for seeds, manures and repair of wells, etc., to the notice of peasants residing far away from taluka head-quarters and in fact, I think, it is better to depute a fieldman from the Agricultural Department or a karkun from the Revenue Department out in each taluka, as soon as famine is declared, to acquaint people with the ways of relief offered to them.

(3) There were several dozens of prickly pear depots in each of the five districts opened by the Revenue officers and local bodies. We supplied as far as possible trained men, chaff-cutters and forges to these depots. With our limited staff we could take management of only few depots in our hands. The Inspector of Agriculture on Famine Duty, Nasik, was one of the two principal managers of the Nasik depot. The Agricultural Overseer, Dhulia, paid special attention to the Arvi depot opened and carefully organised by Mr. MacMillan, the Collector of West Khandesh. In Ahmednagar District we gave a graduate to manage Belapur depot and skilled *mukadams* to the depots started in Shevgaon, Newasa, Ahmednagar, Shrigonda and Parner Talukas and Indapur and Khed Talukas of Poona District. In Poona District we managed two depots (one at Peit and one at Chakan) departmentally and the places being within approachable distances from my head-quarters I kept watch on them. At Peit and Chakan depots no cattle were taken as in other camps. These two depots prepared prickly pear feed and sold to the cultivators, who freely purchased it at 5 annas per 100 lbs. (the cost of bringing prickly pear, burning, chaffing, etc. came to 5 annas per 100 lbs. as an average of several thousand lbs. sold). Later on, however, we reduced the price for the benefit of cultivators. Moreover we got Rs. 500 for Peit and Rs. 350 for Chakan depots from Bombay Presidency Famine Relief Committee and Poona District Famine Relief Committee respectively for cotton seed to be mixed with prickly pear. Peit depot worked for 103 days and sold 136,060 lbs. and Chakan depot worked for 54 days and sold 95,397 lbs. of prickly pear. In order to know the opinions of the people about such depots and to impress on them the lessons of famine, meetings were called at Peit and Chakan where people seemed to be very much pleased with the work of the depots. Though such depots, of necessity, must be limited in number yet I think for Famine Relief Committees this type is most suited. These are directly useful and have teaching value as for want of whole-time workers and trained hands Relief Committees find difficult to successfully manage cattle camps and it will be better if such Committees simply provide funds for prickly pear depots to the Agricultural Department and keep in touch with the work.

(4) *Pumping plants and fodder growing.*—The Director of Agriculture, in order to encourage pumping plants and fodder growing, gave a number of pumping plants on loan to private cultivators asking the Agricultural Engineer and the Deputy Directors to give these and other installations every help. The following shows the number of

plants in the Central Division which received help from the Department. The Agricultural Engineer's staff looked after the machinery while the Deputy Director and his staff supplied seeds, manures, often implements and gave advice in cropping.

No.	Name of Plant.	Break horse pump.	Area grown.	Crops.	Remarks.
<i>Poona District.</i>					
1	Shiroli	10	21	Maize and Potatoes	Plant belonging to a private man.
2	Nandgaon	87	410	Rabi crops and maize	Demonstration plant installed by the Department.
3	Vadgaon	4	19	Jowar and Maize	Department plant lent.
4	Poona	7	14	Do.	Do.
5	Chinchwad	10	17	Do.	Do.
6	Manjari	10	80	Maize	Department plant worked by the Professor of Agriculture.
7	Patas	10	10	Jowar and Maize	Department plant lent.
8	Bibyachu Wadi	7	2½	Maize	Do.
<i>Nasik District.</i>					
9	Gondegaon	15½	70	Jowar	Department plant worked departmentally.
10	Malegaon	7	12	Jowar and Lucerne	Department plant lent.
<i>Ahmednagar District.</i>					
11	Bhambora	60	80	Jowar and Maize	Department plant worked by the Union Agency.

The plants were found useful to the cultivators and were responsible for saving number of cattle besides producing food crops in addition.

The plant at Gondegaon on the Godavari was worked departmentally, Agricultural Engineer's staff being responsible for the field work. Mr. Bhagwat was in charge of Agricultural work of the plant. Fodder was grown on cultivators' land by themselves on condition that the Agricultural Department was to supply water (free of charge) and bear the expenses of water channels and half the cost of seeds and manure. The owners of the land were to perform all the field operations and give the Department half the produce. About 70 acres were sown with Khondi, Sundhia and Maize. The crop was top-dressed with oil-cake and ammonium sulphate. On the bases of the several tests, the outturn of green fodder from these 70 acres was estimated to be about 300 tons. In the beginning when the demand was keen fodder from each acre was sold at Rs. 188. At this rate Departmental share would have fetched about Rs. 6,000 at a cost of Rs. 1,475 plus irrigation charges. Conditions, however, changed on account of early rains when plenty of grass was available and as a consequence prices of fodder fell, the total sale of the Departmental share amounting to Rs. 960 only. The fodder, however, was of immense use in the neighbourhood and people have well understood the value of such plants.

(5) and (6) With a view to further increase the fodder-supply Hundi, Khondi Kalbondi, Sundia and Maize seeds, as detailed under seed distribution, were distributed to the extent of 68,533 lbs. As a further help concentrated manures such as ammonium sulphate and oil-cakes worth Rs. 16,936-13-3 were distributed to stimulate the growth of fodder crops. Of the seeds distributed a large quantity was brought from outside the Division. The operations of the Department moreover held prices in check and helped cultivators directly as well as indirectly.

With a view to help the cultivators further, Tagai was obtained from Government and in a number of cases seed was supplied at 25 per cent. reduced rates. The amount of concession for hot weather and Kharif seeds amounting to Rs. 2,074-3-7 being kindly met by the Bombay Presidency Famine Relief Committee at my request. The work is not stopped here and I have arranged to purchase Rabi seeds worth Rs. 16,000 for the Central Division and I expect to receive Rs. 3,000 from the Honourable Mr. Furshottamdas, the Secretary of the Bombay Presidency Famine Relief Committee.

(7) All the chaff-cutters in my possession including the power chaff-cutters at Jalgaon and Dhulia were used for chaffing kirbi for the farmers at nominal rates. Besides 66 Rotary and 3 hand chaff-cutters worth Rs. 8,590-10-0 were purchased and the use of these given to the prickly pear depots and cattle camps free of charge. Chaff-cutters save fully ¼ to ½ of the kirbi and hence the use of these chaff-cutters was fully appreciated by the people.

(IV) MISCELLANEOUS WORK IN CONNECTION WITH THE FAMINE.

(1) Capturing wild cattle in Chandhora Forest (near Nandgaon, District Nasik).

In some of the forests in Central Division domesticated cattle, left loose by their owners in previous famines as also cattle absconded from villages herds have bred and

multiplied and their progeny is turned wild. They migrate from place to place in the neighbouring forests and are a source of trouble to crops. The trouble was felt in previous years, but it became more serious in the year under report when these cattle could not get anything to eat in the forests. The Agricultural Department, in the Central Provinces which had previous experience in this work, was requested to send a couple of experienced hands. The Department, however, could not spare any such hands and we had to take up the work ourselves. The campaign was delayed on this account. The campaign was planned on the lines adopted by the Agricultural Department in Central Provinces and Khedas as described by them were built. A non-graduate fieldman Mr. More was placed in immediate charge of the operations under the guidance of Mr. Athalye. I was present to help the party when operations were opened on the 27th May 1919. On this day 3 animals were caught. The operations were continued for 25 days during which time 3 bulls, 2 bull calves and 14 cows and heipherds were caught. Three of these died of accident while capturing as they would not stand capturing. Many would not eat or drink anything and as a consequence 9 of the cattle starved themselves to death. The 7 survivors were sold to a cultivator for Rs. 119.

The Khedas have not been dismantled and if animals, are seen next season in Chandhora Forest we will resume the work.

(2) *Destruction of wild pigs.*

Wild pigs have been a constant trouble in many parts of the Central Division and complaints have been received from West and East Khandesh and Poona Districts. The question of dealing with the pigs, living in some kind of forests and visiting grain, groundnut and root crops at night, is more difficult. In the case of sugarcane on the Nira Canal and also on the parts of Mula Mutha Canal to the east of Poona where pigs generally live in the sugarcane fields the matter is not so difficult.

Before undertaking the present campaign and while in charge of the Manjri farm as acting Professor of Agriculture I had attempted to tackle the question on a small scale (1) by improving the fencing, (2) lying in wait at night in the crop with guns, as also (3) hunting the pigs out of sugarcane fields with the help of Gosavis and their dogs and shooting the beasts when they come out. The first is costly and difficult and not suited with the present system of farming. The second can only be followed by the owners of the farm as it is very slow. The third is quite successful and one which can be pursued by organised parties and this was followed in the present campaign.

The campaign was planned in consultation with and help of the Chief of Phaitan and Rajasahab of Malegaon. Mr. S. B. Jadhav, Agricultural Overseer, Nira Canals, was placed in charge of the operations. The party under him consisted of about 20 beaters and 12 dogs. Of the beaters 3 or 4 men were given guns. Of the number of dogs 4 or 5 small ones were intended only to trace the pigs in the field while big dogs kept outside chased and killed young pigs (hunted out by the beaters) and such of the large ones as were wounded by the gunners.

The campaign opened its operations on the 23rd March. By the end of June 134 animals were killed at a cost of Rs. 809-5-0, i.e., about Rs. 6 per head of pig. Of the 134 pigs, 62 were shot by guns and 72 killed by dogs. During this period 236 animals were seen, out of which 134 could be bagged. I joined the party four times and was responsible for a number of pigs each time.

To my mind the work is very useful as each pig is considered to eat canes and grain worth Rs. 100 a year, the loss by way of destruction and spoiling being probably much more. At a meeting held to sound the opinion of the irrigators everyone seemed anxious to have some permanent organization to deal with the question of pigs and they were ready to offer any help.

As a result of the large number of kills and beating and chasing the tract near Baramati is at present practically free from the serious trouble of pigs. It has been reported that the survivors have left the tract and gone beyond Nira. The animals are likely to return again and we may have to plan some permanent organization to deal with the pig question in the sugarcane tract at any rate.

(V) REMARKS.

The whole staff in the Division, where there has always been more work due to the early organization and development of district work in several directions, had to put in strenuous work during the year under report especially due to the famine work such as the distribution of seeds, manures, implements; management and supervision of cattle camps, prickly pear depots and pumping plants; production of fodder and campaigns like killing pigs and capturing wild cattle, etc. Mr. Athalye was in charge of famine work in Nasik and Khandesh Districts. He is a pushing officer and he discharged his duties ably. Mr. Jadhav was in charge of the Kopergaon Sugarcane Plot and subsequently was in the district helping in the famine duties on Godavari and Nira Canals. His work both at the Farm and in the District was splendid. His keen sense of duty was especially noticeable while he was in charge of the pig-killing campaign.

P. C. PATIL,

Poona, 23rd September 1919.

Deputy Director of Agriculture, C. D., Poona.

APPENDIX E.

WORK DONE UNDER THE DEPUTY DIRECTOR OF AGRICULTURE,
SOUTHERN DIVISION, DHARWAR, DURING THE YEAR 1918-19.

STAFF.

In the absence of Mr. (now Lieut.) T. Gilbert, on war service still, Rao Saheb M. L. Kulkarni remained as Deputy Director of Agriculture throughout the whole year. He now completes three years' acting service in the vacancy caused by war. During the year under report the newly sanctioned post of the District Agricultural Overseer for Sholapur was filled up by Mr. C. R. Gokhale, a graduate of the Poona Agricultural College. His services were transferred to this Department from the Archaeological Survey Office, Poona, in Government Order No. 4639, dated 6th May 1919, Revenue Department. A non-graduate fieldman, Mr. B. S. Inamdar, working on the Gokak Farm, unfortunately died during the year, of influenza. Mr. Inamdar was one of the most brilliant men in the non-graduate staff of the Department. His place is now filled up by Mr. N. M. Handigol, who was a second clerk on the Dharwar Farm.

For the sake of convenience, the cotton work was separated from the general district work in the Division under the Inspector of Agriculture, and the charge of this work is given to Mr. V. R. Dharwarkar, who has been working in the district cotton work for some years past, and has thus acquired a good deal of practical knowledge in dealing with the cotton question, both with the cultivators and the cotton trade. The services of both Messrs. Dharwarkar and H. B. Kulkarni were lent for three months to the Co-operative Cotton Sale Societies at Dharwar, Hubli, Gadag and Bagalkot.

Mr. L. N. Deshpande, clerk-fieldman in the office of the Inspector of Agriculture, was appointed as District Agricultural Overseer for Dharwar District. But owing to his ill-health in the district he preferred to revert to his original post. This vacancy and the vacancy of the second clerk on the Dharwar Farm are yet to be filled up.

During the year under report, Mr. Swadi, Superintendent of the Gokak Canal Farm at Arbhavi, was on privilege leave for one month and Mr. I. S. Kulkarni, graduate fieldman on the same farm, acted for him.

Mr. Itigi, Overseer, Gadag Farm, having been transferred to the Cotton Branch on the Dharwar Farm, Mr. G. R. Deshpande, a graduate, was appointed in his place on that farm. The designation of Overseer, in charge of the office of the Gadag Farm, was changed into Superintendent, as the farm is now growing into importance and the work done there is as valuable as on other Government farms.

GENERAL.

The general line of work undertaken by the Department on Government farms and in cultivators' fields, *viz.*, land development, improvement of crops in quality and quantity, introduction of suitable machinery and implements, diffusion of agricultural knowledge through leaflets, bulletins, monthly vernacular agricultural magazines, agricultural education in vernacular agricultural schools and demonstrations of successful methods at different places, was pushed forward during the year as vigorously as could be done, notwithstanding the adverse circumstances owing to war, famine and influenza.

A good deal of the time of the district staff was engaged in the famine work undertaken by the Department, *viz.*, collection and distribution of varieties of grain and fodder seeds, in raising fodder crops and in demonstrating the use of prickly pear as cattle food under different methods. The use of hand implements, in places where bullock power was found insufficient, for sowing and interculturing, was also done, especially in the Belgaum and Satara Districts, with the result that some of the cultivators have taken to the latter operation, by human power in place of bullocks.

IMPLEMENTS.

The steady progress in the introduction of improved agricultural implements in this Division, of the previous 5 years, suddenly fell down during the current year owing to the extraordinary high prices for the same on account of war which can be seen from the following statement:—

Serial No.	Year.					Gross value of implements sold.
						Rs.
1.	1913-14	...	....	...	...	4,000
2.	1914-15	...	...	...	...	6,000
3.	1915-16	...	...	...	...	26,000
4.	1916-17	...	...	...	...	38,000
5.	1917-18	...	...	...	...	52,000
6.	1918-19	...	...	...	...	17,500

The details of implements sold by the different implement depôts under the control of the Department are given below:—

Serial No.	Name of depôt.	Value. Rs.
1.	Dharwar Farm	4,080
2.	Gadag Farm	1,911
3.	Devi-hosur School Farm	906
4.	Gokak Farm	2,499
5.	Chikodi Agricultural Association	700
6.	Belgaum Association	3,084
7.	Athani Association	1,000
8.	Bijapur Association	2,718
9.	Sholapur Implement Depôt	470
10.	Islampur Implement Depôt	160
Total		17,539

The experimental line of work, of hiring out to cultivators improved agricultural implements, such as ploughs, sugarcane mills and other apparatus, wheat-threshers, groundnut shellers, etc., undertaken by the Department as a demonstration for business purpose, either by individual private people or by Associations, Societies or other bodies, is becoming more and more popular. A number of new co-operative implement societies are being started in this Division, which, it is understood, are doing well. The District Agricultural Associations which have undertaken this work find it now as one of the important items of their work, as it has become a source of income to the Associations.

The following statement gives the details of implements hired by different institutions and the amount of hire realised till 31st March 1919:—

Serial No.	Name of farm.	Details of articles hired.	Value of articles	Amount of hire realised.	Cost of repair	Per cent. of recovery on capital	Value.
			Rs. a p.	Rs a. p.	Rs. a. p.	Rs. a. p.	
1	Gokak Farm	3 ploughs with chain	196 7 2	98 8 0	46 8 0	50	186 0 0
2	Gadag Farm	9 ploughs, 1 wheat-thresher, iron chain 285 feet.	475 8 0	150 11 0	..	31.69	448 1 0
3	Devi-hosur	7 ploughs—Gallows, C T2, B T2, Sabul, 1 Planet Junior Hoe, 1 iron scraper.	363 11 6	99 0 0	9 14 0	27	348 0 0
4	Divisional Superintendent of Agriculture, Sholapur.	5 C T2, 4 Gallows, 5 Arington, 7 Kirloskars, 1 D.T2	970 15 0	194 11 6	11 3 0	20	910 0 0
5	Dharwar District Agricultural Association	25 C T2, 1 Gallowa, 1 B.T2, 1 Kirloskars, 1 wheat-thresher.	1,000 0 0	321 5 8	..	32	808 0 0
6	Athani District Agricultural Association.	17 ploughs	..	331 8 0	..	..	Value not given.
7	Bijapur District Agricultural Association.	4 do.	..	69 7 0	..	..	Do.
8	Chikodi Prince Victor Fund	4 do	..	29 5 0	..	..	Do.

Experience shows that the success of hiring out improved implements depends upon the immediate repairs to such implements when they are returned by the cultivators after use, and the proper care with which these implements are stored when not in use. It seems, therefore necessary, that institutions keeping implements for hire should have a small workshop of their own, where petty repairs should be done to the implements hired in the busy season, and also undertake to do local agricultural implements of improved patterns in the slack season. If any institutions undertake to start workshops, the Agricultural Department would be glad to supply model local agricultural implements for multiplying the same in the districts through their workshops.

SHOWS AND DEMONSTRATIONS.

The usual demonstrations of useful agricultural implements such as different ploughs, sugarcane mills and other gul-making apparatus were only 14 this year as against 33 of last year. This was partly due to the failure of crops owing to famine, and partly to the staff being engaged in other urgent famine work, *viz.*, demonstrations of preparing prickly pear as cattle fodder and in raising fodder crops under irrigation. The former was demonstrated at 31 villages in the Bijapur and five places in each of the Dharwar and Belgaum Districts. Recently a new devise to remove the thorns by an iron thorn-picker, costing about six annas, has been devised for the use of individual cultivator, having only two or three cattle. The use of this thorn-picker was demonstrated along with the

established methods of burning the thorns by blow-lamps or by country bellows. The hand thorn-picker seems to become popular, as one man or woman is able to prepare about 70 to 75 lbs. of feed in a day of eight hours. The feed when prepared by the picker is absolutely free from thorns.

Two ploughing competitions were held, one in the Dharwar and another in Bijapur District. The total number of competitors in the two competitions was 40, out of which 12 received prizes worth in all Rs. 138. Part of this money was given by the Department and part by local contributions and by co-operative societies. The competition in the Bijapur District was held at Bagalkot at the time of the District Co-operative Conference held there.

The demonstration of water-lifts held by the Agricultural Engineer at the College Farm was attended by 29 cultivators from Sholapur District and 45 from Satara District.

Demonstration of good crops with artificial manures.—A maize crop at Arjunsonda in the Sholapur District was manured with artificial manures. The crop was exceedingly good. It was thought advisable to bring the crop to the notice of the surrounding cultivators. A demonstration was therefore arranged. Professor Knight from the Agricultural College visited the place to see the crop.

The following mixture of manures was given to the crops:—

Name of manure.		Quantity.
Farm yard manure	...	15 cart-loads per acre.
Superphosphate	...	100 lbs. per acre.
Sulphate of potash	...	50 lbs. per acre.
Ammonium sulphate	...	50 lbs. per acre.

Ridges were made 2½ feet wide, and the seed was dibbled in the middle of the ridges at 12 inches apart in the row. When the plants attained a height of 3 feet, they were earthed up as was done to sugarcane crop. The crop was planted on 3rd June and harvested on the 5th of September. The plants grew 10 feet high. The yield of grain per acre was 4,032 lbs. The yield of a fairly good crop of maize with ordinary farm yard manure in the district is about 2,500 lbs.

An experiment to demonstrate the use of oil-cake to irrigated paddy crop was undertaken at Mugatkhan-Hubli in the Belgaum District. Groundnut cake was given as top-dressing in the beginning of October and the following are the results of yield, etc.:

Manure given.	Quantity per acre.	Cost of manure per acre.	Yield per acre.		Value of produce per acre.
			Grain.	Straw.	
		Rs. a. p.	Lbs.	Lbs.	Rs.
Sheep-folding + Farm yard manure + Groundnut cake	Cost Rs. 9 5 cart-loads 280 lbs.	9 0 0 5 0 0 10 8 0	2,700	1,200	250
		14 8 0			
Sheep-folding + Farm yard manure	Cost Rs. 9 5 cart-loads	9 0 0 5 0 0	1,980	1,000	185
		14 0 0			

The high value of produce per acre is due to the high rate for food-stuffs during the year. However the difference in the yield of grain per acre in the two plots shows that top-dressing of some quick acting manures to paddy crop is profitable.

The new method of planting sugarcane in the row system has been introduced in 20 villages in the Sholapur District, 3 in Satara, 2 in Bijapur and 6 in the Belgaum District. The method is becoming popular, as it requires less water and it is hoped that it will soon be taken up by all the sugarcane cultivators especially in the well-irrigated tracts.

The details of copper sulphate packets distributed in this Division are shown in the following statement:—

Serial No.	Name of District.	Number of packets.
1.	Dharwar	4,047
2.	Belgaum	1,035
3.	Bijapur	516
4.	Sholapur	41
5.	Satara	554
		6,243

There was very little scope for extending this work during the year owing to unfavourable season all over the Division. As stated in the last year's report, it is extremely difficult for the limited staff of the Department to distribute large number of copper sulphate packets in a short period of sowing jowar all over the places. Thus I have suggested last year that this simple work should be undertaken by different bodies, *viz.*, Municipalities, Taluka and District Local Boards, Circle Inspectors, stamp-vendors, village officers and Co-operative Credit and Agricultural Societies. I urge this suggestion once more as it is one of the important simple improvements to be introduced in all parts. Its introduction to the full extent is remaining behind, simply for want of proper organisation.

Fruit Trees.—Owing to unfavourable season, the progress made under this head was not much during the year, though a few plants of different varieties of fruits were obtained and distributed.

Distribution of seeds and manure.—As stated in the last year's report, the work of distribution of ordinary seeds is handed over to the Co-operative Seed and Sale Societies. Accordingly these Societies are distributing very large quantities of seeds, especially of different varieties of cotton, *viz.*, Kumpta, Dharwar-American and Cambodia. The distribution of seeds of selected varieties of cottons as usual and of food-stuffs owing to famine this year only, was undertaken by the Department. The following statement gives the details of the seeds distributed :—

Serial No.	Description of the seed	Quantity distributed in lbs.	Remarks.
1	Kumpta Selected (Dharwar No 1)	4,200	Grown on Dharwar Farm.
2	Do. do.	15,550	Seed obtained from seed-growers.
3	Kumpta Cross	1,000	Grown on Dharwar Farm.
4	Upland type of D. A. cotton	1,200	Grown on Gadag Farm.
5	Cambodia	1,200	Do.
6	N. R. cotton	12,875	Obtained from Khandesh.

The details of seeds collected and distributed of food-stuffs in the Division as a special measure against famine are given below :—

Serial No.	Name of seed.	District where distributed.					Total
		Dharwar.	Belgaum.	Bijapur.	Satara.	Sholapur.	
1	Paddy	217,000	30,000	.....	.....	.....	247,000
2	Kharif Jowar	37,700	9,800	.....	8,800	.....	55,800
3	Rabi Jowar	11,000	.....	.....	.....	.....	11,000
4	Wheat	.....	.....	96,471	.....	.....	96,471
5	Groundnut	.....	.....	.....	15,884	1,920	17,804
6	Tur	.....	.....	.....	6,252	5,887	12,139
7	Castor seed	2,991	5,743	6,249	.....	4,847	19,830
8	Black Kulthu (Dolichos biflorus).	.....	.....	.....	3,348	.....	3,348

The demand for artificial manures (*ammonium sulphate*) was less during the year under report, owing to the failure of sugarcane crop on account of insufficiency of water in canals, tanks and wells. However owing to the absolute certainty of good crops of sugarcane with a top-dressing of ammonium sulphate, the demand came in from several quarters in small quantities. Similarly the use of different oil-cakes both for sugarcane and other cereals was taken up by cultivators, as advised by the district staff. Arrangements were made to supply these manures at cost price. The following are the details of manures supplied :—

Serial No.	Name of manure.	Quantity in lbs.	Remarks.
1	Ammonium sulphate	17,920	Sholapur District.
	Do.	8,860	Satara District.
	Do.	9,000	Belgaum District.
2	Different oil-cakes for sugarcane	150,000	Sholapur District.
	Do. do.	57,941	Belgaum District.
3	Different oil-cakes for cereal crops as advised by the Department.	81,600	Sholapur District.
	Do. do.	10,360	Belgaum District.

The successful demonstrations of ammonium sulphate on sugarcane and oil-cakes on other crops at different places have been appreciated by cultivators, specially of Satara District, with a result that manure supply societies have been formed at the following places:—

- (1) Peth, (2) Yellur, (3) Koregaon, (4) Retrabudruk, (5) Retra, (6) Devarashta, (7) Supane.

There is now scope for similar societies in the irrigated tracts of all districts especially where sugarcane is grown on large scale.

CROPS.

Cotton.—Owing to uncertain rains in the beginning of the monsoon the area under Broach cotton is not increasing, as was first expected. The staple of Cambodia cotton though the crop gives very high yield, in certain villages in the Gadag and the Ron Talukas of Dharwar District, is deteriorating in strength. Thus after careful consideration it is decided to extend the selected types in the local Kumpta and Dharwar-American cottons only. These are designated as Kumpta Selected (Dharwar No. 1) and Upland type of Dharwar-American cotton (Gadag No. 1). A definite policy of work regarding the extension of these types throughout the Division was laid out at a meeting held at Dharwar in consultation with the Director of Agriculture, Dr. Mann, and the subordinate staff on the farm and in the districts, who are concerned with the cotton work. The policy was strictly followed during the year and the kapas produced from different types of cottons in registered seed-growers' fields was sold by auctions through sale societies at Hubli and Gadag, and pure seeds as far as available from such kapas, were bought back by the Agricultural Department for further distribution on larger areas in suitable localities.

According to the original policy laid down, the work of buying back the seed and distribution of the same was to be done by the Co-operative Societies. But after further consideration, in accordance with the recommendations made by the Cotton Committee in their report, the question was again discussed at a meeting recently held of the Director of Agriculture and the members of the Agricultural staff in the Southern Division, with the Registrar of the Co-operative Societies and his staff, and the Honorary Secretary of Hubli Cotton Sale Society, and certain modifications were made in the original policy of district cotton work. The final policy as recently settled is as below:—

(1) The cotton supervisor to produce every year newly selected cotton seed. This is essential as good cotton seed rapidly deteriorates through cross-fertilization.

(2) To multiply the farm cotton seed on the farms of the Agricultural Department until there is seed enough for about 600 acres.

(3) To multiply such cotton seed further, on the lands of the cultivators, who will become our registered seed-growers, until seed for 5,000 acres is obtained, the actual selling of the kapas produced being organised in connection with auction sales of the Co-operative Cotton Sale Societies.

(4) To distribute this seed, in consultation with the Co-operative Department, and undertake to rogue the fields in which it is grown—the sale of the kapas produced being done by the Co-operative Cotton Sale Societies in their auction sales.

(5) To classify the kapas received at such auction sales in the case of Cambodia and Broach cottons and in the case of other cottons if necessity arises.

Thus the district cotton work has now been put on systematic basis and it is hoped that the joint work of the Agricultural and the Co-operative Departments, on these lines, will solve the question of improving the local cottons to some extent at least.

In all the auction sales held by the Cotton Sale Society at Hubli, Kumpta selected kapas (Dharwar No. 1) has realised from Rs. 25 to Rs. 35 more per Naga which is the produce of four acres. Messrs. Tata & Sons have again valued this year Dharwar No. 1 (Kumpta selected cotton) at Rs. 20 more per khandy of 78½ lbs. Thus there is no question regarding the superiority of the quality of Dharwar No. 1 over the ordinary local Kumpta cotton.

On the Dharwar Farm the Selected Kumpta (Dharwar No. 1) has invariably yielded about 50 lbs. more than ordinary Kumpta under similar conditions. Experiments to test the yield in different localities on large scale under different conditions of rain and soil are undertaken by the district staff in the Dharwar, Belgaum and Bijapur Districts. When conclusive results will be obtained from these experiments the variety will be distributed on wholesale scale throughout the Kumpta tract.

The growing habit of Dharwar No. 1 (Kumpta selected type) seems to favour a more compact stand in the field. To test this view, the Cotton Supervisor laid out

certain experiments on the Dharwar Farm and the following statement gives the result of the experiments during the year :—

Serial number.	Plots.	Area.	Name of cotton.	Spacing.	Number of plants per acre.		Yield of kapas per acre.	Re- marks.
					Theoretical.	Actual.		
		A. g.			Lbs.	Lbs.	Lbs.	
1	108-1/8	0 5	Dharwar No. 1 ...	24" x 12"	21,730	13,096	612	
2	108-1/8	0 5	Do. ...	24" x 9"	29,040	24,882	692	
3	108-1/8	0 5	Do. ...	24" x 6"	43,560	37,344	593	
4	108-1/8	0 5	Do. ...	18" x 12"	29,040	26,072	644	
5	108-1/8	0 5	Do. ...	18" x 9"	38,730	34,072	696	
6	108-1/8	0 5	Do. ...	18" x 6"	58,080	51,456	656	

18" between the rows has given better results than 24". Of the three distances between the plants, 9" has done well in both the cases. Taking the average number of plants to be about 30,000, the yield of kapas about 700 lbs. per acre, and the number of bolls to be 10 in a tola of kapas, the yields given in the two cases work out at about 9 bolls per plant in the selected Kumpta (Dharwar No. 1). The experiment will however be continued to confirm the result.

The result as obtained on the Gokak Canal Farm at Arbhavi on the experiments of top-dressing of chilly crop with safflower cake are given below, as these results are very encouraging to advise the chilly cultivators in other parts of the Division to follow the practice:—

Serial number.	Area in gunthas.	Previous crop.	Details of manure given.	Cost of manure per acre.	Yield of dry chilly per acre.	Re- marks.
1	10	Sugarcane ...	10 cart-loads F. Y. M. + 400 lbs. of safflower cake.	Rs 28	Lbs. 2,819	
2	10	Do. ...	10 cart-loads F. Y. M. alone ...	15	2,500	

Sugarcane.—Owing to the unfavourable season the sugarcane crop in the district was on the whole very poor. In some cases unripe canes were fed to cattle as fodder. In others, where the canes were allowed to ripen, the crop was spoiled for want of sufficient moisture. Gul from such crop was very inferior in quality. On the Gokak Farm, however, the crop was good owing to the fairly sufficient supply of water in the canal till harvest time and the proper timely cultivation operations.

The experiments of planting sugarcane sets under single eye-bud and two eyes up are in progress on larger scale both at Arbhavi and at Dharwar.

MAGAZINE.

It is gratifying to note that the publication of the Kanarese Agricultural Magazine which has been entrusted to a Committee of the graduate staff on the Dharwar Farm has been most satisfactorily conducted throughout the year. The co-operative section, which was being hitherto included in the magazine, has been discontinued as the Central Co-operative Institute is now publishing separate magazines of its own, in different languages. The number of subscribers for the magazine is the same as in the last year.

VERNACULAR AGRICULTURAL SCHOOL AT DEVI-HOSUR.

This school, which is in existence since five years, has now been well established. Applications for admission are rapidly increasing. More attention is paid to admit only suitable boys. There were 36 boys in the beginning of the first term. Five of them left the school before the end of the term, owing to unavoidable home difficulties. One was sent back, being found unfit for the school. Thus there remained 30 boys for the annual examination of whom 13 were in the first and 17 in the second year.

Arranged according to districts, they stand as shown below :—

Serial number.	Name of district.	1st year.	2nd year.	Total.
1	Dharwar ...	9	11	20
2	Belgaum ...	2	3	5
3	Bijapur ...	2	2	4
4	Karwar ...	.....	1	1
	Total ...	13	17	30

When arranged according to caste, they stand as under:—

Caste.	1st year.	2nd year.	Total.	Remarks.
Brahmin	5	.....	5	
Lingayat	6	9	15	
Raddy	2	6	8	
Sheth	.....	1	1	
Maratha	.....	1	1	
Total	13	17	30	

Of the 17 boys in the 2nd year, 16 passed, of whom 8 with credit, securing 60 per cent. marks.

The *curriculum* remains practically the same. More attention is however paid to practical field work of the boys. The senior students spend 4 hours on the farm while the junior students spend 2 hours daily. During leisure time, the students are engaged in doing work in connection with some minor industries, such as, rope-making, Gudar (carpet) weaving, preparing petty agricultural tools and implements, etc. (iron and wood):

An oil-engine with a power chaff-cutter, grinding mill and a rice-huller is recently fitted. Thus the school is now fully equipped to give thorough practical training to students in all branches of agriculture, and minor industries connected therewith.

Rao Saheb Shetti has shown his usual interest and sympathy towards the school throughout the year.

Acknowledgements are due to all the contributors to the school.

TEGUR FARM.

Though the season was bad during the year, and the pinch of the scarcity of fodder was very severe throughout the country the farm supply of fodder for the large number of cattle at the farm, was sufficient for the whole year. This is due to the foresight in storing sufficient supply in good years, against famine time or other emergency.

Experience shows that cattle do not keep, in good condition on grass fodder alone during the hot months of April and May. Attempts are therefore made to grow some of the varieties of fodder jowars, amongst which, Nilva, Wagar and Local Fulgar, seem to thrive well. A small area was grown with Kulthi for which the land is admirably suitable.

Ensileage.—The growth of grass being poor in the month of September, owing to insufficiency of rain, the standing crop of Wagar variety of jowar, was cut and put into the silo pit. Ensileage from this stuff was found to be good and the cattle relished it very much. There was not much wastage along the sides of the pit, as they are pakka built, with cement plaster.

Construction of a new Dutch Barn.—The steam plough, that was working at Ranebennur having been, removed from Dharwar District, the iron shed intended to keep the plough in the rainy season became available for this farm. It was removed to the farm and put up there during the year. The cost of erecting was Rs. 846-10-0. The shed is big enough to hold stock of fodder, sufficient for at least two years for the farm cattle.

The following statement shows the details of cattle on the farm on 31st March 1919.

Serial Number.	Kind of cattle.	On hand on 1st April 1918.	Purchased in 1918-19.	Born in 1918-19.	Transferred from bull or cow calves.	Total of columns 2 to 5.	Total of columns 6 to 7.	Deaths in 1918-19.	Sold in 1918-19.	Transferred to other farm or otherwise disposed.	Total of columns 8 to 11.	Total disposed.	Balance on hand on 31st March 1919.	Remarks.
1	Bull	1	—	—	—	1	—	—	—	—	1	—	1	
2	Bullocks	2	—	—	—	2	—	—	—	—	2	—	2	
3	Cows	27	2	—	1	30	—	2	—	—	32	—	32	
4	Bull calves	20	—	14	—	34	4	2	—	3 Gobak farm	36	—	36	
5	Cow calves	19	—	17	—	36	1	—	—	1 to cow	37	—	37	
	Total	79	2	31	1	113	7	4	—	5	129	—	129	

AGRICULTURAL ASSOCIATIONS.

Owing to war and famine conditions, during the year the progress of work of these associations was much hindered. However their work in the way of selling and hiring ploughs and distribution of good seeds was satisfactory. The Prince Albert Victor Fund Committee at Chikodi is doing useful work in the taluka, especially in introducing improved method of gul-making and in introducing the row system of sugarcane planting. The Dharwar Association has collected sufficient funds to have its own building. Since Mr. Savanur joined the Association as Joint Secretary, the Belgaum Association has become very active. Among the small Taluka Associations, Athani is the foremost. The Sholapur District Agricultural Association organised during the year, a District Agricultural Conference which was presided over by the Honourable Divan Bahadur Godbole. About 400 cultivators from the District and all the local officers attended the Conference. A number of subjects directly or indirectly connected with the improvement of Agriculture, were discussed at the Conference. A demonstration of improved implements was arranged by the Department at the time of the Conference. The Bijapur Association maintains a small demonstration farm with a trained field-man.

Among the several honorary workers in the Agricultural Associations, in this Division the following gentlemen are taking great interest in their work, and their names deserve special mention in this report, *viz.*—(1) S. V. Desai, Vice-President, Dharwar District Agricultural Association, (2) Mr. G. B. Savanur, Secretary, Belgaum Agricultural Association, (3) Mr. S. S. Mangasuli, Secretary, Athani Association, (4) Rao Saheb P. G. Halkatti and (5) Dr. Ranade, Joint Honorary Secretaries, Bijapur Association, (6) Rao Saheb, V. B. Kulkarni, Secretary, Prince Albert Victor Fund Committee, Chikodi, (7) Mr. G. N. Kakade, Secretary, Sholapur Association.

PUBLICATIONS OF BULLETINS AND LEAFLETS.

The following bulletins and leaflets were published during the year :—

1. Plantain stalks as fodder for cattle in famine years, by Rao Saheb M. L. Kulkarni, Acting Deputy Director of Agriculture, S. D.
2. Cultivation of Cambodia cotton as Mungari (Kharif crop) in the light red lands of the S. M. Country by Mr. V. R. Dharwarkar, District Cotton Overseer.
3. Classification and description of the jowar varieties of the Bombay Karnatik, by Mr. G. L. Kottur, Cotton Supervisor, S. D.

Besides the above myself and Mr. Swadi wrote two papers for the Science Congress which are published in the Agricultural Journal of India.

FAMINE WORK.

As already stated most of the time of the District staff was engaged in collection and distribution of varieties of seeds, demonstration of preparing feed for cattle from prickly pear and in raising fodder crops. A special report about Retra Fodder Scheme has been submitted to the Director of Agriculture. A short account of the same is however given here for information of the readers. The total area grown with varieties of fodder crops on cultivators' lands, was 100 acres. The following were the conditions made with the cultivators in securing their lands temporarily for growing fodder :—

- (1) Water to be given free of charge to cultivators for any fodder crops raised by them under the supervision of the Agricultural Department.
- (2) The main water channels to be constructed and its repairs maintained at the expense of the Department.
- (3) The Agricultural Department to secure and supply seeds to cultivators at cost price.
- (4) Cultivators to make their own distributory channels in the fields, sow the crops, irrigate the same and do all other necessary operations required for the proper growing of the crop until it was ready for use.
- (5) The condition regarding the produce, was, that it was to be divided half and half between the Agricultural Department and the owners of the different fields.

The Agricultural Engineer undertook to instal an engine and a pump, and I undertook to make main water channels, induce the cultivators to grow fodder, settle the terms with them, procure seeds and make all other arrangements for the success of the scheme. Accordingly a 20 B. H. P. steam engine and a suitable pump was soon installed by the Agricultural Engineer on the Krishna Left Bank at Retra in the end of February. The crop was ready for sale from the end of May. The total quantity of green fodder produced was 8,00,000 lbs. The following are the details of receipts and expenditure of the scheme. The statement does not include the items of expenditure incurred by the Agricultural Engineer in raising the water.

Receipts.		Expenditure.	
	Rs. a. p.		Rs. a. p.
(1) By sale of fodder of 50 acres Government share of the scheme	3,892 7 0	(1) To charges for construction of main water channels	475 6 0
(2) By sale of seed sold to out-side cultivators	678 10 0	(2) Purchase of Ammonium sulphate for area of Department	591 0 0
(3) By recovery—		(3) To purchase of seed supplied to outside cultivators	678 10 0
	Rs. a. p.	(4) To wages paid for servants employed for cleaning the engine and for making the road, etc., for carting coal, etc., to the engineering Branch	132 4 0
(a) for Ammonium sulphate given to owners portion of the area under fodder crop.	591 0 0	(5) To purchase of one iron pan paid for engineering Branch	90 0 0
(b) for other operations, viz., harrowing, sowing, making field water channel, irrigating fields, etc.	818 15 0	(6) To construction of huts for labourers.	107 0 0
	1,404 15 0	(7) To purchase of Miscellaneous articles.	90 7 0
		(8) To cultivation charges to be recovered from owners—	
Total	5,971 0 0	(a) for Ammonium sulphate	591 0 0
		(b) for the expenses of harrowing, sowing, prices of seed making, field channels, irrigating, watching and selling, etc.	1,908 5 6
		Total	2,499 5 6
		to profit	1,916 15 6
		Grand Total	5,971 0 0

Besides the above, a large quantity of dry fodder, stored on the Dharwar farm from surplus quantity produced on that farm in previous years, was made available at moderate rates to the needy cultivators in the District in the most critical time, when no fodder was available in the neighbourhood at any exorbitant rate. The total quantity thus sold from the farm was about 1,25,000 lbs. worth nearly Rs. 4,000. A large surplus quantity is still on hand on the farm. This is again reserved for future emergency on the Dharwar and Tegur farms.

EXPERIMENTAL RESULTS.

These are given in full details in the different farm reports written by the respective farm Superintendents. Short accounts of successful experiments are occasionally published in the Vernacular Agricultural Magazine, for information of cultivators.

ESTABLISHMENT.

All the members of the farm and District staff have worked with zeal and energy throughout the year.

M. L. KULKARNI,
Acting Deputy Director of
Agriculture, S. D., Dharwar.

APPENDIX F.

WORK DONE UNDER THE DEPUTY DIRECTOR OF AGRICULTURE,
KONKAN, DURING THE YEAR 1918-19.

During the year 1918-19, there was no change in the general policy of the ordinary work of the Konkan Agricultural Division which has had it developed and developing under three main heads:—

- I. Experimental and research work including investigating into new possibilities;
- II. Extension work or popularization and Introduction of improvements into the practice of agriculturists;
- III. Agricultural education.

In addition to these ordinary functions of the Agricultural Department, it was called upon during the year under report to take its share of tackling with Famine Relief Measures within the scope of the Agricultural Department.

Conditions Influencing the Agriculture of the year.

2. *Rainfall and Season.*—The character of the rainfall which in the largest measure determines the agricultural prosperity or otherwise of a tract like Konkan entirely dependent on the nature's gift, was during the year under report, the most abnormal one a like of which, it is asserted by the oldest men, was not experienced in Konkan during the last forty years. The total fall during the season in most places varied from 40 to 60 per cent of the average, or even more or less in places, and was very badly distributed, more and more decreases being experienced from south to north; the result of this was, that excepting in a few localities which were under the command of some source of water-supply, about 20 per cent of the rice crop remained untransplanted and the outturn of the crop that was planted varied from nil to fifty per cent of the normal. All other *kharif* and *rabi* crops and the sources of water-supply and consequently the irrigated crops had also to suffer their share similarly. The growth of the grass on the whole was not much affected especially in the north Konkan, but owing to a great reduction in the yield of rice straw and great temptations of high prices for selling away of grass, which in ordinary times would have been used for the local cattle, the agricultural livestock did not receive their usual quota of fodder and were consequently in a comparative low condition. Thus the year turned out to be one of great scarcity though not of an acute famine.

3. *Influenza Epidemic.*—The Influenza epidemic which came and spread like wild fire in every nook and corner of the country just at the harvesting time of rice, brought about a further distress by a large loss of life and by a weakening of vitality of a still larger number of survivors preventing timely reaping of whatever crops were to be had.

4. The following comparative figures of the average outturns per acre of the principal crops calculated from the whole area under cultivation on the three farms representing three different conditions for the last two years as well as for the year when the average was the highest in the history of the three farms will give a clearer idea of the effect of the season under report.

Farm and Crops.	Average outturn per acre.			
	1918-19.	1917-18.	The best year for the crop in the history of the farm.	
			Year.	Outturn.
	Lbs.	Lbs.		Lbs.
<i>Albag Farm.</i> (Kojaba District.)	1,484	2,060	1912-13	2,719
Rice ...	(was supplied with the water from a stream.)			
Nagli ...	515	689	1914-15	1,854
<i>Ratnagiri Farm.</i> (Ratnagiri District.)				
Rice, upland ...	490	1,716	1915-16	2,032
Rice, lowland ...	1,823	969	1915-16	2,360
	(favourably situated.)			
<i>Kumta Farm.</i> (Kanara District.)				
Rice, upland ...	810	990	1917-18	990
Rice, lowland ...	1,420	1,270	1918-19	1,420
		(The crop was taken without any manure for standardising the plots.)		

EXPERIMENTAL WORK.

5. The experimental work was continued to be carried mainly at the experimental farms of which, including the Kumta farm in the Kanara District which commenced during the year under report for the first time; its programme of experimental work, there have been now three, *viz.*, Alibag representing north Konkan, and Ratnagiri and Kumta representing the agricultural conditions of their respective districts. The experimental work in rice carried so long has led us to a stage at which in order to make further progress it has been found necessary to carry on deep scientific researches into the factors which relate the rice plant to its several aspects of environment and cultivation; for this purpose a rice research station has been started since this year. Some simple tests were also carried out or results of the experimental work at the agricultural stations verified on cultivators' fields under the immediate direction and supervision of the district staff.

The most salient features of the results are summarized below item by item.

Rice.

6. Owing to the peculiar climatic conditions of the Konkan, rice has necessarily been the principal crop of the low-lying areas and occupies, on an average, 68 per cent of the total cultivated area. It is legitimate therefore that improvement of the rice crop should occupy a main and prominent position in the programme of the experimental work of the three farms. The work during the year was mostly a continuation on the lines adopted in the previous years, the work of the Kumta Farm which began its experimental work for the first time having fallen into nearly analogous lines modified in details to correspond to the Kanara conditions.

I.—Raising of Seedlings.

7. *Manuring*.—It has been conclusively proved in the past that direct manures such as oil-cake, fish manure and ammonium sulphate can equally or more efficiently take the place of *rab*, for seed-bed manuring where a deficiency of the latter is felt. As regards the new line of tackling the insufficiency of *rab* by supplementing *rabbed* seed-beds with smaller doses of direct manures, referred to in the last year's report, the results of experiments both at the Alibag and Ratnagiri Farms indicate that rice seed-beds burnt with as much quantity of *rab* as is available at present are benefited by an addition of some quickly available concentrate such as fish manure or ammonium sulphate supplying 1 lb. of nitrogen per guntha, and this above dose of a direct manure can even make up for one-third or half the deficiency of *rab* materials as used at present.

In Kanara the practice of *rabbing* the seed-bed is not known, farm yard manure being employed for the purpose. The Kumta Farm experiments show that fish manure or ammonium sulphate supplying $2\frac{1}{2}$ nitrogen per guntha produces as compared with the farm yard manure plot, fifty per cent more weight of seedlings which is capable of transplanting a correspondingly increased area, without any decrease in the outturn of the final crop.

II.—Field Manuring of Rice.

8. With a view to investigate into the possibilities of increasing the outturn of rice by applying manures in the fields, the use of green matter in the form of green manure crops or green leaves of suitable trees or shrubs, and bulky, concentrated and indirect manures are under trial.

9. *Green manuring*.—The year's work generally confirms the results of the previous years that—

(1) the increase in the yield due to the addition of green matter in the form of green crops of *san* (*crotolaria juncea*) and *dhaincha* (*sesbania aculeata*) cannot go beyond 10 per cent on the Alibag Farm representing the trap soils of North Konkan even after an accumulated effect for six years; the comparatively poorer soils of the Ratnagiri Farm representing the lateritic rice tract respond much better to this form of fertilizing the crop with however a peculiarly interesting limitation that it is only the smaller crops not exceeding 3,000 to 4,000 lbs. of green matter per acre that show such beneficial effects, the heavier crops invariably resulting into a reduction in the outturn of grain. Just why this is so would form a theme for future investigation.

(2) The nature of the rainfall accompanied by the peculiar conditions of rice fields and the short period available between the commencement of the monsoon and the time of transplanting offers little scope for the successful growth and obtaining of an appreciable quantity of green matter from the above crops sown on rain water. A few localities particularly in the south Konkan possess some facilities of a source of water-supply or water retentive fields with the help of which good yields from these crops can be obtained as has been successfully done on the Alibag Farm under the former and on the Ratnagiri Farm under both the conditions. But in view of the observation about the deleterious effect of the addition of large quantities recorded at the end of (1) above, before recommending this for adoption, it must be ascertained whether application of a small portion out of the large coarse crops obtained in the above manner can be as efficacious as smaller and tender crops wholly ploughed *in-situ*.

(3) On the other hand, the second method, namely, of using some kind of easily decayable green stuff of trees and wild shrubs such as *karanja* (*pongamia glabra*) on the Alibag Farm and *rui* (*calatropis gigantea*) on the Ratnagiri Farm have continued to be remarkably profitable, the former being responsible for an average increase of 25 per cent. and the latter of 40 per cent resulting into a net profit of Rs. 12 and 23 respectively during the year under report. The former plant is probably of a better economic value for its nuts which yield oil and a residual cake, which would be impaired by stripping the plant of its leaves; but it is not so with the second plant *rui* which can grow abundantly even on very poor grades of soil, is not put to any other economic use, nor is eaten by cattle and when cut does not die but continues to give fresh shoots. There is a very great scope for establishing plantations of these *rui* on the vast *varkas* (hill) areas of Konkan where they can be easily propagated by cuttings.

(4) Combining green matter in the form mentioned under (3) above with phosphoric acid in the form of bone-meal which was tried on the Alibag and Kumta Farms, has not as in the last year shown any advantage over and above the sum total of the individual effects tested separately.

10. *Bulky manures*.—The trial of several manures such as rice hulls, and night soil in bulk on both farms, Alibag and Ratnagiri and *mowra* refuse on the Alibag Farm and cattle-folding and urine earth on the Ratnagiri Farm has been already discontinued as conclusively proved profitable wherever they can be made available. On the Alibag Farm the residual effect of *mowra* refuse even after three years after its discontinuance has been more marked than after two years amounting to 50 per cent. increase over the no manure plot, that of rice-hulls amounts to 14 per cent and the effect of a heavy dose of night soil has altogether vanished after four years at Alibag but is noticeable on the Ratnagiri Farm to the extent of 23 per cent in the second year of its application. Annual application of a small dose of night soil supplying 20 lbs. nitrogen per acre on the Ratnagiri Farm, and pourette on the Alibag Farm have given substantial increases of 23 per cent and 35 per cent respectively, while the adverse effect of pourette at Ratnagiri is unaccountable. On the Kumta Farm during the first year dry leaves from the forests have proved superior to the green leaves.

11. *Concentrated manures*.—The experiment with oil-cakes (*karanj* at Alibag, *undi* and groundnut at Ratnagiri), fish manure, ammonium sulphate, bone-meal and superphosphate was concluded last year with an unmistakable and substantial advantage and a more or less profit in favour of these in the manuring of rice, the increases being more marked on poorer laterite soils than the richer trap soils represented by the Alibag Farm. Some of the most striking observations about the residual effects of these manures during the year under report are: (1) the very great residual advantage of bone-meal which amounts to over 50 per cent at Alibag and 70 per cent at Ratnagiri and (2) absence of any residual effect of fish manure even in the first year after its discontinuance.

All the above manures have also been included in the programme of experiments of the Kumta Farm, amongst which even in the first year bone-meal and fish manure have stood out so prominently yielding an increase of over 100 per cent over the local manure plot, that there is no doubt left as to their at once being accepted as one of the surest means of increasing the outturn of rice in Kanara at a great profit. *Undi*-cake comes next though far below the above. Unlike the Alibag and Ratnagiri Farms, ammonium sulphate and nitrate of soda do not show any benefit and it seems therefore that organic forms of nitrogen and phosphoric acid are the ruling ingredients of the Kanara soils for the rice crop.

Rock phosphate, which was highly talked of as a rice fertilizer in the last Board of Agriculture meeting held in Poona, was tried for the first time on all the three farms, but nowhere it has shown any marked advantage, either alone, or when combined with green matter.

12. *Indirect manures*.—The year's results generally confirm those of the previous years that salt is not of much use on the low-lying rice fields; lime on the laterite soils of Ratnagiri which are devoid of this ingredient, has shown up even in the third year after its last application an effect equivalent to over 20 per cent increase in yield while on the trap soils of Alibag which contain sufficient lime, its use has already been discontinued as actually having a depressing effect.

III.—Cultural.

13. The beneficial effect of ploughing with the Meston plough which inverts the soil, noticed last year, is confirmed this year also though not to the same extent.

14. As regards the number of seedlings to be transplanted in a bunch, the year's results on all the three farms lend unmistakable support to drawing the final conclusion that four strong seedlings in a bunch yield more than a larger number adopted by cultivators.

15. Transplanting, sowing of sprouted seed (*Rahu*) in a puddle and sowing of dry seed either broadcast or in drills have been under comparison. On the Ratnagiri Farm transplanting on the uplands which are usually sown with *Rahu*, has contrary to

the earlier results been found more advantageous by 50 per cent as was also the case last year. Sowing of dry seed in drills under the same conditions is no good, which result is in corroboration of the last year's one. On the Kumta Farm which is a transplanting tract broad-casting of dry seed which is the common practice in the Karwar and Ankola Talukas of the Kanara District, has surpassed transplanting or *Rahu* systems by over fifty per cent.

16. On the Ratnagiri Farm, a drilled crop of rice sown in advance of the monsoon (locally called *Shel*) on natural moisture in the low-lying fields which retain enough moisture even in the month of May, was compared with a transplanted crop from seedlings obtained by sowing the seed in the seed-beds by the commencement of the monsoon. The drilled *Shel* crop yielded nearly cent per cent more than the transplanted crop having altogether escaped the attack of the rice stem-borer; at the time of emergence of which the crop is probably rendered unattractive to it.

IV.—Improvement by Seed Selection.

17. Mass selection of large earheads having well filled and plump grains had been conclusively proved to be superior by about 13 per cent in the Alibag Farm experiments. The results of similar experiments which have been undertaken on the Ratnagiri and Kumta Farms since the year under report, point to the same conclusion.

V.—Varieties.

18. This year's work in this possible line of obtaining increased yields from rice has not led any further than the conclusion arrived at by the past results that no exotic variety has yet been found which can surpass the locally established varieties.

Researches into Rice Cultivation.

19. As said elsewhere above, the work in the improvement of rice done so far has now reached a stage, at which in order to make substantial progress hereafter, a systematic and intensively scientific study into the various factors contributing towards the maximum producing capacity of the rice plant are found necessary. For this purpose Mr. K. V. Joshi, one of the most capable Graduate Assistants of the Konkan Division, who has had a long firsthand experience of rice cultivation as the Superintendent of the Ahbag Farm and has shown an aptitude for carrying on such work, has been exclusively set on these researches since the year under report. For the first year he carried his observations on the Alibag Farm, but in order to give him an easy access to the facilities of a library, laboratories and scientific advice of the Central Research Institute at Poona a separate Rice Research Station has been established at Karjat in the Kolaba District.

20. A study of the detailed life history of rice from the sowing of the seed to the stage of reaping has been taken up and very interesting and important observations have been made about its root system, its relation to transplanting, depth of transplanting of seedlings, effect of cutting of roots, strength and vigour of seedlings, plant food requirements of rice, and the adjustment of spacing according to the quantity of manures.

Rabi Cropping of the moisture-retentive Rice Fields.

21. *New Crops*.—As was noted in the last year's report, on the moisture-retentive rice fields on the Ratnagiri Farm, groundnut again was very promising as a more remunerative *Rabi* crop and that it could even stand the rather over-saturated condition of the fields. Sweet-potatoes and chillies also seemed to grow well but indicated that the laterite soils are too poor to produce remunerative yields without manuring. *Shahu* (*Rabi Jowar*) has by the year's results been conclusively proved to be a profitable asset in the cropping of lands classed as *rabi* in the North Konkan, the average outturn per acre being 400 lbs. of grain worth Rs. 15 and over 2,000 lbs. of *Kadbi* worth Rs. 15 at normal rates.

Irrigation Farming.

22. In the direction of increasing the yield of either the existing crops or the newly introduced ones of onion, chillies and sweet-potatoes, the year's work points to the following results.

23. *Sugarcane*.—On all the three farms representing different conditions of the Konkan out of the several varieties tried, Striped Mauritius has stood distinctly marked out for its earliness with no sacrifice in yield of *gul*. Red Sports and Manjav which have had during this year an opportunity of a fair normal trial appear to vie with the above. Pundhia grows well but is late in ripening and extremely liable to red-rot.

In Ratnagiri and Kanara there is no practice of using concentrated manures for sugarcane. The experiments on Ratnagiri and Kumta Farms have conclusively shown that a top dressing with oil-cake, fish or ammonium sulphate at the rate of 75 lbs. of nitrogen results into a substantial net profit, on the Ratnagiri Farm a combination of *Undi* cake and ammonium sulphate having proved to be the best during the last four or five years' trials.

24. *Chillies*.—On the poor laterite soils of Ratnagiri, last year's observation that a large dose of fish manure, *viz.*, 1,680 lbs. per acre leaves a substantial profit after paying its own way as compared to 1,120 lbs. per acre as used by the people, is confirmed.

25. *Onions*.—On the Alibag Farm, nitrate of soda at the rate of 2 cwts. per acre has again maintained its high profitable record, which is equal to a net profit of Rs 50 per acre calculated at the normal price as compared to 15 cartloads of poudrette supplemented by 800 lbs. of fish manure; supplementing nitrate of soda with 2 cwts. sulphate of potash has, as in the last year, been responsible for a further increase of 9 per cent which leaves a net profit of Rs. 30 per acre due to this artificial alone. These are most striking and definite results and will be brought to the notice of the onion growers.

26. *Sweet-potatoes*.—For this crop again, a complete manure consisting of 20 cartloads of farm yard manure, 170 lbs. of nitrate of soda, 150 lbs. of sulphate of potash and 112 lbs. of superphosphate on the Alibag Farm has corroborated the last year's increase of over 30 per cent. as compared with 1,280 lbs. of fish manure. On the Ratnagiri Farm the crop of sweet-potato yielded substantial profits both in the *Kharif* and *Rabi* seasons, in the former case entirely as a rain fed crop.

Varkas Land Cultivation.

27. *Terracing and Levelling*.—More and more silt is being accumulated in the embanked terraces which are becoming more and more level; and the advantage of this system in retaining and building up the fertility of the land has also begun to be visible as could be seen from the substantial increases in the outturns of crops obtained in plots which have been terraced now for six years, as compared to those in the unterraced plots.

28. *Improvement in the existing crops*.—Green manuring of *nagli* with *san* to be grown in the period intervening between the setting in of the monsoon and transplanting, has most consistently with the previous years been responsible for a substantial increase. The results which have thus been very conclusive and need no further verification, are ripe for being brought to the notice of the agriculturists.

29. *Introduction of more remunerative new crops*.—Rain fed *Kharif* crops of sweet-potatoes and chillies which have proved very remunerative in the past two years failed under the droughty conditions of the year under report. Jowar and hill paddy however did well even in a year of a very abnormal season. The year's work in this line has afforded another very remunerative crop, *viz.*, *Bhendi* (*hibiscus esculentes*) which gave a yield worth Rs. 100 at a cost of Rs. 50 per acre. Tur (*cajanus indicus*) has also taken its place in the list of more remunerative crops.

Improvement of Fodder Supply.

30. *Cultivated Fodder Crops*.—Lucerne under irrigation on the Ratnagiri Farm gave a yield of 20,950 lbs. of green fodder in four cuttings during the fair season; a dressing of superphosphate increased the yield by 13 per cent. The beneficial effects of lime noticed last year were not to be seen this year. It must, however, be told here that lucerne cannot stand the over-saturated conditions of rice fields during the rainy season and the crop has unlike in other places of less rainfall, to be freshly sown every year at the beginning of each fair season. Berseem gave, as in the previous year, only two cuttings with a yield of 10,540 lbs. This result, which is in confirmation of those in the past, leads to a conclusion that there is not much prospect for this cultivated fodder crop in the Konkan.

31. *Ensilage of green grass in Kacha pits* was continued both on the Alibag and Ratnagiri Farms. The proportion of silage made to that of the original green stuff put in was 56 per cent on the Ratnagiri Farm out of which only 5 per cent. on the edges was spoiled and unfit for feeding.

32. *Supply of green fodder for a dairy farm in Konkan*.—In order to get data and experience about this under the Ratnagiri conditions, a subsidy with a scheme was given to Mr. S. N. Joshi of Ratnagiri who is running a dairy with ten animals. The land utilized was intermediate between upland and lowland rice; fair yields of maize were obtained at all the seasons of the year, the largest being had on a burnt field; jowar as a *kharif* fodder crop also gave good yield. *Dhancha* also yielded heavily and was relished by the buffaloes without any harmful effect. Lucerne showed every sign of success, but was badly neglected by Mr. Joshi. Had it not been for the very indifferent management on the part of Mr. Joshi even better results would have been got. It must, however, be remembered that the past season was considerably less wet and so favourable to the above crops.

Improvement of Water Supply.

33. The water-supply in wells in the lateritic formation of the Ratnagiri District is scanty being diffuse, though it can be tapped almost at any place. This porous lateritic formation overlies an impervious rock like trap, quartzite, granite, etc. With a view to ascertain the possibility of tapping from this impervious zone larger accumulated currents under pressure capable of rising up more or less, five bores were taken with the

Musto's Patent rock-boring machine on the Ratnagiri Farm. One of these was taken from the surface and the other four in the existing wells the bottoms of which are 20 feet deep. In all the bores trap rock was struck at about 50 feet below the ground level, at which a fairly strong current under pressure was tapped, capable of rising to a height of 32 feet or to within 18 feet from the ground level. The bores were carried to a depth of 62 feet, below which the machine could not make a progress of more than six inches by eight hours' work—rather a strange and interesting phenomenon, an explanation for which is yet to be found. It is estimated that the water-supply in the wells which averaged about 600 gallons per hour has been more than doubled.

One bore was also taken to a depth of 100 feet from the surface on a hillock at the Varkas sub-station at Bandhan 10 miles from Alibag, district Kolaba. The formation was trap all throughout; fair supply of water has been tapped at a depth of 70 feet which has been capable of rising to a height of 20 feet or 50 feet below ground land; the capacity of the current has not yet been gauged as there is no pump yet fixed on it.

On the other hand, a bore which has been carried to a depth of over 200 feet also through laterite at Honawar, district Kanara, has not yet tapped any water, the impervious stratum struck being granite.

Improvement of Cattle.

34. The precarious condition of agricultural cattle in the Konkan and the causes which are at the root of the same were summarized in detail and the remedies to improve the situation were outlined in the last year's report.

35. *Use of milch animals for work.*—The pair of she-buffalo to be used for work as well as for milch, under experiment on the Ratnagiri Farm, was continued to be worked; both of them were in calf, one of which has aborted.

36. *Improving the milk breed.*—The three breeding buffalo bulls of the renowned dairy breed—*Surti*—at the three farms are being taken advantage of by the neighbouring she-buffalo keepers.

Entomological Work.

37. The Entomological Assistant for Konkan was for nine months out of the year away from his regular entomological work. For four months he was on deputation to Pusa for training including a study tour through Bengal and Central Provinces on his return, about three weeks were spent in attending the All India Entomological Conference at Pusa and for four months he was called upon to assist at the famine work. During only three months he had thus at his disposal for regular entomological work he continued his studies of rice and mango pests.

Rice Pests.

38. The predisposing causes for the advent of the borers were studied. One important observation made by him which can be taken advantage of in controlling the borers of rice was that the caterpillars at the time of harvest removed to the first node and not into the stubble below; this shows the possibility of the removal of good many hibernating caterpillars if the crop is cut closer to the ground, i. e. below the first node; this will be verified next year. Amongst other observations on rice stem-borers that he made, those that are of some popular interest are—

(1) Manured plots are more susceptible to borer attacks.

(2) While at Alibag both *chilo* and *schinobius* borers are to be seen, Ratnagiri has mostly the latter only, which difference Mr. Deshpande ascribes to the presence of a thick stemmed grass *ebiz lachryma Jobi* at Alibag.

The other pests he noticed on rice were rice stem fly and flea beetles on the seedlings of summer rice.

Mango Pests.

39. Rearing of mango hopper was completed; the life history from an egg to an adult took 15 days.

Spraying against the mango hopper was experimented with. Crude oil Emulsion as was then available in the market was found to be decidedly inferior to fish oil Rosin soap; one per cent solution of either was found to be ineffective. Two per cent solution of fish oil soap, though found to be more effective, cannot yet be said to be the optimum strength. A Barrel Sprayer mounted on wheels was used but it was found that it is impossible to carry it up the rough slopes of Ratnagiri hills which are used for the mango plantations.

Other Pests.

40. *Stem-borer on Nagli (Elensine coracana).*—*Nagli* crop which has been so long considered to be immune to the borer was observed to have been severely attacked by the *chilo simplex* borer in the Ratnagiri District, the damage amounting to about 20 per cent.

Some Special Problems under Investigation.

41. *Manat land Improvement.*—The nature and extent of the problem of *Manat* Land Improvement has been described in the Annual Report of the Department of Agriculture of the Bombay Presidency for the year 1917-18 on page 65 of Appendix F.

In the direction of improving these sticky plastic soils by changing their texture by the addition of coarse materials, organic or inorganic, such as green manures, dry leaves, rice hulls, murum and brick pieces, the last material seems to be more effective than any others.

The testing of the several crops to the *Manat* conditions as they exist has however led to more tangible results of immediate practical application than attempts at improving their texture, in that *shalu jowar* has again proved to be by far the most suitable and profitable of the *rabt* crops, affording a valuable grain and fodder crop that has never been known to grow in Konkan. Sugarcane has been found to thrive well under *manat* conditions wherever irrigation can be provided. Even in the *khari* season, in which all attempts to grow any crop on the flat field had not been successful, high and broad ridges with brick pieces as an aerating material incorporated into them have been found, during the year, to offer some hopes for growing some crops; out of the several tried, groundnut, *bhendī*, *ambadi*, *tur*, *chavali*, cotton and *jowar* have been the most promising.

42. *Manufacture of gul from palms.*—Mr. Sorabji B. Patel of Tadgaon, petta Umbergaon, district Thana, and one more farmer at Maroli within two miles from the first place continued to manufacture *gul* from wild date palms very successfully by methods evolved in the Departmental experiments. Owing to the droughty nature of the year, the outturn of juice and *gul* averaged at 16 gallons and 20 lbs. respectively per tree. Owing to high prices that ruled for all *gul*, some profits could be made with hired labour. But with the return of the normal prices this can only be suitable as a cottage industry subsidiary to farming.

The results of the experiments have been worked up in detail in form of a bulletin.

43. *Gul from Coconut palm.*—In Kanara nine tappers obtained the tax-free license for *gul* manufacture. In all 123 trees were tapped. One tapper can manage from 10 to 15 trees. The average output of juice and *gul* per tree as taken from 38 trees comes to 47 gallons and 91 lbs. respectively the *gul* fetching a price of Rs. 5-12-0 per tree.

44. *Band disease of betel-nuts.*—Experimental work in diagnosing the cause of the disease which was taken in hand at Kelshi, taluka Dapoli, district Ratnagiri, has been continued, the year's work indicating that it is the lack of drainage and aeration that is probably at the root.

45. *Utilization of tidal saline creek water for crop production.*—A study and analysis of the conditions of the existing practices in Konkan was done by me with the assistance of the Graduate members of the Konkan staff; the results were presented in a paper read before the last session of the Indian Science Congress.

46. *Other personal investigations by the several members of the staff.*—Other members of the staff, in addition to their usual work, took up certain problems for investigation as their own personal work: they are as follows:—

Subject.	Name of the investigator
1 Determination of the best stage of seedlings for transplanting and whether by any cultural means the lodging of a maturing crop can be prevented.	Mr. V. L. Bhosekar, B.Ag., Superintendent, Ratnagiri Farm.
2 Eradication of weeds on <i>Varkas</i> lands	„ K. B. Gujar, B.Ag., Graduate Assistant, Alibag Farm.
3 Investigations into the possibilities of growing <i>sax</i> crop for fibre in Konkan without <i>rabbing</i>	Do. do.
4 Designing of an oven-drier for drying plantains, betelnuts, cardamoms, etc.	„ M. R. Gokarn, B.Ag., Agricultural Overseer, Kanara.
5 Designing of an implement for puddling rice fields more economically.	Do. do.

EXTENSION WORK.

47. This consists in introducing improvements into the actual practices of agriculturists and giving such advice and help as will make the agricultural industry in general more profitable. This work has to be principally done by the itinerant district staff called Agricultural Overseers. Owing to the non-availability of new Graduates, Thana District had no overseer during the year and considerable time of the Overseers of other districts was utilized for famine work either in or outside of Konkan Division. The progress made in this direction has therefore necessarily been short of normal years. The Agricultural Stations also serve as standing demonstration centres and as centres for distributing improved seeds, manures and implements.

Popularization and Introduction of Agricultural Improvements.

48. The improvements conclusively proved by experimentation which form the basis of the propaganda work have been given in some detail in the last year's report (*vide* page 65 of the Appendix F. of the Department of Agriculture of the Bombay Presidency). The items in which noticeable progress has been effected are mentioned below.

Rice.

49. *Manuring of rice.*—Such of the manures as have been proved useful either for seed-beds or for fields were demonstrated on cultivators' fields in the Ratnagiri and Kolaba Districts. In most places results more or less similar to those on the farm were obtained.

Sugarcane.

50. *Introduction of more profitable varieties.*—Twenty centres were made in the Kanara District for distribution of Red Mauritius variety of cane in place of the local *Daskabbu* in all 50 new cultivators were induced to take up this variety in addition to those who might have obtained of themselves from their neighbours, from earlier introductions; 7,550 sets of the Striped Mauritius variety were distributed from the Ratnagiri Farm.

51. *Manuring.*—No concentrate is given to the cane crop in Kanara. Knowing that a dressing of a concentrate like fish and ammonium sulphate has been the common practice in the cane tracts in the Deccan and that it has been also found very profitable on the Ratnagiri Farm, four cultivators, two in the above-ghat and two in the below-ghat area of the Kanara District were induced to use the concentrates. The striking advantages of this method of treating their cane has convinced these cultivators and others who saw the crops. As a result of this orders for four tons of fish manure were received and supplied.

52. *Use of improved sugarcane mill, furnace and pans.*—Chatanooga No. 12 Mill, Poona Pans, and furnace were demonstrated at six centres in the Kanara District out of which three were new, and four in the Ratnagiri District all new, at each place the demonstration running over a period of a week or more. Pans were also kept on hire in three centres in the Kanara District, where their use was demonstrated and a demand for them had arisen. In the Kanara District two Chatanooga Mills have been purchased, by two cane-growers for their own use and for giving to others on hire.

Onion.

53. In the Kanara District the crop is being steadily extended to newer localities along the coast. During this year 265 lbs. of seed was distributed as against 208 lbs. during last year. In the Ratnagiri District twelve cultivators were persuaded to grow the crop.

The tip wither disease of onions that is appearing for the last two years threatens to interfere with the keeping up and the extension of this newly introduced valuable crop. If the disease continues to be as serious next year also, investigation into the remedial measures will be of the most urgent necessity.

Chillies.

54. Owing to the very high prices of chillies the cultivation of this crop was stimulated to about 200 acres in the Kumta, Honawar and Bhatkal Talukas of the Kanara District. In the Ratnagiri District also, for the same reason the cultivation of this crop increased manifold even without any efforts on the part of the Agricultural Department.

Improved Implements, Machinery and Appliances.

55. The popularization of the improved appliances for sugarcane crushing and making *gul* has already been referred to above.

56. *Meston Plough* was demonstrated at four places in the Ratnagiri District and ten places in the Kanara District. Nine ploughs were sold in Kanara and four in the Ratnagiri Districts.

57. *Sabul Plough.*—This has a scope for ploughing for sugarcane wherever fairly large fields are to be cultivated. This was demonstrated on the above-ghat area of the Kanara District and at one or two suitable places in the Ratnagiri District.

Popularisation of cotton seed cake as cattle food.

58. A beginning in this direction was made three years ago at the Alibag Farm. It did not take long for the people to know the cheapness and milk sustaining and increasing qualities of this cake as compared to the locally available *Niger-seed* cake or

other food stuffs. The information spread and the demand rose so rapidly that it was impossible for the staff of the Alibag Farm to cope with the work. Demands for large quantities began to come in from as distant places as Pen, Khalapur and Karjat Talukas of the Kolaba District. Local merchants have been induced to take up this business. A Co-operative Cattle Feed Society has also come into existence at Alibag.

Its extension further in the southern districts of Ratnagiri and Kanara has been commenced since the year under report by keeping stocks on the Ratnagiri and Kumta Farms. The first consignments of five tons at each place have been sold off in three months and the same advantages as noticed at Alibag are being reported at these localities also.

Exhibitions, Demonstrations, and Shows.

59. Besides the demonstrations which the Agricultural Overseers gave in different items at several places in course of their propoganda work, special demonstrations to parties of cultivators were organised on the farms as follows.

The successful results with *shalu* and other crops on the *manat* land and the methods adopted for improving these lands at the Alibag Agricultural Station were demonstrated on two occasions, one of which was arranged on the day of a local religious fair and was very largely attended.

The standing crops of sugarcane including the working of improved sugarcane mill, pans and furnace, lucerne, onions, and other *rabi* crops were demonstrated on the Ratnagiri Farm.

Supply of Implements, Manures, Seed and other Articles to Orders.

60. *Seeds*.—Cultivators find much difficulty in getting reliable qualities of vegetable seeds. Keeping a stock of these near at hand on the Ratnagiri Farm during the last year was very much appreciated by the cultivators and was continued during the year under report on the Ratnagiri and Kumta Farms.

The high grade and purity of the selected seeds of even the common crops produced on the farms are now well known to the neighbouring cultivators. Thus there is a keen demand for all the quantity of selected seed of paddy that can be made available on the farms. During the year under report 5,000 lbs. of selected paddy seed was supplied. Besides this, many small orders for the seeds of onion, *kulthi*, *val*, *dhaincha*, *jowar*, castor, groundnut, *san*, tussocks of guinea grass, seeds and seedlings of cashewnut, *kokum*, *undi*, betelnut, and nut-meg were supplied.

61. *Manures*.—The use of some substitute or supplement of *rab* is beginning to be recognised in the neighbourhood of the Alibag Farm and 258 lbs. of ammonium sulphate, about 1,000 lbs. of *Karanj*-cake and 400 lbs. of fish manure were supplied on orders by the Alibag Farm.

62. *Implements*.—Besides those referred to under the head of popularization of improvements, nine Meston Ploughs, one W. K. S. Plough, two iron levellers, one self-sowing plough, and 33 Gujarath weeding sickles were sold from the Alibag Farm depôt.

Publications.

63. A paper embodying the results of "A Study of the utilization of tidal saline creek water for crop production" was read by me before the last Indian Science Congress and has been published in the Special Science Congress number of the Agricultural Journal of India.

64. Two original notes in Marathi one on '*Kadu* (bitter) *Karandu* (*Dioscorea bulbifera*) as cattle food' and the second on 'Wild plants useful as cattle food' written by Mr. V. S. Dongre, non-graduate fieldman, Alibag Farm and other several adaptations or translations of extracts from already published information were contributed to the 'Konkan Sheti Samachar.'

The Konkan Agricultural Magazine.

65. The monthly magazine in Marathi devoted exclusively to Konkan Agriculture under the name 'Konkan Sheti Samachar' edited by Mr. Y. G. Gurjar of Alibag under the advice of the Konkan Agricultural Department was continued to be published. As an appreciation and encouragement Government have sanctioned subscribing for four hundred copies for the use of Government Officers and for free distribution to deserving cultivators and Co-operative Societies. The magazine is serving a useful purpose in the dissemination of the knowledge of improved methods of agriculture. The total number of subscribers including the copies subscribed by Government on the 30th June 1919 stands at 901. Mr. Gurjar is rendering a valuable public service by means of this magazine.

Agricultural Association.

66. Out of the eleven agricultural associations that are on the list in the Konkan Division, Sirsi (District Kanara) is the only one which has some work to report. It conti-

nued to popularize the improved sugarcane mill, and Poona pans by keeping them on hire which realized Rs. 72-12-0 as against Rs. 52 in the last year. On its demonstration plot Red Mauritius variety of sugarcane has entirely replaced the inferior local variety and from the former of which sets are supplied on a larger scale. Several new varieties of sugarcane and rice which have been renowned as superior in other places are also being tested on the demonstration plot.

AGRICULTURAL EDUCATION.

67. Sardar P. K. Bivalkar having successfully carried out his experiment of a combined Primary and Agricultural School at Veshvi for five years approached Government with a request to take over his school in their charge on the same lines and to start a few more schools of his type for testing the applicability of the principle to the rural primary schools in general. Though the proposal in its entirety was not found feasible to Government they expressed their willingness to take up Sardar Bivalkar's school and work it on the lines of a purely Agricultural Middle School in vernacular on the Loni model. Sardar Bivalkar having consented to this alternative proposal made it over to Government with the land, fencing and buildings worth about Rs. 5,000. The school thus came in the charge of the Agricultural Department from December 1918 with ten boys who were in standard V of the former combined school, the curriculum of which standard was not dissimilar to that of the first year's class in the Loni model. The school has been named "The Lord Willingdon Agricultural School".

Thus at the end of the year under report there have been two vernacular agricultural middle schools in Konkan, the first being at Jambul, taluka Kalyan, district Thana, and the second Lord Willingdon Agricultural School at Veshvi near Alibag, district Kolaba.

There has been no change made in the standard of admission, in respect of age or educational qualifications, which remain at 14 and 18 years of age and passing the vernacular fourth standard, as a minimum.

The total number of boys in the two schools at the end of the last school year was as follows :—

	1st year.	2nd year.	Total.	Remarks.
Jambul School	18	9	27	In all 28 applications fulfilling the prescribed conditions were received for the 1st year's class and all were admitted. Only 25 actually joined. But out of 26, including one failed student of the past year, one died, seven left owing to domestic difficulties or constant susceptibility to malaria. Out of the 12 that were promoted to the 2nd year one died and 2 were dismissed for misconduct.
Lord Willingdon Agricultural School.	11	This being the first year of the Agricultural School, there was only one class.	11	

These were derived from the following districts :—

	Thana.	Bombay.	Kolaba.	Ratnagri.	Outside Konkan.	Total.
Jambul	20	...	5	1	1	27
Alibag	...	1	6	8	1	11

Arranged according to caste they stand as follows :—

	Jambul.	Alibag.
Marathas	9	5
Brahmins	8	6
Govd Saraswata	6	...
Panch Kulkhis	2	...
Kshatrya	1	...
Agns	1	...
Total	27	11

The number of candidates for admission to the first year commencing from 1st June 1919 was 12 at each of the two schools, whereas there is accommodation for 20. The reason for this is probably that the schools and the arrangements are not yet sufficiently known.

The curriculum remained the same as in the past year; poultry keeping has been newly introduced at Jambul while it already forms part of the teaching at the Alibag one from the beginning. A *varkas* piece of Government land measuring 21 acres contiguous to the school farm at Jambul has been transferred to the Agricultural Department for

instructions in *varkas* land cultivation. The Agricultural Engineer not being able to fit up the pumping plant on the river side at Jambul, some practice in irrigation farming was given on an area commanded by the well having some water supply, belonging to Mr. Pisal, who kindly placed it at the disposal of the school.

For the Alibag school, about four acres in conjunction with the Alibag farm area, have been leased for the school farm. The Alibag Agricultural Station including its *varkas* and *manat* sub-stations fulfills the requirements of additional area for demonstration purposes.

When the boys join in the agricultural schools in the first year, for the first few months they find it somewhat difficult to follow the instructions which require the application of their reasoning power rather than that of mere remembering of certain facts by rote to which they seem to have been accustomed in their past training; they however very soon begin to understand the new instruction and take to practical work with readiness and zeal.

The boys were examined at the end of the year with the following results:—

At Jambul, out of the nine students of the second or final year of the school course, eight were declared to have passed in all the subjects and were granted certificates; and out of 18 in the first year 15 passed in all the subjects, and were promoted to the second year.

At Alibag there was only one class; out of the eleven 6 passed in all subjects and the remaining 5 failed only in one minor subject; all were therefore promoted to the second year. The boys were found to be rather weak in arithmetic and not up to the mark in the handling of implements.

68. *Cost of the education.*—The total expenditure at the two schools classified under the several important sub-heads was as follows:—

	Jambul School.	Alibag School newly equipped with current expenditure for four months.
<i>Recurring—</i>		
Teaching establishment (including the mechanic)	2,527	225
Stationery and materials for teaching in the workshop and tour of students	150	99
Boarding charges (including medical attendance)	8,768	618
Office expenses	188	80
School farm	1,701	189
<i>Non-recurring—</i>		
Purchase of teaching apparatus and equipment	509	352
Purchase of dead-stock (including school furniture, boarding utensils, farm implements and workshop equipment)	1,099	1,732
Purchase of live-stock	505	364
Temporary structures	358	268
Permanent improvements on the farm such as drainage and levelling, construction of well, etc.	274	518 (well)
Total ..	11,028	4,225

Excepting Rs. 260 received at Jambul from private donations, all the expenditure was met from public funds.

69. *Future needs.*—Many of the parents and guardians of the boys and visitors are not impressed sufficiently by the Jambul School as they do not see anything of profitable garden crops or fruit trees. In order to make the school attractive and teach to the boys the profitable systems of irrigation farming and some knowledge of machinery the projected pumping plant on the river side is most urgently required.

WAR WORKS.

70. *Increase of food production.*—Owing to the threatening situation of a shortage of food crops on account of war, the War Purposes Board urged for all possible efforts for increasing the production of food crops. For this purpose the formation of District and Taluka Committees was recommended and the agricultural officers were asked to advise these committees.

Out of the four Konkan districts, most substantial results were achieved in the below-ghat talukas of the Kanara district where a large area was brought under cultivation of pulse crops in the *rabi* season, the chief cause of success being the liberal concessions granted by the Collector of the district by way of removing several restrictions in getting fencing and manure materials from the Government forests.

The efforts to extend the cultivation of *shalu jowar*, gram and wheat in the North Konkan failed owing to want of moisture in the fields in the *rabi* season due to the abnormal deficient rainfall.

71. *Extension of castor cultivation.*—Owing to the large demands of castor oil for lubricating aeroplanes and the prospects of realizing good prices for the same, extension of castor seed cultivation was urged. In Konkan especially in the North Konkan there was every possibility for growing large areas of castor seed crop in the *rabi* season in the moisture holding rice fields and so 16,725 lbs. of castor seed was made available for distribution at one-fourth of the cost price. The droughty season, however, proved disastrous by drying off all the moisture from the fields and almost all the seed remained either undisposed or in some places crops that were sown did not mature.

72. *Census of the stock of food crops.*—The Farm Superintendents and the Agricultural Overseers were kept at the disposal of the Collectors for a week for checking the stock-taking of food crops by the village Revenue Officers.

FAMINE WORK.

73. In the Konkan districts though the rainfall was so abnormally deficient for the rice crops it was sufficient for the growth of usual grass especially in the North Konkan; and though the reduction in the outturn of rice straw together with the large export of grass out of Konkan, must have affected the fodder supply adversely to some extent, the situation was not so bad as to necessitate any special relief measures for saving cattle.

74. *Provision to meet shortage of certain seeds.*—The condition of rice crop in some localities and that of salt rice and the *val* crop in the North Konkan generally was so precarious that it was feared that the worst localities would have to go without a crop in the following season for want of seed. A rough and rapid survey of the requirements was therefore made, and arrangements made to make available Rs. 10,000 worth of *val* seed, Rs. 2,000 worth of salt rice, Rs. 2,000 worth of early varieties of rice. The Union Agency of Bombay undertook the collection of *val* seed without charging anything for their services for which the thanks of the Department are due to them.

In addition to this, the members of the Konkan Agricultural Division purchased seeds of the early varieties of rice for the Collector of Thana, Rs. 6,832 worth of rice seed for the Collector of Poona, Rs. 3,000 worth of *naghi* seed for the Collector of Ratnagiri, and assisted the Assistant Director of Agriculture of the Portuguese Government at Goa in purchasing rice seed for distribution in their territory.

75. *Relief measures in Konkan for famine-stricken districts outside Konkan.*—The main line within the scope of the Agricultural Department was affording relief to cattle by making more fodder available. There were two possible directions in which this can be done—

(i) By spotting out suitable places where cattle from famine-stricken parts could be imported and maintained on the grass lands having some surplus to spare. A survey for such localities was made and some able to maintain about fifteen thousand cattle were to be found either on Government lands or on the grazing areas belonging to private owners who were willing to take outside cattle on condition of retaining half the number of the survivals. In fact herds of cattle from the adjoining Deccan districts had already descended down in a few localities. But by the time the idea was struck and a survey made, it was found that many cattle in the famine-stricken districts had already died and those most valuable that were kept alive at any cost had sufficient sources of fodder to pull them through. It was also learnt from the records that about ten thousand cattle from Gujarat were brought for being similarly boarded in the Vada taluka of the Thana district in the famine of 1896, but it has been recorded that the changed climate and the coarse grass were not agreeable to them and that most of them died.

(ii) By growing of fodder crops for export to the Bombay City and other places. There was an ample scope for this on the Patal Ganga River in the Khalapur Petta of the Kolaba district, which carries a sure and plentiful supply of water from the Tata Hydro-Electric Works; but as the local cultivators who are mostly tenants were not in need of any fodder for themselves and are too ignorant to appreciate the prospects of making good profits by an enterprise of growing fodder crops for sale to distant places, nor could the land-lords be persuaded to undertake this enterprise, the source could not be utilized.

The idea of growing the fodder crops and establishing cattle camps as a departmental concern was not found possible. Two land-lords, one along the bank of the Ulhas river at Badalapur and the other near Umbergson having a well, were prepared to grow about 25 acres each of fodder, provided they were supplied with oil engine and pumps; even these schemes had also to be abandoned as there were no engines available.

The services of Mr. V. R. Subnis, Agricultural Overseer, Ratnagiri, were kept at the disposal of the Central Division for famine work from middle of March 1919 to middle of June 1919.

ADMINISTRATIVE.

76. *Personnel.*—The charge of the division was held by the undersigned throughout the year with the exception of one month, 22nd December 1918 to 23rd January 1919, when he was on privilege leave, and during which period Mr. K. V. Joshi acted for him.

Mr. K. V. Joshi, being set on Rice Research Work, Mr. G. B. Pandit, Agricultural Overseer, Thana, was brought to the Alibag Farm as Superintendent. About four months' time of Messrs. Joshi, Purandhare, Agricultural Overseer, Kolaba, and Deshpande, Entomological Assistant, was required for famine relief measures in Konkan and the services of Mr. Subnis, Agricultural Overseer, Ratnagiri, were loaned to the Central Division for the same purpose. Mr. V. S. Habbu, Superintendent, Kumta Farm, had to be absent on privilege leave for two months owing to illness and Mr. Gokarn, Agricultural Overseer, Kanara, acted for him. The normal activities of the Department were thus much dislocated.

The Annual Divisional Conference of the Graduate staff of the Konkan Division was held in March 1919 at the Jambul Agricultural School and was as usual very successful and useful.

All the staff with solitary exceptions have continued to put in an unswerving, hard and sincere work, to the best of their respective abilities. The aptitude which Mr. K. B. Gujar has shown in his investigation work deserves a special mention.

V. G. GOKHALE,

Deputy Director of Agriculture, Konkan Division.

APPENDIX G.

WORK DONE UNDER THE DEPUTY DIRECTOR OF AGRICULTURE
IN SIND FOR THE YEAR 1918-19.*Organization.*

1. The department of Agriculture in Sind is at present represented by one Deputy Director of Agriculture, one Divisional Superintendent with a staff of the following assistants.

Graduates.			Non-Graduates.		
No.	Grade.	Scale of salary.	No.	Grade.	Scale of salary.
9	IV	75-5-100	2	1st	60-2-60
3	IV	60, on confirmation	2	2nd	55-2-45
		75-5-100	3	3rd	20-2-30
			1	Special	75-5-100

Out of nine graduates in the IV grade two died during the year under report and of the three graduates on probation one was transferred to the Revenue Department and one post was vacant.

The number of farms worked were as noted in the margin. To these a new wheat farm at Jacobabad in Upper Sind Frontier District referred to in the concluding portion of para. 12 of last year's report has been added. Operations on this farm have been started from June of this year. The land has been acquired from the Forest Department free of charge except for Rs. 2,000 which have been paid for the timber growing on the land. The budget grant of the farm for the current year is as noted in the margin. About 10 acres have already been sown with fodder and about 25 to 30 acres will be put under Bosi wheat in the ensuing Rabi.

Agricultural Station, Mirpurkhas.	Rs.
Seed Farm, Mirpurkhas.	25,000
Agricultural Station, Sukkur.	5,000
Agricultural Station, Larkana.	
Agricultural Station, Landh.	

The plans and estimates for the farm buildings and for an Inspection Bungalow are being prepared by the Executive Engineer, Begari Canals. The estimated cost of all the buildings is Rs. 46,100 but the allotment for the current year being only Rs. 20,000. Only a few very necessary buildings will be constructed this year and the rest when the remaining funds become available.

In addition to these farms there were four sub-stations which are referred to in para. 59 below. A fifth sub-station dealing with paddy and berseem cultivation has been opened during the current year at Kamber in Larkana District. This sub-station is financed by the Larkana Farm and is directly managed by the Superintendent of that farm. The points to be demonstrated here are:—

- (i) The economy of seed which has been worked out to nearly $\frac{1}{4}$ th of what the cultivators usually use (*vide* Sind leaflet No. 18 of 1918).
- (ii) The adoption of 3 to 4 rice seedlings to a hole instead of the local method of bunch transplanting which contains between 15 to 25 seedlings.
- (iii) Berseem will be grown as "Dubari" irrigated crop after paddy.

The Agricultural school at Mirpurkhas continued to be run on the same lines as mentioned in the last year's report. The number of students in the beginning of the year was eight but at the end this fell to five who all passed in the final Examination.

The Budget of the Department in Sind for the current year stands at Rs. 1,16,363-2-7 as follows:—

	Rs.	a.	p.
Salaries of Officers and staff	...	15,836	7 11
Contingencies	...	1,00,524	10 8

Season.

2. The conspicuous feature of the season exercising harmful as well as beneficial effects on the agriculture of the Province of Sind were as under:—

I.—Harmful effects.

(a) *The extremely poor Inundation.*—This was perhaps the worst on record. During the whole of the inundation season, the river rose to flow level on four occasions only but the rise each time was of such a short duration and the falls so abrupt that very little advantage of the flow water could be taken. The inundation was further shorter than usual and this resulted in lesser area being flooded for bosi wheat than usual.

The cold weather supply was much below normal, necessitating the longer closure of some of the distributaries of the perennial Jamrao Canal in order to allow full supply in others and thus the usual weekly rotations of water merged into 3 or 4 weeks of closure followed by a week or even less of flow. The irrigated wheats were accordingly adversely affected for want of adequate waterings.

(b) *Absence of Rains.*—With the exception of a few cents of rain which fell at an unopportune time there was practically no rain during the year. Perhaps in no year was this absence of rain so severely felt as in the season under review. The small amount of rain which Sind receives in a normal year and which apart from exercising an invigorating effect upon the cultivated crops, produces in abundance natural grasses, and herbage on waste and fallow lands. The rains having thus failed in a bad inundation year, there was no growth of natural grass and consequently the plough and milch cattle suffered terribly from starvation and over 50 per cent died.

(c) *Influenza.*—This disease broke out in an epidemic form and carried off a large proportion of rural as well as urban population. Those who escaped death were so weakened as to be unfit for hard manual work for some months. The epidemic raged severely at a time when kharif crops were ready for harvest and Rabi crops had to be sown. The result was that both the operations could not be attended to in time and much of the kharif grain crop was therefore damaged by birds and stray cattle and considerably less area was put under wheat and other cold weather crops.

(d) *Khas disease in Jowar.*—This was most in evidence in Nawabshah District but also prevailed to a limited extent in Upper Sind. The symptoms of the disease were that there was no grain formation and the earheads were practically empty. Remissions granted by Government on this account amounted to Rs. 1,11,624-11-0. It is under consideration to study the disease in the current year with a view to find out a practical remedy.

The *Cumulative Effects* of the above conditions were that food grains began to sell at famine rates and fodder became scarce.

The agricultural labour was both scarce and plentiful. Scarce at the time when Influenza epidemic was raging and plentiful at the new year time and after. The cultivators took to working as labourers to a greater extent because of the failure of crops. The labour though plentiful was very dear, the average daily wages of a man being between annas 12 to 14.

II.—Beneficial effects.

The good effects of the season were that cotton inspite of the deficiency of water and other abnormal conditions yielded heavily. Yields obtained have not been known in the memory of the present generation. Wheats were wonderfully free from disease and yielded about the average. The success of these crops is attributed to the prevalence of favourable winds throughout the season. The prices of seed cotton ruled unprecedently high, the highest being Rs. 26 per Bengal maund. Wheat and Bajri also sold at a high rate, viz. Rs. 9 to 10 a maund and a bundle of jowari or bajri kadbi weighing about 12 lbs. fetched as much as one rupee.

Temperature.—The 40 days of scorching winds were relatively mild and there was no frost worth the name in the cold weather.

American Cotton.

3. The varieties of American cotton grown on the Mirpurkhas farm and the seed farm were—

- | | |
|-----------------|-----------------|
| (1) Old Triumph | (3) New Triumph |
| (2) Punjab F-4 | (4) Cambodia |

Of these, Old Triumph and F-4 were the two principal varieties grown on a fairly large scale on the seed farm for comparative tests. Old Triumph means the crop raised from seed imported in 1913. This cotton occupied 11 plots measuring 16 acres and 5 gunthas on the Seed Farm. F-4 referred to in para. 5 of last year's report was grown on 7 plots measuring 8 acres and 8 gunthas. The highest yield obtained from F-4 was 1,663 lbs. per acre against 1,507 lbs. of Old Triumph. The average outturns and ginning percentages were as noted below:—

Name of cotton.	Average outturn per acre in lbs.	Ginning percentage.
Old Triumph	947	32.8
F-4	1,321	32.7

The results though not strictly comparable owing to variation in soil and difference in the treatment of plot Nos. 1 and 2 of series 12 which were sown with F-4 cotton and which were treated with the canal silt at the rate of about 1,000 maunds per acre, but they are fairly indicative of the relative yielding capacities of each cotton. The earliest plot of Triumph was sown on 23rd March. The remaining plots were sown about three weeks earlier than F-4, the whole of which was sown in the first week of May.

In the case of Triumph 6 plots out of 11 required more or less resowing on small kalar patches which was done from 3 to 4 weeks after the first sowing. In F-4 no gap filling was necessary as the land was fairly sweet.

4. As regards the general appearance of the crop of Old Triumph, there was no noticeable change in the size of the bolls as was observed last year. In this connection it will be interesting to know if the reduction in the size of bolls has affected the yielding capacity. The following are the figures of average out-turns of the past three years:—

Year.		Area.		Average yield per acre in pounds.
1916-17	... ..	A.	g.	641
Do.	... ..	75	0	286½
1917-18	... ..	2	0	163
1918-19	... ..	16	0	947

These figures do not point to any falling off in the yield and the lower outturns in the 2nd year (1917-18) seem to be due to climatic conditions being unfavourable to the cultivation of this cotton.

5. Owing to favourable season none of the American cottons developed red leaf blight but in a year favourable to this disease like the one of 1917-18, F-4 showed remarkable resistance to red leaf blight to which Triumph fell an easy prey.

During the current year (1919-20) 52,105 lbs. of F-4 cotton seed have been given out for sowing to cultivators on the Jamrao Canal and in North Sind.

6. Regarding New Triumph 100 lbs. of seed were imported last year for sowing in comparison with Old Triumph which showed several small-sized bolls not characteristic of the variety when it was first imported. Unfortunately the seed was not pure as it contained three distinct kinds, *viz.*, black naked seed, seed with white fuzz and seed with green fuzz. A small quantity of each of these was separated and sown. The results showed that black naked seed has low ginning per cent., *viz.*, 31.4, while seed with green fuzz gave a ginning percentage of 36.8. Thus black naked seed proved undesirable and has been eliminated. It may be pointed out that plants grown from the black naked seeds produced both black and fuzzy seeds while those raised from fuzzy seeds produced mostly their own kind. Hence we have selected several single plants which produced only fuzzy seed with complete exclusion of black fuzzless seed. The behaviour of these in current season would determine whether we have hit upon any pure strains as regards the fuzzy character of the seed. This will provide material for future pedigree strains.

7. Two plots measuring an acre each sown on the Mirpurkhas Farm with the new seed (mixture) have given yields of 969 lbs. and 1,154 lbs. respectively. Similarly, yields of 979 and 694 lbs per acre have been obtained from each of the two plots sown on the Seed Farm. The ginning per cent of this cotton has worked out to be 32.4.

8. An acre and half sown with Cambodia cotton in March in comparison with F-4 and Triumph on the Seed Farm gave a yield of 601 lbs. per acre as against an average yield of 947 of Old Triumph and 1,321 of Punjab F-4. The growth was very bushy and robust but it being a late ripening variety fruited and yielded later than other American cottons. The pickings continued up to February which would not have been possible if there had been the usual frosts in December and January. The ginning percentage of this cotton was 31.9.

9. 33 bales of American cottons were sold to Messrs. E. D. Sassoon and Company, Bombay, through Messrs. Duncan Stratton and their valuation is as under:—

No. of bales.	Kind of cotton.		Rate per candy of 784 lbs.
			Rs.
19	Old Triumph	... ..	525
3	New "	... ..	535½
1	Mixed new Triumph and Cambodia	... ..	535½
1	Cambodia	... ..	525
8	F-4	... ..	577½
7	Old Triumph	... ..	525

It will be seen that F-4 has fetched the highest price which is rather surprising.

10. The results of the comparative experiments between the three deshi cottons, *viz.*, N. R., Bhitshah and Bani on the Mirpurkhas Farm were as noted in the margin. These were sown in the first week of June in 8 equal strips in which each plot was divided. The seed in each case was drilled, other treatment being the same. Bani cotton was raised from the seed received from the Empress Mills, Nagpur. The seed

Plot.	Yield per acre in lbs.		
	Bhitshah.	N. R.	Bani.
B-2	643	555	275
B-3	1,310	1,963	371
B-4	880	972	447

was unfortunately not pure but the results indicate that Bani gave lowest yields owing to its being a late variety and therefore not suitable for this country. With regard to N. R. and Bhitshah the latter has given the best yield which is contrary to the last year's experience when N. R. did better than Bhitshah. Perhaps further trials will clear the point. In this connection it may be pointed out that plot B-4 while superior to B-2 is inferior to B-3.

On the Khathar demonstration plot, Bhitshah yielded at the rate of 830 lbs. per acre as against 741 lbs. of N. R. on the seed farm results obtained with N. R. and Bhitshah are uncomparable owing to kalar patches which were visible in certain plots.

Selection.

11. Work with the isolation of superior strains from Deshi or Bhitshah cotton has sufficiently progressed to enable comparative tests of the four principal types found in it being made on a field scale in 1919-20 occupying about 30 acres. Last year each type was sown on $\frac{1}{4}$ acre scale and it was found that white flowered narrow-lobed type gave the highest outturn (1,592 lbs. per acre) while white flowered broad-lobed gave the highest ginning percentage, *viz.*, 45.

Wheat.

12. On the Seed Farm, Mirpurkhas, an area of 45 acres 31 gunthas was grown under wheat as under:—

Pusa 12 ... ..	...	...	...	A. g.
Punjab 11 ... ..	...	...	...	14-36
				30-35

The average yield of Pusa 12 per acre came to 965 lbs and that of Punjab 11 to 863 lbs. The results are rather uncomparable as the area under Punjab 11 contained large pieces of kalar, hence germination was patchy. The crop received only one watering but the kalar plots needed one more which could not be given owing to scarcity of water.

13. The results of comparative tests on the Mirpurkhas Farm with Pusa 12 and Thori wheats were vitated by the deficiency of water.

14. On the Sukkur Farm $\frac{1}{2}$ of an acre under Pusa 12 with one irrigation yielded at the rate of 1,620 lbs. per acre. The crop by its large earheads and luxuriant growth attracted considerable attention. The land received repeated ploughings in hot weather and a fine seed bed was formed.

15. On the Larkana Farm Pusa 12 sown in comparison with local Thori gave the following results:—

Plot.	Yield per acre in lbs.		Remarks.
	Thori.	Pusa 12.	
A 1	901	1,172	Irrigated.
A 2	1,496	1,380	Irrigated but much bird attack.
A 3	840	1,024	Irrigated.
G 4	390	388	Bosi.
G 5	707	588	Do.
G 6	776	488	Do.

From the results cited above it will be seen that Pusa 12 did not yield as much under Bosi conditions as it did under irrigation. It was observed that Pusa 12 grew with greater vigour after each watering and threw out new shoots. This is in contradiction to what has been achieved in the Frontier District, *vide* para. 16 below. A probable explanation of this appears to be that the farm plots on which this was grown contained traces of kalar to which unirrigated local Thori stood better than Pusa 12.

16. An interesting result was obtained on the Shikarpur demonstration plot where Pusa 12 and Punjab-11 grown in comparison with each other yielded per acre as shown in the margin. Pusa 12 received four waterings and Punjab 11 only three. The land assigned to the latter was comparatively poor.

Pusa 12	1,236	
Punjab 11	1,433	

The fact that Punjab 11 has inspite of the poorer soil and one less watering has yielded better could only be explained by what was observed on the Larkana Farm that Pusa 12 responded to irrigation so readily as to put on considerable vegetative growth each time that it was watered. This tendency appears in the opinion of the undersigned to be responsible for the lower yield of Pusa 12 in grain. These results however require confirmation by further trials.

17. During the year under report 480 maunds of Pusa 12 and 1,563 maunds of Punjab 11 were distributed. Unfortunately Influenza broke out soon after and therefore much of the seed remained unsown. On 'kutchra' lands at Sekhat near Hyderabad Pusa 12 sown side by side with local wheat showed that the former ripened 3-4 weeks earlier than other wheats and the growth was conspicuous by redness of earheads but fell a prey to bird and pig attack to a greater degree. In spite of this, one plot yielded at the rate of 17 maunds 13 seers and another yielded 16 maunds per acre.

18. On the Jamrao canal yields up to 1,600 lbs. per acre have been obtained under district conditions but the tenting bill has been so heavy as to counterbalance the extra profit in higher yield and superior quality. The Jamrao zamindars however persist in growing Pusa 12 and with development in area the bird attack may become divided and thus partially remove a cause which stands as a barrier in the popularization of this wheat.

19. In Upper Sind Pusa 12 is fast gaining in popularity. Here Pusa 12 grown as bosu side by side with local Thori and Punjab 11 has given an average yield of 14 maunds 29½ seers per acre as against 13 maunds 8½ seers of Punjab 11 and 14 maunds 19 seers of local Thori. This shows that outturn of Pusa 12 is only slightly better than that of local but apart from being superior in grain the former had the advantage of ripening full 3 weeks earlier than either the local Thori or the Punjab 11—a quality much valued by cultivators.

None of the growers of Pusa 12 have parted with the seed but all have stored it for next year's sowing on a much larger scale.

20. Punjab 11 wheat has also a good future before it, as being an awned variety it is less exposed to attacks from birds. It is hardly enough to thrive on a poor soil provided 3 to 4 waterings could be given to standing crop.

21. Work with the isolation of different types found mixed in the local wheats of Sind started two years ago is continued. Several earheads of each of the types were sown singly in lines, most of them were true to type as regards morphological character and very few showed splitting. Plants having weak growth were rejected and the rest gathered for future trial.

Berseem.

22. The crop continued to be grown on a large scale on several of the farms noted in the margin. On the Jamrao there was much deficiency of water during the cold weather, consequently berseem crop on either of the seed farm or the Mirpurkhas Farm did not come to much and was mostly utilized for farm cattle. On the Sukkur Farm where irrigation is secured by

Date of cutting.	Weight of each cutting in Mds.	Value in Rs.	
		Mds. a.	Rs. a. p.
5th December 1918 ...	111 0	111 0 0	
1st January 1919 ...	116 0	116 0 0	
23rd January 1919 ...	199 80	199 12 0	
6th March 1919 ...	205 0	205 0 0	
11th April 1919 ...	268 5	268 2 0	
25th May 1919 ...	88 20	88 8 0	
	Total ...	989 6 0	

(a) Berseem sown in September gives averagely 6 cuttings, that sown in October 5, that in November 4 and that sown in December only 3 cuttings. This points to the advantage of sowing berseem in September. Though September sowing is the best in yield, the October sowing has been found to be safer so far as germination is concerned as September is hotter than October, berseem being a cold weather crop.

(b) Sown by the 15th September first cutting of berseem is ready by 1st November.

(c) The right stage for cutting is also an important factor in berseem cultivation. It should be cut neither too early nor too late. Otherwise the yield is affected.

(d) It is also observed that it does not pay to keep berseem in May as owing to hot blowing winds its growth is retarded and the stem gets hardened and therefore not so much relished by cattle.

23. On the Larkana Farm berseem was sown for the second time on an area of 15 acres in the year under report. Owing to drying up of the Ghar Canal the crop did not receive any irrigation after February. In spite of this it kept on growing and gave from 1 to 2 cuttings between February and May as under:—

1st cutting averaged about 6,000 lbs. per acre.

2nd cutting " " 3,200 lbs. "

Before February the crop yielded on an average 15,654 lbs. per acre. Thus it gave 1 cutting before February and 2 cuttings after the crop ceased receiving any irrigation. These results show that Larkana lands are wonderfully retentive of moisture.

Another point noticeable was that berseem following paddy grew very slowly for the first three months from sowing. The reason of this appears to be that the water table being nearly risen to within 6' of the surface by rice cultivation, berseem crop suffered from water-logging conditions.

Berseem kept for seed could not be watered after February and at the harvest, which was full 100 days after the last watering, it yielded seed at the rate of 5 maunds per acre.

24. In para. 19 of last year's report some observations were made on the good yield of berseem on the Larkana Farm and one of the reasons assigned for this yield was that the crop had attained a great height measuring as much as 6 feet. During the year under report the average height was 2 feet due to deficiency of water yet the seed produced was as noted in the margin. This indicates that the length of the plant has little connection with the high seed yield. It seems probable that

D-2	...	...	820 lbs.	the removal of lesser quantity of green berseem, viz., one cutting only resulted in the greater production of seed but this point requires confirmation. Natural richness of the land is also another factor for the high seed yield but the Farm Superintendent thinks that the land assigned to berseem seed was inferior to that of the last year. Flies and bees were in considerable evidence on berseem flowers.
D-3	...	...	460 "	
D-4	...	...	180 "	

25. On the Landhi Farm where land is coarse sand it was noticed that the usual method of sowing berseem broadcast in standing water did not give satisfactory germination, because before the seed had a chance to strike root, the water drained down away owing to pervious nature of the soil. Hence it has been found necessary to sow the seed on dry land and cover it with a light harrow such as a babul branch and to water immediately afterwards.

26. Owing to poor inundation and absence of rain there was a great scarcity of fodder, consequently there was more demand for seed than could be met with. Transport difficulties prevented the importation of new seed. Hence only about 3,000 lbs. stored by the Department were distributed in small lots and was well made use of by the cultivators.

Sugarcane.

27. Comparative tests were made on the Sukkur Farm with striped Mauritius, Lahori and Java. The first occupied 20 gunthas, the second 15 gunthas and the third 5 gunthas. The canes were sown after the Poona method alternately in parallel rows. 100 carts of farm yard manure were applied to the plot before ploughing. Striped Mauritius and Java 33 grew splendidly but Lahori was very poor in growth. 15 gunthas of Mauritius fetched Rs. 100 while 10 gunthas of Lahori realized only Rs. 20.

Striped Mauritius and Java 33 being hard canes are not popular for chewing purposes, though for gul-making purposes they appear to be excellent. It is rather interesting to note that this year these canes were purchased more for chaffing and feeding to cattle than for chewing. The one great trouble about striped Mauritius is that being a very heavy and tall grower it lodges very easily.

One acre realized Rs. 205-4-5 including Rs. 17-12-0 for onions which had been put in $\frac{1}{4}$ an acre with the cane. During the year striped Mauritius and Java 33 were practically free from stem borer while Lahori was badly attacked. In point of yield and quality the canes from stalks (roots) were equal to those from the tops. As to the borer attack both were equally affected. But this requires confirmation by further trials.

28. On the Landhi Farm plot C 5 measuring one acre sown in March with striped Mauritius was badly attacked by borer and hence it is proposed to alter the date of sowing to see if the borer attack could be avoided. Khadya variety was also grown as ratoon crop on an area of 5 gunthas. It seems to have got acclimatized as it was free from disease or damage from sea breeze. This was disposed off at Karachi for chewing purposes and fetched somewhat lower price per unit weight than the local cane, which is thicker and more juicy although much less vigorous in growth and tillering capacity.

The yield of a plot of 5 gunthas was a under:—

				Rs. a. p.
175 bundles of canes (16) each	...	...	...	84 15 6
5,000 sets kept for sowing	...	...	...	15 0 0
Total	...	...	...	<u>99 15 6</u>

Rice.

29. Rice is cultivated on the Larkana and Sukkur Farms: At Larkana owing to failure of inundation much of the experimental work was vitiated and nothing important could be gathered beyond the following two points:—

(a) Local method of transplanting closely with heavy seed rate as compared with the farm practice of transplanting about 6' apart with a few seedlings to a hole gave the following results:—

Plot No.	Area.	Method of sowing.	Outturn per acre.	
			Grain.	Straw.
A-5	A. g. 0 20	Local bunch method of close trans-plantation.	960	1,560
A-5	0 20	Farm practice of few seedlings and wider transplantation.	1,212	1,560

The amount of seed required by local practice is 8 toyas per jireh ($\frac{1}{4}$ acre) and by the farm practice 3 toyas.

(b) As a rule cultivators do not plough their lands in the cold weather but simply puddle them at the time of transplantation. It has been proved that preparatory ploughing does immense good and saves time at the transplanting season. The following table will verify the point in question:—

Plot.	Area.	Puddled in 1917-18.		Cold weather ploughing 1918-19.		Remarks.
		Grain.	Straw.	Grain.	Straw.	
A-3	1 0	1,027	1,680	3,600	4,980	*This was transplanted under feet of cattle to check moss growth.
A-4	1 0	1,140	3,000	3,152	4,860	
B-4	1 0	742	600	2,624	3,730	
B-4	1 0	460	480	* 1,120	2,240	

Experiments to find out suitable Rab substitute have been undertaken since last two years but the results could only be given after these are concluded.

30. On the Sukkur Farm about 11 acres were put under Rice Sathri variety irrigated by means of pump. Experiments on the reduction of seed rate were continued during the year and the following results will show that a smaller seed rate gave better outturn.

Plot.	Seed rate in lbs.	Yield per acre in lbs.	Remarks.
A-5	40	1,320	} Both plots were uniform.
A-6	12	1,520	

Fruit.

31. The fruit trees continued receiving the same treatment and attention. The heavy pruning practiced in case of certain fruit trees elsewhere proved to be harmful in Mirpurkhas where high temperature and rigorous winds are destructive to fruit when exposed by the renewal of extra branches and foliage. Grape, peach and orange trees fruited heavily and found ready market. Orange fruit was sold on contract for Rs. 800. Owing to Influenza epidemic the demand for sour lemons was so great that the contractor sold off all the fruit in a raw state at a good price by the beginning of January which otherwise used to last till first week of April.

32. Country mango trees were badly attacked by 'Mahlo' disease. Bombay grafted mangoes were quite free from the disease and yielded well. An experiment with spraying against 'mahlo' hopper was started on the farm just before the flowering period of the mango trees and continued up to the end of February 1919. It was noticed that Fish Oil Rosin Soap was the best insecticide to use for the spray and that its strength should be 1 lb. in 10 gallons of water. It was further observed that trees planted at longer distances from each other showed lesser attack of the disease than those planted thickly. How far spraying is effective in checking the disease requires to be proved by further tests though the year's results are very encouraging.

33. The grape vines again did remarkably well, the fruit has acquired much reputation in the country, and is in such a demand that during the year under report its price was increased from eight annas to one rupee a seer and still it was all readily sold. The crop realized Rs. 504-9-2 as against Rs. 326-10-0 last year.

The peach crop was also excellent and fetched Rs. 255-0-6.

34. The principal sales of fruit stock at Mirpurkhas were as noted below:—

Lemon seedlings	...	...	...	407
Orange grafts	...	...	...	374
Mangoes grafted	...	...	...	348
Grape plants	...	...	...	180
Peach and apple seedlings	...	...	...	178

35. *New Orchard*.—The plants are now well established and thriving excellently. Plums though flowered profusely bore no fruit at all and hence they were cut. Their places will be filled by new varieties of oranges which have been ordered out from different parts of India. Grapes here also fruited during the current year and so have some of the oranges and pears. The quality of their fruit will be tested when ripe.

36. Different varieties of grape vines ordered out from Saharanpur contained a lot of mixture hence they have been planted in two rows with the object of—

- (1) separating different varieties,
- (2) seeing which variety fruits heavily,
- (3) and testing as to which variety has the best fruit.

37. The Tali (*Dal bergia Sissoo*) planted along the western side of the New Orchard to serve the purpose of wind brake and hedge has now grown up well and is found very useful in sheltering the fruit trees against hot and sultry winds.

38. In addition to the above fruit culture, English and country vegetables were grown in the garden area both at Mirpurkhas and Landhi Farms. The sale-proceeds at Mirpurkhas amounted to Rs. 256-6-8 and seed worth Rs. 128-8-0 was produced. On the Landhi Farm vegetables realized Rs. 463-3-9.

39. Arrangements are in progress to extend fruit work both on the Mirpurkhas and Landhi Farms. Several varieties of lemons, limes and citrus are being collected on the Mirpurkhas Farm to find out the best stock on which to bud oranges. Several varieties of oranges and pomeloes are also being imported for trial.

On the Landhi Farm different kinds of plantains, cocoanuts and papayas (*c. dicumana*) are being imported with a view to making selection of the best varieties suitable under Landhi conditions.

Rotations.

40. The work started at Landhi with cotton and sugarcane as rotation crops with potatoes which get diseased owing to continuous cropping was continued during the year under report. Sindhi cotton yielded 640 lbs. per acre in 8 pickings as against 564 lbs. in last year. Cambodia did not do well owing to its being a late ripening variety and yielded only 280 lbs. per acre. The land is yet too light for cotton but with the folding of goats and sheep already started on a small scale and with green manuring it will soon be in a condition for cotton culture. Work on sugarcane is in progress (*vide para. 27* above) and a larger area has been put under it during the current year.

Irrigation.

41. The results obtained during the previous year in connection with the reduced number of waterings given to the standing crop on land which received a thorough tillage during the period June to October and given a double irrigation at the time of sowing have been confirmed by this year's work. There were about 46 acres sown on the seed farm under wheat and given only one watering after sowing to the standing crop gave an average outturn of 900 lbs. per acre. The outturn is not so high as that obtained in the previous year but is very satisfactory in view of the plots contained large patches of kalar on which there was no germination.

On the Jamrao Canal the number of waterings ordinarily given to cotton crop is ten to twelve. This has been reduced on the Mirpurkhas Farm with the usual tillage and by sowing the cotton in drill and making intercultivation after every irrigation. Number of waterings given to drilled cotton sown in B-2 to 4 and their outturns were as follows:—

Plot.	No. of waterings.	Outturn per acre in lbs.	Remarks.
B-2	4	503	Kalar.
B-3	5	961	
B-4	3	773	

Average of the above 3 plots = 746 lbs.

Plot No.	Area.	Variety.	Method of transplanting.	Yield per acre.			
				1917-18.		1918-19.	
				Grain.	Str.	Grain.	Str.
	A. g.						
D-2	0 25	K-Torh paddy	Bunch seedling	301	884	950	432
	0 25	R-Berseem ...	Broadcasted	...	896	green.	...
	1 0	K-Torh ...	Bunch seedling	...	27,780	...	7,970
	1 0	R-Berseem ...	Broadcasted	738	880	1,367	1,230
	1 0	K-Torh ...	Bunch seedling	1,352	1,640	1,518	1,880
	1 0	R-Berseem ...	Broadcasted	...	25,244	...	17,490
	1 0	K-Torh ...	Bunch seedling	1,594	1,760	1,980	1,500
	1 0	R-Berseem ...	Broadcasted	...	25,248	...	7,200
	1 0	K-Torh ...	Bunch seedling	1,520	1,400	1,840	2,180
	1 0	R-Berseem ...	Broadcasted	...	18,706	...	13,250
	0 20	K-Torh ...	Bunch seedling	728	720	1,764	1,680
	0 20	R-Berseem ...	Broadcasted	...	7,840	...	4,650

K=Kharif

R=Rabi.

It will appear from the above table how quickly has the improvement taken place by only one year's treatment as to give yields almost equal to that of a sweet land.

In addition to the results mentioned above the following more points in connection with the reclamation work have been noticed.

(1) that very bad salt plots required to be kept submerged under water at least a fortnight before transplanting otherwise the young seedlings either did not thrive well or died eventually.

(2) that till the time the young seedlings establish themselves and put on green appearance every portion of the kalar land should be well covered with water but at the same time care should be taken not to submerge the young seedlings.

(3) that certain kalar patches inspite of the above treatment continued to be bare of vegetation. Trial pits dug in such patches showed that they overlaid a very hard clay subsoil of considerable depth and consequently defective in drainage. Thus such lands with the above method of reclamation would require more time than otherwise to be sweetened.

(4) It was further noticed that the proportion of grain to straw goes on decreasing to a certain limit as the land is getting freed from kalar.

49. Plot No. E-7 sown in 1917-18 on the above farm with paddy gave very thin growth and outturn was poor. This was ascribed to too much salt in the plot. In the year under review the plot was again sown and although it required resowing three times the plants established themselves eventually and gave an outturn of about 900 lbs. This is remarkable as the analysis of a sample of standing water in the plot disclosed such a high proportion of salts as below:—

Total salts containing.	Parts per 100,000 parts.
Calcium sulphate	63.68
„ carbonate	5.17
Magnesium sulphate	43.56
Sodium sulphate	38.34
„ chloride	742.50

District work.

50. The principal items of programme for the year under report were:—

- I. Drilling cotton in lines.
- II. Seed distribution.
- III. Popularization and distribution of superior implements.
- IV. Popularization of crops in tracts where they are not ordinarily grown.

51. Drilling cotton. The object of this has been fully explained in the last year's

report under the heading of district work. The results of the year under report may be summed up as follows :—

23. drilling demonstrations were given in the marginally noted villages and each

Number of Demonstrations.	Village.	Taluka.	District.
1	Deh 52	Mirpurkhas	Thar & Parkar.
7	Deh 72	"	"
4	" 128	"	"
4	" 128	"	"
8	Undercolal	"	Hyderabad.
1	Ghanghuro	"	"
1	Gundar	Hyderabad	"
1	Ganji	Nawabshah	Nawabshah.
1	Rupabad	"	"

demonstration extended over an area of 1 to 2 acres. The land was given two ploughings followed by a samar and seed sown by a tube attached to the local plough. The distance between the lines being regulated by the width of the yoke described in paragraph 42 above. In all the villages except where the land had some kalar and in deh 72 where the crop was damaged by a breach in the neighbouring karia the operations were successful. Two hoeings were given to the plots with the plough. In the broadcasted crop in a normal year 2 hand weedings costing from Rs. 3 to Rs. 5 each per acre become necessary. But in the rains when the growth of weeds is stronger and greater not only is the cost doubled but the labour becomes scarce owing to the depletion of Marwaris who from the greater bulk of the labouring class and who leave Sind for Marwar at the very sign of rain in the latter place. The cultivators were accordingly greatly impressed with the economy in weeding by means of plough run between the lines.

52. As a result of these demonstrations a well-known pleader of Hyderabad wrote in the following terms to the District Agricultural Overseer.

"I cultivated cotton in my garden under the guidance of Government Agricultural Department. I adopted the drilling method of sowing cotton and I had about one acre of land under cultivation by that method. It yielded about 25 maunds of Sindhi cotton and I would advise every one to adopt that method".

Another zemindar on the Jamrao canal in Mirpurkhas taluka has sown nearly 1/3rd. of his total cotton crop by the drill system and is enthusiastic enough to entirely abandon broadcasting in favour of drilling in future years.

In the neighbourhood of the Jamesabad sub-station cotton and bajri fields could be seen sown with drill and these are increasing year by year.

All these indicate the growing popularity of the system introduced by the department and with further demonstrations it is hoped that the sowing of crops particularly cotton by drill will extend fast.

53. *Distribution of cotton seed.*—During the year under report the following seeds were distributed for sowing

Kind of cotton.	Quantity distributed.
N. R. ... ..	... 3,526 lbs.
Bhitshah ... ..	... 36,880 "
Triumph ... ..	... 5,500 "

There was very large demand for N. R. seed but it being not possible to get any supply from Khandesh owing to failure of cotton crop there, only such quantity as was available on the Government farms, was given out.

54. Our selection work in isolating desirable superior strains in the neglectum types has advanced sufficiently far to enable us to give out next season a large quantity of seed for district sowings. For this purpose the Bombay cotton syndicate's ginning factory at Mirpurkhas will be very useful in ginning and storing the seed without any danger of pure strains being mixed.

55. *Distribution of wheat seed.*—In addition to the distribution of 1,623 Bengal maunds of Punjab 11 and 480 maunds of Pusa 12 wheats mentioned in paragraph 17 above, 2,670 maunds 21 seers of wheat were ordered from Karachi at the request of the Collector of Thar and Parkar for distribution among zemindars at cost price. The seed arrived late and therefore only one fourth of it was purchased by zemindars for seed, the remaining was disposed of to grain merchants at slightly over the cost price. The transaction ended in a profit of Rs. 2,066-1-10 to Government.

As mentioned elsewhere all the seed of Punjab 11 and Pusa 12 wheats purchased by zemindars for sowing was not sown owing to Influenza epidemic and deficiency of water, hence only 190 maunds of good seed of Pusa 12 could be purchased for the current year's distribution from among the zemindars who were under agreement of giving the department the option of repurchasing the seed. Others had either the mixed seed or the grain was very shrivelled owing to deficiency of water.

56. *Distribution of Implements.*—Demand for the Egyptian ploughs especially on the Jamrao continues to be very great. At Mirpurkhas these ploughs are made by local carpenters and are sold in hundreds annually. The price of this plough has risen to Rs. 9. The iron ploughs are also in demand but as the prices have risen much they are not in immediate demand. Among the implements distributed by the department during the season there were 18 Egyptian ploughs 4 Monsoon ploughs 3 (three) coultered Gujarat wheat drills and 4 hand archimedean screws.

57. *Popularization of crops where not ordinarily grown.*—Efforts to popularize cotton cultivation in Upper Sind were continued. An area of 2 acres was put under Bhitshah cotton at Khandakote. The seed was drilled in July but owing to unprecedented scarcity of irrigation water the crop did poorly, yielding at the rate of 3 Bengal maunds per acre. The produce has been hand ginned by the cultivators and the seed stored for the current year's sowing. Similarly an area of about 8 acres sown near Shikarpur with Triumph cotton though suffered from drought gave an average outturn of about 3 maunds per acre. 30 acres sown with Bhitshah cotton in March 18 on previous year's moisture by a well-known Upper Sind zemindar and irrigated in the inundation season yielded at the rate of 6 maunds and 27 sears an acre. During the current year about 20 acres have been sown by one Haji Mahomed Umar in Jacobabad and Shikarpur talukas with Punjab F—4 cotton. The crop is reported to be doing well.

58. *Shows and Demonstration.*—During the year under report there were 3 shows as noted in the margin.

Mirpurkhas, Nawabshah, and Larkana. The Mirpurkhas agricultural show was combined with cattle and pony show. The latter being in charge of the Civil Veterinary Department. The total amount given in prizes was Rs. 550; of this Rs. 300 were contributed by the Agricultural Department.

Nawabshah show was purely an Agricultural show and was held on 23rd January 1919, Rs. 400 were given in prizes. English vegetables grown by the boys of the Agricultural School Mirpurkhas and exhibited in the show were the object of great admiration.

Larkana show was as usual combined with cattle and mule show. The working of the implements was shown on the Larkana Farm and not at the seat of the show. The visitors liked the implements and the crops specially berseem. The total amount given in prizes was Rs. 465.

All the above shows were held on the same lines as those followed in the previous year.

In addition to these there were 6 organized demonstrations given at Mirpurkhas experimental farm, Mirpurkhas Seed Farm, Sukkur Farm, Larkana Farm, at Ghotki in Sukkur district and at Gundar in Hyderabad district which all were a great success. The points demonstrated were—

- (1) the cultivation of berseem as an excellent fodder crop in cold weather especially in a year like the one under review when scarcity of fodder was almost unprecedented;
- (2) Pusa 12 wheat as the best among local wheats both in points of yield and quality and also an early ripener;
- (3) the value of sowing cottons in lines;
- (4) the value of superior implements such as iron ploughs;
- (5) and the hand archimedean screws for lifting water from short lifts.

Sub-Stations.

59. The sub-stations worked during the year were as noted in the margin. All except Khathar were run on Hari system. Owing to very poor inundation kharif crops at Shikarpur and Nawabshah sub-station did not do well. But at Khathar it was possible to overcome the water difficulty by lifting water direct from the Phuleli—a perennial canal. An outturn of 834 lbs. per acre of Bhitshah cotton was obtained as against 741 lbs. of N. E. Similarly a plot of local jowar yielded at the rate of 1,210 lbs. per acre of grain. Berseem sown on one acre 12 gunthas came up luxuriantly and produced good impression on the minds of the neighbouring cultivators. Green fodder worth Rs. 57-2-0 was sold locally and the rest fed to sub-station cattle. On the Jamesabad plot owing to deficiency of water and owing to patches of Kalar in the plots sown with cotton the outturns were rather poor. Punjab F-4 yielded 686 lbs. per acre as against 473 of N. E., 386 of Triumph and 365 of Bhitshah. The results are however uncomparable as the plot assigned to F—4 cotton was free from kalar whereas Bhitshah and Triumph plots had kalar patches which gave no germination.

Pusa 12 wheat sown in comparison with local Sharbati wheat and Punjab 11 on the same sub-station gave the following results :—

Variety.	Area sown.	Yield per acre in	Remarks.
Pusa 12	A. g. 2 0	Lbs. 610	The plots contained Kalar.
Punjab 11	1 0	1,180	
Sharbati local	1 0	1,040	

The results are obviously uncomparable owing to the plots under Pusa 12 being Kalar.

On the Shikarpur demonstration plot results obtained with Pusa 12 and Punjab 11 showed that Punjab 11 yielded about 18 maunds as against 15 maunds and 19 seers of Pusa 12. This has been discussed in paragraph 16 above.

Work in connection with the war.

60. In July 1918 there was a large demand for plough bullocks and implements for Mesopotamia and the Agricultural Department in Sind was called upon to arrange to supply 4,000 ploughs and yokes and an equal number of plough bullocks. Enquiries showed that the sources from which bullocks could be purchased easily and in large numbers were the Desert in Jodhapur territory beyond Khokhrapar station, 'Kachho' in Larkana district (valley of Khirthar range) and on the borders of Jessulmer near Ghotki (Sukkur District). A limited number of bullocks were also reported to be available in Karachi district and in Lar in Hyderabad district but no purchases were made in Karachi district as in the experience of the Department the bullocks of that tract are not good plough cattle. The first purchases were therefore made from Lar and from the south of the Jamrao at an average cost of Rs. 46 a bullock, 55 bullocks were purchased from the south of the Jamrao and 50 from Lar. The remaining bullocks, *viz.*, 560 were purchased in person by the Deputy Director of Agriculture from Khokhrapar at an average cost of Rs. 38 a bullock. All purchases were made in consultation with the Veterinary Assistant of the beat who was present to examine the animals at each centre where the bullocks were collected for selection. The total number of bullocks purchased was 665. All these bullocks were railed to Karachi and handed over to the Superintendent, Military Dairy, for transshipment to Basra. Out of the 665 bullocks one broke his leg and was condemned and one was stolen. The remaining 663 were shipped in good condition. Ropes, nose strings and buckets required for the above bullocks were also arranged for and supplied by this Department.

Arrangements were also made to raise some fodder for these bullocks and for this purpose an area of about 25 acres was taken on lease near the Government Farm at Landhi on Rs. 150 *plus* the assessment of the land. The bullocks however were only for a few days on the Landhi Farm and therefore the remaining fodder was either sold or fed to farm cattle.

Subsequent orders received were to purchase only 600 ploughs and yokes of the Egyptian type and 665 bullocks. As the ploughs were required at once, orders were given to three contractors, one at Mirpurkhas and two at Hyderabad. The ploughs were examined and passed by Mr. Main before despatch to the Embarkation Officer, Karachi, for shipment to Basra.

The total amount spent on ploughs and bullocks came to Rs. 38,610-7-5.

All the members of the Department worked overtime to cope with this heavy work in addition to their ordinary duties.

Live Stock.

61. Operations in connection with Live stock consist in—

- (a) breeding of famous Karachi cows at Mirpurkhas Experimental Farm with a view to create interest which supply of pure milk in towns necessitates ;
- (b) dairy farming on a commercial basis at Sukkur Farm consistent with post-barrage conditions, when rice or cotton berseem rotation would provide an ample supply of excellent fodder ;
- (c) breeding a herd of Konkreji cattle at Government Seed Farm with a view to producing good plough bullocks of which there is in this Province deficiency both in number and quality ;
- (d) raising of goats and sheep at Landhi with the special object of improving farm land with their droppings ;
- (e) Maintenance of poultry at experimental farms to serve as an object lesson to the prospective poultry farmers in Sind.

With the exception of (b) and (c) the work on the remaining objects has been in progress for some years past.

The Karachi herd on the Mirpurkhas Farm at present consists of 26 cows and calves. Efforts directed in the past towards hand feeding the calves had to be given up during the year under report because not only did the young stock lose condition but the cows refused to give milk easily, with the consequence that their yields diminished daily. Cow number 16 Bhally of the Willingdon Cattle Farm promises to be a good cow. She has given at her first calving 2,246½ lbs. from two teats, the remaining two teats being sucked by her calf during the lactation period, *i. e.*, from 19th August 1918 to 30th May 1919. Maximum monthly yield of 500 lbs. was obtained in case of cow No. 3 Karachi.

With regard to (b) a dairy herd at Sukkur which consists of 15 she buffaloes and one he buffalo was imported from the Punjab at an average cost of Rs. 142 per head. The chief point in the economy of feeding is to exclude concentrates as far as possible and it has been found that with ample supply of green nutritious fodder like berseem very little concentrates are necessary. The value of fodder fed per head per annum works out to Rs. 112 and concentrates to nearly Rs. 43 while value of average dairy produce (excluding the value of manure produced) is about Rs. 348 (2,789 lbs. milk at ten rupees per maund of 80 lbs) showing thereby a net average profit of Rs. 193 per head per annum.

There is a good demand for pure milk at Sukkur hence no ghee is made.

After several trials conducted on the rearing of the calves by hand feeding the following feeding table has been resorted to:—

I.—From birth to 3 weeks	6 lbs. whole milk.				
II.—From 4 to 5 weeks	<table border="0"> <tr> <td>1 lb. whole milk.</td> </tr> <tr> <td>5 lbs. separated milk.</td> </tr> <tr> <td>1 oz. linseed oil.</td> </tr> <tr> <td>1 lb. crushed peas.</td> </tr> </table>	1 lb. whole milk.	5 lbs. separated milk.	1 oz. linseed oil.	1 lb. crushed peas.
1 lb. whole milk.							
5 lbs. separated milk.							
1 oz. linseed oil.							
1 lb. crushed peas.							
III.—From 6 to 16 weeks	<table border="0"> <tr> <td>2 lbs. separated milk.</td> </tr> <tr> <td>1 lb. linseed oil.</td> </tr> <tr> <td>1 lb. crushed peas.</td> </tr> </table>	2 lbs. separated milk.	1 lb. linseed oil.	1 lb. crushed peas.	
2 lbs. separated milk.							
1 lb. linseed oil.							
1 lb. crushed peas.							
IV.—From 17 to 32 weeks	1 lb. crushed peas.				

Milk to be given three times a day at blood temperature.

Arrangements are being made to convert all the animal droppings in the cattle byre into liquid manure by a connection from the pump and drain it off direct to the field by washing it into the irrigation channel.

Education.

62. In 1918 the sixth session of the Agricultural School, Mirpurkhas, closed. There were nine boys out of which one was sent to Lyallpur Agricultural College to take a two year course in Agriculture. The remaining eight sat at the annual examination. One boy failed and the rest satisfied the examiners and secured the school certificates.

Out of the seven successful boys only three have taken to agriculture, the rest have either entered service or taken to trade. One is reported dead.

The seventh or the current session opened in September 1918 and the attendance went up to eight boys but gradually four boys left one after the other chiefly for want of interest in agriculture and aversion to manual work, a certain amount of which each boy is expected to do as a daily routine. Thus there were only four boys for the whole session with an addition of a domiciled Maratha boy who joined a few months before the close of the session. At the annual examination just over, all the five passed successfully.

The boys as usual were taken on tour to see representative agricultural tracts of Sind.

Among the crops grown by the students there were several English and country vegetables and cottons. The sale proceeds of vegetables, etc., amounted to Rs. 454-11-6. The vegetables were exhibited at the Agricultural Show, Mirpurkhas, in January 1919 and carried a prize of Rs. 15.

His Excellency the Governor of Bombay on his visit to the Mirpurkhas Farm in February 1919 inspected the cultivation of the boys and was much pleased with what he saw.

The training was on the same lines as was reported in the last year's report but a proposal is before Government to overhaul the present system by opening a Middle School on a large scale at Hyderabad where Agriculture will be taught side by side with English up to standard four.

The cost of the school under all heads amounted to Rs. 3,307-2-2 against Rs. 2,757-5-5 of last year.

Issue of Leaflets and Bulletins.

63. During the year under report following publications were issued by the Department:—

- Leaflet No. 15 on the Economy of irrigation,
- 16 on conservation and utilization of cattle manure,
- 17 Fodder shortage,
- 18 Economy of Rice seed.

Bulletin No. 88 First report on Fruit Culture round about Tharushah in Nawabshah District.

In addition to these a contribution was made by Mr. Main in the Agricultural Journal of India on "Irrigation in Sind" and an article on Indigo cultivation written by Mr. Balooch, D. A. Overseer, Nawabshah District, was sent for publication in the Poona College Magazine. Also a note on "Burry Goats in Sind" written by Mr. Jaffarali was published in the College Magazine.

General.

64. During the course of the sitting of the Cotton Committee at Karachi a recommendation to start pumping stations to solve post-barrage agricultural problems was made and proposals in this connection have since been submitted to Government.

Owing to the unusual scarcity of fodder in the past year proposals have lately been invited for a fodder farm in Sind. The site for both the above farms along with a suitable site for a large Middle Agricultural School have been selected and Government sanction is being awaited.

GUL MAHOMED,

Acting Deputy Director of Agriculture, Sind.

APPENDIX H.

WORK DONE UNDER THE PROFESSOR OF AGRICULTURE,
DURING THE YEAR 1918-1919.

The farms under the Professor of Agriculture are almost exclusively used in the practical teaching of the various courses. Only at Mánjri sugarcane station is definite experimental work carried on.

However, a few observations on the other work may be of public interest.

The rainfall being only 14.63" for the whole year, nearly 5" of which came before June 1st and was largely dissipated by the burning sun, before the monsoon really broke, hence the rain crops were not a great success.

American jowars.

Four varieties of jowar received through the Agricultural Department of Washington were tried on areas of one-fourth acre each and they give promise of being of use, under certain conditions in some parts of the Presidency. These originally came from the East and were collected and tested by the Plant Industry Bureau of Washington. They have a shorter season of growth than the Indian varieties, hence they should do well where the rainfall is scanty. The outturn of fodder from these is very much less than from the local varieties but its quality is satisfactory. These jowars would be competitors of bajri rather than of local jowars. The quality of these jowars was tested by giving some to our farm servants, who approved of it. They apparently are poorer in gluten than ordinary jowars. I give below the outturn:—

	Yield per acre in lbs.	
	Grain.	Fodder.
Frettaria	1,672	5,708
Black hulled-Kaoling	1,040	4,284
Black hulled-Kaffir	2,144	4,368
Standard Milo	1,408	3,916

Cotton.

The various types of neglectum cottons that we have been cultivating, were sown after thoroughly soaking the soil with irrigation water to secure germination, but with no further irrigations.

The outturns appear below:—

	Lbs. of seed-cotton per acre.
White flowered narrow lobed (N. Roseum) ...	796
White flowered broad lobed (N. R. Cutchica) ...	688
Yellow flowered broad lobed (N. V. Malvensis) ...	476
Yellow flowered narrow lobed (N. Vera) ...	316

Herbaceous cottons completely failed in the year under report.

Garden crops.

The irrigated crops were also less vigorous in growth than normal, due to the extra amount of sunlight and heat.

I give below the outturn, cost of cultivation and value of some of the garden crops.

All figures are per acre.

Crop.	Area.	Outturn.		Cost of cultivation.	Value of outturn.	Profit or loss.
		Principle.	Secondary.			
	A. g.	Lbs.	Lbs.	Rs. s. p.	Rs. a. p.	Rs. a. p.
Turmeric mixture No. 1 ...	0 20	....	...	529 4 4	577 9 0	48 4 8
Turmeric ... ..	..	6,348	...			
Yam ... ..	...	1,700	...			
Gowar ... ..	...	1,404	801			
Ehendi ... ..	...	320	...			
Turmeric Mixture No. 2 ...	0 30	.....	...	400 8 8	287 14 8	112 10 0
Turmeric ... ..	...	4,524	...			
Maise ... ..	...	2,776	4,860			

Crop.	Area.	Outturn.		Cost of cultivation.	Value of outturn.	Profit or loss.
		Principal.	Secondary.			
	A. g.	Lbs.	Lbs.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Buran	0 10	21,296	..	552 4 8	1,010 7 0	458 2 4
Big Dharwar chillies	0 10	3,258	800	149 1 8	205 10 0	56 8 4
Chillies (local)	0 30	469 green. 144 dry.	...	188 11 5	140 10 8	6 15 3
French beans	0 30	3,494	800	181 5 8	306 2 8	124 13 0
Tomatoes	0 20	10,064	...	149 15 10	315 8 0	165 8 2
Brajals mixture and Methi... ..	0 10	3,600 7,476	...	180 11 6	286 14 8	106 8 2

Rabi area was restricted and in February the whole area was devoted to grow in maize for maintenance of famine cattle.

Sugarcane.

The semi-permanent manurial series of experiments have been continued.

In the bulky manure tests the economy of growing in the preceding year a crop of san for green manuring rather than a money crop like groundnut has again been demonstrated. The net income for the two years gave about Rs. 90 more under this method than under the local one of taking a money crop.

A new experiment to work out the minimum amount of organic matter to be added to soils of the tract in order to maintain them in the optimum physical condition for production, when irrigation water is given in a rational manner, was newly started. The results of the year show that even when so small a quantity as 5,000 lbs. of dry matter per acre, which is equal to ten cart-loads of farmyard manure, is supplied to keep up the structure, the soil was suitable for obtaining maximum production. The local practice of applying 30 cart-loads or even twice that amount of this sort of manure, is made necessary if the soil is to continue productive when it is flooded with water. Of course sufficient nitrogen must be supplied but farmyard manure is a very expensive form of this element since it becomes available very slowly.

The trials of phosphoric acid and potash manures have been continued and although the results show some increase in yield from these manures, their use cannot yet be recommended from an economic standpoint.

The experiment to find out the comparative value of the different sources of nitrogen was continued. The cakes have on the whole done better than what they did last year as compared with ammonium sulphate but the abnormality of the season makes it necessary to continue this work further before anything conclusive can be said.

The new manurial work of the year was an attempt to still further reduce the application of nitrogen. For a long time a total of 350 lbs. of nitrogen per acre was taken as a standard, including that in the bulky manure; this was little more than half of the quantity that was being applied by the cultivators when sugarcane studies were begun by the Department in 1895. Later on, this was changed to 150 lbs. of nitrogen in the top-dressing and the bulky manure was looked upon only as a soil corrective as it was found that such a material as trash which was very poor in nitrogen content, when supplemented by a top-dressing containing the above quantity of nitrogen, yielded as good crops as the richer bulky applications like farmyard manure.

We are now depending entirely upon san for our soil improvement. It is difficult to estimate how much nitrogen this actually adds to the soil. Taking 150 lbs. of nitrogen per acre in the top-dressing as the standard, we have compared this with 125 lbs. nitrogen and 100 lbs. nitrogen only plus whatever is found in the san; this has resulted in no apparent reduction of the yields obtained. If we can grow cane with no other application than one containing 100 lbs. of nitrogen, we shall have reduced the cost of growing on this head by Rs. 35 or thereabouts. Even further reduction will doubtless be possible. Of course any such saving depends upon a proper system of application of water.

The new method of planting cane has now been fully developed in detail and demonstrated since 1914. Measurements of water used by this system compared with the old

Poona system, when both were irrigated as carefully as possible, were made by using the Cippoletti Weir and the immense saving of water effected by the new method proved. Both the areas gave good crops of cane. The statement below will show clearly the advantages of the new method in this respect. The water utilized in the Java method as introduced by Mr. Keatinge was also measured and is included in the statement, but the very light rain supply vitiated the advantages of this system as a water saving agent.

System of planting.	Outturn in cans per acre.	Total number of irrigations.	Cubic feet per acre.	Acre inches.	Time required for irrigation per acre.
	Libs.				Total number of working hours.
Poona Local	80,768	39	825,035	89-54	277
New Method	92,620	39	241,477-6	66-52	253
Java System	53,903	28	102,295	28 2 0	205

Other experimental work with cane consisted in determining the effect upon the yield of removing tillers, further trial at reducing the seed rate, trying to grow the green manure crop while the cane is growing instead of during a previous fallow, and variety work.

The early varieties of cane, namely, Manjav, Striped Mauritius and Red Sports were compared with Pundia on $\frac{1}{4}$ th acre plots; the results were in favour of these under the peculiar conditions of the season under report and they were ready for crushing in December. About ten of the exotics have now reached a field trial scale and but for the famine their results would have been available next year.

The classification of Bombay canes is still going on.

Dairy.

Owing to changes in personnel of the staff at the dairy and also to pressure of teaching and famine work, very little experimental work was possible. In fact little can be done, till the buildings and equipment that have been asked for are available. The year's crop of young stock have grown well and we have 23 cow-heifers and 21 buffalo-heifers. The yields of the year have been fully average in spite of the abnormality of the season.

For three months one-half of the coarse fodder given to the entire herd was prickly-pear. No ill-effects whatever were observed and no dropping of the milk yield. The Ganeshkhind farm and dairy were managed by the staff of the Agricultural College Dairy upto November.

Famine work.

When it became evident that there would be a serious shortage of fodder, I resolved to put all the area possible, to growing maize under irrigation. But I found that the Irrigation Department was unable to supply me with water for more than 57 acres. I then requested them to allow me to spread this water over 115 acres to which they agreed. A grant for manure, seed, etc., was obtained from the Government. After manuring the land the maize was planted in furrows at $3\frac{1}{2}$ feet to 5 feet apart and irrigated by the new slow current method practised with sugarcane at Manjri. After the second application of water a period of 27 days was allowed between subsequent waterings. Just before the last watering a second crop of maize was dibbled between the rows.

Two crops were taken on this area and outturn of from 8,000 to 10,000 lbs. of dry fodder obtained.

The system thus worked very satisfactorily. The total water given did not exceed 30 acre inches for the two crops and in some cases only 20 acre inches were given.

Another activity of the branch was the saving of cattle by the utilization of prickly-pear. 1,046 bullocks were purchased when in a starving condition and restored to health and condition until the rains more than 80 per cent. of their food was prickly-pear, the rest consisted of one pound of cotton seed per animal and 4 lbs. of dry fodder.

The animals when put in condition were sold on Tagai advance to the cultivators of Sirur Taluka. A separate report will deal with the details of the work. Much help was given to the District Officers by supplying burning apparatus used in the preparation of prickly-pear, and in keeping the same in repair; and a continuous training school, for operators, who were to prepare prickly-pear, was carried on for three months.

I must not close this note without a reference to the willingness and enthusiasm which my staff displayed in carrying out this extra work which they did without any pay or relief from their own duties.

J. B. KNIGHT,
Professor of Agriculture.

APPENDIX I.

REPORT OF THE AGRICULTURAL CHEMIST FOR THE YEAR 1918-1919.

During the year under report Dr. Harold H. Mann held charge of the Office and Laboratory of the Agricultural Chemist to the Government of Bombay from the beginning of the year to the 20th of September and again from the 11th of November to the 31st of May. Mr V. A. Tamhane was in acting charge from 20th September to 11th November and myself from the 1st of June onwards.

2. The routine work of the laboratory was as usual and the number of samples received during the year under report is given in the following table in which are also included for comparison the numbers of samples of the previous two years :—

1916-17	...	...	...	1,613
1917-18	...	...	...	1,278
1918-19	...	...	...	1,162

There is a small apparent drop in the samples received. But this is only apparent because in the previous year a large number (148) of sewage effluent samples were sent to this laboratory as the question of the use of ordinary town sewage effluent in sugarcane growing was under investigation by the Professor of Agriculture while none of these samples was received during the year of the report.

3. The character of the analyses done is shown in the following list for the year under report, and compared with a similar list for the previous year :—

Nature of samples.	Number.	
	1917-18.	1918-19.
Soils	295	610
Manures	152	218
Feeding stuffs	94	91
Waters	334	102
Sewage effluents	148	Nil
Gul and Sugar	22	6
Oil-seeds and Oils	53	11
Dairy products	66	16
Fruits	6	15
Miscellaneous	108	93
Total	1,278	1,162

4. It was always maintained—and rightly maintained—by Dr. Mann that the real test of the success of the laboratory in filling a public need is best shown by the use made of it by the public, both by actual cultivators and by those responsible for industries directly dependent on agriculture. The number of samples received for analyses from the public as distinguished from those from the Government farms and departments continues large and was as follows during the year under report, compared with that for the previous year :—

Nature of samples.	Number.	
	1917-18.	1918-19.
Soils	65	61
Manures	69	166
Feeding stuffs	51	35
Waters	94	26
Gul and Sugar	4	Nil
Oil-seeds and Oils	37	11
Fruits	Nil	3
Dairy products	13	5
Miscellaneous	37	86
Total	424	393

5. Samples received from the public compare with those received from the Government farms and departments as follows :—

Nature of samples.	Number.	
	Government.	Public.
Soils	549	61
Manures	52	166
Feeding stuffs	56	35
Waters	76	26
Gul and Sugar	6	Nil
Oil-seeds and Oils	Nil	11
Dairy products	11	5
Fruits	12	3
Miscellaneous	7	86
Total	769	393

6. The nature of the routine work done was nearly of the same character as in previous years. The general demand is for examination of and opinion upon the suitability of land for special purposes and causes for the deterioration of land; value of waters, especially when newly brought into use for irrigation purposes; suitability of particular manures and other problems in connection with cultivation. Examination of feeding stuffs, oils, oil-seeds and other similar matters is also included in the usual work of the laboratory.

7. There is little to report as new in connection with soils. A few samples of Manvat soils were sent from Konkan for examination. Both the chemical and mechanical analyses of these samples were done. These soils are very sticky, difficult to be drained, and crack very badly in the fair season. They occupy several acres of land in the Konkan and are all useless for crops. A detailed study of this is necessary, and it is hoped that the laboratory will soon be in a position to take up this work.

8. No new materials for use as manures were put on the market during the year of this report, probably on account of the war. A sample of Indian Phosphatic nodules was received the examination of which showed that it was an excellent material as mineral phosphate. The laboratory was consulted by a Thymol factory as to whether the water that remains with the spent seed in the still after distillation and which is at present simply thrown away as waste, could be used for any purpose. This water contains a large amount of acidity and tannin. If Thymol factories have any fields near by and if the water is treated with enough lime to neutralise the acidity and precipitate tannin and then allowed to settle, the water could be used with irrigation water and run on to the land as manure.

9. On account of the severe famine there was a great scarcity of fodder and therefore several materials were sent for being examined for their suitability as cattle food. Plantain stems both fresh and dried were examined. In places where plantains are grown in regular plantations the stems at present are merely thrown away but these could very well be utilised for feeding cattle along with the usual fodders. A beginning should always be made with very small quantities which could then be increased as cattle got accustomed to the stuff.

Plants growing in lakes such as the Bid Rhizomes (*Scirpus grossus* var *Kysoor*) and Poyana (Egyptian Lotus) were sent from Ahmedabad to determine their feeding value. This year in some places roots of Kunda (*Ischaemum pilosum*) and Hariali (*Cynodon dactylon*) were fed to the cattle and as these are not usually fed they were also sent for being examined. These and many other interesting materials formed a prominent feature of the food stuffs sent to the laboratory. Their analyses show that these materials are all useful as famine fodders if these could be obtained in sufficient quantities.

10. D. T. Chadwick, Esquire, Indian Trade Commissioner, London, wrote to the Agricultural Adviser to the Government of India to send him the analysis of eggs from different provinces and a few fresh eggs. The Agricultural Adviser requested Dr. Mann to take this in hand for the Bombay Presidency and accordingly a few analyses of eggs and samples of fresh eggs were sent to the Indian Trade Commissioner, London.

11. Some enquiries were received with regard to the methods of extracting starch especially from maize and potatoes. The process for the manufacture of starch is elaborate but a satisfactory quality of starch is not likely to be obtained without an elaborate process. The produce to be an economic success must be prepared on a fairly large scale. Some samples of rice starch were received for examination. They were of a good quality, white in colour and free from impurities.

12. A sample of Chocolate, manufactured in India, was sent for examination and suggestion to prevent the loss caused by attacks of weevils, &c. The sample was in every way satisfactory, suitable as article of food and free from the usual adulterants. If the tablets of chocolate are packed in oil paper and not kept exposed to air there is little chance of their being spoiled.

13. Mr. T. S. Swadi, Superintendent of the Government Farm at Gokak, came across certain cases of Gul which suggested to him that the keeping qualities of Gul did not wholly depend on the method of boiling and preparing Gul but in many cases perhaps they were due to the presence of certain salts in the soils or irrigation waters. In order to ascertain the truth he sent various samples of soils, irrigation waters and Gul prepared from the sugarcane grown on those soils and irrigated with those waters, for analyses. From the figures of analyses it seems that the salts in solution in the irrigation waters may affect the keeping qualities of Gul. Mr. Swadi has published a separate paper on this subject.

14. From the point of view of the investigation work the year has been a rather unfruitful one, largely owing to the fact of the staff being dispersed. The problems which form the principal research work of the laboratory are probably the same as previously, with one or two deductions and additions.

15. The study of certain problems in the spice gardens of Kanara is being continued. The chief question here, as described last year, is that of the deterioration of the cardamom plants in gardens which have been previously under cardamom cultivation, the great complaint of the growers being that they are no longer able to propagate the

cardamom plants from the rhizomes as used to be done. The data collected during the year seems to indicate that the partial sterilisation of the soil by heat allows cardamom plants to be produced from the rhizomes as healthy as those grown from seed or grown in virgin-soil. It is hoped that within the next two years the whole question will be cleared up.

16. The study of the chemistry and physiology of betel-vine leaves is being continued, the actual work being chiefly in the hands of Mr. V. G. Patwardhan. The present work consists chiefly in an attempt to determine how far the quantity and composition of the essential oil, on which the quality of the leaves chiefly depends can be modified by the action of manures.

17. The preparation of Jaggery from the date palm in Western India was studied and investigated in conjunction with Mr. V. G. Gokhale, Deputy Director of Agriculture, Konkan. Mr. Gokhale is now writing up the report on the subject.

18. The rotting of stored potatoes at high temperature. Dr. Mann is conducting a special research work in this connection as the matter has become of great importance in the potato districts of the Deccan and he is now subjecting the rotting of these potatoes to a chemical investigation. The chemical changes accompanying it are being worked out and the influence of moisture and aeration on the process are being determined.

19. Mr. V. A. Tamhane of the Agricultural Chemist's staff has been deputed for six months during the year to Sind to examine the probable effect of the proposed Sukkur Barrage Scheme on the development of salt land in Sind. He has completed his enquiries and his report will soon be ready.

20. The usual staff of the laboratory consists of the following :-

Senior Laboratory Assistant Mr. V. A. Tamhane M. Sc., L. Ag.

First Junior Laboratory Assistant Mr. D. M. Ranade, B. Ag., B. Sc.

Second Junior Laboratory Assistant Mr. V. G. Patwardhan, B. Ag., B. Sc.

Graduate Fieldman Mr. V. J. Atgur, B. Ag.

Non-Graduate Fieldman Mr. S. R. Deshmukh.

Mr. V. A. Tamhane was on deputation as a Special Agricultural Chemist for the Sind Barrage Project from 22nd November 1918 to 21st May 1919. Mr. D. M. Ranade who was acting as Senior Laboratory Assistant in Mr. Tamhane's absence was sent out to work on the water-finder work from December 1918 to the end of May 1919. Mr. V. G. Patwardhan was transferred to the College in August 1918 as Lecturer in Chemistry and subsequently as Assistant Professor of Chemistry. Mr. V. J. Atgur was on privilege leave for two months from April 22nd to June 22nd 1919 and Mr. S. R. Deshmukh went out as Assistant to Mr. Tamhane on the Sind Barrage Project. Mr. V. N. Gokhale, B. Ag., was taken up in February 1919 to act in one of the vacancies and Mr. Narayan Kadam worked in place of Mr. Deshmukh as a Non-graduate Fieldman. It is highly creditable to the whole staff of the laboratory to have carried on the usual work under a great strain of so many changes and transfers.

D. L. SAHASRABUDDHE,
Ag. Agricultural Chemist to the Government
of Bombay.

APPENDIX J.

WORK DONE UNDER THE ECONOMIC BOTANIST FOR THE YEAR 1918-1919.

Staff.

I held charge of the office of the Economic Botanist throughout the year with the exception of the 10 days between 6th and 15th January 1919, during which time Dr. Burns had reverted to civil duties from the Indian Army Reserve of Officers before proceeding on six months leave. Mr. G. S. Kulkarni has acted for me as Assistant Professor of Mycology and his post of Assistant Mycologist has remained vacant since the transfer of Mr. P. G. Dani to the post in Ganeshkhind Botanical Garden vacated by the resignation of Mr. Kokatnur on 10th October 1918. Mr. G. B. Patwardhan was on privilege leave combined with sick leave from 20th March to 3rd April and 21st April to 7th September 1918, and Mr. H. P. Paranjpye acted as Assistant Professor of Botany in Mr. Patwardhan's place during the first college term.

Of the clerical staff, Mr. G. B. Patwardhan, clerk at the Ganeshkhind Botanical Garden left in December 1918 to join the office of the Assistant Registrar, Co-operative Credit Societies, Poona, on a higher pay. His place was taken by Mr. G. N. Shirgurkar from the office of the Sugarcane Expert, Kopergaon. Mr. Gokhale, Head clerk to the Economic Botanist, was on privilege leave combined with sick leave from 5th March to 6th July 1919. Mr. G. K. Bendre, 2nd clerk in the Economic Botanist's office proceeded on privilege leave combined with sick leave on 10th August 1918 and having failed to return on the proper date was dismissed from the service under the Director of Agriculture's orders. Much difficulty has been experienced in filling up this vacancy on the scale of pay sanctioned (20-2-30), the temporary men engaged from time to time not being found suitable or, if suitable not finding the prospects attractive enough to keep them. This fact and the frequent illness of the existing staff resulted in much inconvenience to the office work.

The post of a non-graduate Laboratory assistant for Mycology which was proposed in October 1917 was not actually sanctioned by Government till March 1919 and Mr. B. R. Tonapay has been appointed to it.

Education.

The usual training in Botany and Horticulture was given to students of the College of Agriculture. Two students for the final examination had selected Advanced Botany for their special subject. These were taken on a special Horticultural and Botanical tour to Gujarat and the S. M. Country, which was very successful. One of the two students for the M.Sc. Degree referred to in the last year's report as having failed to take the supplementary oral and written examination last year, obtained the degree this year.

The Arboricultural course for the Public Works Department subordinates was held in abeyance as a sufficiently large number of them could not be spared this year for this training from their other duties.

Seven students attended the one year's Horticultural course at the Ganeshkhind Botanical Garden including two paid "Malis" under training. The accommodation at the quarters for these pupils continued to be the limiting factor to the admission of pupils to this course as the proposed extension of the quarters alluded to in the last year's report has not yet taken place.

It must be mentioned that the teaching work of the Economic Botanist and his staff has increased enormously during the last ten years and the increase is particularly marked since the adoption of the revised curriculum two years ago. The work was heavier than ever during the year under report because the very large sizes of the classes and the insufficiency of microscopes rendered it necessary to divide the classes into two, and in the case of the first year's class into four batches for purposes of practical work. The need for increased staff and better equipment to deal with the increased work has been represented and it is hoped the pressure will be relieved before long. A proposal to acquire a part of the Mody Bagh estate adjoining the college for the purposes of a garden for teaching Botany and Horticulture was made and approved by Government and the garden when ready will be a great convenience. At present the students have to go to the Ganeshkhind Botanical Garden about 4 miles away from the College.

Research Work.

Mango—Study of botanical and cultural characteristics of different varieties has been continued. Study of propagation methods has added another conclusion to that recorded in the last year's report. It can now be asserted from experience obtained at the Ganeshkhind Gardens that "layering" as a method of propagation cannot be recommended because of (1) low percentage of success, (2) slow formation of roots, and (3) slow growth and fruiting. Attempts were made to obtain a hybrid between the variety China and the Aphonse, but were not successful and will have to be repeated.

Of two 25-year-old trees in Ganeshkhind Botanical Garden one was crown-grafted and the other was top-grafted during this year and the progress of these will be watched to obtain an idea of the relative merits of the two operations.

The top-worked mango trees mentioned in last year's report are progressing satisfactorily.

A bad attack of Jassids soon after flowering of the mango this season completely ruined the crop.

Citrus.—Compilation of the information on matters connected with citrus cultivation has been carried on. Comparative study of methods of propagation has been instituted with the object of determining the best method for the nurseryman. Hybridisation has also been attempted, with no success so far.

Guavas.—Observations on varieties have been continued; the Sind-Hyderabad variety continues to be regarded as the best and is fast becoming popular among the public. The attempt to obtain seedlessness in the guava by continued vegetative propagation has been abandoned, as unpromising in results. The plants trained on wires have made good progress and have yielded fruit which was decidedly larger in size and numbers than that of the ordinary plants. Plants on wires also require less space, but it still remains to be seen if this system of training can be recommended as a practical one for large growers.

Comparison of pruned and unpruned guava plants has shown that pruning improves the vigour of plants and increases the size and number of fruits and a few experiments are undertaken and others contemplated, on cultivators' fields if possible, to determine if pruning cannot replace the local method of bending down branches of the guava periodically. Pruning for shape has given results slightly in favour of the "standard" shape as against the "Bushy". Guava plants planted in pits blasted out of trap rock in 1915 have not borne well and this points to the unsuitability of a shallow soil above hard trap rock for a guava plantation.

Papaya.—Hybrids from crosses made in September 1917 between plants bearing different types of flowers received considerable check in their growth from the extremely dry season and have not borne flowers so far; the distribution of six in these will be observed next year. Papaya plants propagated from cuttings last year are bearing well.

Fig.—Observations on the Punjab and other foreign varieties have been continued. Pruning was seen to be effective in inducing early bearing, but there is reason to fear that the weather conditions prevailing in January and February lead to the dropping down of young fruit in large numbers and might possibly act as the limiting factor to the practical utility of the pruning.

Spraying with Bordeaux mixture was not effective in checking the rust (*Uredo Fici*) on fig.

Grapes.—A number of foreign varieties—French and American and some from Karachi and Aurangabad—have become established and out of these "Campbell's Early" and "Barry" have even fruited. These will be propagated and cultivated in separate plots for comparison as soon as possible. Comparative trials of the efficacy against powdery mildew of Bordeaux mixture, Ammoniacal solution of copper carbonate and Potassium sulphide again showed that Bordeaux mixture was the most effective of the three. The plot treated with Bordeaux mixture remained entirely mildew-free. An attack of Anthracnose in July and August 1918 was successfully checked by promptly removing the parts affected and by washing the vines after the October pruning with iron sulphate dissolved in sulphuric acid (1 part commercial sulphuric acid, 8 parts iron sulphate and 20 parts water).

Propagation by grafting has been started with several varieties for study as to effect on yield and time of bearing.

Attempts at hybridisation were made in December 1918 between the varieties of Neelum, Black Prince and Bhokri (Neelum being used as the female parent) with a view to obtain a mildew-resistant type that would yield well. Several fruits set but the seeds except one failed to germinate.

The current statistics of different systems of grape training have shown results in favour of the Umbrella and Kniffin systems, the highest yield of a single plant of Bhokri variety under each system being 66 lbs. 11 ozs. and 47 lbs. 3 ozs. respectively. The highest yield of Bhokri in the single stake system was 28 lbs.

Banana.—Work on this crop has continued but has had to be carried on under somewhat difficult conditions—frequent changes of hands, want of sufficient space for the variety trials, and irrigation difficulties. It has been decided, however, to put the information obtained together for publication. The Banana sun-drying experiments were continued, and although the produce was found to keep well for over twelve months, the obtaining of an agreeable colour to the finished product which will not blacken with time is still a practical difficulty. Enquiries made of the various Deputy Directors of Agriculture in the Presidency further elicited the information that there is not at present

much scope for Banana drying as industry by itself. The experience obtained will be put together in the form of a leaflet shortly.

Pomegranates.—The plantation of local varieties started in 1912 in lmy soil is thriving well but suffered owing to the dry season and attack of "sursa" (*Virachola isocrateo*). The Kabuli grafts are dying out, one after another and have proved quite unsuitable in this tract

Fodder Plants.—The trials with wild fodder grasses were continued, the object being to find out suitable mixtures which would replace the inferior and coarse grasses naturally found on waste lands and convert them into good fodder yielding areas.

Rice.—Of the selected varieties mentioned in last year's report as being tried on large scale at Alibag, the varieties that came out best are:—

Variety	Original locality.	Time for maturing.	Yield per acre.	
			Clean paddy.	Straw.
		Days.	Lbs.	Lbs.
Kuh Sal (fine, scented)	Kalyan	145—155	1,780	2,220
Pauwal (fine, unscented)	Chiplun	125—135	2,589	3,269
Dangi (Coarse, unscented)	Pardi	145—155	2,292	3,236

These varieties and others (which probably had not a good chance owing to the unfavourable season last year) have been handed over for further trials to the Alibag farm.

Mycology.—The experiment of feeding rabbits on *Cerebella* bodies developed in association with *Sphacelia* disease of jowar was repeated and no derangement resulted as a consequence. This and the negative results obtained with the chemical tests for "ergotin" in these bodies, as also the study of pure cultures from *Cerebella* spores, leave no doubt that they are not genetically connected with *Sphacelia* and that they are not to be regarded as harmful to cattle.

The study of "Green smut" on rice has had to be held in abeyance.

The study of storage rots of potatoes has been continued, the establishment of the Potato Works and Storage rooms by the Union Agency on the premises of the Agricultural College having afforded opportunities for studying the conditions of storage on a large scale. The suspected causal fungi of the "Dry rot" and "Black Rot" have been isolated and inoculations with pure cultures of them have produced the respective rots. The "Black Rot" has been found to be different to the "Black heart" described in American literature. The latter is a purely heat effect, while the former is associated with *Rhizoctonia solani* "Black heart" begins at the centre while "Black Rot" begins at the surface of the tuber. Temperature seems to be the controlling factor in the ravages of the "Black Rot" fungus, temperatures above 30°C favouring it and those below 30°C preventing it almost entirely. The experience at the Potato Works of the Union Agency where efforts were made to keep down the temperature in the storage house agrees with this conclusion. The obscure "Tamera" disease of Potato crop in Poona district was studied and evidence was obtained which makes it probable, if not certain, that the disease is due to a mite. Experiments are being planned to deal with this mite with lime sulphur washing and dusting with sulphur this season. The occurrence of *Scelerospora Maydis* on Maize (Cory's Early sweet American variety) grown from imported seed for the purposes of the practical plant-breeding class suggests seed infection in the case of this parasite and deserves to be recorded.

Study of the smuts on jowar (*Andropogon sorghum*) and Nachni (*Eleusine coracana*) has been continued. Preliminary experiments with spraying against the powdery mildew on Jiru (*Cuminum cuminum*) indicated the possibility of checking this disease by spraying the crop, when a month and a half old, with normal Bordeaux mixture.

Observations have been made on various diseases of crops not mentioned in the above list as opportunity occurred.

Miscellaneous Experiments.

Trials with different methods of preparing nursery stock are being carried out in order to determine the cheapest and best methods to recommend to the trade, mango and citrus being the chief plants experimented with. Top-grafting seedlings of guava and mango on larger trees has been done with a view to minimise space and to hasten flowering in the variety trials in connection with these crops. Propagation of *Anona cherimolia* and the better varieties of guava and papaya has been carried on for distribution among the public.

Advisory and Demonstration work.

A large number of enquiries on Botanical, Horticultural and Mycological matters have been dealt with as usual. The Economic Botanist and his staff have been freely consulted by the public and the need for increase of staff to deal with the increased number of enquiries and to investigate the new problems that are placed before us by the

public has been keenly felt. There is great demand for technical advice on the cultivation of fruit crops among the public and the ordinary organisation of District Agricultural Overseers is not found adequate to cope with it. An extension of the horticultural staff for work in the districts seems to be very desirable for this reason.

The campaign against "Kolecoga" and "Gal" (*Phytophthora omnivora* var. *Arecae* Coleman) was carried on as in previous years in the North Kanara and Ratnagiri Districts. Demonstration of treatment against grape vine mildew was carried on on cultivators' gardens at Pimpalgaon and Ujjain in Ahmednagar District with very great success.

Assistance with sprayers and spraying material and trained malis to do spraying and pruning was given to several grape vine growers, amongst whom there is a great demand for such service and for which they are willing to pay. But our staff being limited we can only serve a few.

It may be mentioned that as a direct result of the spraying campaign against the grape vine mildew, the area under grape vine cultivation in Nasik taluka has been extended by over 25 per cent. Records kept for several gardens further show that the yield per acre has increased from 300 lbs. to 5,000 lbs. in many gardens.

Indeed it may be said in general that the horticultural and mycological work carried on by the Botanical Section has created a demand for more advisory, teaching and investigational work in problems connected with fruit cultivation and plant diseases than the present organisation of the section enables it to undertake.

War and Famine Work.

The Economic Botanist supplied Rs. 7,279 worth of seed to the military this year and was frequently consulted by them on technical matters connected with fruit and vegetable culture. Mr. H. P. Paranjpye assisted with the grain census at Baramati in November 1918 and Mr. R. K. Bhide devoted some time to the study of drought resistant plants of the Deccan which were likely to be useful for fodder.

Miscellaneous.

I served in July 1918 on the Committee appointed to draw up a syllabus for Nature Study in Schools at the special request of the Director of Public Instruction. Messrs. G. B. Patwardhan, G. S. Kulkarni and myself represented the Bombay Department at the second Mycologists' Conference held at Pune in February 1919. Among the resolutions passed at this Conference the following one concerns the Bombay Department of Agriculture:—"That in view of the work already done with the present limited staff and equipment and in view of the number of important diseases of crops awaiting investigation in Bombay, this conference recommends the early expansion of the Mycological Section of the Bombay Department of Agriculture into a mycological department with adequate staff and equipment."

Mr. S. H. Prayag submitted during this year a thesis embodying the results of his many years' study of the mango crop for the M.A. degree of the Bombay University which was approved.

Mr. P. G. Dani passed the Intermediate examination for the degree of B.Sc.

Conclusion.

In conclusion it is pleasant to record my appreciation of the willing work and hearty co-operation of the teaching and research staff which helped me to carry on the duties of my office under many difficulties due to financial stress, scarcity of labour, failure of rains and insufficiency of staff.

Publications.

By S. L. Ajrekar, B.A.—
On the Identity of *Blastospora Butleri* Syd., in the Bombay Natural Society's Journal, Vol. XXVI, No. 2, May 1919.

By G. B. Patwardhan, B.Sc., F.R.H.S.—

(1) Note on fruits for Jam making, in the Poona Agricultural College Magazine of October.

(2) Penetration of Scion by Stock in the Journal of Heredity of April 1918.

(3) Leaflet on cultivation of Cape-gooseberry; in English, its translation into Kanarese and Marathi. Published as Departmental Leaflets.

(4) Pruning of Grapes in India; in the Poona Agricultural College Magazine of January 1919.

(5) A Creeping mango; in the Poona Agricultural College Magazine, Vol. X, October 1918.

(6) Another new fruit recommended for introduction in Bombay Presidency—Anona Charimola; in Poona Agricultural College Magazine, October 1918.

(7) Maruti Phal ; in Shetki and Shetkari Magazine for November 1918.

By H. P. Paranjpye, B.A.—

(1) Ambariayanchi Jopasana or Care of Mango plantations; published in the Shetki and Shetkari Magazine of August and September 1918.

(2) Kagadi Limbuchi Lagwad or Lemon cultivation; published in the Shetki and Shetkari of September 1918 and also in the Konkani Shetki Samachar in January 1919 number.

(3) Khaznantil Kanhi Zhadinchi Charya sarkhya Upyog or Use of some tidal plants for fodder; published in the Shetki and Shetkari for January 1919 and also in the Konkani Samachar for March 1919.

(4) Kalami Boranchi Lagwad or Cultivation of Bor Tree; published in the Shetki and Shetkari in April and also in the Konkani Shetki Samachar for February 1919.

(5) A curious case of the juxta-position of two trees; published in the Agricultural College Magazine for March 1919.

(6) Treatment of wounds and cavities in old Mango trees; published as a departmental leaflet both in English and Marathi.

By Mr. R. K. Bhide—

"Probable material for the study of the Experimental Evolution of *Oryza Sativa* var. plena, L'rain"—Paper read before the Indian Science Congress, 1915 and published in the Agricultural Journal of India, Special Indian Science Congress, November 1919.

By Mr. G. S. Kulkarni, L.Ag.—

Leaflet on "Ring Disease of Potato" in English, Marathi and Kanarese.

S. L. AJREKAR,

31st July 1919.

Acting Economic Botanist to Government, Bombay.

APPENDIX K.

REPORT OF THE PLANT-BREEDING EXPERT FOR THE YEAR 1918-1919.

Staff.

I held charge of the office throughout the year. I had to work all through by myself as I failed to get an assistant, worth retaining, to serve on the sanctioned scale of pay. I would, however, like to record here the good work done by the clerk and the two fieldmen placed under me.

Plan of work.

2. This is a newly created office and it is natural that it takes some time before the work settles down after a particular plan. I was very anxious to continue the policy explained in my last report of locating my plots in the tract which it was intended to benefit by the work turned out on them. I had started work last year at Jambul and Alibag on rice and at Nasik on wheat. The continued absence of a suitable assistant for one thing made it impossible to persist any further in this policy. I have, therefore, transferred my wheats from Nasik to Poona which is my head quarters and which is also the centre of agricultural activities in the Presidency. I have also merged the two rice stations of Jambul and Alibag into one at Karjat. This is reached from Poona much more quickly and easily than either Jambul or Alibag.

Progress of work.

3. Rice was sown, as stated in my last report, at Jambul and Alibag in June 1918. For want of funds, due to the war, I could not have a free hand in choosing the sites for my plots. The monsoon proved a poor one and artificial irrigation was not available. A number of plots, as a consequence, dried up without yielding any seed. I have again collected this year and sown some five hundred fresh samples of seed coming chiefly from the districts of Thana and Kolaba. Of my last year's crop, I have selected and sown separately as single-plant-cultures the seeds of about a thousand heads. The close inspection which I made of my crop for effecting this selection, revealed to me the extraordinary richness in strains of our leading varieties such as the Kolamba, Bhadas, Patni, and Garvel. The single heads were sown in rabbed fields in beds 2' by 2', isolated on all the sides by gutters 6" wide. The seedlings were transplanted, when a month old, in long single rows with 6" between two plants and 12" between two rows. In some of the seed-beds one could see uniform seedlings throughout a bed, while in others a more or less pronounced ring of stronger seedlings could be observed. It may be that the capacity to withstand crowding together is a hereditary character. I may also note here that a good many of the cultures were found splitting for various characters. This fact of splitting makes it necessary to handle very large numbers, as I have been doing, if the goal of obtaining better strains in a fixed state is to be reached within a reasonable time. It is proposed to put together the results that may be obtained up to December 1919 in the form of a paper to be read before the next meeting of the Indian Science Congress.

4. The plots of *nagli* (*Eleusine coracana*) which I had last year at Bandhan near Alibag dried up for want of water and the same have not been renewed this year for want of staff.

5. As regards the plots of wheat at Nasik, they commanded well irrigation and consequently they did not suffer from drought. I was obliged to irrigate the dry wheats since the monsoon failed to supply the requisite moisture. Single plants have been selected as in the case of rice for starting their separate cultures next cold weather in Poona.

H. M. CHIBRER,
Plant-Breeding Expert.

APPENDIX L.

ANNUAL REPORT OF THE AGRICULTURAL ENGINEER FOR THE YEAR
ENDING THE 30TH JUNE 1919.

INTRODUCTORY.

The past year has been a particularly strenuous one for this Department owing to famine and the call for 200 sets of pumping machinery and other agricultural implements for Mesopotamia. The work of finding, purchasing, repairing, testing and packing this plant was largely borne by Mr. W. M. Schutte, the Agricultural Engineer, who was appointed Deputy Controller of Agricultural Machinery, Mesopotamia in addition to his other duties. This, and the additional strain of having to provide and set up pumps in famine areas under most difficult circumstances, are the contributing causes of a break down in health which compelled Mr. Schutte to go to England at the end of April on six months' leave to recuperate. Since that time the Department has been under my charge as Acting Agricultural Engineer. I fear, therefore, that this report which should be of unusual interest, will merely be a bald recital of facts as they are placed before me by the staff.

MECHANICAL CULTIVATION.

After considerable deliberation the Munitions Board decided to purchase one of the Steam Ploughing Sets for Mesopotamia, and this was despatched with a full complement of tackle and accessories. The remaining Steam Plough Set in Gujrath was held up pending the decision of the Munitions Board, and when it was decided that it was not required for Mesopotamia there was no demand in Gujrath owing to the famine.

Finally at the request of the Collector of Ahmednagar it was removed to Rahuri for the purpose of ploughing up large tracts by shallow ploughing which could not be undertaken owing to the heavy mortality among the plough oxen.

Unfortunately it was late in the season before its arrival and the demand for shallow ploughing at Rs. 6-0-0 per acre was exceedingly disappointing, only 112 acres being broken up.

The cultivators were quite unwilling to pay Rs. 6 per acre for this work and wanted deep ploughing carried out for the same price.

The tackle has since been brought to the Poona workshops for a complete overhaul in order to be ready for the next season.

No balance sheet is submitted as the work accomplished is insignificant.

Motor tractors for working agricultural implements have been largely developed during the war and this Department is experimenting with a Moghul tractor and plough purchased from Captain Crawford of Sirur. It is also hoped to secure a Fordson tractor for ploughing and drilling shortly, and in addition, investigations are being carried out in England with the idea of sending out two different motor tractors which appear to be suited for Indian conditions so that they can be tested by the Department.

The Moghul tractor and plough have ploughed some 60 acres at Bhamhora with fairly satisfactory results but accurate figures of cost are not yet available.

It must be remembered that these tractors are worked by rather delicate high speed oil-engines and have only recently come into extensive use in Europe. They certainly require a well-paid and skilful man to work and look after them, and it is open to doubt if they will long survive in the conditions prevailing in India. However, exhaustive tests will be carried out with at least four different types, and it is anticipated that some useful information will be obtained.

BORING.

656 enquiries for boring were received during the year. The demands were as follows:—

Northern Division	...	...	...	...	315
Central	..	..	..	..	226
Southern	..	..	..	..	97
Sind	..	..	..	..	3
Outside Presidency	..	..	..	..	15
					656

239 bores were made, and of these 158 were successful. 37 are still under progress, 24 were unsuccessful and 20 were abandoned incomplete at the owners' request.

All the machines at the disposal of the Department were working owing to the Famine, and in Gujrath 134 bores were made with 85.58 per cent of successes. The lower percentage is due to the sinking of the normal water level owing to drought and the unwillingness of owners to pay for deeper borings.

Thana again accounts for 89.0 per cent of successful bores and in the Konkan most promising results are obtained.

Shallow bores in Maharashtra and the Karnatic usually produce only small supplies sufficient for domestic purposes.

Work in Sind had to be shut down owing to the necessity of concentrating in famine areas. A statement is attached showing the results and cost of boring in different tracts.

The increasing interest which is now being taken in shallow boring has led to a more extensive use of the Musto hand machine by District Local Boards, and in this connection facilities are given by the Department to train men. Unfortunately a hand machine which cost Rs. 750 before the war, now costs Rs. 2,950 and the price of a similar machine fitted with an oil-engine to drive it amounts to Rs. 6,000.

The employment of oil-engine driven machines is becoming more and more necessary in view of the difficulty experienced in gathering together the eleven coolies required to work the hand-machine, the work being hard and not very popular.

POWER PUMPING.

Owing to the drought which caused famine in many districts every effort was made to get pumping sets working in localities where sufficient water was available in close proximity to suitable land for irrigation.

17 pumps and engines were collected at Government expense together with pipes, fittings and accessories and these were installed and set to work in less than six months' time. These pumps, together with six other which had been fixed previously were all worked and supplied with stores by the Department. In this way some 2,000 acres of fodder crops were irrigated.

In addition, five pumping sets belonging to cultivators were put in order and worked under the supervision of the Department in order to minimise the risk of a breakdown.

There is little doubt that the benefits to be derived from irrigation by pumping are becoming well known throughout the Presidency and 120 inquiries were attended to during the year.

WORKSHOPS, ETC.

A very large amount of repair work was carried out in the Workshops owing to famine work and the preparation of machinery for Mesopotamia.

Additional accommodation is badly required for the stores, plants and blacksmiths shops which are now accommodated in temporary shanties and often suffer from leaky roofs during the monsoon.

Practically all the available engines and pumps from the experimental well were taken down and used for famine work, and for this reason also, the Oil Engine Class did not meet for 9 months. Ten boys, however, were trained as oil engine drivers and one in working boring machines. The experimental well will be re-equipped as far as possible, and the regular Oil Engine Class commences on July 1st 1919.

MISCELLANEOUS.

The usual work in connection with cane-crushers, shredding and baling machinery, inspection of plant and sites has been carried out during the year.

The engines fitted to two departmental crushers used for demonstration purposes were employed for pumping water to grow fodder crops. Six enquiries for power crushers were received.

Prices of machinery and pipes are still very high and are likely to remain so, but a better side to the situation is the fact that machinery is coming into the country again and it is once more possible to purchase pumps and engines.

GENERAL.

This is the third time during the last seven years that I have acted as Agricultural Engineer. The first occasion was in 1912 before Mr. Schutte came out to India. At that time the Department was starting. There was no workshop, no steam ploughs, few borings were carried out and the number of pumping installations and inquiries was small.

I have watched the Department grow under Mr. Schutte's guidance and for the third time I am again in charge. The above report and those preceding give some idea of the scope of the work of the Department, but it is doubtful if it is properly realized what an enormous amount of detailed work is now carried on continuously by Mr. Schutte, his Assistant Mr. Paranjape and his Boring Overseer, Mr. Chitale. I have pointed out more than once, both to the Director of Agriculture and to Mr. Schutte, the necessity of obtaining additional assistance in this Department so that more supervision can be given and still more work be undertaken.

This department has an enormous field before it and I cannot help feeling that instead of one Mr. Schutte there should be three or four.

Sind, on account of its distance is sadly neglected in this respect and there appears to be ample scope for a trained Agricultural Engineer who would have his head-quarters there.

The amount of routine office work and accounts is a serious handicap to a single Agricultural Engineer who has to spend so much of his time in the Districts, often in the most remote places. There appears to be ample work for a responsible officer who should remain at Poona head-quarters and attend to all these clerical duties. He would also be able to supervise the workshop and experimental work, the teaching of drivers and boring men, all of which require a guiding and driving force constantly near at hand.

Now that the war is over I hope that steps can be taken to strengthen the staff under Mr. Schutte so that he may have a little time to think out his many problems and a responsible officer to carry on the work during his absence.

It is a great drawback to a progressive department to lose its head, and this is emphasised when a substitute can only be found who is unfamiliar with the details of the work and able to devote only a small part of his time to Agricultural Engineering every day.

G. H. THISELTON-DYER,
Acting Agricultural Engineer, B. P. Poona.

STATEMENT OF ANNUAL REPORT FOR THE YEAR 1918-1919.

Serial Number.	Name of well owner.	Taluka.	Village.	Diameter of bore.	Depth of boring.	Water before boring in gallons per hour.	Water after boring in gallons per hour.	Departmental charges.	Labour charges.	Total cost of bore hole.	Cost per foot.	Results and Rem.
				Inches	Ft. in.			Rs. s. p.	Rs. s. p.	Rs. s. p.	Rs. s. p.	
GUJARAT.												
<i>Kaira District.</i>												
1	Mr. Girdhardas Mangaldas.	Nadiad	Nadiad	8	74 0	500	3,500	221 0 10	70 0 0	221 0 10	3 14 11	Successful.
2	Bangibhai Nathabhai	Do.	Uttavanda	8	66 0	1,500	5,500	179 8 11	85 0 0	214 8 11	3 13 4	Do.
3	Narharbhai Nathabhai and Bangibhai, N	Do.	Do.	8	59 0	1,000	2,000	229 10 2	50 0 0	319 10 2	5 12 9	Do.
4	Mathoorbhai Naranbhai.	Borsad	Golei	2½	95 0	2,000	6,000	228 1 4	47 4 0	285 5 4	3 0 1	Do.
5	Kalla Dabys	Mehmadabad	Aklacha	2½	108 0	..	..	..	..	..	..	Failure.
6	Jivabhai Motibhai	Anand	Bhalaj	3½	49 0	1,000	4,000	172 5 2	29 8 0	211 13 2	4 5 2	Successful.
7	Lalloobhai Nathabhai.	Nadiad	Uttavanda	8	88 0	1,000	4,000	254 4 7	100 0 0	354 4 7	4 4 3	Do.
8	Mathoorbhai Naranbhai.	Borsad	Golei	2½	53 0	6,000	12,000	142 1 4	3 0 0	145 1 4	2 11 10	Do.
9	Bans Dala	Mehmadabad	Rinchoi	2½	154 0	250	1,500	145 9 2	32 5 0	177 7 2	3 4 7	Do.
10	Naranbhai Vallabhbhai.	Borsad	Bas	2½	70 0	4,000	10,000	207 0 7	29 12 0	236 12 7	3 6 2	Do.
11	Nashomis Tiumia	Anand	Bhalaj	3½	70 6	250	1,250	228 12 6	96 8 0	325 4 6	4 12 1	Do.
12	Koys Dabys	Mehmadabad	Aklacha	2½	124 0	..	..	..	..	..	..	Failure.
13	Experimental	Nadiad	Nadiad	8	205 0	..	500	449 8 0	220 12 6	670 5 6	3 4 4	Successful.
14	Mangalbhai Veribhai	Mehmadabad	Aklacha	2½	73 0	..	..	..	..	..	..	Incomplete.
15	Ramohandra Mayashankar	Do.	Woodpura	2½	102 0	2,000	2,000	221 11 11	112 8 0	334 8 11	3 6 3	Successful.
16	Chaturbhai Haribhai	Nadiad	Arera	2½	62 0	..	..	..	..	..	..	Failure.
17	Kalidas Muljibhai	Borsad	Bas	2½	106 0	2,000	5,000	222 9 4	37 4 0	260 5 4	3 8 11	Successful.
18	Motibhai Punjabhai	Mehmadabad	Rinchoi	2½	148 0	..	..	..	..	..	..	Failure.
19	Kalidas Muljibhai and Babar Varabhai.	Borsad	Bas	2½	101 0	1,000	2,000	222 12 10	68 0 0	290 12 10	3 7 3	Successful.
20	Majeik Bala Gaba	Anand	Bhadaj	3½	95 0	500	3,500	229 4 1	256 8 0	525 12 1	6 2 8	Do.
21	Bhikhabhai Becharbhai.	Mehmadabad	Aklacha	2½	84 0	500	1,000	217 15 3	100 0 0	317 15 3	3 12 6	Do.
22	Motiram Jamanadas	Borsad	Bas	2½	62 0	500	3,500	140 12 8	29 12 0	189 9 8	3 7 6	Do.
23	Indian Dairy Supply Co.	Nadiad	Nadiad	4	223 0	274	1,000	712 8 5	192 7 6	905 15 11	4 5 2	Do.
24	Purshotam Hathibhai.	Borsad	Bas	2½	96 0	2,000	7,000	225 8 7	80 12 0	306 2 6	3 6 11	Do.
25	Bhulabhai Jethabhai	Mehmadabad	Sankhaj	2½	41 0	1,000	2,000	106 4 4	26 0 0	132 4 4	3 7 6	Do.
26	Chunilal Ganpatlal	Nadiad	Mahudha	2½	98 0	..	..	..	..	..	..	Failure.
27	Mansukhlal Chunilal	Anand	Bhalaj	3½	64 0	1,000	4,000	212 4 11	72 9 0	284 12 11	4 7 9	Successful.
28	Purshotam Sivabhai	Borsad	Bas	2½	112 0	..	..	..	..	..	..	Failure.
29	Bhulabhai Jethabhai	Mehmadabad	Sankhaj	2½	17 0	2,000	3,000	47 11 1	8 0 0	55 11 1	4 3 5	Successful.
30	Haribhai Narabhai	Do.	Do.	2½	66 8	..	..	..	..	..	..	Failure.
31	Jinabhai Motibhai	Anand	Bhalaj	3½	42 0	1,000	6,000	156 14 8	42 12 0	208 12 8	4 14 5	Successful.
32	Somabhai Kishorbhai	Nadiad	Uttavanda	2½	102 0	..	..	..	..	..	..	Failure.
33	Pagi Bhana Lalit	Mehmadabad	Rinchoi	2½	82 0	250	3,250	100 0 10	20 0 0	120 0 10	3 6 9	Successful.
34	Kashibhai Bhojabhai	Anand	Bhalaj	3½	76 0	1,000	5,000	274 9 3	122 12 6	417 5 9	5 12 1	Do.
35	Shamaldas Muljibhai	Nadiad	Mahudha	2½	64 0	750	1,750	223 4 0	120 0 0	343 4 0	4 1 4	Do.
36	Dahyabhai Haribhai	Borsad	Dehvan	2½	62 0	500	3,500	125 0 1	12 14 0	137 14 1	2 14 5	Do.
37	Maganlal Mansukhlal	Mehmadabad	Sankhaj	2½	84 0	1,000	5,000	222 12 8	20 0 0	242 12 8	3 7 8	Do.
38	Majeik Bapu Jaba	Do.	Keshra	2½	72 0	1,000	3,000	150 1 4	46 4 0	196 4 4	3 11 7	Do.
39	Bhalil Bechar	Matar	Traj	2½	102 0	1,000	2,000	227 9 9	122 4 0	350 12 9	3 4 4	Do.
40	Pagi Bhaibe Jiva	Borsad	Bamanwa	2½	68 0	..	..	..	..	..	..	Failure.
41	Pagi Mathoor Kabhai	Nadiad	Laloon	3	17 0	1,000	5,000	62 8 3	11 4 0	74 12 3	4 5 9	Successful.
42	Lalloobhai Mithabhai	Do.	Uttavanda	3	97 0	1,500	7,500	220 10 2	125 0 0	345 10 2	4 4 7	Do.
43	Vaghibhai Shankarbhai.	Do.	Do.	3	80 0	500	4,500	246 7 2	20 0 0	266 7 2	3 9 7	Do.
44	Ghavanbhai Ichhabhai.	Anand	Ajapura	2½	60 0	250	3,250	142 8 0	25 0 0	174 8 0	3 14 0	Do.
45	Pagi Bavaji Nathoo	Borsad	Bamanwa	2½	70 0	1,500	3,500	127 4 8	9 10 0	176 14 8	3 8 5	Do.
46	Chhotalal Kapurchand	Matar	Sandhana	3½	140 0	2,000	5,000	427 10 6	102 0 0	529 10 6	4 1 11	Do.
47	Lalloobhai Bapuji	Anand	Bhalaj	3	22 0	1,000	2,000	244 12 10	172 14 0	416 12 10	5 1 8	Do.
48	Motibhai Ranechhod	Do.	Ajapura	2½	53 0	500	1,500	124 8 1	25 0 0	149 8 1	3 0 1	Do.
49	Amis Hatu	Mehmadabad	Keshra	2½	64 0	2,000	7,000	124 5 2	40 0 0	204 4 9	3 3 1	Do.
50	Purotam Dhaneshwar.	Borsad	Bamanwa	2½	122 0	1,000	2,000	242 9 9	75 0 0	317 12 3	3 9 9	Do.
51	Narayanbhai Lalloobhai.	Nadiad	Mahudha	2½	34 0	2,000	2,000	24 12 0	50 0 0	74 12 0	3 15 4	Do.

Serial Number.	Name of well owner.	Taluka.	Village.	Diameter of bore.	Depth of boring.	Water before boring in gallons per hour.	Water after boring in gallons per hour.	Departmental charges.	Labour charges.	Total cost of bore hole.	Cost per foot.	Result and Remarks.
				Inches.	Ft. in.			Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
107	Himabhai Mithabhai ...	Nadiad	Piplaj	3 1/2	98 0	1,500	3,500	128 15 8	72 0 8	200 15 8	4 5 7	Successful.
108	Vohra Adam Abhram ...	Anand	Samarakha	3	70 0	...	...	...	...	...	...	Failure.
109	Alladin Sher Khan Pethan	Borsad	Pondoli	3 1/2	107 0	...	...	...	...	...	...	On hand.
110	Motibhai Dalabhai ...	Nadiad	Vadthal	3 1/2	82 0	...	...	...	...	...	...	Do.
111	Baharbai Haribhai ...	Borsad	Ashi	3	38 0	6,000	9,000	111 9 5	16 5 0	127 7 5	3 4 3	Successful.
112	Do.	Do.	Do.	3	93 0	...	...	...	...	...	...	On hand.
113	Dadoobhai Pursoiam ...	Nadiad	Nadiad	3	105 0	800	1,000	336 14 8	150 0 0	486 14 8	4 11 0	Successful.
<i>Broach District.</i>												
114	Dinshaw Piroshaw Patel.	Ankleshwar	Survadi	4	205 0	...	...	...	...	...	...	On hand.
<i>Ahmedabad District.</i>												
115	Taluka Local Board, Dholka.	Dholka	Kharati	3	105 0	250	4,250	258 15 4	258 15 0	516 14 4	4 11 11	Successful.
116	Do.	Do.	Bhumli	3	48 0	NH	1,000	155 0 0	127 10 0	282 10 0	6 1 6	Do.
117	Shah Maneklal and Mamlal Banchoddas.	Dastroi	Manipur	3 1/2	102 0	...	...	...	...	...	...	On hand.
118	Kalidas Lalibhai Gomtipur	Ahmedabad	Do.	3 1/2	85 0	...	...	...	...	...	...	Do.
119	Taluka Local Board	Dholka	Transad	3	48 0	...	...	...	...	...	...	Do.
120	Do.	Do.	Ambhati	3	27 3	250	1,250	105 5 5	67 14 0	174 3 5	4 10 10	Successful.
121	Do.	Do.	Rampur	3	24 0	...	...	...	...	...	...	On hand.
122	Sarangpur Cotton Manufacturing Co.	Ahmedabad	Raipur	3 1/2	205 0	...	...	...	...	...	...	Failure.
<i>Panch Mahals District.</i>												
123	Chuntal Mansukhlal	Godhra	Godhra	3	4 5	...	...	...	...	...	...	Failure.
124	Do.	Do.	Do.	3	10 4	...	...	...	...	...	...	Do.
125	Amthabhai Bhaiji	Do.	Shimpuri	3	50 0	...	...	...	...	...	...	On hand.
<i>Mahit Kantha Agency.</i>												
126	Rewandas Prandias	Sadra	Dabhoda	3	20 0	...	...	...	...	...	...	Failure.
127	Do.	Do.	Do.	3	25 0	1,000	4,500	180 10 0	38 18 0	218 6 0	3 14 8	Successful.
128	Patel Bhulal Motidas	Do.	Do.	3 1/2	97 0	500	1,500	330 6 6	93 0 0	423 6 6	4 5 10	Do.
129	Gopaldas Jugaldas	Do.	Do.	3 1/2	58 0	500	1,500	151 3 1	23 8 0	175 11 1	4 0 6	Do.
130	Thakore Surebhai Ganjali.	Do.	Vadodara	3	20 0	800	3,500	154 8 0	40 7 0	194 10 0	3 14 8	Do.
131	Lalibhai Bhulabhai	Do.	Do.	3	28 0	800	3,500	127 6 8	75 0 0	202 6 8	4 6 3	Do.
132	Vagheh Gulabji Nathuji	Do.	Pethapur	3	25 0	...	...	...	...	...	...	Failure.
133	Do.	Do.	Do.	3	22 0	...	...	...	...	...	...	Do.
134	Hoshanji Barjori	Do.	Dabhoda	3	70 0	1,000	4,000	74 10 5	212 1 1	286 11 7	4 1 6	Successful.
<i>Thana District.</i>												
135	Mr. Morubhai Marathe	Umbergaon	Bardi	3	50 0	...	...	...	...	...	...	Abandoned at the request of well owner.
136	" V. L. Bhave	Thana	Sarsola	3	68 0	...	...	...	...	...	...	Do.
137	" G. S. Dandekar	Mahim	Wakora	3	30 0	...	...	...	...	...	...	Do.
138	" G. V. Ganu	Umbergaon	Sanjan	3	65 0	200	1,200	25 6 0	50 0 0	85 6 0	1 4 4	Successful.
139	" Morubhai Marathe	Do.	Bardi	3	75 0	500	5,500	42 10 6	33 0 0	75 10 6	0 15 6	Do.
140	Parsi Giri School	Sasti	Bandra	3	15 0	...	...	...	...	...	...	Failure.
141	Ardasar Derasji	Umbergaon	Sanjan	3	54 0	800	1,000	15 9 4	40 8 0	56 1 5	1 0 7	Successful.
142	Parsi Giri School	Sasti	Bandra	3	21 0	...	...	...	...	...	...	Failure.
143	Mr. Kaldate	Do.	Ithan	3	15 0	1,000	2,000	5 7 0	35 0 0	40 7 0	2 8 5	Successful.
144	" Maganlal Karsandas	Umbergaon	Ghantal pada	3	90 0	NH	800	25 5 1	60 8 0	85 3 1	0 11 10	Do.
145	" K. K. Dandekar	Mahim	Falghar	3	77 0	NH	4,000	243 10 2	21 5 10	264 15 2	4 13 11	Do.
146	" G. S. Dandekar	Do.	Wakora	3 1/2	67 0	NH	1,500	32 12 6	105 0 0	137 12 6	2 1 2	Do.
147	Government Bore	Thana	Sarsola	3	51 0	NH	240	74 4 2	24 3 7	98 7 9	2 2 0	Do.
148	Mr. G. V. Joshi	Umbergaon	Sanjan	3	24 0	...	...	...	...	...	...	Abandoned at the request of well owner.
149	" K. K. Dandekar	Mahim	Falghar	3	30 0	...	...	...	...	...	...	Mishap of tool.
150	" V. K. Sanjanwala	Dahanu	Umbergaon	3 1/2	22 0	500	1,500	25 4 0	12 14 3	37 3 3	1 12 7	Successful.
151	" K. K. Dandekar	Mahim	Falghar	3	20 0	...	...	...	...	...	...	Failure.
152	" P. P. Mahatre	Sasti	Goregaon	3	28 0	...	...	...	...	...	...	Mishap of tool.
153	" M. N. Indulkar	Umbergaon	Wase	3 1/2	64 0	NH	800	25 12 7	65 8 0	71 12 7	1 12 7	Successful.
154	" Kawaji Palamji	Dahanu	Gholwad	3 1/2	23 0	1,000	5,000	12 5 2	25 0 0	37 5 2	1 5 8	Do.
155	" Ardasar Irani	Do.	Do.	3 1/2	22 0	100	1,200	7 15 8	15 0 0	22 15 8	1 0 7	Do.

Serial Number.	Name of well owner.	Taluka.	Village.	Diameter of bore.	Depth of boring.	Water before boring in gallons per hour.	Water after boring in gallons per hour.	Departmental charges.	Labour charges.	Total cost of bore hole.	Cost per foot.	Result and Remark.
				Inches.	Ft. in.			Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
<i>Thana District—contd</i>												
158	Mr. Gopala Nann Patil...	Dahanu	Bordi	8½	43 0	NH	1,500	19 3 6	15 0 0	34 3 6	0 19 9	Successful.
157	" Kawasji Palamji ..	Do	Gholwad	8½	15 0	...	...	...	...	...	...	Failure Salt water
158	" Mukund Anant Save.	Do.	Bordi	8½	18 0	800	1,500	23 10 8	25 0 0	48 10 8	3 11 4	Successful.
159	" Manikji Sorabji	Do.	Do.	8½	38 0	600	2,000	14 1 0	19 0 0	33 1 0	0 11 0	Do.
160	Do.	Do.	Do.	8½	17 0	NH	600	30 5 6	15 13 6	45 8 0	3 11 6	Do.
161	" K. K. Dandekar	Mahim	Falghar	8	87 0	100	2,500	42 4 6	72 11 6	114 5 6	5 12 6	Do.
162	" Manikji Sorabji	Dahanu	Bordi	8½	19 0	600	700	10 11 6	15 6 0	25 7 6	3 6 0	Do.
163	" Haji Mahamed	Thana	Nerul	8	42 0	...	...	.....	...	...	...	Failure
164	" P. P. Mahatre	Sasti	Goregaon	8	145 0	NH	800	21 14 6	122 0 0	143 14 6	0 15 11	Successful.
165	" A B Waiwalkar	Mahim	Falghar	8	51 0	200	600	14 0 6	35 6 8	49 11 8	0 11 7	Do.
166	" Gopaldas Bhagawandas	Dahanu	Zar	8½	56 0	200	1,000	9 10 0	13 6 9	22 9 0	0 6 7	Do.
167	" Batna Dhedka	Do.	Do.	8	22 0	500	1,500	19 7 8	11 4 0	30 11 8	1 1 7	Do.
168	" Ganeshmaji Bani-chand Marwadi.	Do.	Bordi	8	57 0	200	800	66 13 10	80 6 0	146 19 10	1 11 2	Do.
169	" Sakharaj Patil	Mahim	Nandora	8½	33 0	6,000	9,000	28 15 9	9 13 0	38 9 9	1 9 10	Do.
170	" Ambalal Mawaji	Umbergaon	Deheri	8½	45 0	500	1,000	16 6 6	25 0 0	41 6 6	0 14 9	Do.
171	" Narayan K. Patil	Mahim	Falghar	8	27 0	200	500	20 4 9	20 8 0	40 12 9	1 8 2	Do.
172	" K. K. Dandekar	Do.	Do.	8	50 0	1,000	3,000	126 2 0	44 14 0	170 16 0	3 8 5	Do.
173	" T G Kelkar	Dahanu	Malyan	8½	31 0	NH	5,000	13 14 0	28 14 0	41 28 0	1 8 0	Do.
174	" Ambalal Mawaji	Umbergaon	Deheri	8½	55 0	200	1,500	25 14 0	21 4 0	46 18 0	0 13 4	Do.
175	" Arjuna Baut	Dahanu	Bordi	8	11 0	300	1,000	12 5 8	10 4 0	22 9 8	3 0 10	Do.
176	" G. G. Dandekar	Mahim	Falghar	8	66 0	500	3,000	125 15 0	27 1 0	152 16 0	2 7 6	Do.
177	" P. P. Mahatre	Sasti	Goregaon	8	20 0	NH	500	15 2 0	8 0 0	23 2 0	1 4 6	Do.
178	" Narayan L. Baut	Dahanu	Bordi	8	30 0	200	1,000	94 9 9	50 0 0	144 9 9	0 14 11	Do.
179	" Hirasing Dhanasing	Mahim	Falghar	8	49 0	NH	900	16 7 4	20 0 0	36 7 4	0 11 11	Do.
180	" K. M. Irani	Dahanu	Malyan	8½	51 0	600	5,000	34 0 6	33 0 0	67 0 6	1 5 0	Do.
181	" Manglis Beshah	Mahim	Falghar	8	28 0	500	2,000	15 11 3	12 8 0	27 9 3	1 0 8	Do.
182	Agricultural School	Malyan	Jambul	8	60 0	NH	700	27 2 0	80 0 0	107 2 0	1 15 3	Do.
183	Mr. Vamanrao Pimpulkar	Dahanu	Umbergaon	8½	60 0	500	2,000	21 11 0	33 12 0	54 23 0	0 14 10	Do.
184	" Vithal G. Patil	Do.	Bordi	8	39 0	600	2,100	14 8 2	15 0 0	29 8 2	1 0 4	Do.
185	" Laxman B. Baut	Do.	Do.	8	40 0	400	1,500	12 7 8	12 8 0	25 5 8	0 14 10	Do.
186	" Barve, S. S.	Do.	Wangaon	8	20 0	...	...	...	.....	.....	...	On hand
187	" Apasji Ganesh Dandekar.	Mahim	Falghar	8	28 0	NH	1,200	19 6 0	15 0 0	34 6 0	1 3 8	Successful.
188	" V. Y. Dandekar, Pleader.	Do.	Do.	8	68 0	NH	3,000	35 6 0	20 10 0	55 6 0	1 8 11	Do.
189	" Laxman B. Baut	Dahanu	Bordi	8	28 0	500	2,000	24 14 0	12 0 0	36 14 0	1 5 2	Do.
190	" B. G. Dandekar	Mahim	Falghar	8	10 0	...	...	.....	.....	.....	...	On hand.
191	" K. M. Irani	Dahanu	Malyan	8½	22 0	1,000	5,000	11 8 0	8 0 0	19 8 0	0 14 2	Successful.
192	" Framji Rustumji	Umbergaon	Nargol	8½	34 0	...	...	.....	.....	.....	...	On hand
193	" Dorabji Sorabji	Dahanu	Wangaon	8	2 0	...	...	.....	.....	.....	...	Do
194	" K. M. Karandikar	Do.	Malyan	8½	57 0	NH	1,000	14 15 0	30 0 0	44 15 0	0 12 8	Successful.
195	Do	Do.	Do.	8½	25 0	1,000	2,000	2 5 6	9 0 0	11 5 6	0 7 6	Do.
196	Dr. Massania	Do.	Gholwad	8½	2 0	...	...	.....	.....	.....	...	On hand.
<i>Kolaba District.</i>												
197	Government Agricultural Farm	Alibag	Bandhan	8	50 0	...	...	.....	.....	.....	...	Incomplete.
198	Do.	Do.	Do.	8	100 0	NH	1,000	26 12 0	99 1 0	125 13 0	1 4 3	Successful.
199	Mr. G. M. Kamat	Do.	Do.	8	28 0	NH	600	11 0 0	67 4 0	78 4 0	2 13 1	Do.
200	Do.	Do.	Do.	8	20 0	NH	700	12 0 0	50 4 0	62 4 0	3 3 0	Do.
201	Do	Do.	Do.	8	25 0	NH	600	12 4 6	62 8 0	74 2 6	3 7 6	Do.
202	Government Agricultural Farm.	Do.	Do.	8	30 0	...	...	.....	.....	.....	...	Incomplete.
203	Mr. Hormasji Manekji	Do.	Uran	8	50 0	NH	4,500	15 1 0	40 0 0	55 1 0	1 7 1	Successful.
204	" Amun Bhaiji	Do.	Jaskar	4	215 0	...	...	.....	.....	.....	...	Incomplete.
205	" B. M. Tilak	Do.	Karjat	8	48 0	...	...	.....	.....	.....	...	On hand.
206	" Ramchandra Balabhad	Alibag	Uran	8	50 0	...	...	.....	.....	.....	...	Do
<i>Nansi District</i>												
207	Mr. Murlidhar Nathushet.	Yeola	Kolangaon	8	30 0	...	...	.....	.....	.....	...	Mishap of tool.

Serial Number.	Name of well owner.	Taluka.	Village.	Diameter of bore.	Depth of boring.	Water before boring in gallons per hour.	Water after boring in gallons per hour.	Departmental charges.	Labour charges.	Total cost of bore hole.	Cost per foot.	Result and Remark.
	<i>Surat District—conold</i>			Inches	Ft. in.			Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
206	Mr. Potidar	Balsar	Pimpalghabhan	3	85 0			..	..	..	..	Abandoned at request of owner. On hand.
208	.. K K Desai, Pleader	Do	Balsar	3	85 0	..	..	..	..	..	..	Do.
210	.. Fakirbhai Ismailji.	Do	Bagdewadi	3	77 0	..	..	..	..	..	..	Do.
	<i>Dhmednagar District.</i>											
211	.. Ishwara Hanamanta Thako.	Jamner	L i m g a o n ghana.	3	94 0	Nil	500	19 6 5	28 9 7	48 0 0	2 0 0	Successful.
	<i>Dharwar District.</i>											
212	Taluka Local Board	Banebennur	Byadgi	3	95 0	..	..	..	..	..	..	On hand.
213	Mr. N. B. Nadgir, Pleader.	Havry	Havry	3	88 0	Nil	250	120 9 4	99 0 0	219 9 4	2 7 11	Successful.
214	.. G. S. Mokballi	Do	Do	3	76 0	Nil	220	140 12 8	63 0 0	203 12 8	2 2 2	Do.
215	Do.	Do	Do	3	66 0	Nil	275	17 7 4	60 11 0	78 2 4	0 14 3	Do.
216	Mr. S. G. Mahajan, Merchant	Do	Do	3	80 0	Nil	250	10 6 0	51 0 0	61 6 0	1 0 4	Do.
217	.. V. G. Kulkar, Pleader.	Do	Do	3	86 0	Nil	250	15 10 0	79 8 0	96 3 0	1 2 4	Do.
218	.. B. Y. Kulkarni	Do	Hosur	3	8 8	..	..	..	..	..	..	Abandoned at request of owner. On hand.
219	Do.	Do	Do	3	7 0	..	..	..	..	..	..	Do.
220	Navalgand Municipality.	Navalgand	Navalgand	3	5 0	..	..	..	..	..	..	On hand.
	<i>Bijapur District.</i>											
221	Campaign work	Bagalkot	Tulagiri	3	185 6	Nil	300	126 12 0	629 2 0	755 14 0	5 14 0	Successful.
222	Divan Bahadursha Press.	Do	Bagalkot	3	141 0	Nil	750	29 12 8	107 4 0	137 0 6	0 9 8	Do.
223	Do.	Do	Do	3	101 0	750	1,500	27 7 2	100 4 0	127 11 2	0 10 9	Do.
224	Taluka Local Board	Do	Tulagiri	3	..	..	..	..	..	..	..	On hand.
225	Sanitary Committee	Havry	Karajgi	3	177 0	Nil	240	85 0 6	142 8 0	177 8 6	1 8 6	Successful.
	<i>Belgaum District.</i>											
226	Campaign Work	Gokak	Laxmeshwar	4	117 0	..	..	..	..	..	..	On hand.
227	Do.	Do	Udgatti	4	101 0	Nil	250	40 0 0	205 7 0	245 7 0	2 8 5	Successful.
	<i>Ratnagiri District.</i>											
228	Farm Superintendent	Ratnagiri	Shirgaon	3	62 7	Nil	240	80 11 5	25 0 0	105 11 5	2 12 1	Do.
229	Do.	Do	Do	3	80 6	1,500	2,500	20 9 6	40 0 0	60 9 6	1 8 5	Do.
230	Do	Do	Do	3	69 9	2,500	3,500	25 7 9	115 0 0	150 7 9	2 2 2	Do.
231	Do	Do	Do	3	42 0	1,500	2,500	12 1 2	25 0 0	37 1 2	1 9 7	Do.
232	Do	Do	Do	3	42 0	2,500	3,500	5 2 4	20 0 0	25 2 4	0 9 6	Do.
233	Do	Do	Do	3	43 0	Nil	240	6 2 2	25 0 0	31 2 2	0 11 6	Do.
	<i>North Kanara.</i>											
234	Rao Sahib B. M. Basur	Honavar	Honavar	3	202 0	..	..	..	..	..	..	Failure.
235	Do.	Do	Do	3	92 0	..	..	..	..	..	..	On hand.
	<i>Sholapur District.</i>											
236	Mr. S. S. Kulkarni	Barsi	Yadshi	3	50 0	..	..	..	..	..	..	Failure.
	<i>Poona District.</i>											
237	Mr. Anaji Dhonde Patil	Junnar	Junnar	4	45 0	..	..	..	..	..	..	On hand.
	<i>Sindh District.</i>											
238	Mauripur Salt work	Karachi	Mauripur	4	92 0	..	..	..	..	..	..	Mishap of tool.
239	Do	Do	Do	4	202 0	..	..	..	..	..	..	Unsuccessful Sal water.

G. H. THISELTON-DYER,
Acting Agricultural Engineer
Bombay, Poona.

STATEMENT SHOWING PARTICULARS OF EACH DIVISION IN THE WHOLE
OF THE BOMBAY PRESIDENCY.

No.	Item.	Northern Division.	Central Division.	Southern Division.	Sindh.	Total.
1	Bores made	134	78	25	2	239
2	Successful bores	89	58	16	Nil	163
3	Failures	15	6	2	1	24
4	Incomplete including on hand	16	15	5	1	37
5	Abandoned at well owner's request, mislay of tools or owing to salt water	14	4	2	Nil	20
6	Total depth bored	9,830' 6"	8,529'	2,326' 7"	294'	15,860' 1"
7	Total cost of successful bores only. (Rupees.)	24,442 2 9	3,909 10 7	2,662 11 9	Nil	31,014 9 1
8	Percentage of success	85 58	89	80	Nil	
9	Average number of working days for each bore.	16	7	15	Nil	
10	Number of accidents took place in the year.	10	15	2	1	28
11	Number of accidents removed	9	11	2	Nil	22
12	Average Number of feet bored by each machine in 8 months	446' 9"	352'	318'	Nil	

Note—Northern Division—Includes Ahmedabad, Kaira, Panch Mahals and Broach Districts.

Central Division—Includes Surat, Thana, Kolaba, Nasik, Ahmednagar, Poona and East and West Khandesh.

Southern Division—Includes Satara, Sholapur, Bijapur, Dharwar, Belgaum, Ratnagiri and North Kanara.

Sindh—Includes all the Districts in Sindh.

G. H. THISELTON-DYER,
Acting Agricultural Engineer, Bombay, Poona.

**LIST OF AGRICULTURAL BULLETINS PUBLISHED BY THE DEPARTMENT
OF AGRICULTURE (1908 TO 1918-19) AND KEPT FOR SALE AT THE
GOVERNMENT BOOK DEPOT, BOMBAY, POONA.**

No.	Year.	Subject.	Price.	
			Rs.	a. p.
30	1908	Field, Garden and Orchard Crops of the Bombay Presidency, by G. A. Gammie, Economic Botanist, Bombay.	0	12 0
32	1908	Locusts in India, by H. M. Lefroy, Imperial Entomologist, Pusa	0	8 0
33	1909	Cultivation of Broach Cotton in Dharwar, by M. L. Kulkarni, Divisional Inspector of Agriculture, S. D.	0	4 0
33	1909	" " " " (Kanarese)	0	4 0
34	1909	Night-soil—A Valuable Manure, by G. K. Kelkar, Assistant Professor of Agriculture, Agricultural College, Poona.	0	4 0
35	1909	Kalar in Sind, by G. S. Henderson, Deputy Director of Agriculture, Sind	0	4 0
36	1910	First Experiments in the Treatment of Grape-Vine Mildew in the Bombay Presidency, by W. Burns, Economic Botanist.	0	14 0
37	1910	An Examination of the Seed-Supply of the Broach District, by G. D. Mehta	0	4 0
39	1910	The Salt Land of the Niro Valley, by Harold H. Mann, Principal, Agricultural College, Poona, and V. A. Tamhane, Laboratory Assistant, Agricultural College, Poona.	0	5 0
40	1911	The Cultivation of Guavas near Poona, Dharwar and Lumbgaon	0	12 0
41	1911	Groundnuts in the Bombay Deccan	0	4 0
42	1911	Note on Long-stapled Cotton in Sind	0	3 0
43	1911	An Examination of the Seed-Supply of the Broach District, Part II	0	5 0
44	1911	Preliminary Study of the Red Rot of Sugarcane in the Bombay Presidency	0	8 0
45	1911	Second Year's Experiments in the Treatment of Grape-Vine Mildew in the Bombay Presidency.	0	14 0
46	1911	Seed Selection Series I, Broach Cotton	0	8 0
47	1911	San Hemp	0	4 0
48	1911	Poona Furnace	0	7 0
48	1911	" " " " (Marathi)	0	6 0
49	1911	An Examination of the Seed-Supply of the Ahmednagar District, Part I	0	5 0
50	1912	An Examination of the Seed-Supply of the Ahmednagar District, Part II	0	3 0
51	1912	Third Year's Experiments in the Treatment of Grape-Vine Mildew	0	3 0
52	1912	Muscovado Sugar Machinery and its scope for Gul Manufacture in India	0	8 0
53	1912	A Method of Improving the Quality of Cotton Seed	0	7 0
54	1912	A Note on Steam Ploughing	0	10 0
55	1913	An Examination of the Seed-Supply of the Poona District	0	3 0
56	1913	Present State of the Dairying Industry in Bombay	0	3 0
57	1913	Improvement of the Indigenous Plough of Western India	0	12 0
58	1913	Frisky-Pear Experiments	0	14 0
59	1914	Common Salt and its use as Manure in the Konkan Division	0	3 0
60	1914	Note on Indian Sugar Industry and Modern Methods of Sugar Manufacture	0	12 0
61	1914	Sugarcane, its Cultivation and Gul Manufacture	0	5 0
62	1914	The Value of Castration of Deccan Bullocks	0	3 0
63	1914	Substitutes for Rab	0	3 0
64	1914	Alkali or Kalar Experiments and Completion Report of Daulatpur Reclamation Station in Sind	0	14 0
65	1914	A list of diseases of Economic Plants occurring in the Bombay Presidency	0	4 0
66	1914	Indigenous Implements of the Bombay Presidency	2	2 0
67	1914	An Examination of the Seed-Supply of the Sholapur District	0	3 0
68	1914	A Note on Well Boring	0	5 0
69	1915	The Rice Stem Borer in the Konkan	0	3 6
70	1915	Improvement of Cotton in the Bombay Presidency (except Sind)	0	3 6
71	1915	The Grape Growing in the Nasik District	0	9 0
72	1915	Experiments with the Automatic Water-Finder in the Trap Region of Western India	0	4 0
73	1915	Hand List of Plants, Seeds and Bulbs available for distribution in the Ganeshkhind Botanical Gardens, Kirkee.	0	2 6
74	1915	Well Water from the Trap Area of Western India	0	6 0
75	1915	Note on Cattle of the Bombay Presidency	0	3 0
76	1915	Artificial Manures—Experiments on their value for crops in Western India	0	4 0
77	1916	Fodder Crops of Western India	0	11 3
78	1916	Some wild fodder plants of the Bombay Presidency	0	13 0
79	1916	The Cultivation of Guavas in Gujarat	0	5 6
80	1916	List of Seeds available on the Agricultural College Farm, Poona	0	5 0
81	1916	Note on Fencing Construction	0	6 9
83	1916	Cultivation of drilled paddy in South Bombay Presidency	0	9 0
83	1917	The Spice Gardens of Sursi in Kanara	0	10 6
84	1917	Seed Selection Series—Kumpta Cotton	0	1 0
85	1917	Note on Cattle in the Bombay Presidency	0	11 0
86	1917	Establishment and Management of the Dairy Farm	0	7 0
87	1918	The Utilisation of Inferior Grass Herbage, Experiments at the Tegur Cattle Farm	0	9 0
88	1918	First Report on Fruit culture as practised round about Tharushah (Sind) in Nawabshah District.	0	2 0
89	1918	Artificial Manures : Experiments on their value for crops in Western India	0	3 3
90	1918	Work on the Manjri Farm for the years 1915-18	0	7 3
91	1919	The Cultivation of Berseem in Sind, Experiments at Sukkur	0	1 0
92	1919	Classification and Description of the Jewars of the Bombay Karnatak .. .. .	..	..
*93	1919	Palm Gul Manufacture in the Bombay Presidency (Principally Date Palm) .. .. .	..	..
*94	1919	The Sugarcane borer and its control .. .. .	..	..
*95	1919	The Cultivation of Oranges and Allied Fruits in the Bombay Presidency .. .. .	..	..

* In the press.

Annual Reports.

Annual Report of the Department of
Agriculture, Bombay Presidency, for
the year 1918-19.

GOVERNMENT OF BOMBAY.

REVENUE DEPARTMENT.

Resolution No. 227.

Bombay Castle, 27th January 1920

Letter from the Director of Agriculture No. 12628 dated 11th October 1919—Submitting the Annual Report of the Department of Agriculture, Bombay Presidency, for the year 1918-19.

Letter* from the Director of Agriculture No. 572 dated 18th January 1920.

RESOLUTION.—During the year 1918-19, the Agricultural Department rendered valuable assistance in the operations against the widespread famine and scarcity, particularly in stimulating the growing of fodder and in the preservation and supply of seeds. The rapidly extemporised pumping plants also provided valuable fodder at a critical period and some data as regards an experiment in new methods of famine relief. The whole question is still under the consideration of Government. The Department also afforded considerable assistance towards the successful prosecution of the cactus fodder campaign by supplying burning apparatus and trained operators to the district authorities.

2. The ordinary work of the Department was to some extent affected by the prevailing scarcity and operations undertaken therewith; but the detailed report indicates that much useful work was done. The introduction and maintenance of the best strains of cotton is one of the most valuable activities of the Agricultural Department and the growing of selected strain and the distribution of seed through selected agencies continued. The Governor in Council observes with satisfaction the efforts made in Gujarát to combat the spread of inferior cotton and the threatened extinction of the best Broach varieties. A special staff has been appointed to carry out these operations and it is satisfactory that the trade has lent its support and co-operation which, it is hoped, will continue.

3. The Department has suffered during the war by the necessity for economy, and expansion in many necessary directions has been restricted. With the return of improved financial conditions it is now possible to meet the rapidly growing demands of agriculture. One of the most urgent requirements has already been met by the creation of a special branch under a Deputy Director for animal breeding and it should now be possible to accord adequate attention to the very important problems of cattle breeding and dairying.

4. The Director's report affords an interesting synopsis of the work of the year which is recounted in greater detail in the appendices dealing with the educational, research and engineering branches of the Department. The Governor in Council desires to accord his acknowledgments to the Director and his staff for the assistance rendered by them in the critical times of the past year and for the many valuable results achieved in the ordinary course of their activities.

H. F. KNIGHT,

Under Secretary to Government.

[P. T. O.]

*Not printed.

To

<p>The Commissioner in Sind, The Commissioner, N. D., The Commissioner, C. D., The Commissioner, S. D., The Commissioner of Customs, Salt and Excise, All Collectors, including the Deputy Com- missioner, Upper Sind Frontier, The Director of Agriculture, The Settlement Commissioner and Director of Land Records, The Registrar of Co-operative Societies, The Director of Industries, The Chief Conservator of Forests, Bombay Presidency, The Conservator of Forests, N. C., The Conservator of Forests, C. C.,</p>	<p>The Conservator of Forests, S. C., The Deputy Conservator of Forests in charge Sind Circle, *The Sanitary Commissioner for the Gov- ernment of Bombay, The Director of Public Instruction, The Principal, Agricultural College, Poona, The Superintendent of Land Records in Sind, *The Accountant General, *The Educational Department, *The Political Department, *The General Department, *The Public Works Department, *The Financial Department, †The Government of India, †The Under Secretary of State for India</p>
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*With copies of the report.

†By letter.

No. of 1920.

Copy forwarded for information and guidance to

ANNUAL ADMINISTRATION REPORT
OF THE
BOMBAY VETERINARY COLLEGE
AND
CIVIL VETERINARY DEPARTMENT
IN THE
BOMBAY PRESIDENCY
INCLUDING SIND
FOR THE
OFFICIAL YEAR 1907-1908.

No. 628 of 1908.

BOMBAY VETERINARY COLLEGE:
Parel, 4th June 1908.

From MAJOR F. JOSLEN, F.R.C.V.S., I.C.V.D.,
Principal, Bombay Veterinary College;

To THE DIRECTOR OF PUBLIC INSTRUCTION,
Poona.

SIR,

I have the honour to submit this the twenty-second Annual Report of the Bombay Veterinary College dealing with its administration during the official year 1907-1908. From the 7th December 1907 to the 6th March 1908, Mr. M. H. Sowerby, I.C.V.D., was in charge of the College while I was on special leave and Mr. F. Ware, I.C.V.D., was appointed to act as Assistant Principal. A brief outline of the duties performed in connection with the Bai Sakerbai Dinshaw Petit Hospital for Animals for the year ending the 31st December 1907 is embodied in the report.

PROFESSIONAL EXAMINATIONS.

2. Government appointed the following Officers to serve on the Board of Examiners:—

President—Colonel H. T. Pease, C.I.E., Inspector-General, Civil Veterinary Department.

Members { Mr. K. Hewlett, I.C.V.D., Superintendent, Civil Veterinary Department, Bombay Presidency.
Mr. C. Wilson, I.C.V.D., Acting Superintendent, Government Cattle Farm, Hissar.

The examinations were held from the 25th November to the 2nd December and the results (*vide* Appendix A) were declared and prizes awarded on the latter date.

From the Appendix A it will be seen that of the three classes, totalling 102 candidates that presented themselves for examination, 77 passed; a percentage of 75.49 as against 80.00 and 72.22 in 1906 and 1905, respectively. Twenty-nine candidates appeared for the Third Professional (Diploma) Examination. Of these 23 passed, a percentage of 79.31. Under College Rule 27 a Supplementary Examination for two students, who failed, in one subject only at the First Professional Examination, was held in March by Mr. K. Hewlett, Superintendent, Civil Veterinary Department, Bombay Presidency. One of these passed.

The results of the examinations held in December and in March are amalgamated in Appendix A.

The following are the remarks of the Board of Examiners:—

"We consider that in most subjects the standard of knowledge attained is satisfactory. It will be noted that in the Second Professional Examination the majority of failures occurred in anatomy. We consider that although their book knowledge on the subject was fairly good they were unable in many cases to apply it. This we attribute to the lack of proper anatomical room conveniently near the College and consequent disadvantages under which the subject has been taught. We are of opinion that in the handling of animals the students showed more aptitude in the subject than formerly, and that they have a better knowledge than usual in contagious diseases."

INFORMATION RELATING TO STUDENTS.

3. At the beginning of the year there were 111 students on the College rolls, *vide* Appendix B. During the year there were 41 entries as against 49 and 37 in 1906-1907 and 1905-1906, respectively. Forty new students joined Class A, and one student joined Class B (under concessions as mentioned in College Rule 19) from the Bengal Veterinary College. Forty-five students left the College, *viz.*, 19 that passed the Diploma Examination and 6 that left from

Class C after having failed at the same examination (total 25), 5 that left from Class B and 15 from Class A.

The number of students attending the College at the close of the official year was 107 as compared to 111 and 98 in 1906-1907 and 1905-1906, respectively.

Four students, who failed in December 1906 and left, re-entered the College in July 1907; they were, therefore, not on the College rolls at the beginning of the official year 1907-1908. They appeared for examination in December of the same year and passed and are shown in Appendix A but not in Appendix B.

Of the 107 students on the College rolls at the end of the year one each belonged to Ceylon, Cutch, Gondal, Vákáner, and Goa; two each to Indore, Sind, Jámnagar, Sánгли and Kolhápúr; four to Bhávnagar; five each to Madras and Travancore and 33 to Mysore. The remaining 45 belonged to the town of Bombay and the several districts of the Presidency proper.

The number of men, who presented themselves in December 1907 as candidates for admission as students, was 73 as against 83 in 1906-1907 and 56 in 1905-1906. Of these new men only 41 eventually joined the College at the beginning of the course in January (Appendix B). Of these 16 are Matriculates and School Final men. Of the other 32 men who did not join one was rejected as morally unfit, three were rejected as physically unfit and 6 because they failed to pass the Entrance Test. Eight who were Matriculates and six who passed the Entrance Test (required of men without any qualifications), did not join and 8 who were without any qualifications did not come up for the Entrance Test.

Of the 41 new students who eventually joined the College, 17 belonged to the Bombay Presidency, 14 to Mysore, 4 to Native States in the Bombay Presidency, 2 to Travancore and one each to Sind, Goa, Ceylon and Bengal.

In the new admissions there are 5 scholarship holders—4 sent by the Mysore State and one by the Rajput Pie Fund Society, Káthiáwár.

Appendix C shows the different nationalities of the students on the College rolls at the end of the year.

In the new admissions there are 34 Hindus, 6 Native Christians and one Mahomedan.

GOVERNMENT SCHOLARSHIPS.

4. As stated in the last annual report there were 15 students on the list of Government scholarship holders at the close of the official year. Of these 7 left, *viz.*, 4 that graduated from Class C, and one each from Classes A, B and C, who failed at their respective annual examinations. One of the scholars who failed at the examination was under the amended College Rule 11 allowed by the Principal to continue to draw his scholarship. Including this scholar there remained 8 students on the list of Government scholars at the beginning of the present Collegiate year. From the beginning of the year Government have sanctioned an increase in the total number of scholarships to be awarded to students from 15 to 21, so that in January there were 13 scholarships vacant. To compete for these 73 men were recommended by different Collectors and of these 26 came to the College in January and of these only 16 eventually joined as students and of these only 14 came up to compete at the examination for scholarships which was held in March by the Superintendent, Civil Veterinary Department, Bombay Presidency, and myself. They were tested according to the College Rules and eight of them only were chosen, thus making up the total number of scholarship holders to 16, leaving 5 vacancies to be filled next year. Of the 14 competing students 9 were Matriculates or School Final men and it was 8 of these to whom scholarships were given one having to be rejected as not coming up to the standard of minimum chest measurement. Of the abovementioned 16 candidates who joined the College as students 4 were recommended by the Collector of Ratnágiri, two each by the Collector of Poona and Broach and one each by the Collectors of Kaira, Kánara, Thána, Belgaum, Násik, Hyderabad (Sind), Dhárwár and East Khándesh. The students to whom scholarships were awarded came, one each from Ratnágiri, Násik, Hyderabad, Kaira, Poona, Broach, Dhárwár and Kárwár. They comprised four Deccani Brahmmins, one Gujaráti Brahmmin, one Shenvi Brahmmin, one Gujaráti Barot of the cultivating caste and one Kshatriya from Sind.

Advertisements were put in the Vernacular newspapers to the effect that there were 13 vacant Government scholarships of Rs. 15 each per mensem and the Collectors and Head Masters of High Schools in the different districts of the Presidency were addressed with a view to their recommending suitable men from their districts for the scholarships, but from the figures given above it will be seen that but few were forthcoming in the end.

BAI SAKERBAI DINSHAW PETIT HOSPITAL FOR ANIMALS.

5. The records of the Bai Sakerbai Dinshaw Petit Hospital for Animals give the following information relative to patients admitted, *viz.* :—

(a) The number of in-patients treated were 2,460 in 1907 as against 2,528 and 2,975 in 1906 and 1905, respectively, showing a decrease of 68 on the previous year. The various classes of animals admitted were :—Horses 556, cattle including goats 1,523, dogs and cats 381. The daily average was 202 an increase of 8 over the previous year.

(b) The number of out-patients treated was 993 as compared to 992 in 1906 and 672 in 1905.

(c) The mortality in horses was 3.90 per cent, in cattle 3.62 and dogs 29.69 as compared to 3.59, 2.33 and 23.52 respectively in the previous year and 3.27, 2.9 and 27.05 respectively in 1905.

(d) The number of operations performed during the year was 333 as against 328 in 1906 and 277 in 1905.

TRAINING OF DRESSERS.

6. Ten Bullock Drivers of the Supply and Transport Divisions, Quetta and Karachi, went through a course of training as dressers during three months' vacation of the College and were at the end of the course considered competent to perform the work of dressers. While undergoing the course the men were lodged in the Bori Bandar Lines.

EMPLOYMENT OF GRADUATES.

7. Of 23 students who passed the Diploma Examination in December last, four who were Mysore State students obtained employment in that State, two have been employed as Assistant Veterinary Officers at the College, one has been appointed temporarily in the Palanpur State, five under the District Local Boards of the Presidency and 11 as yet remain unemployed. One Graduate of 1904 and one of 1906 have been permanently appointed on cattle disease duty in Dhar State on a salary of Rs. 50—5—100 each. One Graduate of 1906 obtained an appointment as Veterinary Assistant in Idar State on a salary of Rs. 60 rising to Rs. 100. One Graduate of 1890 in charge of the Veterinary Dispensary, Belgaum, obtained through the College the appointment of Assistant Veterinary Surgeon in Rewah State in the Baghelkhand Agency on a salary of Rs. 150—10—200. One Graduate of 1906 obtained employment as Veterinary Assistant in the Central Provinces.

Enquiries as to whether two Graduates were available to fill up two appointments as Veterinary Inspectors on a salary of £ 140 rising to £ 180, per annum, in the Federated Malay States were received, but no Graduates were willing to accept them and the temporary services of a Graduate were requisitioned on a salary of Rs. 150—10—200 required for the purpose of making a preliminary survey in Baluchistan for the organization of a Subordinate Veterinary Establishment there. A Graduate of 1907 has been selected to fill up this appointment.

TRAINING OF GRADUATES IN ANTI-RINDERPEST INOCULATIONS.

8. Instead of sending Graduates in Government employment to the Imperial Bacteriological Laboratory at Muktesar for a course of training in rinderpest inoculation, the Inspector-General, Civil Veterinary Department, enquired whether it could be arranged in future to show cases and *post-mortems* of all contagious cattle diseases to the third year students and whether they could be taught the theory and practice of anti-rinderpest inoculation. To this reply was made that Graduates of the College were taught the theory and practice of rinderpest inoculation, but that as cases of contagious disease were not admitted to the Bai Sakerbai Hospital for Animals the students had but little opportunity of seeing such cases other than rinderpest and foot and mouth disease.

EXTRA DUTIES.

9. The following extra duties were performed, *viz.* :—

(a) The control of the Glanders and Farcy Department in Bombay and Bándra.

(b) Advising Graduates and other Officers in the Mofussil regarding disease and treatment of animals and other matters.

(c) Receiving and despatching 58 Donkey Stallions for the North-West Frontier Province, Punjab, United Provinces and the Army Remount Department.

(d) Advising the Commissioner of Police regarding the purchase and casting of Remounts.

(e) Conducting along with the Assistant Principal the examinations in Veterinary Science at the Examinations in Agriculture of the Bombay University.

(f) The training of 10 Bullock Drivers belonging to the Supply and Transport as dressers, by the Native Teaching Staff.

PROPOSED CONTAGIOUS DISEASE WARD, DISSECTION AND POST-MORTEM ROOMS.

10. For purpose of instruction a proposal was made by the Principal that a contagious disease ward and dissection and *post-mortem* rooms should be erected in the new compound of the Government Veterinary College.

This, at the suggestion of the Director of Agriculture, was forwarded to the Society for the Prevention of Cruelty to Animals, the Municipal Health Officer and the Inspector-General, Civil Veterinary Department, asking whether there would be any objection to the proposals being carried out. The Municipal Health Officer and the Inspector-General approved of them, but they have been under the consideration of the Society for the past year (excluding the time I was away on special leave for three months) without as yet any definite result.

SANITARY SURVEYORS' CLASS.

11. Five Graduates were admitted to the Sanitary Surveyors' Class in January 1908. No Graduates passed the examination for the class held by the Bombay Municipality in July 1907.

HOSPITAL IMPROVEMENTS.

12. The following alterations and improvements were made in the Hospital :—

A new cattle operation shed has been built.

The old dog ward has been re-fronted and rendered far more sanitary by free ventilation.

Government have paid a contribution of Rs. 3,339 towards the cost of a new Operation Theatre which will be built by the Society for the Prevention of Cruelty to Animals.

PATHO-BACTERIOLOGICAL LABORATORY.

13. Material such as pathological specimens, blood smears, ears and tails of animals died of epizootic disease have been received from Graduates of District and Local bodies for diagnosis. The main feature disclosed by the examination of these was that septicæmia hæmorrhagica was very often mistaken for anthrax. Further improvements have been made in the Laboratory by the addition of cupboards and roller blinds by the Public Works Department.

The annual contingent grant was permanently increased by Rs. 500 which is to be spent in buying Laboratory requisites and a special grant of Rs. 1,000 was sanctioned for this year for the purchase of apparatus from England, some of which was received before the close of the year.

The question of building a new Bacteriological Laboratory on the New College premises and appointing a skilled Pathologist was referred for discussion to the Veterinary Conference held at Calcutta in February last and the Director of Agriculture was requested by Government to report the decision of the Conference on the subject.

MUSEUM.

14. Mr. N. D. Dhakmarvala was deputed to visit the Lahore Veterinary College and take notes, in particular in regard to the Museum and the mounting and preservation of specimens.

At the request of the Principal with the support of the Superintendent, Civil Veterinary Department, Bombay Presidency, Graduates furnished pathological and parasitical specimens for the Museum.

Glass show cases at a cost of Rs. 3,438 derived from a special grant sanctioned by Government and from the contingent grant were obtained for the Museum.

The following is a list of additions to the Museum during the year :—

Name.	By whom it was presented.
Skeleton of elephant ...	Mr. V. K. Nair, Class "C" Student.
Skeleton of camel ...	" S. G. Hajji, G.B.V.C., Barachi.
Skeleton of Kishāwār bull ...	" J. B. Knight, M.Sc., Poona.
Skeleton of sheep ...	" A. L. Shaikh, G.B.V.C.
Case of biting flies collected in the College compound ...	" M. H. Sowerby, I.C.V.D.
Tse Tse Fly ...	Colonel J. Anderson, A.V.D. (retired).
Specimens of ticks of India ...	Imperial Bacteriologist, Muktesar.
Mounted specimens of bony diseases of limbs of horse ...	Mr. M. H. Sowerby, I.C.V.D.

LIBRARY.

15. A grant of Rs. 530 was again sanctioned for the purchase and binding of back numbers of periodicals, but owing to the time required to obtain these from the printers and some of them being out of print, only Rs. 145 of the grant could be expended.

CURATOR AND LABORATORY ASSISTANT.

16. The appointment of a Laboratory Assistant and Curator was sanctioned by Government with effect from the 1st February 1908 and it has been filled up by Mr. V. R. Phadke, G.B.V.C., late Inspector at the Imperial Bacteriological Laboratory, Muktesar.

PHARMACY.

17. The Pharmacy has been considerably extended and a new counter erected by the Public Works Department.

FORGE AND SHOING SHED.

18. Plans and estimates amounting to Rs. 2,700 have been drawn up and submitted for the extension of the shoeing shed and the provision of another fire.

POST-MORTEM ROOM.

19. The *post-mortem* room (Government building) in the Bai Sakerbai Hospital for Animals has been improved by the Public Works Department by the insertion of sky lights in the roof.

TOURS.

20. The students of class "C" were taken to the Government Cattle Farm, Hissar, by Mr. Dhakmarvala, Professor of Bovine Pathology, and to the Bāndra Slaughter House by Mr. Sowerby, Assistant Principal.

EQUITATION.

21. The class "C" students went through a course of equitation at the Government Body Guard Menage at Chaupāti.

STUDENTS' QUARTERS.

22. The new students' quarters were completed in November and were then partially occupied by them. Accommodation for 76 students is provided, but only twenty as yet have been occupied. Some of the students complained that the rent charged, *viz.*, Rs. 3 was too high.

NATIVE PROFESSORS' QUARTERS.

23. Mr. Dhakmarvala, Professor of Bovine Pathology, has been occupying the bungalow on the New College premises. The division of this bungalow by a partition at a cost of Rs. 591 has been sanctioned by Government, so that the bungalow may accommodate two Native Professors.

OFFICE AND MENIAL ESTABLISHMENT.

24. Mr. Ranade, Second Clerk, has again been on leave during the greater part of the year. Mr. G. L. Palnitker has been acting for him. On the Menial Establishment five additional men for the new College and students' quarters were sanctioned for 1908-09.

THE NEW COLLEGE.

25. The New College building is nearing completion and will probably be ready for occupation about July next.

DONORS OF PRIZES.

26. Sir Dinshaw Manekji Petit, Bart., and the Bayley Memorial Fund Committee contributed to the prize fund. Thanks are due to them for the same.

27. Appendix D is the financial statement and Appendix E is the statement showing main results of the College for the year.

28. A special grant of Rs. 8,319 to procure instruments, appliances and requisities for different departments of the College was sanctioned and an indent for them has been sent to England and some of the articles indented for were received before the close of the year.

29. The College Staff has worked well during the year. Good work has been done in the preparation of specimens for the Museum by Mr. M. H. Sowerby, Mr. Shaik and Mr. Miranda of the Glanders and Farcy Department.

30. My thanks are again due to Mr. Manickshaw Doctor, Secretary, Society for the Prevention of Cruelty to Animals, for the cordial co-operation at all times in matters more particularly relating to the treatment of animals and sanitation.

I have the honour to be,

Sir,

Your most obedient Servant,

F. JOSLEN, Major, I.C.V.D.,

Principal, Bombay Veterinary College.

APPENDIX A.

BOMBAY VETERINARY COLLEGE.

Results of Professional Examinations, 1907-1908.

Examinations.	First Class, i.e., who obtained 2/3rd Marks in their examina- tion.	Pass.	TOTAL CANDIDATES		Percentage of Passes.
			Examined.	Passed.	
First Professional	12	24	48	36	75.00
Second do.	8	10	25	18	72.00
Third do.	5	18	29	23	79.31
Total	25	52	102	77	75.43

APPENDIX B,

BOMBAY VETERINARY COLLEGE.

Return showing changes in the Number of Students in 1907-1908.

Class.	Number of Students on 1st April 1907.	WITHDRAWS.		ENTRIES.		Number of Students on the 31st March 1908.	Remarks.
		Number of Students left the College.*	Number of Students transferred from the lower to higher class.	New entries.	Number of Students transferred from the lower to higher class.		
Class C	26	25	...	...	17	18	
Do. B	29	5	17	1	33	41	
Do. A	56	15	33	40	...	48	
Total	111	45	50	41	50	107	

N.B.—One of those who passed the Second Professional and three of those who passed the First Professional did not join higher classes, but left the College on passing.

Parsee, Bombay, 4th June 1908.

F. JOSLEN, Major, I.C.V.D.,
Principal, Bombay Veterinary College.

APPENDIX C.

BOMBAY VETERINARY COLLEGE.

Return showing the Number and Nationality of Students for the year 1907-1908.

Caste.	Paying.	Native States, Local Boards and Municipalities	Government Scholars.	Total.	Remarks.
<i>Class C.</i>					
Hindus	9	3	2	14	
Mahomedans	1	1	..	2	
Native Christians	2	..	..	2	
Total .. .	12	4	2	18	
<i>Class B.</i>					
Hindus	27	7	5	39	
Mahomedans	1	..	..	1	
Parais	1	..	..	1	
Total	29	7	5	41	
<i>Class A.</i>					
Hindus	26	4	9	39	
Mahomedans	1	1	..	2	
Native Christians	6	..	..	6	
Parais	1	..	..	1	
Total .. .	34	5	9	48	
Grand Total ..	75	16	16	107	

Parel, Bombay, 4th June 1908.

F. JOSLEN, Major, I. C. V. D.,
Principal, Bombay Veterinary College.

APPENDIX D.

Financial Statement of the Bombay Veterinary College for 1907-1908.

Budget Sanction.			Actual Expenditure.		
Heads.	1906-1907.	1907-1908.	Heads.	1906-1907.	1907-1908.
	Rs. a. p.	Rs. a. p.		Rs. a. p.	Rs. a. p.
From Government Salaries—			Teaching Staff	30,238 2 3	31,700 7 11
Teaching Staff	38,730 0 0	39,132 0 0	Establishment	3,199 9 2	3,073 11 11
Establishment	3,264 0 0	3,204 0 0	Contingent Expenditure ...	1,571 8 8	2,092 3 5
Contingent Expenditure ...	1,182 0 0	1,728 0 0	Scholarships	1,680 0 0	1,980 0 0
Scholarships	1,800 0 0	2,180 0 0	Chemical and Museum require- ments	619 7 3	1,156 5 0
Chemicals and Apparatus (in- cluding grant for Museum)...	1,000 0 0	1,200 0 0	Riding Fees	288 0 0	272 0 0
Examiners' Fees	300 0 0	300 0 0	Examiners' Fees ... ..	.....	384 0 0
House Rent Allowance ...	1,440 0 0	1,440 0 0	House Rent Allowance ...	1,434 0 0	1,391 9 10
Books, Periodicals, etc. ...	450 0 0	450 0 0	Travelling allowances to Offi- cers	51 14 0	417 4 0
Purchase and binding of missing numbers of Journals ...	550 0 0	530 0 0	Furniture and Apparatus ...	371 7 9	631 12 0
Travelling allowance to Offi- cers	600 0 0	300 0 0	Buildings and Repairs ...	1,287 12 10	1,546 3 1
Furniture and Apparatus ...	440 0 0	394 0 0	Books and Periodicals ...	361 4 11	448 8 0
Buildings and Repairs... ..	1,366 0 0	1,547 0 0	Purchase and binding of missing numbers of Journals ...	19 10 0	145 7 6
Honorarium to two Assistant Veterinary Officers	900 0 0	900 0 0	Honorarium to two Assistant Veterinary Officers	900 0 0	900 0 0
Charges for Instructions in Dairy Work, Cattle, etc. ...	500 0 0	500 0 0	Rents, Rates and Taxes ...	82 1 0	162 13 11
Rents, Rates and Taxes ...	83 0 0	83 0 0	Conveyance allowance to Assistant Professor of Ana- tomy	180 0 0	180 0 0
Conveyance allowance to Assistant Professor of Ana- tomy	180 0 0	180 0 0	New College Building and Stu- dents' quarters	78,916 4 10	55,010 0 3
Riding Fees	300 0 0	300 0 0	Equipment of Laboratory ...	.....	2,123 1 5
New College Building and Stu- dents' quarters	78,777 0 0	55,084 0 0	Excursion charges	287 10 0	378 7 0
Equipment of Laboratory ...	.....	1,000 0 0	Plague Allowance	83 10 5	81 14 0
Excursion charges	500 0 0	500 0 0	Contribution to the operating theatre ... ..	.....	3,399 0 0
Contribution to the operating theatre ... ..	.....	3,399 0 0	Glass cases for the Museum ...	.....	3,000 0 0
Glass cases for the Museum ...	.....	3,000 0 0	Instruments, Appliances and requisites ... ..	.....	2,329 2 0
Special grant for Instruments, appliances and requisites ...	.....	2,390 0 0	Total	1,21,472 2 1	1,12,503 14 9
Total	1,30,362 0 0	1,25,701 0 0			

Statement of Receipts on account of the College credited to Government.

Heads.	1906-1907.	1907-1908.
	Rs. a. p.	Rs. a. p.
Municipal contributions	2,500 0 0	2,500 0 0
Fees from students	5,220 0 0	5,460 0 0
Rent of students' quarters ...	144 0 0	530 0 0
Sale-proceeds of unserviceable articles, old papers and packing cases ...	57 4 0	.....

F. JOSLEN, Major, I. C. V. D.,
Principal, Bombay Veterinary College.

APPENDIX E.

BOMBAY VETERINARY COLLEGE.

Showing the main results of the Veterinary Colleges and Schools during the year ending 31st March 1908.

Veterinary Colleges and Schools.	Name of course of instruction if more than one course followed.	Number of Students										Receipts.		
		Admitted during the year.		Failed to pass Final Examination.		Remaining under instruction at end of year.		Students admitted during the year, classed by educational qualifications.				From fees.	From other sources.	Total.
		Scholarship holders.	Others.	Passed Final Examination during the year.	Failed to pass Final Examination.	In ordinary course.	Instruction prolonged by reason of failure to pass.	Matriculated with higher qualifications.	Knowing some English but not Matriculated.	Knowing no English or very little English.				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
		No.	No.	No.	No.	No.	No.	No.	No.	No.	Rs.	Rs.	Rs.	
Bombay Veterinary College.	18	28	23	26	98	14	18	25	...	5,460	2,500	7,960	

Veterinary Colleges and Schools.	Expenditure.			Employment of students who passed out during the three years preceding.					Remarks.
	Salaries of instructing staff.	Other expenses.	Total.	Total number passed.	In services of Government or local bodies.	In service of other bodies or institutions.	In private practice.	Number unemployed.	
	Rs. a. p.	Rs. a. p.	Rs. a. p.						
Bombay Veterinary College.	31,700 7 11	28,093 6 7 55,010 0 3 (Cost of building new College in part).	1,12,803 14 9	53	*21	†10	5	17	* 8 are in temporary employment. † 1 in temporary employment.

F. JOSLEN, Major, I. C. V. D.,
Principal, Bombay Veterinary College.

Parel, Bombay, 4th June 1908.

No. 3306 of 1908-09.

From

THE HONOURABLE MR. F. G. SELBY, M.A., C.I.E.,
Director of Public Instruction,
Poona;

To

THE SECRETARY TO GOVERNMENT,
Educational Department, Bombay.

*Poona, Office of the Director of
Public Instruction, 4th July 1908.*

Sir,

I have the honour to forward the report on the Veterinary College, Parel, for 1907-08 together with a letter from the Director of Agriculture reviewing the report.

2. It is obvious that the training given in the College is very widely appreciated; and it is satisfactory to notice that successful students find no difficulty in getting remunerative employment.

3. Several improvements in the material equipment of the College have been made during the year.

4. Now that the rent of rooms in the Hostel has been reduced I trust that the number of residents will increase.

5. As to the selection of scholars I hope soon to submit proposals to Government as the present system does not seem to yield very satisfactory results.

6. The report, I think, bears instance to the zeal and energy of the staff; and the College is plainly a source of many incidental benefits to the City of Bombay as well as to the Mofussil.

I have the honour to be,

Sir,

Your most obedient servant,

F. G. SELBY,

Director of Public Instruction.

No. ^A₃₇₆₄ OF 1908.

From

G. F. KEATINGE, ESQUIRE, I. C. S.,
Director of Agriculture, Bombay,

Poona;

To

THE DIRECTOR OF PUBLIC INSTRUCTION,

Poona.

Poona, 25th June 1908.

Sir,

In accordance with the orders contained in Government Resolution No. 2286, dated 8th December 1906, Educational Department, I have the honour to forward herewith my remarks on the annual report submitted by the Principal, Bombay Veterinary College; and in view of the remarks in paragraph 3 of Government Resolution No. 11970 of 5th December 1907, Revenue Department, I venture to point out that last year only 20 days elapsed between the receipt of the report in this office and the despatch of the Director of Agriculture's remarks, and that this year only nine days have elapsed.

2. The results of the year's work appear to have been satisfactory, and a good proportion of the students examined passed their examinations.

3. The want of an Anatomical room (*vide* para. 2 of the Principal's report), and the want of facilities for making the students acquainted with contagious diseases (*vide* paras. 8 and 10 of the Principal's report) are both subjects which I have considered during the past year. I was waiting for Major Joslen's return to discuss the matter with him; but as he unfortunately fell ill shortly after his return and has again taken leave I must wait for Mr. Sowerby's return from leave next month, and will then discuss the matter with him and address you on the subject.

4. It is noticeable that only 47 students at the College belong to this Presidency, and that of them 16 are Government scholars, that is to say, only 31 paying students come from the Presidency. The supply of trained men is, however, equal to the demand.

5. I have recently addressed you on the subject of the selection of the Government scholars and stated that in my opinion the existing method of selecting them is not calculated to get the class of students which we want. I have suggested that instead of waiting for boys to come to us, we should hunt for the right class in the High Schools throughout the Presidency. The remarks of the Principal bear out my previous contention; and I trust that the system will soon be altered; since the future of the Civil Veterinary Department depends on our getting the right class of men.

I have the honour to be,

Sir,

Your most obedient servant,

G. F. KEATINGE,

Director of Agriculture.

No. 134 L. of 1908.

From

MAJOR F. JOSLEN, F.R.C.V.S., I.C.V.D.,
Principal, Bombay Veterinary College ;

To

THE SECRETARY TO GOVERNMENT,
Revenue Department, Bombay.

BOMBAY VETERINARY COLLEGE :

Parel, 4th June 1908.

Sir,

I have the honour to submit the Annual Report of the Glanders and Farcy Department in Bombay for the year 1907-08. Mr. M. H. Sowerby, I.C.V.D., was in charge of the Department from the 7th December 1907 to the 6th March 1908, while I was on special leave.

2. During the year under review 142 horses were admitted into the Government Lazaretto at Sewree as against 197 and 33 in 1906-1907 and 1905-1906, respectively. Out of the admissions, 4 were confirmed cases of Glanders, 59 of Surra, 67 suspicious cases and 12 contacts. Out of the 67 suspicious cases, 25 reacted to mallein and were destroyed, 14 were found to be suffering from Surra, one was diagnosed as a case of Epizootic-Lymphangitis, 3 died free from diseases scheduled under the Act, 23 were returned to their owners, and one is still under observation at the Lazaretto. Out of the 12 contacts, 2 reacted to the mallein test and were destroyed, one died which was free from diseases under the Act, and 9 were returned to their owners as they were found to be free from disease.

The total number of horses that were destroyed for Glanders during this year was 29 as against 41 and 17 in 1906-1907 and 1905-1906, respectively. One horse suffering from Epizootic Lymphangitis was destroyed during the year as against 2 and 1 in 1906-1907 and 1905-1906, respectively. Seventy-three cases were destroyed as suffering from Surra as against 144 and 9 in 1906-1907 and 1905-1906, respectively.

Out of the 142 horses admitted into the Lazaretto 38 belonged to the Bombay Electric Supply and Tramways Co., 7 to Persian dealers, 25 to Arab dealers, 19 to private individuals, 50 to owners of carriages plying for hire, 2 to the Government Post Office and one was ownerless. Of the 29 horses destroyed for Glanders 3 belonged to Persian dealers, 5 to Arab dealers, 6 to private individuals, 12 to owners of carriages plying for hire, 2 to the Government Post Office and one was ownerless. The one horse destroyed for Epizootic Lymphangitis belonged to the Bombay Electric Supply and Tramways Co. Out of the 73 cases destroyed for Surra 37 belonged to the Bombay Electric Supply and Tramways Co., 28 to owners of carriages plying for hire and 8 to private individuals. Regarding the different classes of horses, 85 Arabs, 36 Walers, 12 country-bred and 9 Persians were admitted into the Lazaretto. Of these horses, 17 Arabs, 6 Walers, 4 Persians and 2 country-bred were destroyed for Glanders, one Waler was destroyed for Epizootic Lymphangitis and 39 Arabs, 27 Walers, 1 Persian and 6 country-bred were destroyed for Surra.

One horse died of Anthrax in the Bai Sakerbai Hospital for Animals and the carcass was removed to the Sewree Lazaretto and cremated.

3. During the year under review 5,767 horses and 67 donkeys were imported into Bombay (*vide* Appendix I) as against 5,421 horses and 10 mules and 5,783 horses in 1906-1907 and 1905-1906, respectively. The Australian imports were 2,516 horses and 340 ponies as against 2,347 horses and 300 ponies and 2,424 horses and 257 ponies in 1906-1907 and 1905-1906, respectively.

The Arab imports were 2,160 horses and 343 ponies as against 1,617 horses and 658 ponies and 2,274 horses and 242 ponies in 1906-1907 and 1905-1906, respectively.

The Persian imports were 236 horses as against 289 horses and 65 ponies and 383 horses and 3 ponies in 1906-1907 and 1905-1906, respectively.

There were no Hungarian horses imported this year as against 6 and 11 in 1906-1907 and 1905-1906, respectively.

Nine Arab, 43 Catalonian, 13 Italian and 2 Siberian donkeys were imported during this year.

Of the abovementioned imported horses 22 were sent to the Sewree Lazaretto from the harbour, 18 as suspicious and 4 as contacts. Out of these, 3 reacted to Mallein and were destroyed for Glanders, one died free from diseases under the Act and 18 were returned to their owners. Besides these, 1 Persian and 16 Arab horses were tested in the dealers' stables, out of which 1 Persian reacted to the Mallein test and was removed to the Sewree Lazaretto and destroyed or Glanders.

4. Six consignments of horses came from Queensland and were inspected for ticks, but none were found on them.

5. Fifty-eight Government donkey stallions were taken charge of by this Department and were handed over to the agents of the different Provinces in India on their arrival here. Of these, 18 were subjected to the mallein test as desired by the Superintendent, Civil Veterinary Department, Lahore, but none of them reacted.

6. During this year Veterinary Inspector J. M. C. Rebello, G.B.V.C., has availed himself of two months' privilege leave from 7th February 1908, and Mr. S. C. Bhaya, G.B.V.C., has been appointed to act for him. Veterinary Inspector P. DeSouza, G.B.V.C., has also availed himself of three months' privilege leave from the 23rd March 1908, and Mr. F. Gracias, G.B.V.C., has been appointed to act for him.

7. The Inspectors of the Glanders and Farcy Department have performed their duties very satisfactorily.

8. Appendix II is the financial statement for the year under Report.

I have the honour to be,

Sir,

Your most obedient Servant,

F. JOSLEN, Major, I.C.V.D.,

Principal, Bombay Veterinary College.

APPENDIX I.

Return showing details of Animals imported into Bombay during the year 1907-1908.

Caste.	APRIL 1907.				MAY 1907.			JUNE 1907.				JULY 1907.			AUGUST 1907.				SEPTEMBER 1907.					
	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.
English	5				4	2			4				6				6				28	1		
Waler	4				464	40			328	70							2				5			
Arab	1				28		7		9				1				1				486	169		
Persian																								
Country-bred	1				5	5															1	3		
Burman																						2		
Northern					1																			
Italian																								
Catalonian																								
Siberian																								
Zebra																								
Total	10	1			502	47	7		335	70			7				9				520	163		

Caste.	OCTOBER 1907.				NOVEMBER 1907.			DECEMBER 1907.			JANUARY 1908.			FEBRUARY 1908.			MARCH 1908.			TOTAL.				GRAND TOTAL.	
	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.	Mules.	Horses.	Ponies.	Donkeys.		Mules.
English	15	1			14	1			12				2				7				116	5			120
Waler	980	25			13				7				708	206			6				5				2,856
Arab	847	110			970	68	1		88	1			19				23	9	1						2,512
Persian	37				166				26				6								238				236
Country-bred	9	1			3	5			4	2			3	3			1				1		20		47
Burman																							3		3
Northern																									1
Italian																									13
Catalonian																									45
Siberian																									2
Zebra																									1
Total	1,828	137			325	73	1		145	3	63		733	206			30	9	1		13	2			5,976

Parcel, Bombay, 4th June 1908.

F. JOSLEN, Major, I.C.V.D.,
Principal, Bombay Veterinary College.

APPENDIX II.

*Financial Statement of the Glanders and Farcy Department,
for the year 1907-1908.*

Budget Sanction Heads.	Amount.		Actual Expenditure Heads.	Amount.	
	1906-1907.	1907-1908.		1906 1907.	1907-1908.
	Rs. a. p.	Rs. a. p.	<i>Salaries.</i>	Rs. a. p.	Rs. a. p.
<i>Salaries.</i>			Inspecting Staff ...	6,928 9 8	6,659 10 6
Inspecting Staff ...	6,720 0 0	6,840 0 0	Establishment ...	422 11 6	420 0 0
Establishment ...	420 0 0	420 0 0	Conveyance allowance to Officers ...	840 0 0	840 0 0
Conveyance allowance to Officers ...	840 0 0	840 0 0	Conveyance allowance to Inspecting Staff ...	1,155 0 0	1,260 0 0
Conveyance allowance to Inspecting Staff ...	1,260 0 0	1,260 0 0	Cost of Mallein ...	105 6 8	173 13 11
Grant for Mallein, etc. ...	200 0 0	200 0 0	Burning carcasses ...	4,418 0 0	2,472 0 0
Do. burning carcasses.	4,296 0 0	2,520 0 0	Telephone charges ...	175 0 0	175 0 0
Telephone charges ..	175 0 0	175 0 0	Contingent charges ...	244 0 11	286 2 1
Contingent charges ...	290 0 0	290 0 0	Repairs at the Lazaretto ..	612 11 1	474 1 2
Building and repairs ...	615 0 0	475 0 0	Rates and taxes .	23 1 0	24 15 9
Rates and taxes ...	23 0 0	23 0 0	Uniforms to Inspectors ...	90 0 0	90 0 0
Uniforms to Inspectors ...	90 0 0	90 0 0	Grain Compensation ...	.....	12 0 0
			Plague allowance ...	43 8 0	93 0 0
Total ...	14,929 0 0	13,133 0 0	Total ...	15,054 0 10	12,980 11 5

F. JOSLEN, Major, I.C.V.D.,
Principal, Bombay Veterinary College.

No. 781 of 1908.

From

F. WARE, Esq., I.C.V.D.,
Acting Superintendent,
Civil Veterinary Department, Bombay Presidency ;

To

THE UNDER SECRETARY TO GOVERNMENT,
Revenue Department,
Bombay.

Poona, 20th June 1908.

SIR,

I have the honour to submit for the consideration of His Excellency the Governor in Council the Annual Administration Report of the Civil Veterinary Department, Bombay Presidency, for the official year 1907-08.

I have the honour to be,

Sir,

Your most obedient Servant,

F. WARE, I.C.V.D.,
Acting Superintendent,
Civil Veterinary Department,
Bombay Presidency.

THROUGH THE DIRECTOR OF AGRICULTURE, BOMBAY,
Poona.

ANNUAL ADMINISTRATION REPORT OF THE CIVIL VETERINARY
DEPARTMENT IN THE BOMBAY PRESIDENCY FOR THE
YEAR 1907-08.

Mr. K. Hewlett held charge as Superintendent, Civil Veterinary Department, Bombay Presidency, throughout the year under report.

2. The Superintendent was away from head-quarters for 217 days during the year as against 175 days last year. He travelled 14,816 miles by rail, 1,036 miles by road, and 383 miles by sea as against 19,831 miles by rail, 860 miles by road, and 45 miles by sea last year. In addition to the above, the Superintendent in his capacity of Superintendent, Civil Veterinary Department, Sind, Baluchistan and Rájputána travelled 932 miles by rail, and 16 miles by road.

3. Tours were made in connection with cattle breeding, horse breeding and contagious diseases of animals in various parts of the Presidency. The following State studs were visited :—Bhávnagar, Pálitána, Junágad, Manvadar, Rájkot, and Vánkáner, and the following State herds of Khillari cattle :—Aundh, Jath, Miraj and Sánghi. All the stallion stands were visited and all the Veterinary dispensaries inspected. The Superintendent attended the cattle fairs at Mhasvad, Jath, Sholápur, Mhasa, Chinchli and Chikruvati, and acted as one of the judges at the shows at Mhasvad and Sholápur. The cattle survey of the Kánara District was carried out during the year and a tour was made in the Man valley in connection with selecting a suitable site for a cattle breeding farm for Khillari animals; a short tour also was made in Rádhanpur to purchase bulls for the Chharodi Farm and for the Inspector-General, Civil Veterinary Department. The Superintendent visited personally six outbreaks of contagious disease. The Northcote Cattle Farm at Chharodi was inspected 7 times. The Pinjrapoles at Surat, Ráita, Rádhanpur, Pandharpur were visited.

4. The Superintendent attended as a Member of the Board of Examiners at the Bombay Veterinary College in December and conducted the supplementary examination there in March. He attended the Veterinary Conference held in Calcutta in February. Mr. Hewlett acted as Superintendent, Civil Veterinary Department, Sind, Baluchistan and Rájputána, in addition to his own duties upto November 25th on which date he was relieved of his extra duties by Major Trydell.

5. Mr. F. Ware, I.C.V.D., was placed under the Superintendent to receive training in the duties of a Superintendent. He reported himself on 25th November. He accompanied the Superintendent while on tour but was transferred for duty to the Bombay Veterinary College on December 17th. He, however, rejoined the Superintendent on March 24th for a further period of training. He travelled 891 miles by rail and 3 miles by road.

I.—VETERINARY INSTRUCTION—VETERINARY COLLEGES AND SCHOOLS.

6. There is no information to be recorded under this heading as the subject is dealt with in the Annual Report of the Bombay Veterinary College.

II.—TREATMENT OF DISEASE—CONTAGIOUS DISEASES, OUTBREAKS,
MORTALITY, PREVENTIVE INOCULATION, &c.

7. During the year under report, outbreaks of contagious disease occurred in all the districts of the Presidency as well as in the City of Bombay. The numbers of equines reported to have died from contagious disease during the year amount to 135 and the numbers of bovines amount to 22,084 as compared to 210 equines and 26,947 bovines last year.

Glanders—Farcy.—There were 29 cases reported from Bombay City of which one died and 28 were destroyed under the Glanders and Farcy Act.

Surra.—There were 81 cases reported from Bombay City and 12 from Ahmedabad, all of which were destroyed under the Act. Besides this 13 horses were reported to have died from this disease in the Thána District, but as diagnosis was not confirmed by microscopical examination they are not included.

Anthrax.—Reported from two districts only, *viz.*, Bijápur and Kolába. There were 292 attacks and 235 deaths.

Black Quarter occurred in five districts, *viz.*, Násik, Poona, Bijápur, Ratnágiri and Ahmedabad. There were 1,245 attacks and 866 deaths reported.

Hæmorrhagic Septicæmia.—This disease was chiefly confined to Kaira District where there were 1,412 cases and 1,235 deaths. A few cases also occurred in six other districts, *viz.*, Poona, Ratnágiri, Thána, Surat, Panoh Maháls and Ahmedabad. The total number of attacks was 1,695 and deaths 1,464.

Foot and Mouth Disease occurred in nine districts, and the city of Bombay. There were 1,115 cases and 72 deaths.

Rinderpest.—Reports of this disease have been received from all the districts of the Presidency, including Bombay City. The reported number of cases and deaths has, been 41,598 and 19,413, respectively, as against 50,144 attacks and 25,416 deaths last year. The severity of the outbreak appears to have been slightly decreased. The number of deaths did not exceed 2,000 in any district except Kánara where it was 2,274 out of 4,132 attacks. In 11 districts the mortality ranged between one to two thousand and in the remaining districts it was below one thousand.

8. The number of animals inoculated in each district by Veterinary Graduates, either temporary or permanent, has been given in Table III. It will be seen from this Table that the total number of animals inoculated during the year was 26,558 as against 39,992 last year. Of these, 26,459 animals were inoculated against rinderpest, of which 238 died and 99 against Septicæmia Hæmorrhagica, of which none died. The percentage of deaths among the inoculated animals is 0.89 as against 1.67 last year which shows some improvement.

Investigation and Research.

9. During the year under report an endeavour has been made to supply the Laboratory of the Bombay Veterinary College with pathological material as well as with parasites and other specimens for the College Museum. Something has been accomplished in this direction and material has been furnished under the directions of the Superintendent by the following Veterinary Graduates:—Mr. D. G. Kulkarni, Dhulia Veterinary Dispensary; Mr. S. D. Purohit, Nandurbár Veterinary Dispensary; Mr. N. B. Soman, Jalgaon Veterinary Dispensary; Mr. S. V. Soman, Amalner Veterinary Dispensary; Mr. Y. N. Marathe, Poona City Veterinary Dispensary; Mr. N. R. Kulkarni, Sholápur Veterinary Dispensary; Mr. D. S. Modak, Belgaum Veterinary Dispensary; Mr. W. R. Mudliar, Bijápur Veterinary Dispensary; Mr. S. N. Phatak, Thána Veterinary Dispensary; Mr. V. R. Pitke, Alibág Veterinary Dispensary; Mr. D. B. Mamtora, Surat Veterinary Dispensary; Mr. P. D. Maniar, Nadiád Veterinary Dispensary; Mr. V. D. Patel, Kaira Itinerant, Mr. M. C. Joshi, Godhra Veterinary Dispensary; Mr. K. M. Dave, Ahmedabad Veterinary Dispensary; Mr. J. D. Buxy, Special Assistant to Superintendent, Civil Veterinary Department. Much however remains to be done in this respect, and the Superintendent considers that when he has a trained staff of Inspectors and Graduates under his control sufficient material will be forthcoming to occupy fully a bacteriologist at the College Laboratory.

(2).—Other diseases.

10. There were 47 cases of other contagious diseases that is diseases not named or not properly diagnosed. Besides these, the Veterinary Assistants

treated 12,765 cases while on tour, of which 5,695 were contagious diseases and 7,070 were non-contagious diseases as compared with a total of 13,451 last year. The total number of cases treated as in and out patients by Veterinary Assistants at their head-quarters is 43,517 as compared with 40,347 last year and 30,075 year before last. This gives a total number of 56,282 cases treated by Veterinary Assistants throughout the Presidency as against 53,798 last year, an increase of 2,484.

(3).—*Veterinary Hospitals and Dispensaries.*

11. There were in all 28 Veterinary dispensaries open at the end of the year under report as against 24 last year. Four new Itinerating dispensaries were opened during the year, one each in Ahmednagar and Poona, and two in Kolába. The Local Board of Thána have engaged a second Veterinary Graduate and he is to be placed in charge of a second dispensary to be opened at Palghar. The question of entertaining a permanent Veterinary Graduate in the Kánara district is under consideration. The extension to the Ahmedabad dispensary was completed. The building for the Poona City dispensary is well advanced. Plans for the Belgaum and Sátára dispensaries have been prepared.

12. The following is a brief review of the work done in each dispensary during the year.

13. *Dhulia Dispensary.*—Veterinary Graduate D. G. Kulkarni held charge throughout the year except for two months when he was on privilege leave and Messrs. Purohit and Gadgil were in charge. The dispensary was inspected on 10th September 1907. The total number of cases treated was 2,547 as against 2,418 last year, an increase of 129. Of the total number treated, 615 were equines, 1,407 bovines, and 525 others as compared with 679 equines, 1,375 bovines, and 364 others last year. In addition to the above the Veterinary Graduate treated 375 animals while on tour, of which 82 were equines, 272 bovines, and 13 others. The Veterinary Graduate did not perform any inoculations against rinderpest owing to the unwillingness of the people. In addition to his own duties he supervised the Government stallion at Dhulia, treated the Municipal, Jail, Victoria Orphanage, and Police animals. The cattle population within a radius of five miles of Dhulia dispensary is 5,580 and the number of cattle treated is 1,407, giving a percentage of 25.21. Fees are levied at this dispensary.

14. *Nandurbar Dispensary.*—Veterinary Graduate D. S. Purohit held charge throughout the year except for one month when he acted for Mr. Kulkarni at Dhulia and when the compounder was in charge. The dispensary was inspected on 20th October 1907. The total number of cases treated was 2,304 as against 2,207 last year, an increase of 97. Of these 487 were equines, 1,727 bovines, and 90 others as against 405 equines, 1,717 bovines, and 85 others last year. In addition to the above the Veterinary Graduate treated 407 animals while on tour and performed two castrations. He did not inoculate any animals as the people were unwilling to have their animals inoculated. In addition to his other duties he treated Municipal and Pinjrapole animals and performed 7 *post mortem* examinations. The cattle population within the radius of five miles from this dispensary is 7,760 and the number of animals treated is 1,727, giving a percentage of 22.25. The treatment at this dispensary is free to all.

15. *Jalgaon Dispensary.*—Veterinary Graduate N. B. Soman held charge throughout the year. The dispensary was inspected on 10th September 1907. The total number of cases treated was 2,209, as against 2,057 last year, an increase of 152. Of these 234 were equines, 1,845 bovines, and 130 others. In addition to these the Veterinary Graduate treated 560 animals and castrated two bulls while on tour. He inspected the Government stallions at Jalgaon and Chalisgaon, treated Municipal cattle and horses of the Mounted Police and performed 2 *post mortem* examinations. The cattle population within five miles of this dispensary is 14,060 and the number of cattle treated is 1,845, which gives a percentage of 13.05. Fees are levied at this dispensary.

16. *Amalner Dispensary.*—Veterinary Graduate S. V. Soman held charge throughout the year. The dispensary was inspected on 10th September 1907.

The total number of cases treated at the dispensary was 1,565 as against 1,338 last year, an increase of 227. Of these 204 were equines, 1,283 bovines, and 78 others. In addition to the above number the Veterinary Graduate treated 314 animals for contagious diseases, 517 for non-contagious diseases and castrated one horse and 6 bulls while on tour. He performed four *post mortem* examinations. The cattle population within the radius of five miles of the dispensary amounts to 5,423 and the number of cattle treated at the dispensary is 1,233, giving a percentage of 23.65. Fees are levied at this dispensary.

17. *Násik Dispensary*.—Veterinary Graduate R. Reuben was in charge from 1st April to 15th December 1907 when he proceeded on leave and Veterinary Graduate G. R. Jog acted for him during the remaining part of the year. The dispensary was inspected on 2nd October 1907. The total number of cases treated during the year was 2,603 as against 3,266 last year, a decrease of 663 which is mainly attributed to the non-prevalence of rinderpest in the town of Násik as well as in the surrounding villages. Of the total number treated, 558 were equines, 1,693 bovines, and 352 others. The Veterinary Graduate attended the horses of the Mounted Police and the Pinjrapole animals and inspected the Government stallion at Násik frequently. The cattle population within the radius of five miles from Násik is 5,705 and the number of cattle treated is 1,693, giving a percentage of 29.67. Fees are levied at this dispensary.

18. *Násik Itinerating Dispensary*.—Veterinary Graduate H. B. Kshirsagar held charge during the year. The dispensary was inspected on 2nd October 1907. The total number of cases treated during the year is 1,744 as against 1,483 last year, an increase of 261. Of these 71 were equines, 1,623 bovines, and 50 others. The Veterinary Graduate visited 33 villages in order to attend outbreaks of foot and mouth disease, rinderpest and Black quarter, and inoculated 345 animals against rinderpest. Besides this he visited 103 villages for other purposes such as treating ordinary cases on tour, and attended weekly cattle markets at Yeola, Malegaon, Sinnar, to see if any contagious disease existed. He also inspected Government stallions at Yeola and Malegaon several times.

19. *Ahmednagar Dispensary*.—Veterinary Graduate A. D. Lopez held charge during the year except the period during which he was undergoing a course of training in anti-rinderpest inoculation at Bareilly when Veterinary Graduate Washikar was in charge. The dispensary was inspected on 17th July 1907. The total number of cases treated was 1,255 as against 358 treated in five months of last year. Of these 198 were equines, 936 bovines, and 121 others. In addition to this the Veterinary Graduate visited 14 villages to attend outbreaks of contagious diseases and inoculated 474 cattle against rinderpest. He also visited cattle fairs and treated 139 cattle in the district. The cattle population within the radius of five miles from the dispensary is 5,042 and the number of cattle treated is 936, which gives a percentage of 18.54. Treatment is free to all at this dispensary.

20. *Ahmednagar (Miri) Itinerating Dispensary*.—Veterinary Graduate G. A. Washikar held charge during the year excepting the period from 1st May to 10th October when he had to take leave without pay on account of illness and from 15th November to 31st December when he was deputed to Bareilly to attend the course of instruction in anti-rinderpest inoculation, and from 27th January to 5th March 1908 when he was acting for Mr. Lopez at the Ahmednagar dispensary. No substitute was entertained during Mr. Washikar's absence and the dispensary was thus open for work for 117 days only. The number of cases treated was 232 (being 93 at Miri and 139 in the district) as against 224 last year. Of these 41 were equines, 180 bovines, and 11 others. The Veterinary Graduate visited outbreaks of contagious diseases and inoculated 551 animals against rinderpest. He visited the cattle markets at Pachegaon, Ghodegaon, Kukane, and Pathardi twice a month, and attended and acted as one of the judges at the Sangamner cattle show.

21. *Ahmednagar (Shrigonda) Itinerating Dispensary*.—This is a second itinerating dispensary newly opened on 21st May 1907 with its head-quarters at Shrigonda. Veterinary Graduate H. B. Shirsathe held charge of this dispensary till the end of the year, except for the period of about 1½ months when he was

deputed to attend the course of instruction in anti-rinderpest inoculation at Bareilly. Although Veterinary Graduate Shirsathe was appointed on 21st May 1907, the real work of the dispensary of treating cases commenced from 10th August 1907 when he was provided with medicines and instruments. The total number of cases treated during the time the dispensary was open was 433, of which 202 were treated at the head-quarters and 231 in the district. Of these 67 were equines, 347 bovines, and 19 others. In addition to these the Veterinary Graduate attended outbreaks of rinderpest and inoculated 3,824 animals against the disease. He also attended the Mhaswad Cattle Fair in connection with the purchase of stud bulls for the Ahmednagar district, and attended and acted as one of the Judges at the Sangamner cattle show.

22. *Poona District Dispensary.*—Honorary Veterinary Graduate Sanga held charge of this dispensary throughout the year. Veterinary Graduate Sethna acted as Resident Veterinary Officer. Mr. Sethna attended the course of instruction in anti-rinderpest inoculation at Bareilly for a month and a half during the year when Veterinary Graduate V. N. Kulkarni acted for him. The dispensary was inspected on 19th September 1907 and on 27th February 1908. The total number of cases treated during the year was 1,200, (346 being in-patients and 854 out-patients) as compared with 1,201, (351 being in-patients and 850 out-patients) of last year. Of the total number treated 484 were equines, 220 bovines, and 496 others. Outbreaks of rinderpest in the vicinity of Poona were attended and 205 animals were inoculated against the disease; 21 ponies were castrated as against 18 last year. The cattle population within the five miles of the dispensary is 11,623 and the number of cattle treated is 220 giving a percentage of 1·89. Fees are levied at this dispensary.

23. *Poona City Dispensary.*—Veterinary Graduate Y. N. Maráthe held charge throughout the year except for one month when he was on privilege leave and Veterinary Graduate V. N. Kulkarni acted for him. The dispensary was inspected on 20th September 1907 and again on 29th February 1908. Total number of cases treated during the year was 2,464 as against 1,886 during the previous year showing an increase of 578. Of these 705 were equines, 1,396 bovines, and 363 others. The Veterinary Graduate visited five villages and inoculated 458 animals against rinderpest. He also visited the cattle markets at Baramati, and Manchar, twice. The new building is nearly completed and will shortly be ready for occupation. The cattle population within the radius of 5 miles is 11,623 and the number of cattle treated is 1,396 giving a percentage of 12·01. Fees are levied at this dispensary.

24. *Poona Itinerating Dispensary.*—This is a new dispensary and is in charge of Veterinary Graduate V. N. Kulkarni. Mr. Kulkarni had primarily been employed by the Poona District Board to deal with outbreaks of rinderpest as a temporary measure, but when he took charge of his temporary duty, the disease had almost died out in the district, and he had very little work to do in that direction. He was therefore directed by the Board to work in conjunction with Veterinary Graduate Maráthe in the City dispensary. Subsequently in October 1907 he was permanently appointed as an Itinerating Veterinary Graduate. He has not yet been provided with separate establishment. Veterinary Graduate Kulkarni visited 23 villages to check outbreaks of contagious diseases, performed 234 inoculations against rinderpest, visited the cattle markets of Baramati, Yavat, Chakan and Manchar to examine animals for contagious diseases, inspected the Poona and Bhosri pinjrapoles six times and attended the Bhamburda cattle market several times.

25. *Sholapur Dispensary.*—Veterinary Graduate N. R. Kulkarni held charge throughout the year. The dispensary was inspected on 14th August 1907. The total number of cases treated during the year was 913 as against 92 treated during the time the dispensary was open last year, an increase of 821 which is fairly satisfactory. Out of these 215 were equines, 460 bovines, and 208 others. Besides this number, 50 animals were treated on tour for contagious diseases. In addition to other duties the Veterinary Graduate treated the Municipal cattle, and the horses belonging to the Mounted Police, inspected and treated from time to time the Government stallion at Sholapur and

performed five castrations. The cattle population within the radius of 5 miles of the dispensary is 4,227 and the number of cattle treated is 460 giving a percentage of 10.88. Fees are not levied at this dispensary and treatment is free to all.

26. *Belgaum Dispensary*.—Veterinary Graduate D. S. Modak held charge of the dispensary till 20th January 1908, when he proceeded on three months privilege leave and Veterinary Graduate Sadekar acted for him till the end of the year. The dispensary was inspected on 10th August 1907. The total number of cases treated during the year was 1,958 as against 2,308 last year, a decrease of 350 which is mainly observable under bovines and is attributed to rinderpest and other contagious diseases being less prevalent in the town of Belgaum and surrounding villages than last year. Out of the total number treated 230 were equines, 1,221 bovines, and 507 others, as against 237 equines, 1,503 bovines, and 568 others last year. In addition to this number the Veterinary Graduate treated 585 animals on tour, visited 16 villages to attend outbreaks of contagious diseases and inoculated 486 cattle against rinderpest, treated Municipal cattle horses belonging to the Mounted Police, calves of the vaccination depôt, and the cattle of the Military Dairy. A suitable site for the new dispensary building has been finally selected and plans and estimates have been prepared. The cattle population within the radius of 5 miles is 6,442 and the number of cattle treated is 1,221 giving a percentage of 18.95. Fees are charged at the dispensary.

27. *Chikodi Dispensary*.—Veterinary Graduate M. G. Kulkarni held charge throughout the year. The dispensary was inspected on the 9th August 1907. The total number of patients treated during the year was 1,030 as against 1,020 last year, an increase of 10. Of this number 127 were equines, 847 bovines, and 62 others. The Veterinary Graduate visited 17 villages to attend outbreaks of rinderpest and foot mouth disease. He inoculated 161 animals against rinderpest and treated 172 cases on tour. In addition to other duties he visited cattle markets at Nipani, Hukeri, and Eksambe monthly, and performed six post mortem examinations. The cattle population within the radius of 5 miles of the dispensary amounts to 6,034 and the number of cattle treated is 847 which gives a percentage of 13.93. Fees are charged at this dispensary.

28. *Bijapur Dispensary*.—Veterinary Graduate V. R. Mudliar held charge throughout the year except for two months when he was on privilege leave and Veterinary Graduate Purandare acted for him. The dispensary was inspected on 13th August 1907. The total number of cases treated during the year was 2,213 as against 2,289 last year, a decrease of 76 which is attributed to the absence of any contagious disease in the town or its suburbs during the greater part of the year. Of the total number of cases treated 563 were equines, 1,451 bovines, and 199 others. In addition to these 479 cases were treated for contagious disease on tour and 102 animals were inoculated against rinderpest. The Veterinary Graduate treated horses of the Mounted Police, and inspected animals of local conveyance. The cattle population within the radius of 5 miles of the dispensary is 18,771 and the number of cattle treated during the year is 1,451 which gives a percentage of 7.73. Treatment is free to all in this dispensary.

29. *Dhârwâr Dispensary*.—Veterinary Graduate R. N. Sane held charge till 6th February 1908 when he proceeded on 3 months privilege leave and Veterinary Graduate Page acted for him in addition to his own duties during the remaining part of the year. The dispensary was inspected on 12th August 1907. The total number of cases treated during the year was 2,360 as against 3,708 last year and 2,412 year before last. The decrease is due to the fact that the outbreak of rinderpest was not so extensive as last year. Of the total number treated 210 were equines, 1,621 bovines, and 529 others. In addition to these the Veterinary Graduate treated 198 cases away from head-quarters and performed 782 preventive inoculations against rinderpest. He visited the cattle fairs at Devarguda and Shirhatti, paid several visits to owners houses, and attended the animals of the Municipality, the Government Farm, and the Mounted Police. The cattle population within the radius of 5 miles is 11,789

and the number of cattle treated is 1,621, giving a percentage of 13.75. Fees are charged at this dispensary.

30. *Dhárwad Itinerating Dispensary*.—Veterinary Graduate G. G. Page held charge throughout the year with the exception of the period from 13th November to 3rd January when he was sent to Bareilly to attend the course of instruction in inoculation. He visited 52 villages to attend outbreaks of rinderpest, anthrax, and foot and mouth disease, performed 881 inoculations against rinderpest, and treated 824 animals, 98 for contagious diseases and 726 for non-contagious diseases as against a total of 1,798 last year. The decrease of 974 is attributed to the fact that the dispensary was practically closed for nearly 4 months during the year, and also to the fact that rinderpest was less prevalent. Of these 57 were equines, 730 bovines, and 37 others. He also visited the cattle fairs at Ratihalli and Chickkurvati, and once-visited the cattle markets of Alur and Byadgi.

31. *Batnāgiri Dispensary*.—Veterinary Graduate D. B. Bapat held charge throughout the year. The dispensary was inspected on 3rd November 1907. The total number of cases treated at the dispensary was 3,792 as against 2,639 last year, an increase of 1,153. This large increase is attributed to (a) growing popularity of the institution, (b) uninterrupted working of the dispensary, and (c) outbreaks of foot and mouth disease in the surrounding villages as well as at the head-quarters. The number of cases treated and castrations performed by the Veterinary Graduate while on tour amounts to 1,203 against 554 last year. Of the total number treated at the dispensary 37 were equines, 3,557 bovines, and 198 others. The Veterinary Graduate visited 24 scenes of outbreaks of contagious diseases and inoculated 550 animals against rinderpest, he performed 135 *post mortem* examinations. The cattle population within the radius of 5 miles of the dispensary is 8,697 and the number of cattle treated is 3,557, which gives a percentage of 40.89. Fees are not charged at this dispensary.

32. *Alibāg Dispensary*.—Mr. V. R. Pitke held charge. The dispensary was inspected on 9th October 1907. The total number of cases treated was 1,760 as against 2,028 last year, a decrease of 268 which is chiefly due to the absence of contagious disease. Of the total number of cases treated 184 were equines, 1,491 bovines, and 85 others. In addition to these Mr. Pitke treated 200 animals while on tour as against 769 last year. Owing to the creation of two new dispensaries in the Kolāba District, Mr. Pitke's jurisdiction was restricted to the Alibāg taluka only and consequently he was not required to move largely in the district. He travelled 198 miles against 1,409 last year, visiting two or three important villages every month. The cattle population within the radius of 5 miles of the dispensary is 7,182 and the number of cattle treated is 1,491, which gives a percentage of 20.76. Treatment at this dispensary is free to all.

33. *Kolāba (Mahād) Itinerating Dispensary*.—This is a new dispensary and was opened with its head-quarters at Mahād on 15th June 1907. Veterinary Graduate D. M. Gadkari held charge during the year with the exception of the period of 1½ months of his deputation to Bareilly for the course of instruction in preventive inoculations. The work of treating cases, however, commenced from January 1908 when medicines and instruments were supplied. The total number of cases treated at the head-quarters was 357. Of these 7 were equines, 342 bovines, and 8 others. The Veterinary Graduate treated 217 cases while on tour, 165 for contagious diseases, and 52 for non-contagious diseases, and performed 407 inoculations against rinderpest. He was away from head-quarters for 176 days, travelled 1,044 miles and visited 58 villages. The cattle population within the radius of five miles from Mahād is 5,604 and the number of cattle treated at the dispensary is 342, giving a percentage of 6.10. Treatment is free to all.

34. *Kolāba (Panvel) Itinerating Dispensary*.—This is also a new dispensary and was opened on 1st August 1907. Veterinary Graduate G. K. Mainkar was appointed to hold charge of this dispensary. Mr. Mainkar had been previously working in the district since 26th February 1907, being

deputed to visit and control outbreaks of contagious disease. He was also sent to Bareilly from 26th December 1907 to 6th February 1908 to attend the course of instruction in preventive inoculation. No medicines and instruments were supplied to him till January 1908 and there was no accommodation for the dispensary till 1st March 1908. The number of cases treated at the dispensary is 636 and whilst on tour is 335, which is satisfactory. The Veterinary Graduate was away from head-quarters for 199 days, visited 52 villages to attend outbreaks of contagious diseases and inoculated 1,036 animals against rinderpest. The cattle population within the radius of five miles from Panvel is 13,000 and the number of cattle treated is 588 which gives a percentage of 4.52. Treatment at this dispensary is free to all.

35. *Thana Dispensary*.—Veterinary graduate S. N. Phatak held charge throughout the year. The dispensary was inspected on 1st October 1907. The number of cases treated at the dispensary was 842 as against 871 last year, a decrease of 29, which is due to foot and mouth disease being less prevalent in the taluka of Salsette than last year. Out of the above number 124 were equines, 463 bovines, and 255 others. The Veterinary Graduate attended outbreaks of rinderpest and carried out 318 inoculations against the disease. He attended the cattle fairs at Mhasa, and Nirmal, and visited weekly cattle markets at Kurla and Maroli; assisted the Deputy Police Superintendent in licensing tonga ponies and performed two *post-mortem* examinations. The cattle population within the radius of five miles of the dispensary is 6,543 and the number of cattle treated is 463, giving a percentage of 7.08. Treatment at this dispensary is free to all.

The Itinerating Salutri Divekar visited 272 villages and treated 595 cases on tour as against 130 villages and 246 cases last year. The District Local Board came to the conclusion that the Salutri was doing little good work by his rather aimless wanderings throughout the district and he was accordingly brought back to the dispensary as a compounder.

The Board have lately engaged a second Veterinary Graduate, Mr. K. H. Dwivedi, who will shortly be placed in charge of an independent dispensary to be opened at Palghar.

36. *Surat Dispensary*.—Veterinary Graduate D. B. Mamtara held charge throughout the year. The dispensary was inspected on 19th October 1907. The number of cases treated at the dispensary was 2,340 as against 2,176 last year, an increase of 164. Of these 680 were equines, 1,198 bovines, and 462 others. In addition to these, the Veterinary Graduate treated 145 cases on tour. He visited 38 villages to attend outbreaks of contagious diseases and inoculated 4,089 animals against rinderpest. He castrated five horses and 2 bulls, treated animals of Government Farm, certified ponies fit for license for public conveyance, regularly attended the weekly cattle market, and performed five *post-mortem* examinations. The cattle population within the radius of five miles of the dispensary is 11,171 and the number of cattle treated is 1,198, which gives a percentage of 10.72. Fees are charged at this dispensary.

Itinerating Salutri D. P. Thakor was on duty throughout the year. He visited 83 villages as against 75 last year and treated 1,096 cases as against 988. His help to the Veterinary Graduate in checking outbreaks of disease proved to be of great use.

37. *Nadiad Dispensary*.—Veterinary Graduate P. D. Maniar held charge throughout the year. The dispensary was inspected on 28th August 1907. The total number of cases treated was 3,533 as against 3,835 last year, a decrease of 302, which is attributed to the less prevalence of foot and mouth disease. Of the total number treated 363 were equines, 2,560 bovines, and 610 others. In addition to the above the Veterinary Graduate treated 127 cases while on tour. He attended outbreaks of rinderpest and Hæmorrhagic Septicæmia in 9 villages and inoculated 64 animals against rinderpest to convince the people of the beneficial effects of the operation. He supervised the feeding and working of the Government stallion at Nadiad and submitted the prescribed periodical returns. He also inspected once a month the stallion at Kaira. The cattle population within the radius of five miles of the dispensary is 13,801 and the number of cattle treated is 2,560, giving a percentage of 18.55. Treatment is free to all.

38. *Kaira Itinerating Dispensary*.—Veterinary Graduate V. D. Patel was in charge throughout the year. The dispensary was inspected on 28th August 1907. The total number of cases treated during the year was 1,670 as against 987 last year, an increase of 683. Of these 501 cases were for contagious diseases. Of the total number of cases treated 97 were equines, 1,484 bovines, and 89 others. The Veterinary Graduate collected statistics in connection with horse breeding, attended outbreaks of rinderpest, Septicæmia Hæmorrhagica, and foot and mouth disease and inoculated 288 animals against rinderpest and 56 against Septicæmia Hæmorrhagica. He also performed six *post-mortem* examinations. The report shows some improvement over last year.

39. *Godhra Dispensary*.—Veterinary Graduate M. C. Joshi held charge throughout the year except during the period of his deputation to Bareilly to undergo the course of instruction in inoculation when Salutri P. B. Mali held charge. The dispensary was inspected on 27th August 1907. The total number of cases treated during the year was 610 of which 255 were equines, 294 bovines, and 61 others. The Veterinary Graduate visited 38 villages, treated 93 animals while on tour, attended outbreaks of contagious diseases and inoculated 184 animals against rinderpest. In addition to other duties he treated animals of the Government Farm at Dohad and horses of the Mounted Police; wrote a pamphlet on rinderpest in Gujarati under the Collector's orders. The cattle population within the radius of five miles of the dispensary is 9,051 and the number of cattle treated is 294, giving a percentage of 3.24. Treatment is free to all.

40. *Ahmedabad Dispensary*.—Veterinary Graduate J. K. Bhat was in charge till 9th June 1907, when he proceeded on one year's furlough and Veterinary Graduate K. M. Dave held charge till the end of the year. The dispensary was inspected on 28th August 1907. The total number of cases treated at the dispensary during the year amounted to 4,731 as against 4,650 last year, an increase of 81. Of these 1,173 were equines, 2,495 bovines, and 1,063 others. The Veterinary Graduate visited 27 villages and treated 332 animals while on tour and inoculated 216 animals against rinderpest. He attended the weekly cattle market, treated the Municipal cattle and horses belonging to the Mounted Police, visited Government stallions at Ahmedabad once a week and those at Prantij and Dhandhuka when required; investigated an outbreak of camel surra at Sadra, and one of horse surra at Ahmedabad. The cattle population within the radius of five miles of the dispensary is 12,839 and the number of cattle treated is 2,495, giving a percentage of 19.43. Treatment at this dispensary is free to all.

III.—BREEDING OPERATIONS.

(1).—*Bovines*.

(1).—*Stud Bulls and their produce*.

41. There are no stock bulls the property of Government in the Presidency. The Ahmedabad District Local Board maintains 8 bulls and Surat and Ahmednagar one each. No returns of their produce are available.

42. The scheme initiated last year for providing stock bulls for villages in the Ahmednagar District by giving conjoint tagai for the purpose of purchasing bulls approved by the Superintendent, Civil Veterinary, Department, has proved a success and this year 39 more khillari stock bulls were obtained at the Mhasvad Fair. This scheme might with advantage be extended to Sholapur, Sátara and Poona Districts.

II.—BULL REARING AND BREEDING FARMS AND DEPÔTS.

43. The Northoote Cattle Farm at Chharodi has been supervised by the Superintendent, Civil Veterinary Department, during the year under report. The object of the farm is to produce suitable stock bulls of the pure Kankreji

type for sale to the cattle-breeders of Gujarát and thus supply a want which is now becoming acute. Management of the farm has been carried out in accordance with the proposals made by the Superintendent, Civil Veterinary Department, in his letter No. 385, dated 19th April 1906, to the address of the Director of Agriculture, Bombay. The land cultivated and crops grown have been in accordance with the suggestions of Mr. Mollison, Inspector-General of Agriculture. At the commencement of the year under report the herd consisted of 3 stock bulls, 110 cows, 88 heifers, 17 heifer calves, 3 yearling bulls, 22 bull calves, 12 castrated stock and at the close of the year it consisted of 5 stock bulls, 140 cows, 82 heifers, 24 heifer calves, 13 two year old bulls, 17 yearling bulls, 16 bull calves, 12 castrated stock. During the year under report two stock bulls were purchased for use on the farm and 6 heifers, 20 young castrated male stock were sold. There are 13 young bulls which will be ready for issue in the cold weather of 1908 and it is hoped that this number will be turned out annually. The fodder crops grown on the farm this year failed owing to the rains being unfavourable. The hay crop amounted to 836,000 lbs. Buildings are urgently needed for the farm, but when those now sanctioned are completed the estate will be satisfactorily provided in this respect as a cattle-breeding farm. The Manager Mr. E. V. Nagarshet has worked well throughout the year and has shown himself to be reliable and careful. The Superintendent considers that he deserves credit for the way in which he has carried out his duties.

(2).—EQUINES.

(1) *Horse and Pony Stallions.*

44. On the 1st April 1907 there were 18 stallions under the control of the Civil Veterinary Department in the Presidency. During the year under report the following stallions were purchased :—“Bendigo,” nutmeg grey Kathi entire, 14— $\frac{1}{2}$ hands, 4 years, purchased for Rs. 600 and “Huzur” Dun Kathi, 14— $2\frac{1}{2}$, purchased for Rs. 600. At the close of the year there were 20 stallions at the several stands as shown below :—

Stand.	Stallions.	
	Horse.	Pony.
Ahmedabad	4	1
Prantuj	...	1
Dhandhuka	...	1
Dholka	1	...
Nadiád	...	1
Kaira	...	1
Pálanpur	1	...
Sholápur	...	1
Sángola	...	1
Karmála	...	1
Násik	...	1
Malegaon	...	1
Yeola	1	...
Dhulia	1	...
Chálsigaon	...	1
Jalgaon	...	1
Total	8	12

45. Table XI shows that the number of stallions actually employed at stud work during the year was 16·24 as against 16·46 in the previous year, and the number of mares covered by them has been 562, or an average of 34·60 per stallion, as against 629, or an average of 38·21, in the previous year. This shows a decrease of 67 in the total number of coverings, or an average of 4 mares covered less per stallion. The decrease is chiefly noticeable in Gujarát where some of the stallions were not allowed to cover more than 50 mares each during the year, while the number of coverings effected by the stallions at Kaira, Nadiád, and Pálanpur has greatly diminished. Some of the Deccan stands too, especially Sholápur, Násik, Chálsigaon, and Jalgaon, have done very badly in the number of coverings, probably due to less favourable season.

46. The cost of feed, keep and transit of Government horse and pony stallions is given in Table XII and the average cost for the last two years is compared below :—

					Rs.
Year 1906-07	...	...	...	...	446
" 1907-08	...	...	...	...	482

This shows again an increase of Rs. 36 per stallion per year, and is due to the enhanced prices of food stuffs as well as to the fact that new gear and kit was supplied to all stallions during the year.

(3).—OTHERS.

47. There is no information to be recorded under this heading.

(4).—FAIRS AND SHOWS.

(a) *Horse Shows.*

48. During the year under report there were no horse shows held in non-selected districts of the Presidency. The Ahmedabad horse show had again to be abandoned on account of plague as well as dearness of grain and fodder.

(b) *Cattle Fairs.*

49. Table XIV gives particulars of the cattle fairs and show held during the year under report.

The Mhaswad Cattle Show.—This show was held in December 1907 in connection with the Nagoba Cattle Fair. There were 12,068 animals present at the fair, of which 5,311 were bovines, 177 equines, and 6,580 others. The number of entries for the show was 351 as compared to 350 last year. No silver medals were awarded this year as none were received from the Government of India and Rs. 700 was distributed in prizes.

The Sholapur Cattle Show.—This show was held in January 1908 in connection with the Sholapur Cattle Fair. There were 10,964 animals present at the fair, of which 2,300 were bovines, 450 equines, and 8,214 others. The number of entries for the show were 218 as against 141 last year. A sum of Rs. 617 was awarded as prizes.

IV.—SUBORDINATE ESTABLISHMENT.

50. Table VII shows the strength of Veterinary Assistants employed in the Presidency during the year to be 32 as against 27 last year. The number of certificated Salutries has also increased from 8 to 12 during the year. The majority of the Subordinate Establishment have performed their duties with zeal and energy and to the satisfaction of the Superintendent.

There has been no change in the clerical establishment entertained in the office of the Superintendent. The clerks have, as before, done their work satisfactorily.

Work done by the Special Assistant to the Superintendent, Civil Veterinary Department, Mr. Buxy, G.B.V.C.

51. During the year Mr. Buxy travelled 10,025 miles by rail and 609 miles by road as against 7,166 miles by rail and 1,028 miles by road last year. He visited the following districts in connection with cattle-breeding, horse-breeding or control of contagious disease :—Poona, Sátára, Sholapur, Násik, Ahmednagar, East Khándesh, West Khándesh, Belgaum, Thána and Ahmedabad. He attended the cattle fairs at Mhaswad, Sholapur, and Chinchli in Kolhápúr State. He was deputed to cope with an outbreak of rinderpest in the Pálanpur State. He collected specimens of biting flies and forwarded them to the Bombay Veterinary College. He has performed his duties as in the previous seven years,

in a highly satisfactory manner and has proved himself to be an officer of tact, ability and energy.

V.—EXPENDITURE OF THE DEPARTMENT.

52. It will be seen from Table XIV-A that the total expenditure of the Civil Veterinary Department in the Bombay Presidency during the year under report amounted to Rs. 2,13,357-7-5 as against Rs. 1,85,769-6-0 last year. This shows an increase of Rs. 27,588-1-5.

Of the total amount Rs. 32,125-3-1 were debited to Imperial Funds, Rs. 86,827-9-0 were paid from Provincial Funds, and Rs. 94,404-5-4 were charged to Local Funds.

The Accountant General, however, remarks that the figures are liable to alteration on the closing of the books for the year in August 1908.

F. WARE, I. C. V. D.,
Acting Superintendent,
Civil Veterinary Department,
Bombay Presidency.

TABLE II.

Showing number of deaths from contagious diseases amongst animals during the year 1907-1908.

Province.	District.	EQUINES.						BOVINES.	
		Glanders.	Anthrax.	Surra.	Dourine.	Other contagious diseases.	Total.	Rinderpest.	Foot and mouth disease.
1	2	3	4	5	6	7	8	9	10
Deccan	Bombay	29	...	81	...	...	110	69	1
	West Khândesh	...	...	...	...	...	...	133	8
	East Khândesh	...	...	...	...	...	...	94	...
	Násik	...	...	...	...	...	...	400	...
	Ahmednagar	...	...	...	...	...	...	1,189	46
Karnátic	Poona	...	...	...	...	...	...	983	1
	Sholápur	...	...	...	...	...	...	1,959	...
	Sátára	...	...	...	...	...	...	1,099	...
	Belgaum	...	...	...	...	...	...	1,268	...
Konkan	Bijápur	...	...	...	...	...	...	404	13
	Dhárwár	...	...	...	...	...	...	1,420	...
	Kánara	...	...	...	...	...	...	2,274	...
Gujarát	Ratnágiri	...	...	...	...	...	...	536	...
	Kolába	...	...	...	...	...	...	1,235	2
	Thána	...	...	...	...	13	13	1,197	1
Gujarát	Surat	...	...	...	...	...	...	1,111	...
	Broach	...	...	...	...	...	...	306	...
	Kaira	...	...	...	...	...	...	1,082	...
	Panch Maháls	...	...	...	...	...	...	1,311	...
	Ahmedabad	...	...	12	...	...	12	1,343	...
	Total	29	...	93	...	13	185	19,418	72

Province.	District.	BOVINES—continued.					OTHERS.		Remarks.
		Hæmorrhagic Septicæmia.	Black quarter.	Anthrax.	Other contagious diseases.	Total.			
1	2	11	12	13	14	15	16	17	18
Deccan	Bombay	...	...	...	...	70	...	...	...
	West Khândesh	...	...	...	...	141	...	...	...
	East Khândesh	...	...	...	11	105	...	...	...
	Násik	...	50	...	...	450	...	...	...
	Ahmednagar	...	...	...	...	1,235	...	...	...
Karnátic	Poona	12	84	...	2	1,082	...	...	...
	Sholápur	...	...	...	...	1,959	...	...	...
	Sátára	...	...	...	...	1,099	...	...	...
	Belgaum	...	...	...	...	1,268	...	...	...
Konkan	Bijápur	...	17	34	...	468	...	...	...
	Dhárwár	...	...	...	...	1,420	...	...	...
	Kánara	...	...	...	...	2,274	...	...	...
Gujarát	Ratnágiri	47	36	...	5	624	...	...	...
	Kolába	...	...	201	...	1,438	...	...	...
	Thána	11	...	...	11	1,220	...	...	...
Gujarát	Surat	40	...	...	...	1,151	...	...	...
	Broach	...	...	...	...	306	...	...	...
	Kaira	1,235	...	...	...	2,317	...	...	...
	Panch Maháls	58	...	...	...	1,569	...	...	...
	Ahmedabad	61	679	...	5	2,085	...	...	...
	Total	1,464	866	235	34	22,684	...	...	...

TABLE III.

Showing results of preventive inoculations during the year 1907-1908.

District.	Name of disease against which inoculation was carried out.	Method of inoculation followed.	Number of outbreaks in which inoculation was undertaken.	NUMBER OF ANIMALS WHICH DIED UNINOCULATED IN COURSE OF OUTBREAK.			NUMBER OF ANIMALS INOCULATED.			NUMBER OF INOCULATED ANIMALS WHICH DIED OF THE DISEASE.			Remarks.
				Equines.	Bovines.	Others.	Equines.	Bovines.	Others.	Equines.	Bovines.	Others.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Násik ...	Rinderpest.	Serum alone.	1	...	200	...	...	981	...	...	7	...	
Ahmednagar...	Do.	Do.	1	...	...	...	...	4,840	...	...	5	...	
Poona ...	Do.	Do.	1	...	...	...	...	1,474	...	...	2	...	
Belgaum ...	Do.	Do.	1	...	164	50	...	1,143	...	...	2	...	
Byápur ...	Do.	Do.	1	...	42	...	...	102	...	...	...	...
Dhárwar ...	Do.	Do.	1	...	1,331	...	...	2,065	...	...	3	...	
Kánara ...	Do.	Do.	1	...	...	...	...	584	...	...	20	...	
Ratnágari ...	Do.	Do.	1	...	48	...	...	550	...	...	...	...
Kolaba ...	Do.	Do.	1	...	822	...	...	1,449	...	...	17	...	
Thána ...	Do.	Do.	1	...	...	...	...	6,147	...	...	110	...	
Surat ...	Do.	Do.	1	...	859	...	...	4,089	...	...	14	...	
Kara ...	Do.	Do.	1	...	991	...	...	852	...	...	3	...	
Panch Maháls ...	Do.	Do.	1	...	19	...	...	184	...	...	...	...
Ahmedabad ...	Do.	Do.	1	...	168	...	...	1,106	...	...	39	...	
Bombay City...	Do.	Do.	1	...	...	...	...	652	...	...	15	...	
S. M. C. States.	Do.	Do.	1	...	...	...	...	732	...	...	1	...	
Total ...	...	...	1	...	4,666	50	...	26,459	...	...	238	...	
Thána ...	Sept Hamm	Serum alone.	1	...	...	...	...	43	...	...	...	...
Kaira ...	Do.	Do.	1	...	...	...	...	56	...	...	...	...
Total ...	...	...	2	...	...	...	...	99	...	...	...	...
Grand Total...	...	...	3	...	4,666	50	...	26,558	...	...	238	...	

TABLE IV.

Showing the number of animals treated and castrated by Veterinary Assistants on tour during the year 1907-1908.

District or Dispensary.	Number of villages visited.	Number of Veterinary Assistants employed	CASTRATIONS PERFORMED.				TREATED FOR CONTAGIOUS DISEASES.	
			Equines.	Bovines	Others.	Total.	Equines.	Bovines
1	2	3	4	5	6	7	8	9
Dhule ...	20	1	..	...	...	...	...	8
Nandurbár ...	56	1	...	2	...	2	...	...
Jalgaon ...	26	1	...	2	...	2	...	200
Amalner ...	91	1	1	6	...	7	...	314
Násik (Itinerant) ...	186	1	...	...	...	...	...	876
Ahmednagar ...	80	1	...	...	...	...	...	51
Do. Itinerant (Miri) ...	24	1	...	...	...	...	...	...
Do. do. (Shrigonda) ...	182	1	...	...	...	...	...	59
Poona City ...	5	1	...	...	...	...	...	...
Do. (Itinerant) ...	23	1	...	...	...	...	...	...
Sholápur ...	17	1	...	...	...	...	...	50
Belgaum ...	43	1	...	...	...	...	...	239
Chikodi ...	17	1	...	...	...	...	...	102
Bijápur ...	29	1	...	...	...	...	...	479
Dhárwar ...	50	1	...	...	...	...	...	...
Do. (Itinerant) ...	52	1	...	...	...	...	...	98
Ratnágiri ...	24	1	...	8	1	4	...	1,189
Kolába (Albég) ...	18	1	...	...	...	...	1	64
Do. Itinerant (Mahád) ...	53	1	...	...	...	...	...	164
Do. do. (Panvel) ...	52	1	...	...	...	...	...	335
Thána ...	26	1	...	...	...	...	...	...
Do. (Salutri) ...	272	1	...	...	...	...	5	192
Surat ...	33	1	...	...	...	...	...	...
Do. (Salutri) ...	83	1	...	...	...	...	...	267
Nadiád ...	9	1	...	...	...	...	...	127
Kaira (Itinerant) ...	109	1	...	...	...	...	...	501
Godhra ...	33	1	...	...	...	...	...	77
Ahmedabad ...	27	1	...	...	...	...	16	240
Total ..	1,605	28	1	18	1	15	22	5,632

District or Dispensary.	TREATED FOR CONTAGIOUS DISEASES—contd.		TREATED FOR NON-CONTAGIOUS DISEASES.				Total number of cases treated and castrations performed.	Remarks
	Others.	Total.	Equines.	Bovines.	Others.	Total.		
1	10	11	12	13	14	15	16	17
Dhule	8	32	272	13	367	375	
Nandurbár	57	343	7	407	409	
Jalgaon	200	10	350	...	360	562	
Amalner	314	81	415	21	517	838	
Násik (Itinerant)	876	71	747	50	868	1,744	
Ahmednagar	51	22	88	...	110	161	
Do. Itinerant (Miri)	28	110	1	139	139	
Do. do. (Shrigonda)	59	12	156	4	172	231	
Poona City	
Do. (Itinerant)	
Sholápur	50	...	...	...	...	50	
Belgaum ...	20	259	12	310	4	326	585	
Chikodi	102	10	60	...	70	172	
Bijápur	479	...	...	...	...	479	
Dharwar	17	176	5	198	198	
Do. (Itinerant)	98	57	632	37	726	824	
Ratnágiri	1,189	...	10	...	10	1,203	
Kolába (Albég)	65	7	126	2	135	200	
Do. Itinerant (Mahád) ...	1	165	1	50	1	52	217	
Do. do. (Panvel)	335	...	...	...	...	335	
Thána	
Do. (Salutri) ...	20	217	99	259	20	378	595	
Surat	4	140	1	145	145	
Do. (Salutri)	267	98	655	46	829	1,046	
Nadiád	127	...	...	...	...	127	
Kaira (Itinerant)	501	97	953	9	1,169	1,670	
Godhra	77	9	7	...	16	93	
Ahmedabad	256	30	46	...	76	332	
Total ...	41	5,635	801	5,965	301	7,070	12,730	

TABLE V.

Showing number of animals treated at Veterinary Hospitals and Dispensaries during the year 1907-08.

District or Dispensary Town.	Number of Veterinary Dispensaries.	Number of Veterinary Assistants employed in dispensaries.	In-patients.																
			Remaining on 1st April 1907.			Admitted during the year.			Total.			Discharged during the year.			Balance on 31st March 1908.				
			Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Dhulia	1	1	..	..	..	28	9	12	28	9	12	28	9	12	..	..	..	..	..
Nandurbár	1	1	1	..	..	9	16	2	10	16	2	10	16	2	..	..	..	..	..
Jalgaon	1	1	2	..	..	2	20	20	5	22	20	7	22	20	6	..	..	..	1
Amalner	1	1	..	..	..	4	23	1	4	23	1	4	23	1	..	..	..	..	..
Násik	1	1	4	4	3	51	43	21	55	47	24	53	46	23	2	1	1	..	..
Ahmednagar	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. Itinerant (Miri)	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. It. (Shrigonda)	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Poona (District)	1	1	11	3	1	187	56	38	198	59	39	193	59	39	5	..	..	..	..
Do. (City)	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Sholápur	1	1	..	..	..	18	3	..	19	3	..	17	3	..	2	..	..	..	..
Belgaum	1	1	2	1	..	15	7	4	17	6	4	13	8	4	4	..	..	..	..
Chikodi	1	1	..	..	..	3	37	3	3	37	3	3	37	3	..	..	..	..	..
Bijápur	1	1	5	3	..	186	307	29	191	375	29	197	356	28	4	10	1	..	..
Dhárwar	1	1	2	..	..	23	18	1	25	18	1	24	17	1	1	1	..	..	..
Ratnágiri	1	1	..	..	..	3	27	1	3	27	1	2	27	1	1	..	..	..	..
Koláha (Alibág)	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. Itinerant (Mahád)	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. do. (Panvel)	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Thána	1	1	..	..	..	2	..	1	2	..	1	2	..	1	..	..	..	..	..
Surat	1	1	5	3	1	71	77	12	79	60	18	75	77	13	1	3	..	..	..
Nadód	1	1	1	..	..	39	36	9	37	36	9	36	36	9	1	..	..	..	..
Godhra	1	1	..	..	..	12	7	..	12	7	..	12	7	..	..	..	..	..	..
Ahmedabad	1	1	7	12	..	108	207	18	113	229	18	110	217	17	3	12	1	..	..
Total	24	24	40	31	7	771	863	207	815	891	214	791	868	210	24	36	9	..	..

District or Dispensary Town.	Out-patients.						Total number of in and out patients treated during the year.				Receipts	Expenditure.
	Number treated during the year.			Average daily attendance.			Total number of in and out patients treated during the year.					
	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Total.		
1	19	20	21	22	23	24	25	26	27	28	29	30
Dhulia	587	1,368	613	9.0	15.0	6.2	615	1,407	535	2,547	Rs. a. p.	Rs. a. p.
Nandurbár	477	1,711	89	5.0	10.4	1.0	497	1,727	90	2,344	2,009 1 9	2,330 2 6
Jalgaon	213	1,815	123	4.02	27.27	3.03	234	1,845	130	2,009	1,971 12 0	2,213 14 1
Amalner	200	1,260	77	4.51	28.77	1.24	204	1,263	78	1,665	1,286 10 3	1,417 7 9
Násik	603	1,646	323	7.21	22.00	3.31	558	1,603	352	2,003	2,322 14 11	3,006 6 0
Ahmednagar	199	938	121	0.51	2.56	0.38	193	936	121	1,214	2,191 1 4	2,191 1 4
Do. Itinerant (Miri)	13	70	10	..	..	..	13	70	10	93	..	..
Do. It. (Shrigonda)	55	192	15	..	..	..	55	182	15	232	..	..
Poona (District)	286	761	407	4.86	2.4	4.09	454	229	496	1,200	3,700 13 2	1,655 0 10
Do. (City)	705	1,398	273	17.0	25.84	4.46	705	1,398	353	2,454	585 1 0	2,329 0 0
Sholápur	236	457	2.8	0.13	1.21	0.37	245	450	2.8	913	2,469 5 8	2,767 8 6
Belgaum	218	1,213	592	4.78	25.79	4.65	230	1,221	607	1,853	4,494 14 11	2,832 6 0
Chikodi	124	804	50	1.5	13.2	0.35	127	841	62	1,030	..	..
Bijápur	873	1,070	170	1.6	8.9	0.5	663	1,471	109	2,213	3,320 0 0	2,645 15 11
Dhárwar	165	1,008	329	2.14	11.63	3.33	219	1,621	629	2,800	3,079 1 5	3,623 1 6
Ratnágiri	34	3,130	197	0.09	9.7	0.5	37	3,567	198	3,732	1,788 14 9	1,911 6 5
Koláha (Alibág)	184	1,491	85	1.2	0.70	0.69	184	1,491	85	1,750	1,201 6 10	1,293 0 6
Do. Itinerant (Mahád)	7	42	..	0.21	1.4	0.27	7	42	..	357	1,111 13 2	1,141 13 2
Do. do. (Panvel)	31	708	14	0.1	1.8	0.04	34	708	14	686	1,345 3 10	1,302 3 10
Thána	122	463	254	1.91	8.50	3.23	124	463	253	840	713 0 0	3,006 6 6
Surat	694	1,118	140	17.37	23.35	7.17	880	1,108	462	2,340	2,948 2 9	3,600 1 1
Nadód	320	2,534	601	6.5	33.9	5.1	373	2,540	610	3,653	2,325 13 0	2,138 5 10
Godhra	313	237	61	4.82	4.78	0.97	253	204	61	618	2 9 14 8	3,009 14 9
Ahmedabad	1,000	2,276	1,045	81.9	49.3	21.4	1,179	2,185	1,043	4,731	5,540 16 3	12,926 1 7
Total	9,070	24,207	6,327	..	..	..	7,756	20,291	6,441	43,517	60,569 4 5	60,731 3 3

TABLE VI.

Abstract showing Receipts and Expenditure of Veterinary Dispensaries during the year 1907-1908.

District or Dispensary.	RECEIPTS.						
	Last year's balance.	By Local Fund Grants.	By Government Grants.	By Municipal Contributions.	By Fees.	By Other Sources.	Total.
1	2	3	4	5	6	7	8
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Dhulin	2,594 7 8	750 0 0	400 0 0	150 0 0	179 10 9	529 7 0	4,603 9 7
Nandurbár	2,684 11 9	1,866 8 0	1,036 12 9	.....	.....	1 8 0	910 1 9
Jalgaon	3,255 1 1	750 0 0	1,047 4 0	25 0 0	99 8 0	50 0 0	5,256 13 1
Amalner	3,384 9 0	750 0 0	455 2 3	.....	80 8 0	.....	4,671 8 3
Nasik	5,242 7 11	350 0 0	1,000 0 0	250 0 0	79 6 0	648 8 11	7,565 6 10
Do. (Itinerant)	1,492 12 5	1,195 0 0	778 1 11	155 0 0	.....	.....	3,620 14 4
Ahmednagar	.....	.....	.....	.....	.....	.....	.....
Do. (Itinerant)	.....	1,189 12 4	1,000 0 0	.....	.....	1 5 0	2,191 1 4
Do. (Itinerant (Shrigonda))	.....	.....	.....	.....	.....	.....	.....
Poona District	.....	.....	.....	.....	.....	.....	.....
Do. City	9,853 14 7	1,000 0 0	400 0 0	574 0 0	2,286 2 2	12,075 12 0	25,939 12 9
Poona (Itinerant)	.....	.....	.....	.....	.....	.....	.....
Sholapur	348 8 7	1,500 0 0	769 5 8	200 0 0	.....	.....	2,817 14 3
Belgaum	.....	2,500 0 0	1,458 13 11	37 0 0	489 1 0	15 0 0	4,494 14 11
Chikodi	.....	2,500 0 0	.....	.....	.....	.....	4,194 1 5
Bijapur	864 1 5	1,670 0 0	700 0 0	100 0 0	275 8 6	383 8 11	4,313 4 10
Dhulewár	1,244 3 5	1,180 0 0	.....	.....	.....	.....	1,944 1 5
Do. (Itinerant)	764 1 5	1,000 0 0	790 0 0	.....	.....	3 14 9	1,798 5 1
Ratnagiri	4 6 4	1,000 0 0	790 0 0	.....	.....	5 5 9	1,228 0 8
Kolaba (Alibág)	81 9 10	556 1 1	760 0 0	.....	.....	.....	.....
Do. (Itinerant)	.....	1,194 11 2	.....	.....	.....	0 4 0	1,194 15 2
Do. do. (Panvel)	.....	1,802 8 10	.....	.....	.....	.....	1,802 8 10
Thána	3,388 0 9	.....	700 0 0	.....	15 9 0	1 0 0	4,064 9 9
Surat	5,677 0 8	742 0 0	1,171 4 9	300 0 0	472 6 0	262 8 0	8,625 3 5
Nadiad	666 14 1	2,000 0 0	1,748 5 6	300 0 0	.....	25 12 0	4,786 15 7
Kaira (Itinerant)	.....	2,170 4 2	849 10 6	.....	.....	.....	2,989 14 8
Gadhra	.....	2,387 0 0	2,197 0 0	350 0 0	.....	716 10 3	15,604 13 10
Ahmedabad	9,974 8 7	.....	.....	.....	.....	.....	.....
Total	46,861 9 7	28,578 8 7	18,012 13 3	2,451 0 0	3,927 11 5	14,665 8 7	1,14,012 8 5

District or Dispensary.	EXPENDITURE.						Balance.	Remarks.
	Pay.	Travelling Allowances.	Medicines, Instruments, &c.	Furniture, &c.	Contingencies.	Total.		
1	9	10	11	12	13	14	15	16
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Dhulin	1,921 2 5	125 9 0	216 14 3	11 4 0	335 4 11	2,330 2 6	2,273 6 6	
Nandurbár	1,515 5 0	95 11 9	499 7 11	.....	102 2 0	2,212 11 2	1,303 10 2	
Jalgaon	1,494 0 0	188 1 0	329 15 4	76 0 0	125 14 1	2,218 14 1	8,042 16 0	
Amalner	894 10 8	142 9 6	247 15 4	.....	132 4 3	1,417 7 9	3,453 11 6	
Nasik	1,898 10 1	41 2 0	499 5 1	.....	626 4 10	3,065 6 0	4,500 0 10	
Do. (Itinerant)	1,629 10 3	788 9 9	.....	.....	16 10 0	2,334 13 11	1,236 0 8	
Ahmednagar	.....	.....	.....	.....	.....	.....	.....
Do. (Itinerant)	717 1 4	40 8 0	948 7 4	100 1 9	384 14 11	2,191 1 4	.....
Do. (Itinerant (Shrigonda))	.....	.....	.....	.....	.....	.....	.....
Poona District	.....	.....	.....	.....	.....	.....	.....
Do. City	2,257 1 7	353 9 10	1,372 1 5	25 12 0	11,932 2 4	15,790 11 2	10,149 1 7	* Out of this amount Rs. 11,168-8-11 spent on buildings.
Do. (Itinerant)	.....	.....	.....	.....	.....	.....	.....
Sholapur	931 11 4	100 14 6	840 3 3	442 5 6	452 5 11	2,767 8 6	60 5 9	
Belgaum	2,457 6 11	224 3 0	530 1 3	89 0 0	531 10 10	3,822 6 0	662 8 11	
Chikodi	1,463 4 7	165 4 6	576 13 8	360 0 0	221 9 2	2,645 15 11	1,588 1 6	
Bijapur	1,394 8 0	394 15 6	395 4 4	7 12 0	1,236 9 3	3,519 1 1	684 2 5	† Out of this amount Rs. 977-15-8 spent on buildings.
Dhulewár	804 0 0	581 9 6	249 0 0	3 8 0	215 0 10	1,811 2 4	132 15 1	
Do. (Itinerant)	1,006 6 0	170 8 0	275 2 3	.....	359 6 2	1,811 6 5	13 1 4	
Ratnagiri	750 11 0	17 3 0	221 8 2	.....	303 10 6	1,233 0 3	.....
Do. (Itinerant)	644 10 3	135 15 9	219 10 0	71 0 0	123 10 9	1,194 15 2	.....
Do. do. (Panvel)	444 1 7	222 6 0	449 0 0	153 4 0	33 8 3	1,303 3 10	.....
Thána	1,733 4 5	818 7 6	209 4 3	.....	329 6 4	3,095 6 6	939 3 3	
Surat	1,733 0 0	399 11 9	331 9 1	23 12 0	1,063 0 3	3,630 1 1	4,925 2 4	
Nadiad	3,081 15 3	452 3 6	457 11 0	.....	399 0 9	4,390 14 6	315 1 1	
Kaira (Itinerant)	1,204 9 4	155 9 6	877 6 1	418 2 0	314 3 9	2,969 14 8	.....
Gadhra	2,368 9 1	205 1 0	227 6 8	.....	.....	12,826 1 7	2,778 13 3	‡ Out of this amount Rs. 9,590-10-7 spent on buildings.
Ahmedabad	.....	.....	.....	.....	.....	.....	.....
Total	32,300 11 5	5,718 13 10	9,713 1 3	1,679 13 3	29,313 14 5	78,726 6 2	35,255 13 3	

* These figures differ from the closing balance as given in the report for 1907-1908 as they have been subsequently corrected.

TABLE VII.

Showing total strength of Subordinate Veterinary Staff employed during the year 1907-08.

Province.	How occupied.	Whether paid from Provincial or Local Funds.	Veterinary Inspectors	Veterinary Assistants.	Subordinate staff not included in previous columns.	Remarks.
1	2	3	4	5	6	7
Bombay Presidency.	In Schools and Colleges.	.....	No. ...	No. ...	.....
	In Dispensaries ...	Provincial and Local.	...	30	2 Clerks. 12 Salutaris. 17 Dressers. 27 Peons. 18 Other menials.	
	Other Work ...	Provincial ...	...	2	.....
	Total ...	.....	...	32	76	

TABLE VIII.

Return of Stud Bulls for the year 1907-08.

District.	Property of Government.					Property of Local Bodies.				Remarks.		
	Number on 1st April 1907.	Obtained during the year.		Casualties during the year.	Balance remaining on 31st March 1908.	Number on 1st April 1907.	Obtained during the year.		Casualties during the year.		Balance remaining on 31st March 1908.	
		Number	Average price paid.				Number.	Average price paid.				
1	2	3	4	5	6	7	8	9	10	11	12	
West Khândesh	
East Khândesh	
Nâsik	
Ahmednagar	1	...	...	...	...	1	
Poona	
Sholâpur	
Bâtara	
Belgaum	
Bijâpur	
Dhârwar	
Kânara	
Ratnâpur	
Kolâba	
Thâna	
Surat	1	...	...	...	...	1	
Bioach	
Kaira	
Panch Mahâls	9	...	...	...	1	8	
Ahmedabad	
Total	11	...	...	...	1	10	

TABLE IX.

Showing main results of the working of the Provincial Cattle Farm during the year 1907-08.

Province.	Name of Farm.	Receipts.				Expenditure.		
		Sale of Animals.	Sale of Produce.	Other Heads.	Total.	Salaries of Establishment.	Feed and Keep of Animals.	Cultivation Expenses.
1	2	3	4	5	6	7	8	9
		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Gujarát (Ahmedabad).	Northcote Cattle Farm at Chharodi.	515 0 0	...	93 0 0	608 0 0	3,203 0 0	7,799 7 3	1,583 4 5
	Total ...	515 0 0	...	93 0 0	608 0 0	3,203 0 0	7,799 7 3	1,583 4 5

Province.	Name of Farm.	Expenditure—continued.			Valuation of Stock, Grain and Fodder remaining at close of year as detailed on reverse.				Remarks.
		Purchase of Animals.	Other Heads.	Total.	Cattle.	Grain.	Fodder.	Total.	
1	2	10	11	12	13	14	15	16	17
		Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
Gujarát (Ahmedabad).	Northcote Cattle Farm at Chharodi.	792 3 0	2,718 9 4	16,101 8 0	13,805 0 0	729 4 0	3,354 0 0	18,388 4 0	
	Total ...	792 3 0	2,718 9 4	16,101 8 0	13,805 0 0	729 4 0	3,354 0 0	18,388 4 0	

Valuation Statement of Cattle, Grain and Fodder in hand at the close of the year 1907-08.

Number or Quantity.		Description.	Rate.	Value.	Remarks.
No.	Quantity.				
	Mds.	<i>Cattle.</i>	Rs.	Rs.	
5		Bulls	200	1,000 0 0	
140		Cows	50	7,000 0 0	
19		Heifers five years old	50	950 0 0	
5		Do. four years old	35	175 0 0	
13		Do. three years old	25	325 0 0	
13		Do. two years old	20	260 0 0	
32		Do. one year old	15	480 0 0	
24		Female calves	10	240 0 0	
14		Male stock two years old	60	840 0 0	
17		Do. one year old	40	680 0 0	
16		Do. Bull calves	30	480 0 0	
11		Bullocks	125	1,375 0 0	
309	...	Total, Cattle ... ..	...	13,805 0 0	
		<i>Grain and Fodder.</i>			
	235	Guvar crushed	1-12-0 per md.	411 4 0	
	8	Báji	2-4-0 "	18 0 0	
	100 Bundles	Sundhia jowári for seed	3-0-0 "	300 0 0	
	5,000	Kirby	5-0-0 per 100 bundles.	250 0 0	
	lbs. 600,000	Hay	6-0-0 per 1,000 lbs.	3,600 0 0	
	24 Mds.	Guvar and Kirby chaff	6 mds. per Rupee.	4 0 0	
...	...	Total, Grain and Fodder ... ..	...	4,583 4 0	
...	...	Grand Total ... ..	...	18,388 4 0	

TABLE X.

Return of Horse, Pony and Donkey Stallions under Local Bodies for the year ending 31st March 1908.

Details.		Horse and Pony Stallions under Local Bodies.								
		Horses.				Ponies.				
		Arab.	Persian.	Country-bred.	Austra-han.	Total.	Arab.	Persian	Country-bred.	Total.
1	2	3	4	5	6	7	8	9	10	
Balance on 1st April 1907	...	4	...	1	1	6	11	...	1	12
Increase	{ Purchased in India	...	...	2	...	2	...	...	...	...
	{ Received from	...	...	...	...	...	...	...	...	...
	Total	4	...	3	1	8	11	...	1	12
Decrease	{ Died	...	...	...	...	...	...	...	...	...
	{ Sold	...	...	...	...	...	...	...	...	...
	{ Destroyed	...	...	...	...	...	...	...	...	...
	{ Transferred to	...	...	...	...	...	...	...	...	...
	Total Decrease	...	...	...	...	...	...	...	...	...
Balance on 31st March 1908	...	4	...	3	1	8	11	...	1	12

Details.		Total Horses and Ponies.	Donkey Stallions under Local Bodies.				Remarks.	
			Italian.	Cyprian.	Country-bred.	Persian.		Total.
1		11	12	13	14	15	16	17
Balance on 1st April 1907	...	18	...	...	...	...	...
Increase	{ Purchased in India	2	...	...	...	...	...
	{ Received from	...	...	...	...	...	...
	Total	20	...	...	...	...	...
Decrease	{ Died	...	...	...	...	...	...
	{ Sold	...	...	...	...	...	...
	{ Destroyed	...	...	...	...	...	...
	{ Transferred to	...	...	...	...	...	...
	Total Decrease	...	...	...	...	...	...
Balance on 31st March 1908	...	20	...	...	...	...	...

TABLE XI.

Services and Produce of each class of Horse, Pony and Donkey Stallions during 1907-08.

Horse, Pony or Donkey.	Province.	Stallions on Register on 31st March 1907.	Stallions actually employed at Stud.		Number of Mares covered.		Average number of Mares covered per stallion employed at Stud.		Remarks.
			Year under report.	Previous year.	Year under report.	Previous year.	Year under report.	Previous year.	
1	2	3	4	5	6	7	8	9	10
Horse ...	Deccan ...	2	1.98	2.00	63	59	31.82	29.50	
	Gujarát ...	6	3.09	3.23	157	163	50.81	50.46	
	Total ...	8	5.07	5.23	220	222	43.39	41.45	
Pony ...	Deccan ...	7	6.59	5.65	123	123	13.66	21.77	
	Gujarát ...	5	4.53	5.58	219	284	47.82	50.90	
	Total ...	12	11.17	11.23	342	407	30.61	36.24	
Donkey ...	Deccan ...	...	...	...	...	...	...	...
	Gujarát ...	...	...	...	...	...	...	...
	Total ...	...	...	...	...	...	...	...
Grand Total...	Deccan ...	9	8.57	7.65	186	182	21.70	23.79	
	Gujarát ...	11	7.67	8.81	376	447	49.02	51.74	
	Total ...	20	16.24	16.46	562	629	34.60	38.21	

TABLE XII.

Showing Average Cost of feed, keep, attendance, &c., of Horse, Pony and Donkey Stallions during the year 1907-08.

Province.	Horse.		Pony.		Donkey.		Remarks.	
	Year under report.	Previous year.	Year under report.	Previous year.	Year under report.	Previous Year.		
1	2	3	4	5	6	7	8	
Deccan ...	Sholápur ...	...	...	495	479	...	...
	West Khándesh ...	482	401	...	...	...	...
	East Khándesh ...	...	...	520	424	...	...
	Násik ...	636	415	434	469	...	...
	Total ...	580	409	499	466	...	...
Gujarát ...	Ahmedabad ...	464	507	410	405	...	...
	Kaira ...	...	...	464	459	...	...
	Pálanpur Agency ...	406	367	...	...	...	...
	Total ...	448	466	460	425	...	...
Grand Total	497	445	475	446	...	...

TABLE XIII

Abstract of particulars regarding Horse Fairs and Shows held in the non-selected districts during the year 1907-08.

District.	Number of Horse Fairs and Shows held.		Total number of animals present.		Total number competing for prizes.		Total number of Horse Stock (not including branded mares) present.		Number of Remounts purchased.				Price paid for Remounts.			Number of Mules purchased.		
	Year under report.	Previous year.	Year under report.	Previous year.	Year under report.	Previous year.	Belonging to breeders.	Belonging to dealers.	For Remount Department.	For Native Cavalry.	For Police.	Total.	Highest price.	Lowest price.	Average price.	By Government.	By others.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
							Nil.											

District.	Price paid for Mules by Government.			Total number of animals sold.	Prize money provided							Amount sanctioned by Government of India for next year's Fair or Show.	Remarks.
	Highest price.	Lowest price.	Average price.		From Imperial Funds.	From Provincial Funds.	From Local Funds.	From other sources.	Total.	Amount actually awarded.	Number of medals awarded.		
1.	19	20	21	22	23	24	25	26	27	28	29	30	31
						Nil.							

TABLE XIV.

Abstract of particulars regarding Cattle Fairs and Shows held during the year 1907-08.

District.	Number of cattle fairs and shows held.	Total number of stock present.							Average price of animal sold.				
		Bulls.	Bullocks.	Cows.	Young stock.	Buffaloes.	Camels.	Others.	Bulls.	Bullocks.	Cows.	Buffaloes.	Camels.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sátara ..	1	516	3,599	400	301	495	...	6,757	Rs. 100	Rs. a. p. 70 0 0	Rs. a. p. 45 0 0	Rs. a. p. 55 0 0	...
Sholápur ...	1	400	1,300	300	200	300	6	8,450	Rs. 25	Rs. a. p. 30 0 0	Rs. a. p. 20 0 0	Rs. a. p. 60 0 0	Rs. 60
Total ...	2	916	4,899	700	501	795	6	15,207	Rs. 125	Rs. a. p. 100 0 0	Rs. a. p. 65 0 0	Rs. a. p. 115 0 0	Rs. 60

District.	Amount realized in fees.	Total number of animals that competed for prizes.	Prize money provided						Number of medals awarded.	Remarks.
			Imperial From Funds.	From Provincial Funds.	From Local Funds.	From other sources.	Total.	Amount actually awarded.		
1	15	16	17	18	19	20	21	22	23	24
Sátara ...	Rs. a. p. 679 0 0	851	Rs. ...	Rs. a. p. 500 0 0	Rs. 200	Rs. a. p.	Rs. 700	Rs. 700	...	
Sholápur ...	1,225 0 0	218	...	500 0 0	400	.....	900	617	...	
Total ...	1,904 0 0	569	...	1,000 0 0	600	.....	1,600	1,317	...	

TABLE XIV-A.

Statement showing the cost of the Civil Veterinary Department in the Bombay Presidency during the Financial year 1907-08.

Major Heads.	Amount.				Remarks.
	Imperial.	Provincial.	Local.	Total.	
1	2	3	4	5	6
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
1. Superintendence	9,011 4 0	.....	.....	9,011 4 0	
2. Veterinary Instruction ...	23,113 15 1	38,251 11 7	45 0 0	61,410 10 8	
3 Subordinate Establishment	.....	.....	.....	.....
4. Hospitals and Dispensaries.	.....	13,444 12 2	76,897 14 8	90,343 10 10	
5. Breeding operations ... ..	.....	(a) 32,453 13 1	(b) 4,575 13 2	37,029 10 3	
6. Prizes " " " " " "	.....	.....	.....	.....
7. Fairs and Shows ... ..	.....	(c) 2,677 4 2	(d) 12,885 9 6	15,562 13 8	
Total	32,125 8 1	86,827 9 0	94,404 5 4	2,18,357 1 5	

	Rs.	a.	p.
(a) Horse, Mule and Donkey breeding operations	18,617	5	9
" Cattle breeding operations	13,836	7	4
(b) Horse, Mule and Donkey breeding operations	4,575	13	2
(c) Cattle fairs and shows	899	15	11
Other fairs and shows	2,877	4	8
(d) Horse fairs and shows	10,771	1	10
Cattle fairs and shows	1,845	0	6
Other fairs and shows	269	7	3

REVIEW BY THE DIRECTOR OF AGRICULTURE,
BOMBAY.

No. $\frac{A}{4204}$ OF 1908.

Poona, 16th July 1908.

Forwarded with compliments.

2. Mr. Ware has not expressed any detailed opinion as to the value of the work accomplished by the Civil Veterinary Department, doubtless because he has had no personal experience of the matter. I regret that I am not yet in a position to supply this omission.

3. The year was again an unhealthy one, in spite of a slight decline in the mortality from rinderpest and foot and mouth disease; and cases of Hæmorrhagic Septicæmia and Black Quarter showed a marked increase. The large losses of cattle from contagious disease appear to me to indicate the direction in which the energies of the Department will find most scope in the future.

4. As regards non-contagious disease treated at the dispensaries, if the figures for the year under report are compared with those of the previous year it will be found that, excluding the newly opened dispensaries, there has been an increase of 2,000 cases treated. This appears to indicate a development of popularity. The Poona City dispensary, to which Government specially referred last year, shows a marked improvement, and the Ratnagiri figures are remarkably good, and indicate that the Veterinary Assistant there must have won the confidence of the surrounding cultivators. The establishment of friendly relations between the Veterinary Assistant and the surrounding cultivators must in great degree be a personal question, and any attempt to force the services of the Veterinary Assistant on the people would be likely to do more harm than good; but it seems to me probable that when the Agricultural Department has established a closer touch with the villagers of certain tracts it might be able to help the Civil Veterinary Department in this respect; and apart from the mere treatment of disease the two departments might work together for the dissemination of better notions on the subjects—Veterinary Hygiene and Cattle-breeding.

5. It will be seen from the body of the Superintendent's report that there were reasons to account for the small numbers of cattle treated by each of the four itinerating dispensaries (*vide* Table V), so that the figures throw little light on the relative advantages of fixed and itinerating dispensaries. The case of the Thána dispensary has already attracted the attention of Government, and a special report will shortly be made with regard to it. At Godhra and Ahmednagar also the dispensaries appear to have gained little popularity.

6. I will enquire into the delay in supplying medicines and instruments mentioned in paragraphs 21, 33 and 34 of the Superintendent's report with a view to prevent it recurring in similar cases. I also propose to see what can be done to develop the idea mentioned in paragraph 42 of his report.

G. F. KEATINGE,
Director of Agriculture.

No. 182—54.

Address—Karachi.
Dated 29th June 1908.

From

MAJOR A. S. TRYDELL, I. C. V. D.,
Superintendent, Indian Civil Veterinary Department,
Sind, Baluchistan and Rájputána;

To

THE DIRECTOR OF AGRICULTURE,
Bombay, Poona.
(Through the Commissioner in Sind, Karachi.)

Sir,

I have the honour to forward the Annual Administration Report of the Indian Civil Veterinary Department, in Sind, for the official year 1907-1908.

I have the honour to be,
Sir,

Your most obedient servant,
A. S. TRYDELL, Major,
Superintendent,
Indian Civil Veterinary Department,
Sind, Baluchistan and Rájputána.

SIND.

ANNUAL ADMINISTRATION REPORT OF THE INDIAN CIVIL VETERINARY
DEPARTMENT IN SIND FOR THE OFFICIAL YEAR 1907-1908.

GENERAL ADMINISTRATION.

During the year under report Mr. K. Hewlett, Superintendent, Indian Civil Veterinary Department, Bombay Presidency, remained in charge of the office of Superintendent, Indian Civil Veterinary Department, Sind, Baluchistan and Rájputána, from 1st April to 24th November 1907 when Major Trydell took over from him on the forenoon of 25th idem and held it to the end of the year.

2. Mr. Hewlett, while in charge of the office of Superintendent, Indian Civil Veterinary Department, Sind, Baluchistan and Rájputána, was unable to visit the Province. Major Trydell visited all the six dispensaries, toured in parts of the districts of Hyderabad and Karáchi and attended the Cattle shows held at Shikárpur, Talhar and Moro. He travelled 2,878 miles by rail and 339 by road during his four months' tenure as against 2,089 miles by rail travelled last year.

I.—VETERINARY INSTRUCTION—VETERINARY COLLEGES AND SCHOOLS.

3. There are no Veterinary Colleges or Schools in the Province.

II.—TREATMENT OF DISEASE—(1) CONTAGIOUS DISEASE, OUTBREAKS, MORTALITY,
PREVENTIVE INOCULATION, &c.

4. Reports of outbreaks of contagious diseases have been received from 4 districts as against 4 last year. Table II shows 4 deaths amongst Equines, 221 Bovines and 11 others from contagious diseases.

Equines.

Glanders and Farcy.—There were 2 cases reported from Karáchi which were destroyed under the Glanders and Farcy Act as against 2 destroyed last year in the same district.

Surra.—One death is reported from Surra in the Sukkur District as against 57 reported from the same district last year.

Bovines.

Rinderpest.—There was an outbreak of rinderpest in Karáchi at the close of the year and 8 head of cattle are reported to have died from the disease.

Foot and Mouth.—One death occurred in the Naushahro Táluka of the Hyderabad District as against 3 deaths reported last year.

Hæmorrhagic Septicæmia.—It was reported from Sukkur District and 123 animals died.

Anthrax.—Sixty-one deaths are reported to have occurred under this head in the Sukkur District.

Others.

Rabies.—Ten deaths are reported in all to have occurred from Rabies amongst other animals during the year under report as compared to 4 reported last year.

Surra.—One death has been reported from Surra in camels from Karáchi District.

5. *Preventive inoculations.*—*Vide* Table III, 200 head of cattle were inoculated for rinderpest in the outbreak at Karáchi which occurred at the close

of the year. No deaths occurred amongst the inoculated animals. In the outbreak of "Hæmorrhagic Septicæmia" reported from Sukkur District, serum not being available no inoculations were performed. The Veterinary Assistant visited the scenes of outbreak of Anthrax but the disease had died out before his visits to the places of occurrence.

(2) *Other diseases.*

6. There was 1 death amongst Equines and 28 amongst Bovines from other contagious diseases as against 13 reported last year. Besides these the Veterinary Assistants treated 2,457 cases while on tour of which 323 were contagious and 2,123 non-contagious and 11 castration cases as compared to 1,956 of which 489 were contagious and 1,452 non-contagious and 15 castration cases treated last year. The total number of cases treated by Veterinary Assistants as in and out-door patients at their dispensaries is 11,846 as compared with 10,927 treated last year. This gives a total number of 14,303 cases treated during the year as compared to 12,883 treated during the preceding year in the Province.

(3) *Veterinary Hospitals and Dispensaries.*

7. There were 6 Veterinary Dispensaries open during the year under report, of these five, *viz.*, Karáchi, Hyderabad, Naushahro, Lárkána, Shikárpur, the same as last year, have accommodation for in-door patients. There are proposals in progress to build new dispensary at Lárkána. The question of building a dispensary at Sukkur is still under contemplation and a new dispensary at Hálla is also under construction.

8. *Karáchi Dispensary.*—Veterinary Graduate S. G. Haji held charge of the dispensary throughout the year except from 6th January to 23rd March 1908 when he was on privilege leave and his son, Mr. C. S. G. Haji, officiated for him. The total number of cases treated at this dispensary during the year was 4,696 (730 in-patients and 3,960 out-patients) and on tour 612 making a total of 5,308 as against 5,127—an increase of 181. Of the total treated at the dispensary 1,497 were Equines, 2,216 Bovines and 983 other animals as against 1,391, 1,767 and 1,362 respectively last year. Veterinary Graduate Haji treated the outbreak of Glanders and Farcy which had broken out in Karáchi at the close of last year and that of Rinderpest during the current year. He attended an outbreak of Fluke disease in the district, visited 5 villages. He was also assisted by another Veterinary Graduate from the 24th of March to the end of the year in dealing with the outbreak of rinderpest. He, as usual, treated the animals of the Vaccination Department, the Karáchi Police, and the Municipality, and performed 8 castrations as against 7 last year.

Table VI shows the financial condition of the dispensary. It shows Rs. 10,104-3-6 under the head "Receipts" and Rs. 8,908-9-10 under that of "Expenditure" and a balance of Rs. 1,195-9-8 available at the close of the year.

1,432 horses were shod at the shoeing Forge of the dispensary under his supervision as against 1,386 last year. The forge shows a surplus balance, after defraying expenses, of Rs. 779-12-2 against Rs. 805-14-6 last year.

A cattle travis was constructed and added to the building during the year under report at a cost of Rs. 325.

The cattle population within a radius of 5 miles of Karáchi is 6,375 and the cattle treated 2,216 which gives a percentage of 34.76 against 12.55 last year. The increase in percentage of cattle treated is due to the fact that last year the cattle population within a radius of 5 miles of the dispensary was reported to be 14,079 while this year it is given to be 6,375 only. The fees are charged at this dispensary for the treatment of horses belonging to well-to-do people and all dogs admitted for treatment.

Hyderabad Dispensary.—Veterinary Graduate Asudamal held charge of the dispensary throughout the year under report. During the year 2,132 cases were treated at the dispensary as against 2,043 cases treated last year—an increase of 89—of the total 692 were Equines, 746 Bovines and 694 others against 680, 1,145 and 218 respectively last year. There were 184 in-patients

and 1,948 out-patients as against 212 and 1,831 respectively last year. The Veterinary Graduate performed 12 castrations as against 9 last year.

He attended the Fair at Talhar and treated the horses belonging to Thar and Párkar Police.

The cattle population within a radius of 5 miles of Hyderabad is 6,303 and the number of cattle treated is 746 giving a percentage of 11.83 as against 13.16 last year. The decrease in the percentage of cattle treated is due to the fact that last year the number of camels treated at this dispensary was included in Bovines while this year it has not been done so.

Vide Table VI, Rs. 5,887-6-8 are shown under the head "Receipts" and Rs. 3,942-8-4 under the head "Expenditure" which gives a balance of Rs. 1,944-14-4 at the close of the year.

The salutri attached to this dispensary who tours in the district treated 527 cases while on tour and performed no castrations against 394 and 8 respectively last year. Fees are charged at the dispensary.

Naushahro Dispensary.—Itinerating Veterinary Graduate Ahmed J. Ansari held charge. The total number of cases treated at the dispensary was 1,300 and while on tour 668, making a total of 1,968 as against a total of 1,617 last year—an increase of 351. Of the total number treated at the dispensary 54 were in-patients and 1,246 out-patients as against 32 and 1,241 last year. There were 701 Equines, 261 Bovines and 338 others against 693, 258 and 322 respectively last year. The Veterinary Graduate performed 6 castrations and the salutri attached to the Dispensary 2 making a total of 8 as against 9 last year. He visited 7 villages and attended the Cattle Fair held at Moro.

The financial condition of the dispensary, *vide* Table VI, is Rs. 4,268-0-2 receipts, Rs. 3,390-5-7 expenditure and the balance available Rs. 877-10-7.

The cattle population within 5 miles of the dispensary is 6,662, the number of cattle treated 261 thus giving a percentage of 3.91 as against 1.29 last year. Treatment at this dispensary is free.

Lárkna Dispensary.—Veterinary Graduate N. D. Kapur held charge. The total number of cases treated at this dispensary was 1,099 as against 843 last year—an increase of 256. Of these 410 were Equines, 603 Bovines and 86 others. The number of in-patients was 87 as against 83 and out-patients 1,012 against 755 last year. The Veterinary Graduate treated 370 cases while on tour as against 232 treated last year. He visited 11 villages and attended the Fairs at Jacobabad and Shikárpur.

Vide Table VI, Rs. 3,516-4-9 is shown as receipts and Rs. 2,196-1-8 as expenditure which leaves a balance of Rs. 1,320-3-1. There is a difference of Rs. 400 in the column "last year's balance" and the balance available shown at the close of the year 1906-1907 which is explained by the Collector of Lárkna to be due to the fact that Government grant of Rs. 400 which was received during the year 1906-1907 was inadvertently omitted. No fees are charged at this dispensary except to animals which are sent for treatment under the Cruelty to Animals Act. The Veterinary Graduate performed 9 castrations as against 5 last year.

The cattle population within a radius of 5 miles of this dispensary is 17,355, the number of cattle treated is 603 which gives a percentage of 3.37 against 1.92.

Shikárpur Dispensary.—Veterinary Graduate L. K. Vedh held charge throughout the year. There were 1,914 cases treated at the dispensary and 280 while on tour, making a total of 2,194 against a total of 1,999 last year—an increase of 195. Of the total treated at the dispensary there were 863 Equines, 745 Bovines and 307 others against 797, 663 and 173 respectively treated last year. There were 149 in-patients and 1,765 out-patients against 102 and 1,531 out-patients. The Veterinary Graduate castrated 5 horses as against 11 castrated last year. He visited 2 villages during the year and attended the Fair at Shikárpur.

Table VI shows the receipts, expenditure and the balance available which are Rs. 15,902-1-7, Rs. 5,220-4-7 and Rs. 10,681-13-0 respectively.

The treatment at this dispensary is free. The cattle population within 5 miles of this dispensary is 6,000 and the number of cattle treated 745 which gives a percentage of 12.41 as against 11.05 last year.

Jacobabad Dispensary.—Veterinary Graduate D. T. Wadhvani held charge from 1st April to 13th February 1908 when he went on leave and Mr. M. V. Sathe officiated him from 2nd March to the end of the year. The number of animals treated at this dispensary was 705 against 615 of which 430 were Equines, 98 Bovines and 177 others as against 355, 111 and 149 respectively—an increase of 90 over last year. Mr. D. T. Wadhvani attended the fair at Jacobabad and translated a pamphlet into Sindhi on *Hæmorrhagic Septicæmia* by Mr. Hewlett. This was done at the request of the Director of Agriculture, Bombay. Two castrations were performed against 3 last year. There is no accommodation for in-patients at this dispensary but the Superintendent, Indian Civil Veterinary Department, on different occasions visited a house with the Commissioner in Sind, the Deputy Commissioner and the Executive Engineer, Jacobabad, which is to be converted into quite a good dispensary with stabling for horses, cattle sheds and kennels. The number shown as in-patients in Table V as treated at the dispensary being mostly cruelty cases. No fees are charged at this dispensary. The cattle population within a radius of 5 miles is 9,359 and the number of cattle treated is 98 which gives a percentage of 1.04 as against 1.18.

III.—BREEDING OPERATIONS.

8. There are no stud bulls or rearing or breeding farms in the Province and the control of Horse and Mule breeding being under Army Remount Department, there is nothing to be recorded under the sub-heads (1), (2) and (3).

4.—Fairs and Shows.

Cattle Fairs.

9. *Shikárpur.*—This show was held for the first time at Shikárpur in connection with the Horse Fair held there on 5th and 6th February 1908. *Vide* Table XIV, 180 animals attended the show and Rs. 370 were awarded in prizes which includes a sum of Rs. 60 awarded by the Transport Registration Department.

Talhar.—This show was held on the 1st and 2nd March 1908. The number of animals attending fell from 438 last year to 252 this year, the falling off being attributed to the scarcity of fodder prevailing in the Province. Rs. 419-8-0 were actually awarded in prizes as against Rs. 439-0-0 awarded last year.

Moro.—This show was held in the Hyderabad District for the first time on 25th and 26th March 1908. 761 animals attended the show and Rs. 750 were awarded in prizes out of Rs. 910 allotted from Local Funds for the purpose.

I have commented upon these shows in detail in my reports upon them. As far as my limited knowledge of Sind goes at present the only localities where breeding is conducted on good lines are in the Karáchi District. In Karáchi excellent milch herds are to be seen and considerable care is taken of them. Old and worn out cows are eliminated, selected bulls only are kept. Young heifers and bulls are herded separately - the latter are sold off at small ages. There is no promiscuous bulling by young bulls born in these herds and the stock is regularly fed. All this trouble is a good deal accountable for by the fact that there is an excellent sale for milk and ghee in Karáchi and it is to the interest of the owners to do their best, which shows if the native desires to or has a reason he is quite competent as a breeder. In other parts of Sind cattle are reproduced any how for plough and other purposes. I am alluding to the Zebu. With regard to the buffalo they are—by comparison—decidedly better partly due to the fact that there are not so many varieties to breed from or rather to cross with, and partly because the villagers rely more upon them for a milk and ghee supply. Parts of the Hyderabad District struck me as being overstocked with the Zebu.

IV.—SUBORDINATE ESTABLISHMENT.

10. There were 6 Veterinary Assistants employed during the year at the dispensaries in the Province the same number as last year. Besides these the services of a Veterinary Graduate were temporarily engaged to assist the Veterinary Graduate at Karachi in the suppression of the outbreak of rinderpest. 2 salaried and 4 compounders were also attached to the dispensaries in Sind. 2 salaried resigned their appointments during the year and were replaced by compounders.

V.—EXPENDITURE OF THE DEPARTMENT.

11. Table XIV A shows Rs. 6,701-14-6 under the head Imperial and Rs. 32,678-7-11 under Local as expenditure of the Indian Civil Veterinary Department in the Province during the year under report as against Rs. 8,340-4-9 and Rs. 28,896-2-1 respectively last year. The figures are liable to alterations on the closing of accounts for March 1908 (Final).

The amount shown under the head Imperial has been supplied by the Comptroller, India Treasuries, Calcutta, and is said to be the cost of the Department in the Provinces of Sind, Baluchistan and Rajputana. But as it represents the amount expended by the office of the Superintendent, Indian Civil Veterinary Department, Sind, Baluchistan and Rajputana, in the Province of Sind during 1907-1908 it has therefore been included in Table XIV A of this report.

VI.—GENERAL REMARKS.

12. The organization of a Department in Sind is wanted, but the Superintendent would like to see the orders of the Bombay Government on Mr. Hewlett's proposals for the working of the Presidency Proper before making suggestions for Sind. It would seem to him advisable to follow as far as possible the lines the Presidency intend to adopt—if this will be feasible—at present it is rather doubtful whether the same lines can be followed under circumstances which need not be entered into here beyond noting that Sind is a small province with but six men to work it, which does not leave much room for promotion amongst its members especially as three of them are senior with almost an equal standing and who have therefore almost equal claims for higher appointments if such are to be contemplated.

Mr. Haji in charge of the Karachi Veterinary Dispensary is an officer deserving of encouragement and would be capable of holding a more responsible appointment. Mr. Asudamal, Hyderabad, is also a good officer.

13. The necessary Tables are enclosed herewith.

A. S. TRYDELL, Major,
Superintendent, Indian Civil Veterinary Department,
Sind, Baluchistan and Rajputana.

TABLE II.

Showing number of Deaths from Contagious Diseases amongst Animals during the year 1907-1908.

Province.	EQUINES.						BOVINES.						OTHERS.			Remarks.	
	Glanders.	Anthrax.	Surra.	Fourine.	Other contagious diseases.	Total.	Rinderpest.	Foot and Mouth Disease.	Hemorrhagic Septicemia.	Black Quarter.	Anthrax.	Other contagious diseases.	Total.	Rabies.	Surra in camels.		Total.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<i>Sind.</i>																	
Karachi	2	...	...	...	...	3	2	...	...	...	...	28	36	3	1	4	
Hyderabad	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...
Naushero	...	...	1	...	...	1	...	1	...	...	...	...	1	...	...	...	...
Shikarpur	...	...	...	...	...	...	...	...	123	...	...	61	184	...	...	...	...
Larkana	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jacobabad	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	2	...	1	...	1	4	8	1	123	...	61	28	221	10	1	11	

TABLE III.

Showing results of preventive inoculation during the year 1907-08.

Province.	Name of disease against which inoculation was carried out.	Method of inoculation followed.	Number of outbreaks in which inoculation was undertaken.	NUMBER OF ANIMALS WHICH DIED UN-INOCULATED IN COURSE OF OUTBREAK.			NUMBER OF ANIMALS INOCULATED.			NUMBER OF INOCULATED ANIMALS WHICH DIED OF THE DISEASE.			Remarks.
				Equines.	Bovines.	Others.	Equines.	Bovines.	Others.	Equines.	Bovines.	Others.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>Sind.</i>													
Karachi	Rinderpest	Serum alone	1	...	8	...	...	200	...	...	...	...	...
Total	.....	.....	1	...	8	...	...	200	...	...	...	...	...

TABLE IV.

Showing the number of Animals treated and castrated by Veterinary Assistants on tour during 1907-1908.

Province.	Number of villages visited.	Number of Veterinary Assistants employed.	CASTRATIONS PERFORMED.				TREATED FOR CONTAGIOUS DISEASES.				TREATED FOR NON-CONTAGIOUS DISEASES.				Total number of cases treated and castrations performed.	Remarks.
			Equines.	Bovines.	Others.	Total.	Equines.	Bovines.	Others.	Total.	Equines.	Bovines.	Others.	Total.		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
<i>Sind.</i>																
Karachi	5	1	...	...	...	...	...	149	...	147	...	125	310	465	612	
Hyderabad	31	1	...	...	...	...	...	...	...	...	392	112	83	527	527	
Naushero	7	1	...	2	...	...	...	...	...	...	221	88	357	666	668	
Shikarpur	2	...	...	...	...	...	...	131	...	...	131	131	13	5	149	280
Larkana	11	1	9	...	...	9	20	25	...	45	150	123	38	316	370	
Jacobabad	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	56	4	11	...	...	11	20	303	...	323	834	466	823	2,123	2,457	

TABLE V.

Showing number of Animals treated at Veterinary Hospitals and Dispensaries during the year 1907-1908:

Province.	Number of Veterinary Dispensaries	Number of Veterinary Assistants employed at Dispensaries.	IN-PATIENTS.															
			Remaining on 1st April.			Admitted during the year.			Total.			Discharged during the year.			Balance on 31st March.			
			Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
<i>Stad.</i>																		
Karachi ...	1	1	2	3	2	180	473	76	132	476	75	179	476	74	3	...	4	
Hyderabad ...	1	1	2	2	1	96	21	62	98	23	63	95	23	60	3	...	3	
Naushahro ...	1	1	3	1	...	30	2	18	38	3	18	32	3	18	1	...	...
Shikarpur ...	1	1	4	...	1	82	26	36	66	23	37	81	24	35	5	2	2	
Larkana ...	1	1	...	...	...	58	23	1	58	28	1	57	23	1	1	...	...
Jacobabad ...	1	1	...	...	...	21	1	12	21	1	12	21	...	12	..	1	..
Total ...	6	6	11	6	4	487	551	205	478	557	209	465	554	200	18	3	9	

Province.	OUT-PATIENTS.						Total number of in- and out-patients treated during the year.				Receipts.	Expenditure.
	Number treated during the year.			Average daily attendance.								
	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Equines.	Bovines.	Other animals.	Total.		
1	19	20	21	22	23	24	25	26	27	28	29	30
<i>Stad.</i>												
Karachi ...	1,315	1,740	905	36.91	60.95	23.79	1,497	2,216	983	4,696	Rs. a. p.	Rs. a. p.
Hyderabad ...	594	723	631	7.5	9.3	7.4	692	746	694	2,132	5,887 6 8	3,942 8 4
Naushahro ...	668	253	320	6.6	2.5	3.4	701	261	333	1,300	4,268 0 2	3,390 5 7
Shikarpur ...	776	719	270	21	20	11	862	745	307	1,914	15,902 1 7	5,220 4 7
Larkana ...	352	575	85	9.9	13.6	2.1	410	603	86	1,099	3,516 4 9	2,196 1 8
Jacobabad ...	409	97	165	8.4	1.3	3.4	430	98	177	705	1,966 8 1	1,109 10 10
Total ...	4,114	4,113	2,376				4,592	4,669	2,585	11,846	41,644 8 9	24,767 8 10

TABLE VI.

Abstract showing Receipts and Expenditure of Veterinary Dispensaries during 1907-1908.

Province.	RECEIPTS.							Total.
	Last year's balance.	By Local Fund grants.	By Government grants.	By Municipal contribution.	By fees.	By other sources.		
	1	2	3	4	5	6	7		8
<i>Sind.</i>	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Karachi	2,279 1 6	2,000 0 0	900 0 0	1,500 0 0	3,413 6 0	11 12 0	10,104 3 6	
Hyderabad	2,068 13 8	2,000 0 0	775 0 0	600 0 0	447 9 0	6 0 0	5,887 6 8	
Naushahro	1,441 7 2	2,000 0 0	818 4 6	...	...	8 4 6	4,288 0 2
Shikarpur	11,154 4 4	2,000 0 0	1,455 0 0	1,000 0 0	115 0 0	177 13 3	15,902 1 7	
Larkana	1,370 2 3	1,350 0 0	700 0 0	90 0 0	3 4 0	2 14 6	3,516 4 9	
Jacobabad	360 6 1	800 0 0	775 0 0	..	30 0 0	1 2 0	1,966 8 1	
Total	18,664 3 0	10,150 0 0	5,423 4 6	3,190 0 0	4,009 3 0	207 14 3	41,644 8 9	

Province.	EXPENDITURE.						Balance.	Remarks.
	Pay.	Travelling allowances.	Medicines, instruments, etc.	Furniture, etc.	Contingencies.	Total		
	9	10	11	12	13	14			15	16
<i>Sind.</i>	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Karachi	4,326 10 5	300 0 0	1,556 8 4	576 0 0	2,150 7 1	8,908 9 10	1,195 9 8	
Hyderabad	3,016 0 0	183 0 6	363 3 6	.....	380 4 4	3,942 3 4	1,944 14 4	
Naushahro	1,765 10 10	154 0 0	92 11 9	1,142 0 4	235 14 8	3,390 5 7	877 10 7	
Shikarpur	2,936 7 3	114 3 0	862 6 6	...	1,307 3 10	5,220 4 7	10,651 13 0	
Larkana	1,061 12 9	134 6 0	503 7 11	...	496 7 0	2,196 1 8	1,320 3 1	
Jacobabad	894 8 9	.....	24 14 5	19 8 0	170 11 8	1,109 10 10	856 13 3	
Total	14,001 2 0	885 9 6	3,403 4 5	1,736 8 4	4,741 0 7	24,767 8 10	16,876 15 11	

TABLE VII.

Showing total strength of Subordinate Veterinary Staff employed during the year 1907-1908.

Province.	How occupied.	Whether paid from Provincial or Local funds.	Veterinary Inspectors.	Veterinary Assistants.	Subordinate Staff not included in previous columns.	Remarks.
1	2	3	4	5	6	7
<i>Sind</i>	In Schools and Colleges. In Dispensaries... On other work ...	..... Local Funds	No.	No. ... 6 permanent. 1 temporary	1 Clerk. 2 Salutris. 4 Compounders. 6 Peons. 4 Syces. 5 Sweepers. 1 Sweeper part time. 1 Dog boy. 1 Mail. 1 Bill Collector. 3 Bhishtis. 1 Bhishti part time. 1 Dresser.	
Total ..	.....	.....	...	7	31	

TABLE XIV.

Abstract of particulars regarding Cattle Fairs and Shows held during the year 1907-1908.

Province.	Number of Cattle Fairs and Shows held.	Total number of stock present.							Average price of animal sold.					
		Bulls.	Bullocks.	Cows.	Young stock.	Buffaloes.	Camels.	Others.	Bulls.	Bullocks.	Cows.	Buffaloes.	Camels.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
<i>Sind.</i>														
Shikarpur	...	1	12	124	4	4	...	...	36	...	...	45	...	...
Talhar	...	1	18	174	22	9	29	...	...	220	70	...	...	...
Moro	...	1	146	897	67	23	56	...	72	...	...	...	...	...
Total	...	3	176	695	93	36	85	...	108	220	70	45	...	...

Province.	Amount realized in Rs.	Total number of animals that competed for prizes.	Prize money provided.						Amount actually awarded.	Number of medals awarded.	Remarks.
			From Imperial funds.	From Provincial funds.	Local funds.	From other sources.	Total.				
1	15	16	17	18	19	20	21	22	23	24	
<i>Sind.</i>											
Shikarpur	...	180	...	...	400	80	480	370 0	...	...
Talhar	...	222	...	...	700	...	700	419 8	...	...
Moro	...	761	...	...	910	...	910	750 0	...	...
Total	...	1,163	...	...	2,010	60	2,070	1,539 8	...	...

TABLE XIV-A.

Statement showing Cost of the Civil Veterinary Department in the Province of Sind during the financial year 1907-1908.

Major Heads.	AMOUNT.				Remarks.
	Imperial.	Provincial.	Local.	Total.	
1	2	3	4	5	6
	Rs. a. p.	Rs.	Rs. a. p.	Rs. a. p.	Rs. a.
1. Superintendence	6,701 14 6	.....	... ..	6,701 14 6	Establishment ... 14,001 2
2. Veterinary Instruction ... ..	.....	... ..	.....	.....	Travelling allow- ance to Estab- lishment ... 885 9
3. Subordinate Establishment ... ..	.....	..	.....	..	Contingencies ... 6,197 15
4. Hospitals and Dispensaries ... ..	.....	..	21,084 10 6	21,084 10 6	Hors ^e fairs and shows ... 9,996 12
5. Breeding operations ... ..	.....	..	880 4 0	880 4 0	Cattle fairs and shows ... 716 13
6. Prizes | ... ..	.....	.....	.....	.....
7. Fairs and Shows ... ..	.....	..	10,713 9 5	*10,713 9 5	*This figure does not includ Rs. 263-7-3 on account of "other fairs and shows."
Total	6,701 14 6	.....	32,678 7 11	39,380 6 5	

Below the Superintendent, Indian Civil Veterinary Department, Sind, Baluchistan and Rájputána's No. 182-54, dated 29th June 1908, forwarding the Administration Report of the Indian Civil Veterinary Department for the year 1907-08.

No. G.-394 of 1908.

GENERAL DEPARTMENT.

*Office of the Commissioner in Sind,
Government House, Karachi, 27th August 1908.*

Forwarded to the Director of Agriculture.

2. The Commissioner regrets that owing to pressure of work the report has been delayed in his office.

3. The report deals mainly with executive matters, and is, on the whole, a satisfactory record of the work performed during the year. General questions relating to stock and breeding are more fully treated in the special reports on the various Horse and Cattle Fairs held in the Province. It is hoped that the institution of a Cattle Fair at Shikárpur will prove successful in directing more careful attention to the breeding of cattle in Upper Sind. The arrangements referred to by the Superintendent for the provision of accommodation for in-patients at Jacobabad will be a useful addition to the local resources of the Department. The Commissioner concurs in the Superintendent's remarks on the reorganization of the Department in Sind.

4. The Commissioner endorses the Superintendent's commendation of the work of Messrs. Haji and Asudamal. He has also much pleasure in acknowledging the energy and interest devoted by Major Trydell to the Sind portion of his charge.

J. CRERAR,
for Commissioner in Sind.

To
The Director of Agriculture,
Poona.

OFFICE OF THE DIRECTOR OF AGRICULTURE,
BOMBAY, POONA.

No. A.—5558 of 1908.

Poona, 17th September 1908.

MEMORANDUM.

In continuation of this office No. A.—4204, dated 16th July 1908, reviewing the Annual Report of the Civil Veterinary Department in the Presidency Proper for 1907-08, the undersigned has the honour to submit to Government the Annual Report of the Civil Veterinary Department in Sind for 1907-08 received in this office from the Commissioner in Sind on the 10th instant, and to state that he has nothing to add to the remarks made by the Commissioner.

G. F. KEATINGE,
Director of Agriculture.

Annual Reports.

Annual Administration Reports of the Bombay Veterinary College and the Civil Veterinary Department, including the Annual Report of the Glanders and Farcy Department in Bombay for the year 1907-08.

No. 12085.

REVENUE DEPARTMENT.

Bombay Castle, 26th November 1908.

Letter from the Principal, Bombay Veterinary College, No. 134-L, dated 4th June 1908—Submitting the Annual Report of the Glanders and Farcy Department in Bombay for the year 1907-08.

Letter from the Director of Public Instruction, No. 3306, dated 4th July 1908—Forwarding the Report on the Bombay Veterinary College for the year 1907-08 together with the letter No. A.—3764, dated 25th June 1908, from the Director of Agriculture, reviewing the report.

Letter from the Director of Agriculture, No. A.—4330, dated 24th July 1908:—

"I have the honour to submit herewith in print the Annual Administration Report of the Civil Veterinary Department in Bombay for the year 1907-08 with my review attached to it.

"2. As usual the Superintendent, Civil Veterinary Department, Bombay Presidency, has already sent a copy of his Report direct to the Inspector General, Civil Veterinary Department.

"3. The Annual Report of the Civil Veterinary Department in Sind has not yet been received in this office, and it will be submitted to Government separately when received."

Letter from the Director of Agriculture, No. A.—5778, dated 28th September 1908—Submitting in advance a proof copy of the annual report of the Civil Veterinary Department in Sind for 1907-08 with his review attached to it.

Letter from the Director of Agriculture, No. A.—6320, dated 20th October 1908—Submitting a copy of the consolidated report of the Civil Veterinary Department in Bombay for 1907-08, as finally printed, including the Reports of the Civil Veterinary Department in the Presidency proper and in Sind.

RESOLUTION.—Government concur with the Director of Public Instruction and the Director of Agriculture that the administration of the College has been satisfactory. It is observed that in the opinion of the Director of Public Instruction the present system of scholarships has not worked well. Proposals for its modification are under consideration. It is of great importance that the students should be selected from suitable classes, as the Director of Agriculture suggests.

2. The recommendation of the Veterinary Conference held at Calcutta in February last, for the appointment of a Pathologist in each Veterinary College in India, is under the consideration of the Government of India

3. On the representation of the Principal, Bombay Veterinary College, His Excellency the Governor in Council has reconsidered the question of rent charged to students residing in quarters attached to the College and has reduced it from Rs. 3 to Rs. 2 per mensem per student.

4. Government have also recently sanctioned a grant of Rs. 5,000 to equip the library of the College in an adequate manner.

5. The proposals referred to in paragraph 3 of the review by the Director of Agriculture should be submitted through the Director of Public Instruction at an early date. His Excellency the Governor in Council desires that all reasonable measures should be taken, both by adequately equipping the College, and by careful selection of scholars, to prevent the training degenerating into a mere text-book knowledge of the subjects taught.

6. The work of the Civil Veterinary Department in the Presidency proper has consisted largely of continuing the campaign against rinderpest. The mortality from this disease, though somewhat less than in the previous season,

has still been considerable. Inoculation is admittedly the one means of checking it, and a number of Veterinary Graduates were deputed to Bareilly to receive instruction in the scientific use of this preventive. Possibly as a result of this measure, the inoculations actually performed would appear to have been more successful than in the preceding year. At the same time, Government notice with regret that there is a decrease in the total number of cattle so treated, no explanation of which is offered by either the Superintendent or the Director of Agriculture. In the review of last year's report, the former officer was specially requested to comment upon the assistance rendered by the district officers to the graduates in this matter. In the absence of such information, it is difficult to form an opinion of the quarter in which the responsibility lies for the absence of progress in popularising inoculation for rinderpest, and Government must insist on full information being regularly given in future.

7. There has been, on the whole, a rise in the number of cattle treated in Veterinary Hospitals during the year which is the more satisfactory, in view of the decrease in the virulence of epidemics. The figures for Ratnágiri are particularly good. It is, of course, impossible to measure progress entirely by the number of cases treated, regardless of the prevalence of diseases in the neighbourhood concerned; but figures so low as those of Godhra and Phána cannot be considered satisfactory. The numbers are low, also in Sholápur, where the dispensary has been only recently established. An increase may be looked for in future years. It is significant that in all three of these hospitals no fees are charged, and Government consider that it should be possible to find means of making them more popular with cattle-owners. There is no apparent improvement in the activity of the Poona District Dispensary, to which reference was made last year; the report then called for has not yet been received and should be submitted without further delay.

8. In Sind there has been a marked extension of the operations of the Department. It is regrettable that an outbreak of rinderpest has occurred in the Province, but the effects of inoculation seem to have been excellent, and it is hoped that every effort will be made to popularise it. The Governor in Council has read with considerable interest Major Trydell's account of the care exercised in respect of cattle-breeding by cattle-owners in the Karáchi District. With such an example ready to hand, it should be possible by degrees to introduce better methods in other parts of Sind. The importance of maintaining a pure breed of cattle cannot be over-estimated, and Government are glad to note that the subject is receiving due attention, both in the Presidency proper and in Sind.

9. Major Trydell's proposals for the organisation of the Veterinary Department in Sind will be awaited.

10. The report of the Glanders and Farcy Department in Bombay is a record of useful work satisfactorily performed.

J. E. C. JUKES,

Under Secretary to Government.

To

<p>The Commissioner in Sind, The Commissioner, N. D., The Commissioner, C. D., The Commissioner, S. D., All Collectors, including the Commissioners in Sind, The Director of Agriculture, The Director of Public Instruction, The Sanitary Commissioner for the Government of Bombay. The Superintendent, Civil Veterinary Department, Bombay Presidency,</p>	}	<p>With copies of the report.</p>
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- The Superintendent, Civil Veterinary Department, Sind,
 Baluchistan and Rajputána,
 The Principal, Bombay Veterinary College,
 The Principal, Agricultural College, Poona,
 The Municipal Commissioner for the City of Bombay,
 The Private Secretary to His Excellency the Governor,
 The Accountant General,
 The General Officer Commanding 4th (Quetta) Division,
 The General Officer Commanding 5th (Mhow) Division,
 The General Officer Commanding 6th (Poona) Division,
 The Agent to the Governor, Káthiáwár,
 The Political Agent, Cutch,
 The Political Agent, Kolhápur and Southern Marátha
 Country,
 The Political Agent, Mahi Kántha,
 The Political Agent, Rewa Kántha,
 The Political Agent, Sávantrádi,
 The Political Agent, Pálanpur,
 The Political Resident, Aden,
 The Compiler of the General Administration Report,
 The Political Department of the Secretariat,
 The Judicial Department of the Secretariat,
 The General Department of the Secretariat,
 The Educational Department of the Secretariat (with
 the papers),
 The Public Works Department of the Secretariat,
 The Financial Department of the Secretariat.
 The Inspector General, Civil Veterinary Department,
 The President, Municipal Corporation, Bombay,
 The Secretary to the Society for the Prevention of Cruelty
 to Animals,
 The Government of India,
 The Under Secretary of State for India.

With copies of
the report.

By letter.

FIFTY-NINTH ANNUAL REPORT

OF THE

**GOVERNMENT GINCHONA PLANTATIONS
AND FACTORY IN BENGAL**

FOR THE YEAR,

1920-21.



CALCUTTA :

The Bengal Secretariat Book Depot.

1921.

[Maximum limit 4 pages.]

FIFTY-NINTH ANNUAL REPORT
OF THE
GOVERNMENT CINCHONA PLANTATIONS AND FACTORY IN BENGAL
FOR THE YEAR
1920-21.

1. **General.**—The plantations are still suffering from the effects of the war drain, but the results are not quite so bad as superficially they seem to be. In 1918 when things were at their worst it was seen that the uprooting of immature trees for the sake of an immediate harvest could not go beyond a certain limit. At the same time, in view of the probability of the world's supply of cinchona bark—except for the comparatively trivial amount of Indian-grown bark and the small produce of British estates in Java—being controlled by a few Dutch firms,—a control that is now in operation—it was most desirable that some means should be found of allowing a reasonable amount of bark to be harvested, while yet giving the plantations a chance ultimately to yield an approximately full quantum. For very many years it has been the practice entirely to uproot Cinchona trees for harvest. This method has the advantage of collecting the bark of the root as well as that of the stems and branches, and as the amount of root bark, which is slightly richer in alkaloid than the stem and branch bark, forms from a third to nearly a half of the total bark yielded by an uprooted tree, the immediate yield of bark is considerable. The method has the disadvantage of finishing the tree, but provided it has been possible to allow the tree to reach a commercially exploitable maturity, the disadvantage is more apparent than real.

In the early seventies of last century "coppicing" was tried on Mungpoo plantation. In "coppicing" only the stems and branches are cut, the root being left undisturbed. If the process is successful, new stems spring up from the stumps, and after some years the new growth can be cut, and the roots again left undisturbed or also cut out. The harvest is collected in two or possibly more than two instalments, at intervals of some years (five or more), the roots ultimately also forming part of the harvest. The results obtained on Mungpoo more than 40 years ago were considered rather discouraging, but as these experiments were on quite a small scale and were concerned with *C. succirubra*, whereas the species now cultivated is the very different *C. Ledgeriana*, it was resolved to try coppicing on a fairly large scale on Munsong Plantation. So towards the end of 1918, 115 acres were "semi-coppiced," being 79.5 acres of *C. Ledgeriana*, and the rest *Hybrid* and *C. officinalis*. By "semi-coppicing" is meant that only half the number of stems from a root—when there is more than one stem—are cut off. In the spring of 1919 the coppicing was completed. The result has been excellent, for the new stems from the roots have developed in two years to such an extent as to give an appearance equal to three-year plants grown from seed. The harvest from Munsong for 1920-21, amounting to 324,804 lbs., was got by coppicing 334 acres. There is good reason to expect that the same acreage five years hence will yield the same amount of bark from new growth, and in addition root bark equal in amount to at least a third of the total ultimate yield. The ultimate yield may not come up to the original estimate based on the assumption that it would be possible to allow trees to reach an exploitable maturity and then to uproot them entirely, but in the circumstances this cannot be helped.

On Munsong considerable damage was caused by such various agencies as hail, wind storms, deer and rats, but most of the casualties have been replaced. On Mungpoo a new enemy to cinchona has appeared in the shape of a boring beetle, identified by the Imperial Entomologist as *Xyloborus joricatus* the "shot hole" borer of tea, which attacks the stems. The only treatment is to cut down and burn the affected trees. So far no great damage has been done.

2. **Extensions, Acreages and Crops.**—(1) *Mungpoo.*—Rainfall was 103.74 inches against an average for 43 years of 123. From the 20th September 1920 to the 22nd January 1921 only 1.15 inches were recorded. Last year's extensions suffered accordingly; but all vacancies have since been filled. The year's extensions were 126.5 acres, of which 89.5 were *C. Ledgeriana* (24.5 on Mungpoo division and 65 on Sittong), 15 *C. succirubra* on Sittong and 22 *C. Ledgeriana* × *succirubra* on Mungpoo. The *C. Ledgeriana* included 4.5 acres planted with 8000 seedlings from the special high quality seed purchased in Java in 1919. They have been planted in an isolated position in the re-afforested area, so as to be kept as free as possible from the influence of the pollen of low percentage trees in other parts of the plantation. The year's harvest was 176,214 lbs. yielded by cutting out 44.7 acres of an average age of 6.5 years. This is equivalent to an annual bark increment per acre of 6.6 lbs. over the period of 6.5 years, and an actual total yield per acre of 3,942 lbs. for the period. As the estimated average annual bark increment per acre calculated over a ten years period has been taken as 330 lbs. for Mungpoo, the actual yield over an average period of 6.5 years exceeds the estimated total for 10 years, as it did last year. This is a very satisfactory result. The average quinine percentage of the ledger bark was 5.17, of the hybrid 3.67, and of the mixed barks, calculated on their different amounts, 4.72. There were 810.5 acres with a full complement of cinchona at the end of March 1921. Re-afforestation on an extensive scale has now ceased, and this work is now confined to conserving the 3,075 acres that have been re-afforested since 1907, and to re-afforesting blocks under cinchona as they become vacant. About 2,800 tons of firewood were supplied to the factory.

(b) *Munsong.*—Rainfall was 85.33 inches, against an average for 20 years of 96 inches. Extensions were 210 acres, comprising 174 of *C. Ledgeriana*, including a small plot planted with special Java seedlings, 22 of *C. Ledgeriana* × *officinalis* and 14 of *C. Ledgeriana* × *succirubra*. The harvest of 324,804 lbs. was got by coppicing 334 acres, estimated at present as equivalent to cutting out 136 acres of an average age of 6.6 years, with an average annual bark increment per acre over that period of 357 lbs. and an average total yield per acre for the period of 2,338 lbs. Of the harvest 232,772 lbs. were *C. Ledgeriana*, the remainder being *Hybrid* and *C. officinalis*. The average quinine percentages were, of *C. Ledgeriana* 4.62, of *C. officinalis* 3.80, of *Hybrid* 3.35, of the mixed barks calculated on their different amounts 4.4. At the end of March 1921, there were 2,425 acres under cinchona. It was not found possible to do any re-afforestation work during the year.

(c) *Plantations as a whole.*—The total acreage under Cinchona is 3236 acres, of which 2340 are under six years of age. The approximate total number of tree is 5,400,000. The total harvest was 501,018 lbs. of dry bark.

3. **Factory Work.**—617,018 lbs. of mixed plantation barks were used up, being 216,106 lbs. of Mungpoo and 400,912 lbs. of Munsong bark, with average quinine percentages, respectively, of 4.72 and 4.4. About 92 per cent. of the quinine in the bark was extracted, the products being 23,984½ lbs. of quinine sulphate, 386 lbs. of quinine hydrochloride, equivalent to 431 lbs. of quinine sulphate, and 10,626½ lbs. of cinchona febrifuge containing 1,269½ lbs. of quinine sulphate. The total output of all sorts from plantation bark was 34,997½ lbs. In addition, from 10,600 lbs. of Java bark of analysed quinine contents of 6.58 per cent., 655 lbs. of quinine sulphate and 196 lbs. of cinchona febrifuge were manufactured for the Government of India. 4000 lbs. of Cinchona Febrifuge were also purchased from the Government of Madras.

4. **Cost and value of Plantation Bark.**—The Mungpoo harvest of 176,214 lbs. cost at 3.6 annas per lbs., Rs. 39,647. Its average quinine

percentage being 4.72, with a unit rate of 2 annas, its value per lb. was 9.4 annas, or its total value Rs. 1,03,515. The Munsong harvest of 324,804 lbs. at 2.7 annas per lbs., cost Rs. 54,810. With an average quinine percentage of 4.4 its market value was at least 8.8 annas per lb., or a total of Rs. 1,78,642. Total cost of the total harvest was Rs. 94,457 as against a market value of Rs. 2,82,167.

5. **Cost and Value of Quinine Produced.**—(a) **Cost in the Bark.**—The 617,018 lbs. of mixed plantation barks used in the factory at 3.6 annas for Mungpoo and 2.7 annas for Munsong bark, cost Rs. 1,16,278. The quinine sulphate extracted as such was 23,984½ lbs. In addition, 386 lbs. of quinine hydrochloride were extracted, making a total of 24,370½ lbs. of quinine salts. The cost of quinine per lb. in the bark is therefore $\frac{Rs. 1,16,278}{24,370\frac{1}{2}}$, or Rs. 4.76.

(b) **Cost of Extraction, Packing and Delivery to Railway.**—The gross factory expenditure plus depreciation for machinery and buildings plus share of general charges plus cost of chemicals, etc., used in excess of quantities purchased during the year, and minus the cost of cinchona febrifuge purchased and minus the cost of manufacturing products other than quinine sulphate, and minus cost of chemicals, etc., purchased during the year but not used, comes to Rs. 89,100-5-4. This sum covers the extraction of the plantation bark quinine sulphate and hydrochloride and also the 655 lbs. manufactured for the Government of India, or a total of 25,025½ lbs. of quinine salts. Cost of extraction was therefore Rs. 3.56 per lb.

(c) **Total Cost per lb.**—This is the cost in the bark Rs. 4.76 plus the cost of extraction Rs. 3.56 per lb., or Rs. 8.32 per lb.

(d) **Value.**—At Rs. 48 per lb., the present wholesale rate for Quinine sulphate, the value of the 23,984½ lbs. of quinine sulphate produced for the Government of Bengal is Rs. 11,51,268 as against a cost of Rs. 1,99,553. In the stock account however the value rate has been taken at Rs. 30 per lb.

6. **Sales and Selling Rates.**—The total issue of products was 49,857 lbs. 9 oz., consisting of 34,509 lbs. 9 ozs. of quinine sulphate, 14,935 lbs. 8 ozs. of cinchona febrifuge, and the rest of other products. Over 4,600 lbs. of *Cinchona succirubra* bark were also sold. Of the quinine sulphate 14,375 lbs. were sold in the form of "treatments" as compared with 10,830 lbs. sold during 1919-20. Quinine sulphate in powder form was sold at Rs. 33 to Rs. 35 per lb. according to quantities purchased at one time, cinchona febrifuge Rs. 7 to Rs. 8 per lb. Quinine sulphate in tablet form in "treatments" was sold at the rate of Rs. 43.12 per lb.

7. **Expenditure and Receipts.**—The total expenditure on both plantations and factory was Rs. 3,22,311-5-1. The gross receipts for sale of all products through the agency of the Juvenile Jail plus miscellaneous receipts obtained by the department direct were Rs. 13,63,594-9, of which Rs. 4,36,640-7 were credit and Rs. 9,26,964-2 cash. Of the latter Rs. 2,79,105-7-8, representing half the revenue derived from the sale of 14,375 lbs. of quinine sulphate in the form of "treatments" have been allocated to the Prisons Department, to meet charges in connexion with the conversion of purified quinine into tablets to be sold in "treatment" form. On the assumption that the sum of Rs. 2,79,105-7-8 little more than covers—as it is intended to do—the cost of conversion, the cost of converting 14,375 lb. of purified quinine into "treatments" would seem to be Rs. 19.4 per lb. or more than twice as much the total cost of manufacture of the purified quinine. Deducting this charge for conversion of the 14,375 lbs. into "treatments" the net revenue is Rs. 10,84,489-1-4 and the net surplus Rs. 7,62,177-12-3.

8. **Quinine Reserve and Stock Account.**—The provincial quinine reserve on the 31st March 1921 was 39,832 lbs. The reserve is gradually lessening. Stock of all sorts at the end of the year, valued on a conservative basis, was worth Rs. 13,11,392-2, of which quinine sulphate worth at least Rs. 11,94,956, formed the chief item.

9. **Block Account.**—Cinchona trees are valued at Rs. 18,46,095, timber and fuel trees at Rs. 2,77,203, buildings at Rs. 1,24,811 and machinery at Rs. 70,680, a total of Rs. 23,18,790.

10. **Profit and loss valuation.**—As shown in Appendix E., the valuation at the end of 1920-21 shows an increase of Rs. 7,08,914-11-11.

11. **Land rent.**—From Mungpoo Rs. 4,964-6-6 were paid into the Darjeeling Treasury on account of land rent of settlers, and from Munsong Rs. 919-8 were paid into the Kalimpong Sub-Treasury to the credit of the Forest Department for grazing fees. No account of these sums is taken in the receipts of the Cinchona Department.

12. **Staff.**—Mr. C. C. Calder, B.Sc. B.Sc., (Agr), F.L.S., officiated as Superintendent from the 1st April 1920 to the 16th January 1921. Thereafter Lieutenant-Colonel A. T. Gage, I.M.S., resumed charge. Mr. G. E. Shaw, B.Sc., F.L.C., F.C.S., was Government Quinologist throughout the year. Mr. S. C. Sen, B.Sc., B.A., was appointed Assistant Quinologist on the 2nd November 1920. On Mungpoo plantation Mr. H. Thomas was Manager up to the 7th February 1921, when he went on leave, Mr. P. V. Osborne officiating thereafter. Mr. P. W. Cresswell officiated as Assistant Manager and Hurkaman as Overseer throughout the year. On Munsong plantation Mr. H. F. Green, Mr. G. Holl and Mr. J. Hulbert were respectively Manager and Officiating Assistant Managers throughout the year. At the head office Babu Devendranath Basu was head clerk throughout the year.

ADDENDUM.

Ipecacuanha.—The stock of plants was increased by 6,400 and now stands at 82,400 plants. Experiments have been made to find out the best method of preserving seed and hastening germination. The period of the latter is erratic, varying from one month to twelve months, and about 30 per cent. of the seed is sterile.

Digitalis.—Two acres have been added to the area under this crop, and a good crop of leaf is expected. About 560 lbs., of dried leaf was distributed to medical depots and dealers during the year.

Belladonna.—About a third of an acre was planted after filling in vacancies in last year's planting.

A. T. GAGE, LIEUT.-COLONEL, I.M.S.,
*Superintendent, Royal Botanic Garden, Calcutta,
 and of Cinchona Cultivation in Bengal.*

APPENDIX A(1)

Detailed statement of acreage with full complement of Cinchona in the Government Cinchona Plantations, Darjeeling District, on 31st March 1921.

I.—MUNGPOO PLANTATION.

(a) Mungpoo Division.

SPECIES.	NUMBER OF ACRES CARRYING TREES OF—				Total number of acres.
	0—5 years old.	6—10 years old.	11—15 years old.	16 years old and upwards	
1	2	3	4	5	6
Cinchona Ledgeriana ...	380.4	103.4	...	...	483.8
" succirubra ...	...	5.3	...	42.5	47.8
" (Ledger x succirubra) ...	60.0	...	...	3.0	63.0
Total ...	440.4	108.7	...	45.5	594.6

(b) Sittong Division.

Cinchona Ledgeriana ...	172.1	10.0	...	...	182.1
" succirubra ...	15.0	7.1	...	...	22.1
" (Ledger x succirubra) ...	...	11.7	...	...	11.7
Total ...	187.1	28.8	...	...	215.9

II.—MUNSONG PLANTATION.

(a) Munsong Division.

Cinchona Ledgeriana ...	453	77.5	...	...	530.5
" (Ledgeriana x officinalis) ...	7	...	...	...	7.0
" (Ledgeriana x succirubra) ...	96	76.5	...	...	172.5
Total ...	556	154	...	...	710

(b) Kashyem Division.

Cinchona Ledgeriana ...	190.5	207.0	...	...	397.5
" officinalis ...	22.0	77.0	9.5	...	108.5
" succirubra ...	...	8.5	...	...	8.5
" (Ledger x officinalis) ...	35.0	0.5	...	...	35.5
" (Ledger x succirubra) ...	82.5	...	...	...	82.5
Total ...	330	293	9.5	...	632.5

II—MUNSONG PLANTATION—*concl.*(c) *Burmiak Division.*

SPECIES.	NUMBER OF ACRES CARRYING TREES OF—				Total number of acres.
	0-5 years old.	6-10 years old.	11-15 years old.	16 years old and upwards.	
1	2	3	4	5	6
Cinchona Ledgeriana ...	335.5	227.0	...	...	562.5
" officinalis ...	29.0	19.0	...	...	48.0
" succirubra ...	...	10.2	...	...	10.2
" (Ledger x officinalis)	67.0	...	...	...	67.0
" (Ledger x succirubra)	18.0	...	...	...	18.0
Total ...	449.5	256.2	...	...	705.7

(d) *Sangser Division.*

Cinchona Ledgeriana ...	342.5	...	...	...	342.5
" succirubra ...	10.0	...	...	...	10.0
" (Ledger x succirubra)	25.0	...	...	...	25.0
Total ...	377.5	...	...	...	377.5

APPENDIX A(2).

Abstract of acreage with full complement of Cinchona in the Government Cinchona Plantations, Darjeeling District, on the 31st March 1921.

NAMES OF SPECIES.	NUMBER OF ACRES BEARING TREES OF—				Total acreage.
	0-5 years old.	6-10 years old.	11-15 years old.	16 years old and over.	
Cinchona Ledgeriana	1,874.0	624.9	...	...	2,498.9
" officinalis ...	51.0	96.0	9.5	...	156.5
" succirubra ...	25.0	31.1	...	42.5	98.6
" (Ledger x ... officinalis).	104.0	0.5	...	...	109.5
" (Ledger x ... succirubra).	281.5	88.2	...	3.0	372.7
Total ...	2,340.5	840.7	9.5	45.5	3,236.2

APPENDIX B.

Receipts for 1920-21.

TRANSACTIONS OF THE YEAR	SALES TO GOVERNMENT OFFICES AND INSTITUTIONS.		SALES TO THE PUBLIC FOR CASH PAYMENT.		Total.
	Cash sales.	Book credits.	In tablets.	In time in powder form to Native States, Municipal and Local Funds, Dispensaries, Missionary bodies and others.	
1	2	3	4	5	6
	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Quinine Sulphate ...	1,91,511 1	3,87,847 3	2,79,105 7 4	90,260 9 0	9,49,024 4 4
Quinine Hydrochloride ...	..	23,725 0	...	29 12 0	23,748 12 0
Cinchona Febrifuge ...	5,754 12	24,822 0	...	78,010 4 0	1,08,587 0 0
Cinchonidine Sulphate ...	116 0	...	...	15 0 0	131 0 0
Cinchonine Salts ...	...	...	...	14 1/2 0 0	144 0 0
Quinidine Sulphate ...	...	...	...	...	...
Quinidine ...	...	...	...	...	...
Residual alkaloids ...	...	...	...	...	...
Bark ...	2 0	...	...	2,330 4 0	2,332 4 0
Miscellaneous ...	...	...	...	521 13 0	521 13 0
Total ...	1,97,683 13	4,36,394 3	2,79,105 7 4	1,71,305 10 0	10,84,489 1 4

* This sum is half of Rs. 4,58,310-15-0 being value of 14,376 lbs of quinine sulphate sold in form of treatments. The remaining sum of Rs. 2,79,105-7-8 is credited to the Prison Department.

APPENDIX C(1).

Stock Account, 1920-21.

	QUININE SULPHATE.			QUININE HYDROCHLORIDE.		
	Quantity.	Rate per lb.	Value.	Quantity.	Rate per lb.	Value.
1	2	3	4	5	6	7
	lbs. oz.	Rs.	Rs. A. P.	lbs. oz.	Rs.	Rs. A. P.
Balance on 1st April 1920 ...	50,356 11	28	14,09,986 4 0	76 0	33	2,508 0 0
Purchased ...	...	...	...	...	...	...
Harvested ...	...	...	...	...	...	...
Used in Factory ...	...	...	...	...	...	...
Manufactured ...	23,984 12	8-32	1,99,553 0 0	386 0	8-32	3,211 8 0
Issued or sold ...	34,509 9	Various	9,49,024 4 4	395 10	Various	23,748 12 0
Balance on 31st March 1921	39,831 14	30	11,94,956 4 0	66 6	35	2,323 2 0

	QUINIDINE SULPHATE			CINCHONINE SALTS		
	Quantity.	Rate per lb.	Value.	Quantity.	Rate per lb.	Value.
1	2	3	4	5	6	7
	lbs. oz.	Rs.	Rs. A.	lbs. oz.	Rs.	Rs. A.
Balance on 1st April 1920 ...	13 12	12	165 0	46 0	14	644 0
Purchased ...	...	...	...	...	...	...
Harvested ...	...	...	...	...	...	...
Used in Factory ...	3 12	12	45 0	3 0	20	69 0
Manufactured ...	...	...	...	...	...	...
Issued or sold ...	...	...	...	8 0	18	144 0
Balance on 31st March 1921	10 0	30	300 0	35 0	20	700 0

APPENDIX C (1)—*contd.*

	CINCHONIDINE SALTS			QUINOIDINE.		
	Quantity	Rate per lb	Value	Quantity.	Rate per lb.	Value.
1	2	3	4	5	6	7
	lbs. oz.	Rs	Rs. A	lbs. oz.	Rs.	Rs. A
Balance on 1st April 1920 ...	15 0	11	165 0	4 0	4	16 0
Purchased ...	...	...	...	...	...	...
Harvested ...	...	...	...	...	...	...
Used in Factory ...	...	...	...	...	...	...
Manufactured ...	...	...	...	...	...	...
Issued or sold ...	9 2	various	131 0	...	...	...
Balance on 31st March 1921	5 14	20	117 8	4 0	4	16 0

	CINCHONA FEBRIFUGE			RESIDUAL ALKALOIDS.		
	Quantity.	Rate per lb.	Value.	Quantity.	Rate per lb	Value.
1	2	3	4	5	6	7
	lbs. oz	Rs. A	Rs. A	lbs	Rs A	Rs A
Balance on 1st April 1920 ...	3,323 12	5 0	16,619 0	331	4 0	1,324 0
Purchased ...	4 000 0	..	28,448 1	..	...	...
Harvested ...	...	...	...	...	...	...
Used in Factory ...	...	...	...	330	4 0	1,320 0
Manufactured ...	10,626 8	0 8	5,313 4	...	...	...
Issued or sold ...	14,935 8	various	1,08,587 0	...	...	...
Balance on 31st March 1921	3 014 12	8 0	24,118 0	1	4 0	4 0

* See Para. 6 per rates.

	CINCHONA BARK.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lbs.	Annas.	Rs. A. P.
Balance on 1st April 1920 ...	238 587*	various	1,25,666 0 0
Purchased ...	...	...	...
Harvested ...	501,018	various	94,457 0 0
Used in Factory ...	617,018	various	1,16,278 0 0
Manufactured ...	...	...	...
Issued or sold ...	4,664	various	2,332 4 0
Balance on 31st March 1921	117,923	8	58,961 8 0

* Miscalculation in report for 1919-20 corrected

v

APPENDIX C (1)—*concl.*

	OIL.			CHEMICALS AND STORES.	GRAND TOTAL.
	Quantity	Rate per gallon.	Value.	Value.	Value.
1	2	3	4	5	6
	Gallons.	Rs.	Rs. A.	Rs. A. P.	Rs A. P.
Balance on 1st April 1920	14,000	741	10,374 0	12,975 10 3	15,80,442 14 3
Purchased ...	13,000	Various	8,445 8	36,511 1 8	73,404 5 8
Harvested ...	...	...	...	...	94,457 0 0
Used in Factory ...	16,000	Various	12,158 0	25,736 11 11	1,56,597 0 0
Manufactured ...	...	...	...	...	2,08,077 12 0
Issued or sold ...	...	...	...	521 13 0	10,84,489 1 4
Balance on 31st March 1921	11,000	Various	7,145 12	22,750 0 0	13,11,392 2 0

APPENDIX C (2).

Detailed Stock Account of Barks for 1920-21.

	CINCHONA LEDGERIANA.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lb.	Annas.	Rs. A.
Balance on 1st April 1920	... *145,687	Various ...	82,588 0
Harvested ...	... 381,059	Do. ...	72,644 0
Used in Factory ...	... 478,421.5	Do. ...	89,523 0
Balance on 31st March 1921	... 48,324.5	8 ...	24,162 4

* Miscalculation in report for 1919-20 corrected.

	CINCHONA OFFICINALIS.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lb.	Annas.	Rs. A.
Balance on 1st April 1920	... 16,841	7.8	8,210 0
Harvested ...	... 23,440	2.7	4,799 0
Used in Factory ...	... 30,678	2.7	5,177 0
Balance on 31st March 1921	... 14,603	8.0	7,301 8

APPENDIX C (2)—concl'd.

Detailed Stock Account of Barks for 1920-21.

	CINCHONA SUCCIRUBRA.		
	Quantity	Rate per lb.	Value.
1	2	3	4
	lbs.	Annas.	Rs. A.
Balance 1st April 1920 ...	8,972	3 72	2,085 0
Harvested ...	14,456	* Various	2,887 0
Used in factory ...	.....	.....	.....
Sold ...	4,664 5	Various	2,332 4
Balance on 31st March 1921 ...	18,763 5	8	9,381 12

	CINCHONA (LEDGER X SUCCIRUBRA).		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lbs.	Annas.	Rs.
Balance on 1st April 1920 ...	67,087	* Various	32,783
Harvested ...	76,743	Various	14,073
Used in factory ...	107,598	Various	21,524
Balance on 31st March 1921 ...	36,232	8	18,116

	CINCHONA (LEDGER X OFFICINALIS).		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lbs.	Annas.	Rs.
Balance on 1st April 1920 ...	...	.....	.....
Harvested ...	320	2 7	54
Used in factory ...	320	2 7	54
Balance on 31st March 1921 ...	...	.....	.....

* 86 annas per lb for Mungpoo and 2 7 annas for Mungsong bark

APPENDIX D.

Expenditure for 1920-21.

I—PLANTATIONS ACCOUNT.

A.—MUNGPOO PLANTATION.

Salaries.

		Rs.	A.	P.
1. Manager and Assistant Manager	...	4,010	0	0
2. Overseers	... ..	3,239	0	0
3. Duty allowance	... ..	1,150	0	0
4. Exchange Compensation allowance	... ..	.....

Establishment.

5. Clerks	... ..	.....
6. Sub-Assistant Surgeon	... ..	1,112	8	0
7. Artificers	... ..	282	0	0
8. Sirdars and coolies	... ..	56,444	9	0

Allowances.

9. Travelling allowance	... ..	123	12	0
10. Pony allowances	... ..	720	0	0
11. Compensation for dearness of provisions	... ..	16	0	0

Supplies and Services.

12. Purchase and keep of ponies and bullocks	... ..	1,930	8	0
13. Purchase of manure	... ..	.....
14. Purchase of seeds	... ..	.....
15. Carriage charges	... ..	.....
16. European stores	... ..	2,112	13	4
17. Freight	... ..	77	13	0
18. Buildings	... ..	1,552	12	0
19. Machinery and plant	... ..	.....
20. Miscellaneous	... ..	1,655	0	0

Contingencies.

21. Office expenses and miscellaneous	... ..	2,750	2	0
22. Servants' clothing		
23. Labour of mallies	1,864	10	0

Total Mungpoo charges	79,121	7	4
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B.—MUNSONG PLANTATION.

Salaries.

1. Manager and Assistant Managers	5,279	10	9
2. Overseers	... ..	4,465	14	9
3. Duty allowance	... ..	1,150	0	0
4. Exchange Compensation allowance	... ..	.....

Establishment.

5. Clerks	... ..	.....
6. Sub-Assistant Surgeon	... ..	1,100	13	1
7. Artificers	... ..	.....
8. Sirdars and coolies	... ..	88,500	0	0

Allowances.

9. Travelling allowance	... ..	182	12	6
10. Pony allowances	... ..	761	10	0
11. Compensation for dearness of provisions	... ..	12	0	0

Supplies and Services.

	Rs.	A.	P.
12. Purchase and keep of ponies and bullocks	3,090	0	0
13. Purchase of manure ... ..	.....	
14. Purchase of seed ... ..	.....	
15. Carriage charges	4,406	9	0
16. European stores	3,072	5	4
17. Freight	53	14	0
18. Buildings	314	11	9
19. Machinery and plant ... ..	.....	
20. Miscellaneous	386	4	0

Contingencies.

21. Afforestation charges ... ..	.....	
22. Office expenses and miscellaneous	55	7	0
23. Servants' clothing ... ..	.....	
Total Munsong charges	<u>1,12,832</u>	<u>0</u>	<u>2</u>
Total for both plantations	<u>1,91,953</u>	<u>7</u>	<u>6</u>

II.—FACTORY ACCOUNT.

Salaries.

1. Quinologist	14,750	0	0
2. Assistant Quinologist	991	10	8
3. Manufacturing Chemist ... ..	.....	

Establishment.

4. Clerks	616	0	0
5. Servants ... ..	.....	
6. Artificers ... ..	.....	
7. Sirdars and coolies	6,092	14	3

Allowances.

8. Travelling allowance	82	2	6
9. Compensation for dearness of provisions ... ..	.....	

Supplies and Services.

10. Purchase of machinery .. ..	.....	
11. Buildings	6,415	12	0
12. European stores	22,633	10	8
13. Freight	3,404	4	0
14. Chemicals	18,918	6	0
15. Fuel (Carriage and cutting up only)	11,399	2	9
16. Purchase of bark (carriage only)	500	3	0
17. Purchase of Cinchona Febrifuge	28,488	1	0
18. Packing materials	3,543	3	6
19. Distribution charges	422	9	0
20. Miscellaneous	402	13	9

Contingencies.

21. Servants' clothing ... ..	.....	
22. Office expenses and miscellaneous	1,148	0	0
Total factory charges	<u>1,19,768</u>	<u>13</u>	<u>1</u>

III.—GENERAL.

Salaries.

				Rs.	A.	P.
1. Superintendent	...	...	...	2,400	0	0

Establishment.

2. Clerks	...	...	...	5,918	15	6
3. Servants	...	...	...	153	1	0

Allowances.

4. Travelling allowance	...	...	...	...	...	...
5. Compensation for dearness of provisions	...	...	...	3	0	0

Supplies and Services.

6. Miscellaneous
------------------	-----	-----	-----	-----	-----	-----

Contingencies.

7. Postage and telegrams	...	...	...	300	0	0
8. Office expenses and miscellaneous	...	...	...	...	...	...
9. Advertising charges	...	...	...	...	...	...
10. Subscriptions to newspapers and periodicals	...	...	...	...	...	...
11. Purchase and repair of furniture
12. Road and Public Works Cess	1,814	0	0

Total general charges	10,589	0	6
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Abstract.

Total Mungpoo charges	79,121	7	4
" Munsong	1,12,832	0	2
" Factory	1,19,768	13	1
" General	...	...	...	10,589	0	6
GRAND TOTAL EXPENDITURE	...	...	...	3,22,311	5	1

APPENDIX E.

Profit and Loss Valuation, 1920-21.

		Amount.				Amount.		
1	2	3	4	5	6	7	8	
		Rs.	A. P.			Rs.	A. P.	
To—				By—				
Stock on 1st April 1920	15,80,442	14	3	Arrears recovered	...	4,735	12	0
Outstandings on 1st April 1920	4,735	12	0	Sales during the year	...	10,84,489	1	4
Expenditure (less Rs. 50,000 capital expenditure).	2,92,311	5	1	Outstandings on 31st March 1921.	...	8,523	4	0
Depreciation on buildings	3,200	3	5	Gain on revaluation of plantations—				
Ditto on machinery	3,719	13	10	Cinchona trees	...	1,84,184	9	2
Balance (profit)	7,08,914	11	11	Timber trees	...	...	...	...
				Stock on 31st March 1921	...	13,11,392	2	0
Total	25,93,324	12	6	Total	...	25,93,324	12	6

APPENDIX F.

Block Account, 1920-21.

I—Mungpoo Plantation.

To—	Rs.	A.	By—	Rs.	A.
Value of buildings on 1st April 1920 ...	29,483	0	Depreciation on buildings at 2½ per cent. ...	737	0
Machinery (Sirocco driers) ...	1,083	0	Value of buildings on 31st March 1921 ...	28,746	0
Value of plantation on 1st April 1920—			Depreciation on machinery at 5 per cent. ...	54	0
Cinchona trees ...	2,51,064	0	Value of machinery on 31st March 1921 ...	1,029	0
Timber trees ...	2,69,833	0	Value of plantation on 31st March 1921—		
Gain on revaluation of plantation at end of 1920-21 (extensions for the year excluded)—			Cinchona trees ...	3,30,304	0
Cinchona trees ...	69,119	0	Timber trees ...	2,69,833	0
Timber trees ...	.....			
Value of extensions at cost made in 1920-21—					
Cinchona trees ...	10,121	0			
Timber trees ...	...			
Total ...	6,30,703	0	Total ...	6,30,703	0

II—Munsong Plantation.

To—	Rs.	A.	By—	Rs.	A.
Value of buildings on 1st April 1920 ...	37,774	6 10	Depreciation on buildings at 2½ per cent. ...	944	5 9
Value of plantation on 1st April 1920—			Value of buildings on 31st March 1921 ...	36,830	1 1
Cinchona trees ...	13,81,826	0 0	Value of plantation on 31st March 1921—		
Timber trees ...	7,370	0 0	Cinchona trees ...	15,15,791	9 2
Gain on revaluation of plantation at end of 1920-21 (extensions for the year excluded)—			Timber trees ...	7,370	0 0
Cinchona trees ...	1,15,065	9 2			
Timber trees ...	.....			
Value of extensions at cost made in 1920-21—					
Cinchona trees ...	18,900	0 0			
Timber trees ...	.....			
Total ...	15,60,936	0 0	Total ...	15,60,936	0 0

III—Factory.

To—	Rs.	A.	P.	By—	Rs.	A.	P.
Value of buildings on 1st April 1920 ...	60,754	4	0	Depreciation on buildings at 2½ per cent. ...	1,518	13	8
Value of machinery on 1st April 1920 ...	73,317	5	7	By value of buildings on 31st March 1921 ...	59,235	6	4
				Depreciation on machinery at 5 per cent. ...	3,665	13	10
				Value of machinery on 31st March 1921 ...	69,651	7	9
Total ...	1,34,071	9	7	Total ...	1,34,071	9	7

Value of cinchona trees Rs. 18,46,066, of timber trees Rs. 2,77,208, of buildings Rs. 1,24,811, of machinery Rs. 70,650. Total value Rs. 22,18,735.

APPENDIX G.**

Comparative Statement of Sales of Factory Products for 1919-20 and 1920-21.

PARTICULARS.	1919-20.						1920-21.					
	Quinine sulphate and quinine by arcobolates.	Cinchonidine and cinchonine sulphate.	Cinchona febrifuge.	Quinacrine and quinidine.	Residual alkaloid.	Total.	Quinine sulphate and quinine by arcobolates.	Cinchonidine and cinchonine sulphate.	Cinchona febrifuge.	Quinacrine and quinidine.	Residual alkaloid.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13
GOVERNMENT OFFICERS AND INSTITUTIONS.												
<i>Assam.</i>												
Inspector-General of Civil Hospitals	888 0	...	...	...	...	888 0	502 4	6 0	126 12	...	...	626 0
Ditto of Prisons	...	...	...	...	...	...	...	...	...	...	...	...
Others	88 8	...	...	...	...	92 8	20 8	...	...	...	...	20 8
<i>Bengal.</i>												
Surgeon-General	6,042 12	...	...	...	94	6,128 10	4,470 7	...	1,168 0	...	...	5,638 7
Inspector-General of Prisons	715 0	...	...	...	...	715 0	518 12	...	2 0	...	...	520 12
Medical Depot	4,615 0	...	...	...	...	4,615 0	6,095 0	...	...	...	...	6,045 0
Others	562 12	...	...	...	616	1,208 12	674 0	...	...	...	...	674 0
<i>Bihar and Orissa.</i>												
Inspector-General of Civil Hospitals	1,326 8	...	...	...	...	1,326 8	1,373 8	1 0	107 0	...	...	1,481 8
Ditto of Prisons	80 0	...	...	...	...	80 0	85 0	...	...	...	...	85 0
Others	504 2	...	...	...	10	214 2	166 0	...	...	...	...	186 0
<i>Bombay.</i>												
Medical Depot	...	...	...	...	178	676 8	280 0	...	...	...	...	280 0
Others	498 6	...	...	...	...	...	...	...	...	...	...	...
<i>Punjab.</i>												
Inspector-General of Civil Hospitals	2,334 8	...	...	...	209	2,642 8	1,289 0	...	211 0	...	...	1,500 0
Ditto of Central Jail	6,976 0	...	...	...	...	6,976 0	2,227 0	...	...	...	...	2,227 0
Ditto of Prisons	700 0	...	...	...	...	700 0	580 0	...	...	...	...	580 0
Medical Depot	27,000 0	...	...	...	5	27,000 0	...	...	...	...	...	...
Others	829 8	...	...	6 8	5	841 0	1,347 12	...	...	...	...	1,347 12
GENERAL PUBLIC.												
Assam	...	...	298 8	...	...	298 8	...	...	220 12	...	...	...
Bengal	...	...	11,707 12	...	...	23,541 12	14,375 0	...	7,083 4	...	...	31,938 12
Bihar and Orissa	10,830 0	4 0	...	...	...	287 12	...	...	280 12	...	...	...
Punjab	...	6 0	176 0	...	...	2,181 0	...	...	879 0	...	...	273 0
Other Provinces	...	...	5,523 8	...	...	5,523 8	...	2 0	2,371 0	...	...	5,272 0
Total	63,440 9	10 0	16,202 8	8 8	1,215	80,874 9	84,908 1	9 0	14,928 8	...	...	49,868 9

APPENDIX H.**

Sale of Factory Products to Provincial Dispensaries during 1919-20.

PARTICULARS.	Sulphate quinine.	Cinchona febrifuge.	Residual alkaloid.	Quinidine.	Cinchonine sulphate.	Cinchonidine sulphate.	Quinacrine.	Cinchonine dihydrochloride.	Quinine hydrochloride.	Total.
1	2	3	4	5	6	7	8	9	10	11
Dispensaries—	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
Bengal	4,470 7	1,168 0	...	...	...	...	...	8 0	...	...
Bihar and Orissa	1,373 3	107 0	...	...	...	1 0	...	...	...	...
Assam	502 4	126 12	...	...	...	6 0	...	...	...	...
Bombay	...	43 0	...	...	...	...	...	...	...	...
Madras	...	6 0	...	...	0 2	0 2	...	...	...	...
Burma	...	0 12	...	...	...	...	...	...	...	...
United Provinces	47 1	11 0	...	...	...	...	...	...	...	...
Punjab	1,269 0	211 0	...	...	...	...	...	...	...	...
Central Provinces	25 2	5 0	...	...	...	2 0	...	...	...	...
Native States	1,347 12	1,173 12	...	...	...	...	...	...	...	...
Medical Missions	1,015 12	1,236 8	...	...	...	...	...	0 10	...	...
Total	10,070 12	4,088 12	...	...	0 2	9 2	...	8 0	0 10	...

** Appendices G and H supplied by the Superintendent of the Juvenile Jail, Alipore.

APPENDIX I.

Sale of Sulphate of quinine in "treatment" tablets during 1920-21.

Consecutive No.	MONTHS	Total proceeds from sale of tablets	Credited to Cinchona Department at half rate
1	2	3	4
	1920.	Rs. A P.	Rs. A P.
1	April	26,077 8 0	13,038 12 0
2	May	32,684 13 0	16,342 6 6
3	June	50,569 7 0	25,284 11 6
4	July	39,205 11 6	19,602 13 9
5	August	61,814 10 3	30,907 5 1
6	September	56,375 4 9	28,187 10 4
7	October	37,763 8 6	18,881 12 3
8	November	84,003 2 0	42,001 9 0
9	December	43,159 8 0	21,579 12 0
	1921.		
10	January	29,176 0 9	14,588 0 4
11	February	66,683 1 6	33,341 8 9
12	March	30,698 3 9	15,349 1 10
	Total	5,58,210 15 0	2,79,105 7 4

* Supplied by the Accountant-General, Bengal

SIXTIETH ANNUAL REPORT

OF THE

**GOVERNMENT CINCHONA PLANTATIONS
AND FACTORY IN BENGAL**

FOR THE YEAR

1921-22.



CALCUTTA :

The Bengal Secretariat Book Depot.

1922.

[Maximum limit 4 pages.]

SIXTIETH ANNUAL REPORT
OF THE
GOVERNMENT CINCHONA PLANTATIONS AND FACTORY IN BENGAL
FOR THE YEAR
1921-22.

1. **General.**—The last six months of the year under review were characterised by great drought. From the end of September 1921 to the end of March 1922 only 2·86 inches of rain fell on Mungpoo plantation and scarcely any on Munsong, with the result that almost every stream had run dry before the end of the financial year and great difficulty was experienced in supplying water to the nurseries, gangs of coolies having to be employed to carry water from a distance. The factory had to cease working early in March from lack of water to drive the turbines and later on even the supply to the laboratory failed. On Munsong, where the normal rainfall is considerably less than on Mungpoo, the drought played havoc with the young plants planted out last year, and extensions there were under the circumstances out of the question.

On Mungpoo Mr. Osborne, the Manager, experimented with green manures and various species of shade plants, but definite conclusions cannot yet be formulated. An attempt was also made on a small scale to plant in the autumn, before the end of the rains, seedlings that had been sufficiently developed during the rains by transplanting from seed beds at once into field nurseries with the seedlings 4 inches by 4 inches apart. The extraordinary drought that followed of course completely annulled the experiment. The boring beetle and *Helopeltis* pests gave considerable trouble, but were countered by burning the affected wood, after denuding it of bark, in the one case, and by clean cultivation combined with handpicking in the other. The percentage of quinine in plantation bark continues to rise, especially in the Ledger bark. In actual factory working Mungpoo Ledger has, on the year's harvest, yielded an average of 5·53 per cent. of quinine sulphate. As the average yield of the Java bark worked up during the year on behalf of the Government of India is 5·73 per cent. Mungpoo Ledger lags little behind such Java bark. The average yield of Munsong Ledger was 4·86 of quinine sulphate. This at first sight compares unfavourably with the Mungpoo percentage, but it has to be borne in mind that the Munsong bark, being entirely from "coppiced" blocks, contains none of the richer root bark which is contained in the Mungpoo harvest. The mixture of root, stem and branch bark derived from a considerable number of trees uprooted, for purposes of block valuation, from 5 to 6 years old blocks, on Munsong, have yielded from 5 to 6 per cent. of quinine. There is therefore good reason to suppose that, when the coppiced areas are again harvested and the root bark then collected, the Munsong percentage will approximate to that of Mungpoo.

The quinine percentage of the hybrid bark of *Cinchona Ledgeriana* X *succirubra* varies from 3·81 to 3·91. This is a decided increase over the average percentage yielded in past years, but is still inferior to the Ledger yield. The hybrid has, so far, despite continuous seed selection for over the last dozen years, failed to respond to the degree hoped for as regards improvement in quinine percentage. To a certain extent it makes up for this by its more robust habit and somewhat greater yield of bark. Being a more robust plant than *C. Ledgeriana*, it can be cultivated in parts of the plantations where pure Ledger would not be likely to hold out, and to that extent the hybrid is worth keeping in cultivation. The total acreage under

the hybrid is about a ninth of the total acreage under Cinchona. In this connexion it may be of interest to note that on the Dutch Government plantations in Java this hybrid forms only about one-fortieth of the total number of cinchona trees in cultivation.

The general quinine situation is still controlled by the Dutch Combine. Although at the end of 1921 the wholesale rate fell from the equivalent of Rs. 48 to Rs. 36 per pound, it is still thrice the immediate pre-war rate. One result of the relatively high price of quinine has been to direct attention in various parts of the world to the possibility of introducing the cultivation of Cinchona. Applications for seed and information as to conditions and methods of cultivation have been received from such widely separated places as Kashmir, Rhodesia, Nyasaland and New Guinea, and seed and information have been supplied. Another result has been a great increase in the consumption of cinchona febrifuge. From 1875 to 1887 this was the sole product manufactured, reaching its greatest output in 1881-82, when nearly 11,000 lbs. were issued. Although the two Commissions appointed by Government in the sixties of last century to investigate the therapeutic values of the cinchona derivatives had concluded that cinchona febrifuge, which was then a mixture of the alkaloids of *Cinchona succirubra*, gave as good results as quinine in the treatment of malaria and had then the advantage of being vastly cheaper than quinine, yet popular opinion and the medical profession generally began latterly to entertain a prejudice against it or at least a preference for quinine. Quinine was also favoured by the steady fall in its price from over Rs. 160 in the seventies of last century to Rs. 8 per lb. in 1910, and by 1912-13 sales of cinchona febrifuge had fallen to almost 1,600 lbs. The Cinchona Department had to adjust itself to this change by cultivating less and less of *C. succirubra*, the source of the original cinchona febrifuge, and more and more of *C. Ledgeriana*, the quinine-yielding species. From 1903 the small demand that still existed for cinchona febrifuge was met by utilising the residue of mixed alkaloids, including a proportion of quinine, left after the extraction of quinine from *C. Ledgeriana*. A small acreage of *C. succirubra*, at present amounting almost to 90 acres, has however all along been kept in cultivation, so as to ensure the possibility of its cultivation being extended when the merits of its mixed alkaloids were rediscovered by the medical profession in general.

A good few years ago, when the relative merits of cinchona febrifuge and quinine were under discussion by the Government of India, the writer of this report advocated the extension of *Cinchona succirubra* as a source of an increased supply of cinchona febrifuge, not to supplant but to supplement the supply of quinine. The prejudice or preference already mentioned, however, was still too strong and no encouragement was forthcoming. There is now reason to suppose that the advocacy would meet with support, for the researches of Major H. W. Acton, I.M.S., into the chemistry and therapeutics of the cinchona derivatives go to show that in the milder attacks of malaria constituting a large proportion of cases, cinchona febrifuge is as efficacious as, if not more so than, quinine and confirm, on a much broader basis of investigation the views held on purely clinical experience by distinguished officers of the Indian Medical Service in the sixties and seventies of the last century. The average annual sale of cinchona febrifuge for the last five years is almost 14,190 lbs. or eight times as much as in 1912-13, and much in excess of the maximum ever issued when it was the sole factory product. It is impossible for the Cinchona Department to meet this demand merely by the by-products of the manufacture of quinine from *Cinchona Ledgeriana*. If the demand continues at the present rate or increases, it would be necessary to extend the cultivation of *C. succirubra*. This extension the Cinchona Department is prepared to undertake if the medical profession is likely to return to the use of cinchona febrifuge on a fairly extensive scale. It should however be remembered that Cinchona is not an annual crop and that the Cinchona Department does not possess a magic wand to wave over a few hundred acres of land and make a forest of red bark trees spring up instantaneously.

2. **Extensions, Acreages and Crops.**—(1) *Mungpoo*.—Rainfall, confined to the first half of the year, was 113.38 inches. Extensions were 70 acres of

C. Ledgeriana. The harvest was got by cutting out 29.5 acres (26.8 *C. Ledgeriana*, 2 *C. Ledger × succirubra*, 0.7 *C. succirubra*) and amounted to 180,502 lbs. The average age of the acreage cut out was 7 years, so that the total average yield per acre over that period is 6,118 lbs. This is the highest yield ever given by the Bengal plantations and considerably exceeds the highest estimate so far entertained for a period of even 10 years. At the end of March 1922 there were 851 acres with a full complement of Cinchona. Near Rungbee 60 acres that had been cleared of Cinchona were planted with mixed fuel and timber trees.

(b) **Munsong**.—Rainfall was only 85.83 inches, almost entirely confined to the first half of the year. Owing to the abnormal conditions already mentioned extensions were held in abeyance and work concentrated on filling in the large number of vacancies caused by the drought in the previous year's planting. The harvest was got by coppicing 261 acres and amounted to 394,560 lbs. of which 304,560 lbs., were *C. Ledgeriana*. The average age of the acreage cut out was 7 years, and the average yield per acre in terms of completely cut out acreages was 2,650 lbs. At the end of the year the total acreage under a full complement of Cinchona was 2,277 acres. About 48 acres of cleared land were planted with fuel and timber trees.

(c) **Plantations as a whole**.—The total area under cinchona is 3,128 acres, of which about two-thirds are under six years of age.

3. **Factory work**.—The factory used up 510,160 lbs. of bark (233,914 of Mungpoo and 276,246 of Munsong) and produced 22,713 lbs. quinine sulphate, 6,712 lbs. cinchona febrifuge, 17½ lbs. quinine hydrochloride and 4 lbs. cinchonidine sulphate or a total of 29,446½ lbs. In addition it produced from the Java bark purchased by the Government of India 21,541 lbs. quinine sulphate and 5,976 lbs. cinchona febrifuge. The total production of quinine sulphate, both provincial and imperial, was 44,254 lbs. and total products from all sources 56,963½ lbs. The yield of quinine sulphate is about equal to 91 per cent. of the bark contents as determined by analysis.

4. **Cost and value of plantation bark**.—The Mungpoo harvest of 180,502 lbs. at 3.6 annas per lb. cost Rs. 40,613. Its value on its average quinine percentage of 5.4 and a unit rate of 1.5 anna is Rs. 91,379. In other words, the value of the produce of 29½ acres cut out more than covers the entire expenditure during the year on the whole plantation of 851 acres of cinchona and over 3,000 acres of afforested land. The Munsong harvest of 394,560 lbs. at 2.7 annas per lb. cost Rs. 66,582. Its value on its average quinine percentage of 4.74 and unit rate as above is Rs. 1,75,332 which much more than covers the year's expenditure on the whole plantation. The total cost of the harvest was Rs. 1,07,195 and its value Rs. 2,66,711.

5. **Cost and value of quinine produced**—(a) **Cost in the bark**.—The 22,713 lbs. of quinine extracted were contained in 510,160 lbs. of mixed Mungpoo and Munsong barks, which cost (233,914 lbs. at 3.6 annas and 276,246 at 2.7 annas per lb.) Rs. 99,247. The cost per lb. of quinine in the bark was therefore Rs. 4.36.

(b) **Cost of extraction, packing and delivery to railway**.—The gross charges are the total direct expenditure on the factory (Appendix D) plus its share of the general charges and depreciation for machinery and buildings, in all Rs. 1,23,689-8. From this have to be deducted Rs. 40,352-11, made up of Rs. 25,376, the cost of extracting 12,688 lbs. of cinchona febrifuge, both provincial and imperial, at Rs. 2 per lb. and Rs. 14,976-11, the cost of chemicals, oil and stores purchased during the year but not used up. Net charges are therefore Rs. 83,336-13, which cover the extraction of 44,254 lbs. of quinine, both provincial and imperial. The extraction rate is therefore rather less than, but taken at, Rs. 2 per lb. This is a big drop from Rs. 3.56, the cost last year, and is due to the much larger output of quinine in 1921-22.

(c) **Total cost per lb. and value**.—Total cost is Rs. 4.36 plus Rs. 2 or Rs. 6.36 per lb. At Rs. 36, the present wholesale rate, the 22,713 lbs. of provincial quinine manufactured is worth Rs. 8,17,668, but cost only Rs. 1,44,454.

6. **Sales and selling rates**.—The sales are shown in tabular form in Appendix G. In that table the total quantity of quinine does not include 37 lbs. issued direct from the factory to the plantation dispensaries and as samples. On the other hand, the quantity of cinchona febrifuge, 13,188 lbs.

8 oz. includes, in addition to the total output of the factory from provincial bark, 5,376½ lbs. extracted from Government of India bark and 1,100 lbs. purchased by the Public Health Department direct from the Madras Cinchona Department. Rates were for quinine Rs. 48 to Rs. 50 per lb. for the first eleven months of the year, thereafter Rs. 36 to Rs. 38 per lb. For cinchona febrifuge the rates were respectively Rs. 10 to Rs. 12 and Rs. 8 to Rs. 10 per lb. for the same periods. Quinine in tablet form was sold at the rate of Rs. 43½ per lb.

7. **Expenditure and receipts.**—The total expenditure on the department was Rs. 3,33,514-3. The total receipts, including Rs. 179-12 received direct, were Rs. 15,40,613-2-8, of which Rs. 5,88,848-8 were credit and Rs. 9,51,764-10-8 cash. Of the latter Rs. 2,60,244-7-6, being half the sum realised from the sale of quinine treatments, were credited to the Prisons Department, in accordance with the orders issued in 1918, to meet the charges incurred by the Prisons Department in connexion with the conversion of purified quinine into treatments and the distribution of the latter. In 1918-19 the Prisons Department was credited with Rs. 1,65,180-2 to meet charges in connexion with the conversion and distribution of 12,773 lbs. 14 oz. purified quinine, which works out at almost Rs. 13 per lb. as against Rs. 6'85, the then cost of manufacture per lb. of the purified quinine. For 1921-22 the Prisons Department has been credited with Rs. 2,60,244-7-6 to meet charges in connexion with the conversion and distribution of 11,042 lbs. of pure quinine, which works out at Rs. 23½ per lb. as against Rs. 6'36 per lb. for manufacture of the same, including packing and distribution to the railway. Deducting this amount and crediting the Cinchona Department only with that proportion of the total receipts shown in Appendix B as receipts for the sale of cinchona febrifuge corresponding to the total amount manufactured during the year, the net receipts come out at Rs. 12,15,609-7-2 and the surplus at Rs. 8,82,095-4-2.

8. **Quinine reserve and stock account.**—The reserve had sunk at the end of the year to 28,538 lbs. 6 oz. In the stock account the mistake of including in the provincial stock cinchona febrifuge belonging to the Government of India, which originated with the closing balance of stock of this drug in the report for 1919-20, has been corrected. The total value of stock at the end of the year was Rs. 9,70,441-10-5, of which quinine worth at least Rs. 8,56,151-4 was the chief item.

9. **Block account.**—The cinchona trees were revalued at a rate lower by 25 per cent. than last year's rate to correspond with the reduction in the price of quinine. This has more than counterbalanced the bark increment of the year, so that the plantations are taken at last year's value less Rs. 74,894. See Appendix F for details.

10. **Profit and loss valuation.**—This is shown in Appendix E. There is a valuation profit balance of Rs. 5,13,691-0-3.

11. **Land rent.**—The rent collected from settlers on Mungpoo was Rs. 5,062-14 paid into the Darjeeling Treasury. The grazing fees collected on Munsong were Rs. 952-5-6 paid into the Kalimpong Sub-Treasury to the credit of the Forest Department.

12. **Staff.**—For the first time for a good number of years the staff of the department from near the end of the year has been almost at full strength. It would take up too much space to enumerate the entire staff and the various internal changes in postings. Sufficient to state that all the executive officers of both factory and plantations have worked with their customary praiseworthy goodwill and energy to which the prosperous condition of the department bears witness.

13. **Medicinal plants other than Cinchona.**—The number of *Ipecacuanha* plants has now increased to almost 113,000. It is proposed to begin the experimental extraction of Emetine during the coming year. The crop of *Digitalis* was 1,200 lbs. of dry leaf.

A. T. GAGE, LIEUT.-COL., I.M.S.,
 Superintendent, Royal Botanic Garden, Calcutta,
 and of Cinchona Cultivation in Bengal.

APPENDIX C (2)—concl'd.

Detailed Stock Account of Barks for 1921-22.

	CINCHONA SUCCIRUBRA.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
Balance on 1st April 1921	...		
Harvested	...		
Used in factory	...		
Sold	...		
Balance on 31st March 1922	...		

	CINCHONA (LEDGER × SUCCIRUBRA).		
	Quantity.	Rate per lb.	Value.
1	2	3	4
Balance on 1st April 1921	...		
Harvested	...		
Used in factory	...		
Balance on 31st March 1922	...		

	CINCHONA (LEDGER × OFFICINALIS).		
	Quantity.	Rate per lb.	Value.
1	2	3	4
Balance on 1st April 1921	...		
Harvested	...		
Used in factory	...		
Balance on 31st March 1922	...		

* 8-6 annas per lb. for Mungpo and 7-0 annas for Mubong bark.

v

APPENDIX C (1)—concl'd.

	OIL.			CHEMICALS AND STORES	GRAND TOTAL
	Quantity.	Rate per gallon.	Value.	Value.	Value
1	2	3	4	5	6
Balance on 1st April 1921					
Purchased ...					
Harvested ...					
Used in factory ...					
Manufactured ...					
Issued or sold ...					
Balance on 31st March 1922					

* Value of 3 014½ lbs. cinchona febrifuge incorrectly shown as balance belonging to the Government of Bengal in last year's report deducted. See paragraph 8
 † See paragraph 7.

APPENDIX C (2).

Detailed Stock Account of Barks for 1921-22.

	CINCHONA LEDGERIANA.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
Balance on 1st April 1921			
Harvested ...			
Used in factory ...			
Balance on 31st March 1922			

* 36 annas for Mungpoo bark and 27 annas for Munsong bark

	CINCHONA OFFICINALIS.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
Balance on 1st April 1921			
Harvested ...			
Used in factory ...			
Balance on 31st March 1922			

APPENDIX C. (1).—contd.

	CINCHONIDINE SALTS.			QUINOIDINE		
	Quantity	Rate per lb	Value.	Quantity.	Rate per lb	Value.
1	2	3	4	5	6	7
Balance on 1st April 1921 ...						
Purchased ...						
Harvested ...						
Used in factory ...						
Manufactured ...						
Issued or sold ...						
Balance on 31st March 1922						

	CINCHONA FEBRIFUGA.			RESIDUAL ALKALOIDS.		
	Quantity.	Rate per lb.	Value.	Quantity	Rate per lb.	Value
1	2	3	4	5	6	7
Balance on 1st April 1921 ...						
Purchased ...						
Harvested ...						
Used in factory ...						
Manufactured ...						
Issued or sold ...						
Balance on 31st March 1922						

* See paragraph 8 of the report.

	CINCHONA BARK.		
	Quantity.	Rate per lb.	Value.
	2	3	4
Balance on 1st April 1921 ...			
Purchased ...			
Harvested ...			
Used in factory ...			
Manufactured ...			
Issued or sold ...			
Balance on 31st March 1922			

† 26 annas per Mungpoo bark and 27 annas per Munsong bark.

APPENDIX B:

Receipts for 1921-22.

TRANSACTIONS OF THE YEAR.	SALES TO GOVERNMENT OFFICES AND INSTITUTIONS.		SALES TO THE PUBLIC FOR CASH PAYMENT.		Total.
	Cash sales.	Book credits.	In tablets.	In tins in powder form to Native States, Municipal and Local Funds, Dispensaries, Missionary bodies and others.	
1	2	3	4	5	6
Quinine Sulphate ...					
Quinine Hydrochloride ...					
Cinchona Febrifuge ...					
Cinchonidine Sulphate ...					
Cinchonine Salts ...					
Quinidine Sulphate ...					
Quinidine ...					
Residual alkaloids ...					
Bark ...					
Miscellaneous ...					
Total ...					

* This sum is half of Rs. 5,20,488-14-8 being value of 11,042 lbs. of quinine sulphate sold in form of treatments. The remaining sum of Rs. 2,60,244-7-6 is credited to the Prison Department
 † See paragraph 7.

APPENDIX C(1).

Stock Account, 1921-22.

	QUININE SULPHATE.			QUININE HYDROCHLORIDE.		
	Quantity.	Rate per lb.	Value.	Quantity.	Rate per lb.	Value.
1	2	3	4	5	6	7
Balance on 1st April 1921						
Purchased ...						
Harvested ...						
Used in factory						
Manufactured						
Issued or sold						
Balance on 31st March 1922						

	QUINIDINE SULPHATE.			CINCHONINE SALTS		
	Quantity.	Rate per lb.	Value.	Quantity.	Rate per lb.	Value.
1	2	3	4	5	6	7
Balance on 1st April 1921						
Purchased ...						
Harvested ...						
Used in factory						
Manufactured						
Issued or sold						
Balance on 31st March 1922						

* See paragraph 5 for selling rates.



SIXTY-FIRST ANNUAL REPORT

OF THE

**GOVERNMENT CINCHONA PLANTATIONS
AND FACTORY IN BENGAL**

FOR THE YEAR

1922-23.

CALCUTTA :
THE BENGAL SECRETARIAT BOOK DEPOT.
1923.

SIXTY-FIRST ANNUAL REPORT

OF THE

GOVERNMENT CINCHONA PLANTATIONS AND FACTORY IN BENGAL

FOR THE YEAR

1922-23.

1. **General.**—The drought referred to as prevailing at the end of the last financial year continued into April and May and was responsible for considerable damage to young plants on the drier ridges of Mungpoo. Towards the end of the year under review similar conditions prevailed involving the stoppage of the factory for a short time due to water from the catchment area being insufficient to work the turbines. Such conditions are becoming so frequent on Mungpoo, that sooner or later, an additional catchment area will require to be added to that at present utilised. Water is available at lower levels than the aqueduct which supplies the reservoir. This aqueduct, fortunately, leads to the reservoir on a higher gradient than is necessary. A subsidiary lead at a lower level on an easier gradient would provide quite an appreciable extra supply of water for the turbines, and already towards the end of the year a survey was being carried out and preparations made to put the work in hand. It is hoped that when the work is completed a supply of water sufficient to run the turbines throughout the year will be available.

On Munsong an opposite set of weather conditions prevailed. Rainfall was in excess of the average though no heavier fall than 3.25 inches occurred at a time. Here damage is more frequently attributable to hail storms which strip both leaf and bark from the young coppiced shoots, especially on the higher reaches of the northern part of the area.

Pests of cinchona, of which *Helopeltis* is the most formidable and difficult to counter, make sporadic raids into both the Munsong and Mungpoo areas. Damage from this cause is most noticeable at the lower elevations on Munsong and Burmiak divisions where the characteristic leaf roll and dead shoots are more prevalent than one cares to have them. Spraying has been attempted but with indifferent success; the only really successful method of dealing with the pest is by hand picking.

Reference has been made in former reports to the new system of harvesting bark by coppicing instead of complete uprooting after a definite period of growth. On Munsong the results of this system are now becoming evident, and the departure made promises results much more favourable than could ever have been expected under the old system of harvesting. When a tree is coppiced, it sends up some ten to twenty shoots, four to six of which are allowed to form leads which tend, after a certain period of growth, to dwarf the remaining subsidiary shoots most of which wither and die back before bark forms. The resulting tree is of very different shape to its uncoppiced forerunner. Growth more bushy in nature results, and the plants have therefore to be grown in less dense formation, but yet dense enough to prevent the development of undergrowth with its attendant extra expenses in cultivation. This resulting form has its bearing on the period at which coppicing should take place. If areas are subjected to much uprooting

during their first span of life, the remaining trees are too wide apart to give the full benefit derivable from the coppicing system properly carried out. Unfortunately on Munsong coppicing has had, perforce, to be employed on areas already subjected to much thinning and the results, though better than under the old system, are not to be compared with those on areas carrying a fair complement of trees. In the writer's opinion a system of intensive growing rather than extensive development of the plantation is indicated and it is proposed to uproot at the earliest possible period areas, especially on the Kashyem division, which have far too low a complement of trees to trouble about thorough cultivation. Henceforth the policy followed will be to reduce extensions and to substitute the filling in at coppicing time of blocks not then carrying a complement of trees sufficient to keep cultivation at a minimum. On the method of coppicing itself experiments are required, for no data exist to show how it should be done, at what age it should be done or at what height from the ground the cut should take place. Semi-coppicing is not, in the writer's opinion, so satisfactory as full coppicing; in the former, the original lead tends to dwarf the oncoming shoots and gives a form of growth that is neither tree nor bush. Full coppicing is preferable as giving all shoots an equal chance of development. In coppicing, cinchona normally "breaks" just above the collar and it has become evident that in the original experiments the cut was made too high. Where the surface was not carefully smoothed off or where a callus had not formed properly, the bark of the old stump has tended to die back. Analyses from samples of such bark taken at Munsong show that quinine is going lost, the average content being about 1 per cent. below the average of the block to which it belongs. Lower cutting is indicated with meticulous care to leave the cut surface in condition favourable to the formation of callus. Bark will not die back below the point at which the shoots break, indicating that the nearer the cut to this point the less bark likely to be lost. But much more experimental data are necessary to decide these and other problems pending. It is sufficient to indicate here some of the problems in cinchona that are awaiting solution.

The therapeutic value of cinchona alkaloids other than quinine has been a subject of investigation by the medical profession during the year. Opinion now leans to giving these alkaloids a higher value than has of recent years been ascribed to them. Orders have therefore issued to extend the cultivation of *Cinchona succirubra*, the red bark tree, relatively poor in quinine but rich in other alkaloids. A large quantity of seed of this species has been sown with the intention of filling in blanks and carrying out extensions at lower elevations on both plantations.

A change in the official price of quinine was made in June 1922 when it was reduced from 3 shillings to 2 shillings and 3 pence per oz. The change coincided with a firmer tendency in the English market and with the expected consent of previously wavering Java Cinchona planters to continue their adherence to the Cinchona Convention and to abandon the idea of erecting a new quinine factory of their own in Java. The principal motive for the reduction may have been encroachments upon the quinine markets of the world by the Japanese, but the undreamt of monetary demoralisation in most countries probably also had its effect. World stocks of quinine are at present larger than markets suffering from depreciated currencies can absorb. America alone has enjoyed a somewhat active market, the demand there being greatly helped by the admission of quinine bisulphate, as well as certain secondary cinchona alkaloids, as denaturants of alcohol. For the rest the world's consumption has remained a long way below the normal, and no improvement can be looked for at present in view of the increased international tension and the state of certain currencies.

2. Extensions, acreages and crops.—(1) *Mungpoo*.—The rainfall for the year was below the average, being only 108·02 inches. During the monsoon, however, rainfall was evenly distributed; there were no severe storms and no damage from slips or excessive wash. Extensions of *Cinchona Ledgeriana* were 20 acres on Mungpoo, 50 acres on Labdah and 30 acres on Sittong divisions. Besides this about a lakh of ledger and succirubra plants were

put in to repair the damage due to drought. The extensions on Mungpoo division have gone out amongst coppiced oaks to test the value of this form of light shade to Cinchona. Harvests were obtained by cutting out 45.8 acres of *C. Ledgeriana*, 2 acres of *C. succirubra* and 3.2 acres of *C. Hybrid* barks, the total of 51 acres giving 171,655 lbs. *C. Ledgeriana*, 14,838 lbs. *C. succirubra* and 13,424 lbs. *C. Hybrid*, or 199,917 lbs. in all. This is the largest harvest for many years from Mungpoo. The average ages of the ledger, succirubra and hybrid barks were 7.02, 14.15 and 8.62 years and the average annual bark increments per acre of the acreages 533.7, 524.3 and 486.3 lbs., respectively. The average age of all the acreages cut out is 7.4 years and the average annual bark increment per acre calculated on these acreages is 529.6 lbs. The yield per acre over the period is, therefore, 3,920 lbs. For purposes of valuation in the block account (appendix F), the average annual bark increment per acre is taken as 330 lbs. which, in the light of the above actual for bark increment, would seem to be a very safe figure. At the end of the year there were 900 acres with a full complement of cinchona on Mungpoo plantation. Details are available in appendix A(I). Some of the blocks, especially those near Rungbee, and the young blocks on Labdah look very well and are certain to give good yields. Others and especially the Silake block, will require much attention if the annual increment figure is to go on increasing.

Some 50 acres of mixed fuel and timber trees have been planted up during the year while vacancies in last years afforestation area were made good. The small number of casualties amongst forest species in comparison with cinchona casualties is an index of the relative ease with which timber and fuel trees can be grown.

Mr. Osborne, the Manager, is continuing his experiments with green manures and shade planting. Results as regards the former will not become evident for some time yet, but so far as appearances go the experiments are well worth continuing.

(b) *Munsong*.—Rainfall was 103.58, being 7.17 inches in excess of the average for the past 22 years. No excessive single fall occurred and consequently there was no washing out. At the beginning of the year another heavy hailstorm stripped leaf and bark from the plants on the higher levels of Kashyem division. Damage from this source on this division is of all too frequent occurrence. A considerable area of the *C. officinalis* at elevations above 4,500 feet will never give a harvest worth the labour expended on it. The only course open is to reap from the worst portions what bark they give and let them to back into secondary jungle or plant up with fuel and timber trees if enough money is made available for the purpose. There were no extensions on Munsong during the year, such additional plants as were put in being casualty replacements.

The harvests were obtained by cutting out 99.3 acres of *C. Ledgeriana*, 2.1 acres *C. succirubra*, 28.6 acres *C. officinalis*, 20.2 acres *C. Hybrid* II and 2 acre *C. Hybrid* III, the total of 150.9 acres giving 281,920 lbs. *C. Ledgeriana*, 6,080 lbs. *C. succirubra*, 14,880 lbs. *C. officinalis*, 54,080 lbs. *C. Hybrid* II and 160 lbs. *C. Hybrid* III, or 357,120 lbs. in all. The average ages of the barks in the above order were 7, 8.2, 7.6, 6.7 and 3 years and the average annual bark increments per acre of the acreages 401, 351.4, 68.1, 397.6 and 266.6 lbs., respectively. The average age of the total acreage cut out is 7.1 years and the average annual bark increment calculated on these acreages is 332 lbs. This figure compares unfavourably with the Mungpoo increment of 529.6, lbs. but it has to be remembered that much of the Munsong harvest is from coppiced trees and that a just comparison will only be possible when the blocks are uprooted. At the end of the year there were 2,126 acres with a full complement of cinchona on Munsong plantation. Details are available in appendix A(I). The younger blocks are promising and the older blocks in which coppicing took place before the areas got depleted will give good harvests.

(c) *Plantation as a whole*.—The total area under cinchona is 3,026 acres. Details of the species, the acreages going to be made up this total

and their ages are available in appendix A(2). In all cases the acreages are calculated as carrying their full complement of cinchona trees.

3. **Factory work.**—Besides 404,387 lbs. of Java bark for the Government of India, 191,134 lbs. of Mungpoo bark (151,641 ledger, 26,154 succirubra and 13,339 hybrid) and 374,001 lbs. Munsong bark (278,405 ledger, 27,293 succirubra, 11,715 officinalis and 56,588 hybrid) were worked up to produce about 21,550½ lbs. quinine sulphate, 484½ lbs. other quinine salts, 7½ lbs. cinchonidine salts, 6 lbs. cinchonine salts, 11 lbs. quinidine salts, 78½ lbs. quinoidine, and 8,294 lbs. cinchona febrifuge—a total of 30,431½ lbs. provincial alkaloids. Exact amounts are available in appendix C(1). The Java bark produced 22,086 lbs. quinine sulphate and 4,892½ lbs. cinchona febrifuge. The total production of quinine sulphate, both provincial and imperial, was 43,636 lbs. and the total products from all sources 57,410½ lbs. The amount of quinine sulphate proved by analysis to be present in the bark was 47,363.5 lbs. Apart from quinine allowed to go into the febrifuge and salts of quinine other than the sulphate, the yield works out to 92 per cent. of the theoretical possible.

4. **Cost and value of plantation bark.**—The average cost per lb. of all Mungpoo barks taken over a series of year is 3.6 annas and of Munsong barks 2.7 annas. The cost of the 199,917 lbs. Mungpoo bark harvest is, therefore, Rs. 44,981 and of the Munsong 357,120 lbs. harvest Rs. 60,264. The unit rate for bark being 1.5 annas the average Mungpoo bark quinine percentage of 5.19 gives the harvest from this plantation a value of Rs. 97,272 or Rs. 37,008 more than it cost. On a basis of an average quinine percentage of 4.03 and the same unit rate the Munsong harvest valuation is Rs. 1,34,915 or Rs. 74,651 more than it cost. The year's expenditure for both plantations including their share of general charges is Rs. 1,93,715 while harvests costing Rs. 1,05,245 and valued at Rs. 2,32,187 are the year's return for past expenditure.

5. **Cost and value of quinine produced.**—(a) *Cost in the bark.*—The 21,550 lbs. of quinine extracted were contained in 562,872 lbs. of mixed Mungpoo and Munsong barks, which cost (191,134 lbs. at 3.6 annas and 374,001 lbs. at 2.7 annas per lb.) Rs. 1,06,117. The cost per lb. of quinine in the bark was, therefore, Rs. 4.92.

(b) *Cost of extraction, packing and delivery to railway.*—This is calculated on the total extraction of quinine both provincial and imperial. The total direct expenditure on the factory was Rs. 1,17,021-4-6, general charges debitable to factory account Rs. 3,212-6, factory depreciation charges Rs. 5,185, stores (oil, chemicals, etc.) depreciation charges Rs. 18,999-10-11, the gross factory expenditure being, therefore, Rs. 1,44,416-5-5. From this has to be deducted expenditure on products both imperial and provincial other than quinine sulphate Rs. 31,630-14, leaving Rs. 1,12,785-7-5 net expended on the production of 43,636 lbs. provincial and imperial quinine sulphate. The cost of extraction, packing, etc., is, therefore, Rs. 2.584 per lb. This is somewhat higher than last year's cost, but is still low enough to bespeak efficient factory management.

(c) *Total cost per lb. and value.*—This is made up of the cost in the bark—Rs. 4.92 and the cost of extraction, etc., Rs. 2.584, a total of Rs. 7.504. The present wholesale rate being Rs. 27 per lb., the 21,550.3 lbs. provincial quinine manufactured are worth Rs. 5,81,850 but cost only Rs. 1,61,713.

6. **Sales and selling rates.**—A comparative statement of the sales of factory products for 1921-22 and 1922-23 is available in appendix G. From this it will be seen that a large decrease has taken place in the amount of quinine salts sold. The reason is that the area of supply has been restricted by the Punjab indenting for supplies on the Director, Botanical Survey, who meets the requirements of this province from imperial stocks. Cinchona febrifuge sold was 14,016½ lbs. but this included 5,722½ lbs. belonging to the Government of India, leaving a net provincial sale of 8,294 lbs.

The proceeds of the total sales have, however, been credited to the Government of Bengal. The excess credit will be adjusted in transfer account. Selling rates were as follows:—Quinine sulphate Rs. 36 to Rs. 38 till the end of October 1922, thereafter Rs. 27 to Rs. 29 per lb., cinchona febrifuge Rs. 8 to Rs. 10 according to quantity purchased at a time and to form in which purchased. These rates are based on market quotations as are also the rates for other products sold. Rupees 4,02,405-15-3 were obtained from the sale of 10,471 lbs. quinine sulphate converted to tablets in the Juvenile Jail, but of this sum half only is taken as credited to the Cinchona Department. Details of the monthly receipts from this source are available in appendix I supplied by the Accountant-General, Bengal.

7. **Expenditure and receipts.**—The total expenditure on the department detailed in appendix D was Rs. 3,13,949-4-4. The total receipts including Rs. 105 received direct were Rs. 8,10,745-3-3, of which Rs. 1,65,037 were credit and Rs. 6,45,708-3-3 cash. These receipts include proceeds from the sale of 5,722½ lbs. cinchona febrifuge in the form of powder belonging to the Government of India and amounting to Rs. 46,298-13. The net receipts properly creditable to the department are, therefore, Rs. 7,64,446-6-3. Besides this, there are sums of Rs. 57,070-3 and Rs. 9,785 still due from the Government of India to cover the cost of extracting, packing, etc., 22,086 lbs. sulphate at Rs. 2'5s4 per lb. and 4892'5 lbs. febrifuge at Rs. 2 per lb.

8. **Quinine reserve and stock account.**—Full details of stocks in hand are available from appendices C(1) and C(2). The provincial reserve of quinine, a few thousand pounds higher now than it was at the beginning of the year, stands at 31,635 lbs. Bark stocks are about the same. For purposes of stock account I have thought it advisable to reduce the valuation figures. Quinine is valued at Rs. 20 against Rs. 30 of last year. Bark on balance is valued at annas 5 per lb. against annas 6 of last year, and all other products are also carried at lower rates. The worst feature of the stock account is the diminished quantity of oil, chemicals and stores. The total value of stocks at the end of the year was Rs. 7,19,373-12-6, of which quinine valued at Rs. 6,33,711-4 was the chief item.

9. **Block account.**—Excluding the value of extensions which for the purposes of the block account are taken at cost price, the increase in value of cinchona trees at the end of the year is Rs. 1,39,895. This increase has been calculated on the basis of a moderate bark increment. Cinchona trees are valued at Rs. 19.21,096, timber and fuel trees at Rs. 2,80,363. See appendix F for further information.

10. **Profit and loss valuation.**—The valuation profit balance of Rs. 1,57,380-5-4 is much below the average of late years, due to the drop in the price of quinine and to reduced sales on account of the transfer of Punjab indents.

11. **Land rent.**—From Mungpoo the sum of Rs. 5,035-13-6 was collected during the year and paid into the Dajeeling treasury. From Munsong Rs. 1,142-11-6, representing fees collected from cattle grazing within the cinchona boundary, were paid into the Kalimpong sub-treasury for credit to the Forest Department. No credit is taken for these sums in the accounts of the Cinchona Department.

12. **Staff.**—Lieutenant-Colonel A. T. Gage, C.I.E., I.M.S., held charge as Superintendent till the 2nd January 1923 when he went on long leave. Thereafter the writer held charge. The only other change in the personnel of the department during the year took place when Mr. H. F. Green went on six months' leave preparatory to retirement on the 24th February 1923, being relieved by Mr. H. Thomas retransferred from the new cinchona plantations in Burma. Mr. Green spent his whole service on the cinchona plantations, a service uninterrupted by a single day's leave. Munsong plantation may be said to have grown up under him. His service was

marked by loyalty, efficiency and painstaking thoroughness and no poor labourer who worked under him but felt the poorer when the age-limit rule put an end to the happy relations which existed between him and his "sahib." All officers of the plantations and factory and the clerical establishment have performed their duties with their wonted efficiency.

13. Medicinal plants other than cinchona.—About 60,000 *Ipecacuanha* plants were raised from seed during the year. Two-thirds of these were planted out in nurseries, the remaining third being grown on indoors till fresh nursery beds could be prepared. Four hundred pounds of dried root were obtained by clearing plants in the older lines and sent to the factory for extraction. The cost of growing this crop which includes the cost of much experimental work is about Rs. 4,750. Even if the finished product brings in too small a return to call the cultivation of *Ipecacuanha* on Mungpoo a profitable concern, the plants and seed now available there will form a useful source of supply for *Ipecacuanha* cultivation in the new plantations in Burma, where seedlings give every promise of ultimate success. The cultivation of *Digitalis* is being continued and a supply ample for both official and unofficial demand is assured.

C. C. CALDER,

*Offg. Superintendent, Royal Botanic Garden,
Calcutta, and of Cinchona Cultivation in Bengal.*

APPENDIX A(1).

**Detailed statement of acreage with full complement of cinchona
in the Government Cinchona Plantations, Darjeeling district,
on 31st March 1923.**

I.—MUNGPOO PLANTATION.

(a) Mungpoo Division.

SPECIES.	NUMBER OF ACRES CARRYING TREES OF—				Total number of acres.
	0—5 years old.	6—10 years old.	11—15 years old.	16 years old and upwards.	
1	2	3	4	5	6
Cinchona ledgeriana	351	96.2	...	...	447.2
" succirubra ... ..	...	4.1	...	4.1	45.1
" (ledger x succirubra) ...	31.9	...	...	2.5	34.4
Total	382.9	100.3	...	43.5	526.7

(b) Sittong Division.

Cinchona ledgeriana	206.6	24.5	...	...	231.1
" succirubra	15	7.1	...	...	22.1
" (ledger x succirubra) ...	...	7.2	...	...	7.2
Total	221.6	38.8	...	...	260.4

(c) Labdah Division.

Cinchona ledgeriana	85	...	...	...	85
" (ledger x succirubra) ...	27.9	...	...	...	27.9
Total	112.9	...	...	...	112.9

II.—MUNSONG PLANTATION.

(a) Munsong Division.

Cinchona ledgeriana	355.7	117.5	...	...	473.2
" (ledger x officinalis) ...	7	...	...	...	7
" (ledger x succirubra) ...	96	58.2	6.8	...	161
Total	458.7	175.7	6.8	...	641.2

II.—MUNSONG PLANTATION—concluded.

(b) Kashem Division.

SPECIES.	NUMBER OF ACRES CARRYING TREES OF—				Total number of acres.
	0—5 years old.	6—10 years old.	11—15 years old.	16 years old and upwards.	
1	2	3	4	5	6
Cinchona ledgeriana ...	85	229.1	27.4	...	341.5
„ officinalis ...	...	45.9	25.1	...	71
„ succirubra ...	...	1.7	...	...	1.7
„ (ledger × officinalis) ...	34.8	...	...	...	34.8
„ (ledger × succirubra) ...	16.3	4.2	...	...	58.3
Total ...	136.1	318.7	52.5	...	507.3

(c) Burmiak Division.

Cinchona ledgeriana ...	209.9	263.7	16	...	489.6
„ officinalis ...	9	38.5	...	...	47.5
„ succirubra ...	...	9.4	...	...	9.4
„ (ledger × officinalis) ...	67	...	...	...	67
„ (ledger × succirubra) ...	...	13.9	...	...	13.9
Total ...	285.9	325.5	16	...	627.4

(d) Sangser Division.

Cinchona ledgeriana ...	277.2	41.4	...	...	318.6
„ succirubra ...	4.5	4.5	...	...	9
„ (ledger × succirubra) ...	22.5	...	...	...	22.5
Total ...	304.2	45.9	...	...	350.1

APPENDIX A(2).

Abstract of acreage with full complement of cinchona in the Government Cinchona Plantations, Darjeeling district, on the 31st March 1923.

SPECIES.	NUMBER OF ACRES BEARING TREES OF—				Total acreage.
	0—5 years old.	6—10 years old.	11—15 years old.	16 years old and over.	
1	2	3	4	5	6
Cinchona ledgeriana ...	157.4	772.4	43.4	...	2,386.2
„ officinalis ...	9	64.4	25.1	...	118.5
„ succirubra ...	19.5	26.8	...	41	87.3
„ (ledger × officinalis) ...	108.8	...	...	...	108.8
„ (ledger × succirubra) ...	194.6	121.3	6.8	2.5	325.2
Total ...	1,902.3	1,004.9	75.3	43.5	3,026

APPENDIX B:

Receipts for 1922-23.

TRANSACTIONS OF THE YEAR.	SALES TO GOVERNMENT OFFICES AND INSTITUTIONS.		SALES TO THE PUBLIC FOR CASH PAYMENT.		Total.
	Cash sales.	Book credits.	In tables.	In this in powder form to Native States, Municipal and Local Funds, Dispensaries, Missionary bodies and others.	
1	2	3	4	5	6
	Rs. A.	Rs. A.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Quinine sulphate ...	1,56,664 2	89,329 8	2,01,202 15 7 ^a	22,659 7 0	4,69,856 0 7
Other quinine salts ...	112 8	20,016 6	.....	285 4 0	20,413 12 0
Cinchona febrifuge ...	38,656 4	55,410 8	.....	23,188 12 0	1,17,255 8 0
Cinchonidine salts ...	113 0	34 0	.....	36 2 0	183 2 0
Cinchonine salts ...	.....	.....	.....	181 2 0	181 2 0
Quinidine salts ...	.....	142 0	.....	65 0 0	207 0 0
Quinoidine ...	4 8	.....	.....	36 0 0	40 8 0
Bark ...	0 3	.....	.....	1,300 0 0	1,300 3 0
Miscellaneous ...	.....	105 0	.....	.....	105 0 0
Total ...	1,95,550 9	1,65,037 6	2,01,202 15 7	47,751 11 0	6,09,542 3 7^a

^aThis sum is half of Rs. 4,09,405-15-3 being value of 10,472 lbs. of quinine sulphate sold in form of treatments. The remaining sum of Rs. 2,01,202-15-8 is credited to the Prison Department. (See paragraph 7.)

APPENDIX C(1).

Stock Account, 1922-23.

	QUININE SULPHATE.			OTHER QUININE SALTS.		
	Quantity.	Rate per lb.	Value.	Quantity.	Rate per lb.	Value.
1	2	3	4	5	6	7
	lbs. oz.	Rs.	Rs. A. P.	lbs. oz.	Rs.	Rs. A.
Balance on 1st April 1922	28,538 6	30	8,56,151 4 0	69 2	85	2,419 6
Purchased ...	.....	.....	.....	.....	.....	.....
Harvested ...	.....	.....	.....	.....	.....	.....
Used in factory ...	.....	.....	.....	.....	.....	.....
Manufactured ...	21,550 6	7 50 ^a	1,61,713 8 0	484 9 ^{1/2}	10	4,846 0
Issued or sold ...	18,403 3	Various ^b	4,69,856 0 7	451 11	Various ^c	20,413 12
Balance on 31st March 1923	31,685 9	20	6,33,711 4 0	102 0 ^{1/2}	25	2,550 12

	QUINIDINE SULPHATE.			CINCHONINE SALTS.		
	Quantity.	Rate per lb.	Value.	Quantity.	Rate per lb.	Value.
1	2	3	4	5	6	7
	lbs. oz.	Rs.	Rs. A.	lbs. oz.	Rs.	Rs. A.
Balance on 1st April 1922	.....	.....	.....	25 0	20	500 0
Purchased ...	.....	.....	.....	.....	.....	.....
Harvested ...	.....	.....	.....	.....	.....	.....
Used in factory ...	.....	.....	.....	.....	.....	.....
Manufactured ...	10 15 ^{1/2}	10	109 11	6 1 ^{1/2}	5	30 7
Issued or sold ...	4 4	Various ^b	207 0	10 2	Various ^c	181 2
Balance on 31st March 1923	6 11 ^{1/2}	20	134 6	20 15 ^{1/2}	10	209 11

^a See paragraph 6 for selling rates.

APPENDIX C (1).—contd.

1	CINCHONIDINE SALTS.			QUINIDINE.		
	Quantity.	Rate per lb.	Value.	Quantity.	Rate per lb.	Value.
2	3	4	5	6	7	
	lbs. oz.	Rs.	Rs. A.	lbs. oz.	Rs.	Rs. A.
Balance on 1st April 1922 ...	7 14	20	157 8	2 4	4	9 0
Purchased ...	...	...	...	...	...	...
Harvested ...	...	...	...	...	...	...
Used in factory ...	...	...	...	...	...	...
Manufactured ...	7 4	5	36 4	78 8	3	235 8
Issued or sold ...	11 2	Various	183 2	4 8	9	40 8
Balance on 31st March 1923	4 0	15	60 0	74 0	2	148 0

1	CINCHONA FEBRIFUGE.		
	Quantity.	Rate per lb.	Value.
2	3	4	
	lbs. oz.	Rs. A.	Rs. A.
Balance on 1st April 1922 ...	...	...	...
Purchased ...	...	...	...
Harvested ...	...	...	...
Used in factory ...	...	...	...
Manufactured ...	8,294 0	2 0	16,588 0
Issued or sold ...	8,294 0	Various	70,956 11
Balance on 31st March 1923	.....	...	...

1	CINCHONA BARK.		
	Quantity.	Rate per lb.	Value.
2	3	4	
	lbs.	Annas.	Rs. A.
Balance on 1st April 1922 ...	177,364	6	66,511 8
Purchased ...	...	...	...
Harvested ...	557,037	Various.	105,245 1
Used in factory ...	562,872	"	105,740 9
Manufactured ...	...	...	...
Issued or sold ...	2,600	8	1,300 3
Balance on 31st March 1923	168,928	5	52,790 3

†86 annas per Mungpoo bark and 27 annas per Mansong bark.

APPENDIX C (1)—concl'd.

	OIL.			CHEMICALS AND STORES.	GRAND TOTAL.
	Quantity.	Rate per gallon.	Value	Value.	Value.
1	2	3	4	5	6
	Gallons.	Rs.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Balance on 1st April 1922	14,300	Various	12,618 7 0	32,074 9 5	9,70,441 10 5
Purchased ...	16,096	"	15,226 13 0	66,376 3 0	81,603 0 0
Harvested ...	...	"	...	...	1,05,245 1 0
Used in factory ...	20,082	"	22,182 1 6	78,380 9 5	2,06,303 3 11
Manufactured ..	...	"	...	...	1,83,559 6 0
Issued or sold ...	...	"	...	105 0 0	5,63,243 6 7
Balance on 31st March 1923	10,364	"	9,804 5 6	19,965 3 0	7,19,373 12 6

APPENDIX C (2).

Detailed Stock Account of barks for 1922-23.

	CINCHONA LEDGERIANA.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lbs.	Annas.	Rs. A.
Balance on 1st April 1922	133,385.5	6	50,019 8
Harvested ...	453,575	*Various.	86,196 6
Used in factory ...	430,046	"	81,100 0
Balance on 31st March 1923	156,914.5	5	49,035 13

* 4 annas for Mungpoo bark and 2 annas for Mungsoong bark.

	CINCHONA OFFICINALIS.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lb.	Annas.	Rs. A.
Balance on 1st April 1922	...	...	...
Harvested ...	14,880	2.7	2,511 0
Used in factory ...	11,715	2.7	1,976 14
Balance on 31st March 1923	3,165	5	989 1

APPENDIX C (2)—concl'd.

Detailed Stock Account of barks for 1922-23.

	CINCHONA SUCCIRUBRA.		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lbs.	Annas.	Rs. A.
Balance on 1st April 1922 ...	43,978·5	6	16,492 0
Harvested	20,918	Various.	4,364 5
Used in factory	53,447	"	10,490 5
Sold	2,600·3	8	1,300 3
Balance on 31st March 1923 ...	8,849	5	2,765 5

	CINCHONA (LEDGER × SUCCIRUBRA).		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lbs.	Annas.	Rs. A.
Balance on 1st April 1922 ...	...	...	...
Harvested	67,504	Various	12,146 6
Used in factory	67,504	"	12,146 6
Balance on 31st March 1923 ...	"	...	...

* 86 annas per lb. for Mungpoo and 27 annas for Munso ng bark.

	CINCHONA (LEDGER × OFFICINALIS).		
	Quantity.	Rate per lb.	Value.
1	2	3	4
	lbs.	Annas.	Rs.
Balance on 31st April 1922 ...	...	...	...
Harvested	160	2·7	27
Used in factory	160	2·7	27
Balance on 31st March 1923 ...	...	...	...

APPENDIX D.

Expenditure for 1922-23.

I.—PLANTATIONS ACCOUNT.

A.—Mungpoo Plantation.

Salaries.

		Rs.	A.	P.
1. Manager and Assistant Manager	...	8,913	2	0
2. Overseers	... ..	4,240	0	0
3. Duty allowance	.. ..	1,200	0	0
4. Exchange compensation allowance	... ..	.....

Establishment.

5. Sub-Overseer	... ..	895	0	0
6. Sub-Assistant Surgeon	... ..	1,986	3	0
7. Artificers	... ..	360	0	0
8. Sirdars and coolies	... ..	49,850	6	0

Allowances.

9. Travelling allowance	... ..	65	15	0
10. Pony allowances	... ..	1,080	0	0
11. Compensation for dearness of provisions	.....		

Contingencies.

12. Purchase and keep of ponies and bullocks	...	2,160	0	0
13. Purchase of manure	... ..	.....
14. Purchase of seeds	... ..	.....
15. Carriage charges	... ..	183	14	0
16. European stores	... ..	2,259	12	0
17. Freight	... ..	97	3	0
18. Buildings	... ..	483	10	9
19. Machinery and plant	... ..	.....
20. Miscellaneous	... ..	2,581	13	3
21. Servants' clothing		
22. Labour of malis	2,461	0	0

Total Mungpoo charges	...	78,817	15	0
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B.—Munsong Plantation.

Salaries.

1. Manager and Assistant Managers	...	16,149	2	10
2. Overseers	... ..	2,095	0	0
3. Duty allowance	... ..	1,264	5	0
4. Exchange compensation allowance	... ..	.....

Establishment.

5. Clerks	... ..	.....
6. Sub-Assistant Surgeon	... ..	2,439	1	0
7. Artificers	... ..	.....
8. Sirdars and coolies	... ..	74,073	0	0

Allowances.

9. Travelling allowance	... ..	641	13	0
10. Pony allowances	... ..	1,200	0	0
11. Compensation for dearness of provisions	.....		

APPENDIX D.—contd.*Contingencies.*

			Rs.	A.	P.
12.	Purchase and keep of ponies and bullocks	...	2,160	0	0
13.	Purchase of manure	... ..	.....
14.	Purchase of seed	... ..	.....
15.	Carriage charges	... ..	5,146	2	0
16.	European stores	... ..	1,663	7	0
17.	Freight	... ..	90	3	0
18.	Buildings	... ..	488	11	6
19.	Machinery and plant	... ..	.....
20.	Miscellaneous	... ..	2,311	0	6
21.	Afforestation charges	... ..	.....
22.	Servants' clothing	... ..	.....
	Total Munsong charges*	...	1,09,721	13	10
	Total for both plantations	...	1,88,539	12	10

II.—FACTORY ACCOUNT.*Salaries.*

1.	Quinologist	... ..	15,500	0	0
2.	Assistant Quinologist	... ..	3,518	9	0
3.	Manufacturing Chemist	... ..	.....

Establishment.

4.	Clerks	... ..	811	0	0
5.	Servants	... ..	.....
6.	Artificers	... ..	.....
7.	Sirdars and coolies	... ..	7,629	1	3

Allowances.

8.	Travelling allowance	... ..	30	0	0
9.	Compensation for dearness of provisions	... ..	.....

Contingencies.

10.	Purchase of machinery	... ..	4,006	15	0
11.	Buildings	... ..	24,424	2	0
12.	European stores	... ..	3,337	10	0
13.	Freight	... ..	34,870	4	0
14.	Chemicals	... ..	8,019	10	3
15.	Fuel (carriage and cutting up only)	... ..	3,922	11	3
16.	Purchase of bark (carriage only)	... ..	.....
17.	Purchase of cinchona febrifuge	... ..	2,265	14	6
18.	Packing materials	... ..	246	4	0
19.	Distribution charges	... ..	8,439	3	3
20.	Miscellaneous	... ..	.....
21.	Servants' clothing	... ..	.....
	Total factory charges	...	1,17,021	4	6

APPENDIX D—concl'd.

III.—GENERAL.

Salaries.

				Rs. A. P.
1. Superintendent	...	...	...	387 2 0

Establishment.

2. Clerks	...	...	...	5,568 12 0
3. Servants	...	...	...	218 5 0

Allowances.

4. Travelling allowances	...	...	...	.....
5. Compensation for dearness of provisions	...	...	...	— .....

Contingencies.

6. Miscellaneous	...	...	...	.....
7. Postage and telegrams	...	...	...	400 0 0
8. Advertising charges	...	...	...	.....
9. Subscriptions to newspapers and periodicals	...	...	...	.....
10. Purchase and repair of furniture	...	...	...	.....
11. Road and Public Works Cess	...	...	...	1,814 0 0
Total General Charges	...	...	...	<u>8,388 3 0</u>

IV.—ABSTRACT.

Total Mungpoo charges	...	...	...	78,817 15 0
“ Munsong	“	“	“	1,09,721 13 10
“ Factory	“	“	“	1,17,021 4 6
“ General	“	“	“	8,388 3 0
GRAND TOTAL EXPENDITURE	...	...	...	<u>3,13,949 4 4</u>

APPENDIX E.

Profit and Loss Valuation, 1922-23.

	Amount		Amount
1	2	3	4
	Rs. A. P.		Rs. A. P.
To—		By—	
Stock on 1st April 1922	9,70,441 10 5	Arrears recovered	28,081 6 0
Outstanding on 1st April 1922.	28,081 6 0	Sales during the year	5,63,249 4 7
Expenditure (less Rs. 11,000 capital expenditure).	3,02,949 4 4	Outstandings on 31st March 1923.	4,171 3 0
Depreciation on buildings	3,199 0 0	Stock on 31st March 1923	7,19,373 12 6
“ Ditto on machinery	3,719 0 0	Gain on revaluation of—	
Balance (profit)	1,57,380 5 4	Cinchona trees	1,49,895 0 0
		Timber trees	1,000 0 0
Total	14,65,770 10 1	Total	14,65,770 10 1

APPENDIX F.

Block Account, 1922-23

I.—Mungpoo Plantation.

		Amount				Amount	
1		2		3		4	
		Rs. A. P.				Rs. A. P.	
To—				By—			
Value of buildings on 1st April 1922.		28,009	0 0	Depreciation on buildings at 2½ per cent.		737	0 0
Machinery (Sirocco driers) ...		975	0 0	Value of buildings on 31st March 1923.		27,272	0 0
Value of plantation on 1st April 1922—				Depreciation on machinery at 5 per cent.		54	0 0
Cinchona trees ...		3,17,977	0 0	Value of machinery on 31st March 1923		921	0 0
Timber trees ...		2,71,033	0 0	Value of plantation on 31st March 1923—			
Value of extensions at cost made in 1922-23—				Cinchona trees ...		3,70,123	0 0
Cinchona trees ...		10,000	0 0	Timber trees ...		2,72,033	0 0
Timber trees ...		1,000	0 0				
Gain on revaluation of plantations at end of 1922-23 (extensions for the year excluded)—							
Cinchona trees ...		42,146	0 0				
Timber trees ...		.....			
Total ...		6,71,140	0 0	Total ...		6,71,140	0 0

II.—Munsong Plantation.

		Rs. A. P.				Rs. A. P.	
1		2		3		4	
		Rs. A. P.				Rs. A. P.	
To—				By—			
Value of buildings on 1st April 1922		35,886	0 0	Depreciation on building at 2½ per cent.		944	0 0
Value of plantation on 1st April 1922—				Value of buildings on 31st March 1923.		34,942	0 0
Cinchona trees ...		14,53,224	0 0	Value of plantation on 31st March 1923—			
Timber trees ...		8,330	0 0	Cinchona trees ...		15,50,973	0 0
Value of extension at cost made in 1922-23—				Timber trees ...		8,330	0 0
Cinchona trees ...		.....			
Timber trees ...		.....			
Gain on revaluation of plantations at end of 1922-23 (extensions for the year excluded)—							
Cinchona trees ...		97,749	0 0				
Total ...		15,95,189	0 0	Total ...		15,95,189	0 0

III.—Factory.

		Rs. A. P.				Rs. A. P.	
1		2		3		4	
		Rs. A. P.				Rs. A. P.	
To—				By—			
Value of buildings on 1st April 1922		57,717	0 0	Depreciation on buildings at 2½ per cent.		1,519	0 0
Value of machinery on 1st April 1922.		65,986	0 0	Value of buildings on 31st March 1923.		56,199	0 0
				Depreciation on machinery at 5 per cent.		3,665	0 0
				Value of machinery on 31st March 1923		62,321	0 0
Total ...		1,23,703	0 0	Total ...		1,23,703	0 0

*Value of cinchona trees Rs. 19,81,096, of timber trees Rs. 9,80,808, of buildings Rs. 1,18,418, of machinery Rs. 62,321. Total value, Rs. 29,82,114.

APPENDIX G.

Comparative statement of sales of factory products for 1921-22 and 1922-23.

PARTICULARS.	1921-22.						1922-23.					
	Quinine sulphate and guaiacum by strichloride.	Cinchonine and cinchonine salt.	Cinchona febrifuge.	Quinidine and quinidine.	Residual alkaloid.	Total.	Quinine salts.	Cinchonine and cinchonine salts.	Cinchona febrifuge.	Quinidine salts and quinidine.	Total.	
1	2	3	4	5	6	7	8	9	10	11	12	
GOVERNMENT OFFICERS AND INSTITUTIONS.												
<i>Assam.</i>												
Surgeon-General	lbs. oz. 286 4	lbs. oz. 3 0	lbs. oz. 298 0	lbs. oz. ..	lbs. ..	lbs. oz. 287 4	lbs. oz. 277 4	lbs. oz. 7 0	lbs. oz. 273 12	lbs. oz. 0 8	lbs. oz. 958 8	
Inspector-General of Prisons	..	..	..	..	..	..	..	..	..	..	..
Others	46 18	..	..	..	..	46 18	15 8	1 0	..	..	16 8
<i>Bengal.</i>												
Surgeon-General	2,195 7	..	5,728 12	..	1	7,959 8	1,802 0	..	8,028 12	..	9,831 12	
Inspector-General of Prisons	427 6	..	..	..	..	427 6	10,888 12	..	108 0	..	11,003 12
Medical depot	2,765 0	..	..	..	..	2,765 0	2,640 0	..	870 0	..	3,310 0
Others	421 14	..	..	..	..	421 14	120 4	9 0	..	3 0	128 4
<i>Bihar and Orissa.</i>												
Surgeon-General	1,422 15	..	248 12	..	..	1,679 11	1,419 0	..	712 8	..	2,192 8
Inspector-General of Prisons	73 0	..	..	..	..	73 0	48 2	..	..	..	121 2
Others	150 9	..	..	..	..	150 9	146 2	..	..	4 0	150 2
<i>Bombay.</i>												
Medical depot	..	10 0	..	..	..	10 0	..	..	..	..	..
Others	606 0	..	..	2 12	..	607 12	152 0	2 4	..	1 4	155 8
<i>Punjab.</i>												
Surgeon-General	2,104 0	..	291 8	..	..	2,395 8	2,127 8	..	962 4	..	2,099 12
Central Jail	2,812 0	..	..	..	..	2,812 0	..	..	2 0	..	2 0
Inspector-General of Prisons	420 0	..	..	..	..	420 0	..	..	14 8	..	14 0
Medical depot	2,000 0	..	..	..	..	2,000 0	..	2 0	..	..	2 0
Others	124 4	..	..	..	..	124 4	25 12	..	..	..	26 12
GENERAL PUBLIC.												
Assam	..	..	172 4	..	..	172 4	..	..	164 0	..	164 0
Bengal	..	9 0	4,028 0	..	..	4,028 0	..	..	1,222 0	..	1,222 0
Bihar and Orissa	..	..	242 12	..	..	242 12	..	..	188 8	..	188 8
Punjab	..	..	229 0	..	..	229 0	..	..	868 12	..	868 12
Other Provinces	..	..	1,618 8	..	..	1,618 8	..	..	426 4	..	426 4
Total	32,924 8	22 0	12,188 8	1 12	1	47,197 12	12,844 10	21 4	14,016 12	8 12	32,891 6	

APPENDIX H.*

Sale of factory products to provincial dispensaries during 1922-23.

PARTICULARS.	Sulphate quinine.	Cinchona febrifuge.	Other quinine salts.	Quinidine.	Cinchonine salts.	Cinchonidine sulphate.	Quinidine salts.	Total.
1	2	3	4	5	6	7	8	9
	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
Dispensaries—								
Bengal	1,502 0	8,028 12	1 0	0 8	..	..	..	9,832 4
Bihar and Orissa	1,417 0	712 8	2 0	..	..	..	..	2,132 8
Assam	277 4	573 12	..	..	..	7 0	..	958 0
Bombay	..	..	..	..	..	..	..	..
Madras	..	..	..	..	..	..	..	..
Burma	..	..	..	..	..	..	..	..
United Provinces	12 4	91 12	..	..	..	..	..	111 0
Punjab	1,127 8	962 4	..	..	..	..	..	2,099 12
Central Provinces	16 8	212 4	..	..	..	..	..	228 12
Native States	267 8	276 4	..	..	..	..	..	743 12
Medical Missions	167 10	1,089 0	4 0	4 0	1 2	1 2	1 4	1,268 2
Total	5,304 10	12,047 8	7 0	4 8	1 2	8 2	1 4	17,374 22

* Material for appendices G and H supplied by the Superintendent of the Javelin Jail, A.M.P.O.

APPENDIX I.*

Sale of sulphate of quinine in "treatment" tablets during 1922-23.

Consecutive No.	MONTHS.	Total proceeds from sale of tablets.	Credited to Oluchoha Department at half rate.
1	2	3	4
	1922.	Rs. A. P.	Rs. A. P.
1	April	17,328 13 0	8,664 6 6
2	May	25,064 8 0	12,523 4 0
3	June	25,717 14 0	12,858 15 0
4	July	33,282 1 3	16,641 0 7
5	August	45,559 6 9	22,779 11 4
6	September	29,727 5 3	14,863 10 8
7	October	58,883 2 6	29,441 9 3
8	November	46,822 1 0	23,411 0 6
9	December	64,455 10 0	32,227 13 0
	1923.		
10	January	24,806 0 6	12,403 0 3
11	February	12,435 7 0	6,217 11 6
12	March	18,323 10 0	9,161 13 0
	Total	4,02,405 15 3	2,01,202 15 7

* Supplied by the Accountant-General, Bengal.



Annual Report
on the Working of the
Co-operative Societies in the
Presidency of Bengal

For the Year
1923-24

CALCUTTA :
Bengal Secretariat Book Depot.
1924.

No. 10232.

FROM M. THORP, ESQ., I.C.S.,

Registrar of Co-operative Societies, Bengal (Offg.),

TO THE SECRETARY TO THE GOVERNMENT OF BENGAL,

Department of Agriculture and Industries.

Calcutta, the 19th November 1924.

SIR,

I have the honour to submit the report on the working of the Co-operative Societies in the Presidency of Bengal for the year ending the 30th June 1924.

I have the honour to be,

SIR,

Your most obedient servant,

M. THORP,

Registrar of Co-operative Societies, Bengal (Offg.).

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**OFFICE OF THE REGISTRAR OF CO-OPERATIVE SOCIETIES,
BENGAL.**

Corrigenda No. I.

Corrigenda to the figures in the Annual Report on the working of the
Co-operative Societies in Bengal, 1923-24—

Page.	Para.	For	Read
7	27	5,08,94,130	5,07,66,290
7	27	17·3	14·5
11	35	8638	8368
11	35	1,79,33,084	1,77,89,251
13	36	1,56,149	1,56,161
15	37	1,24,651	1,29,598
16	38	5140	5200
17	39	12859	12810
20	45	59,611	60,448
21	46	1,33,879	1,33,577
22	48	44,137	44,136

Corrigenda No. II.

Substitute the following for the corresponding entries and figures in
Table II appended to the Annual Report on the working of the Co-operative
Societies in Bengal, 1923-24 :—

	Working capital.		Working capital.	
	This year		This year.	
	Rs.		Rs.	
Agricultural Societies ...	1,88,54,248	This year's increase	♦ ...	74,02,490
Non-Agricultural Societies ..	1,05,87,996	Percentage ...	...	14·5
Total ...	5,07,66,290			

Gratis.

Corrigendum No. III.

Substitute the following for the corresponding entries and figures in the "B" Statement appended to the Annual Report on the working of the Co-operative Societies in Bengal, 1923-24:—

Classification.	Share capital paid up.	Working capital.	Classification.	Share capital paid up.	Working capital.	Classification.	Share capital paid up.	Working capital.
1	17	24	1	17	24	1	17	24
CLASS I—CREDIT.	Rs.	Rs.	CLASS I—CREDIT.	Rs.	Rs.	CLASS II.—PURCHASE AND PURCHASE AND SALE.	Rs.	Rs.
(b) UNLIMITED.			(b) UNLIMITED.			(a) LIMITED.		
Bardwan—			Jessore—			Howrah		870
Sadar		92,888	Sadar		1,11,004	24-Parganas		2,388
Kabwa		36,834	Shandah		15,789	Nonkhal		126
Kalna		1,16,126	Narail		1,19,578	Total Limited ...		1,86,161
Total		2,66,880	Dongour		33,631	Total Class II ...		1,86,161
Birbhum—			Magura		71,168			
Sadar		1,84,431	Total		2,48,964			
Rainpurhat		2,88,472						
Total		5,15,908	Khulna—			CLASS III.—PRODUCTION.		
Bankura—			Sadar		2,54,379	(a) LIMITED.		
Sadar		2,411	Harail		1,16,900	Birbhum		18,848
Bahupur		2,961	Dacochat		1,81,718	Bankura		1,08,838
Total		6,382	Taki		78,648	Midnapore		4,136
Midnapore—			Total		6,36,068	Hooghly		1,396
Chital		29,486				Total Limited ...		1,29,898
Teuluk		1,20,270	Dasoo—			Total Class III ..		1,29,898
Total		2,87,746	Sadar		1,44,183			
Hooghly		49,928	N-rayangon]		6,76,488			
Howrah—			Munshiganj		1,97,104			
Sadar		16,806	Mankganj		1,06,971			
Ulubaria		49,012	Total	88,504	10,54,716			
Total		66,818				CLASS IV.—PRODUCTION AND SALE.		
24-Parganas—			Mymensingh—			(a) LIMITED.		
Taki		1,51,379	Jemalpur		6,17,218	24-Parganas (Milk Soci-		12,391
Nitai		26,217	Tangail		4,16,843	eties)		519
Baranai		26,873	Kishoreganj		49,676	Jessore (Milk Societies)		8,60,899
Diamond Harbour		6,009	Total		28,43,051	Total Limited ...		7,74,028
Total		2,70,883				Total Class IV ...		7,74,028
Nadi—			Bakerganj—					
Kushba		1,15,344	Jemalpur		1,94,497	CLASS VI.—OTHERS.		
Meharpur		2,16,206	Pirojpur		6,26,864	(a) LIMITED.		
Hanaghat		81,708	Fatwahali		11,47,339	Pabna		1,847
Chaukanga		86,768	Total		11,47,339	Total Limited ..		5,300
Total		7,16,138				Total Class VI ...		5,300
Murshidabad—			Paridour—					
Sadar		2,34,484	Gopalganj		4,41,988	Total of all Classes ...	11,66,228	1,88,54,248
Jangpur		1,11,237	Total	24,928	14,86,909			
Lalbag		1,26,096	Total Class I ...	10,47,983	1,77,89,391			
Kandi		44,960						
Total		4,26,747						

Corrigenda No. IV.

Substitute the following for the corresponding entries and figures in the "C" Statement appended to the Annual Report on the working of the Co-operative Societies in Bengal, 1923-24 :-

Classification.	Share capital paid up.	Loans and deposits held at the end of the year from members.	Reserve fund.	Working capital.	Classification.	Share capital paid up.	Loans and deposits held at the end of the year from members.	Reserve fund.	Working capital.
1	17	18	28	24	1	17	18	23	24
CLASS I—CREDIT.				Rs.	(b) UNLIMITED.	Rs.	Rs.	Rs.	Rs.
(a) LIMITED.					Westers.				
Calcutta				56,52,546	Khulna				2,743
Burdwan				48,460	Birbhum				8,847
Hoochly				8,21,478	Nadia				1,910
24-Parganas				7,10,300	Murshidabad				8,901
Nadia				2,67,868	Bakerganj				860
Jessore				10,090					
Khulna				79,405	Total Unlimited ...			11,965	1,10,975
Faridpur				1,27,300	Total ...			11,965	1,38,677
Mymensingh				5,70,210					
Bakerganj				69,354					
Total Limited ...				97,48,546					
(b) UNLIMITED.					(b) UNLIMITED.				
Murshidabad				5,865	Fishermen.				
Total Unlimited ...				5,865	Howrah				1,391
Total Class I ...				97,69,840	Nadia				8,327
					Khulna				6,309
					Faridpur				2,856
					Total Unlimited ...	5,428			87,288
					Total ...	8,001			60,448
					Total Limited, Class IV ...	9,859			
					Total Unlimited, Class IV ...	28,193		33,099	2,41,896
					Total Class IV ...	37,805	5,509	38,283	2,68,044
CLASS II—PURCHASE AND PURCHASE AND SALE.									
(a) LIMITED.									
Calcutta				8,00,170					
Birbhum				21,002					
Bankura				14,880					
Hoochly				2,084					
Howrah				7,138					
24-Parganas				17,420					
Bakerganj				25,122					
Total Class II ...				4,48,817					
					CLASS VI—OTHERS.				
CLASS IV—PRODUCTION AND SALE.					(a) LIMITED.				
(b) UNLIMITED.					Calcutta.				
Toy-makers.					Bengal Youngmen's Zemindary Co-operative Society, Limited.				44,135
Birbhum				128	Total Class VI ...				1,01,268
Shoe-makers.					Total of all classes ...	80,24,808	31,72,167	6,91,807	1,05,37,598
Bankura				48					
Total ...				7,793					

Annual Report on the Working of the Co-operative Societies in Bengal.

For the year ending 30th June 1924.

I.—Administration and tours.

Mr. J. M. Mitra, Rai Bahadur, held the office of Registrar from the opening of the year under report until 10th January, 1924, and toured for 44 days during this period. Mr. Mitra was closely tied down to duties in Calcutta arising out of his position as Secretary to the Finance Sub-Committee of the Calcutta Exhibition, 1923,—duties which were of a most exacting character. He was nevertheless able to visit Rangpur, Dacca, Mymensingh, Khulna, Midnapore, Berhampore, Darjeeling, Bankura and Bombay, Societies of new types continued to receive his particular attention and the progress of industrial unions, irrigation societies and other special types of societies has been considerable. When possible, attention was also given to individual village credit societies on the improvement of which the future of the movement still depends. He also found time to pay a visit to Madras on behalf of the interests of the Dacca conch-shell industry societies.

2. I held the post of the Deputy Registrar from the beginning of the year until 10th January, 1924, when I took over as Registrar from Mr. Mitra. The recommendation of the Retrenchment Committee that the post of the Deputy Registrar should be abolished was accepted by Government and the actual abolition of the post took effect on 10th January, 1924, which practically coincided with the cessation of the heavy work which had fallen upon both Mr. Mitra and myself as a result of our connection with the Calcutta Exhibition. As Registrar, however, a considerable amount of work still devolved on me in connection with the British Empire Exhibition, all transactions in India on behalf of the Bengal Commissioner being carried out in my office. In this connection I would like to call attention to the very excellent services rendered by the Assistant Registrar, Presidency Division,

Babu Susil Kumar Ganguly, and the Co-operative Inspector, Babu Nirendra Nath Basu, who performed between them almost all the executive duties involved. I was on tour during the period from 10th January to 30th June for 21 days. My touring was confined to short tours to enable me to deal with particular local situations requiring the immediate attention of the Registrar. It is now becoming more and more the case that regular touring on ordinary inspection duty must be carried out by the Assistant Registrars, while the Registrar himself must be free to attend to innumerable special interests generally connected with institutions of new and special types. That this is the case is, however, no indication of a decrease in the importance of the ordinary credit institutions, central and primary; credit is still the foundation of the whole co-operative movement and no development of special type non-credit institutions can detract from the imperative necessity of complete and constant attention being given to credit societies.

3. The separate post of the Assistant Registrar, Presidency Division, was created on 17th May, 1924, and was taken over by Babu Susil Kumar Ganguly, until then the Personal Assistant to the Registrar. Rai Sahib Nripendra Chandra Bose, Assistant Registrar, Presidency and Burdwan Divisions, then remained in charge of the Burdwan Division only. The recommendation of the Retrenchment Committee that the post of the Personal Assistant to the Registrar should be held by an officer of the Subordinate Civil Service (Executive) was taken up by the Hon'ble Minister, Hadji Mr. Abdul Karim Abu Ahmed Khan Ghuznavi, and the senior Sub-Deputy Collector serving in the department, Maulavi A. M. Arshad Ali, relieved Babu Susil Kumar Ganguly on the 17th May, 1924.

4. Babu Upendra Nath Sen, Divisional Auditor, Dacca, continued to officiate.

for the Assistant Registrar, Dacca Division, from 1st July, 1923, to 21st January, 1924. Khan Bahadur Kamaruddin Ahmad, Assistant Registrar, Dacca Division, proceeded on 31st March, 1924, on duty with the Bengal Commissioner, British Empire Exhibition, to Great Britain. Khan Sahib Saiyid Mazam-muddin Hossain assumed the duties of the Assistant Registrar on 31st May, 1924, those duties being in the meantime carried out by Babu Upendra Nath Sen, Divisional Auditor, by way of local arrangements. Khan Sahib Abdul Jalil Khan continued as Assistant Registrar, Chittagong Division, until 16th May, 1924, when he proceeded on leave, his duties also till the close of the year being carried out by Babu Upendra Nath Sen, Divisional Auditor.

5. Table I gives a summary of the superior staff of the department, the *personnel* of the staff, the changes in the *personnel* and the number of days spent by each officer on tour during the year. The improvement noted in the last year's report in the nature of the tours of the Assistant Registrars was fully maintained. Opportunities for specially valuable work fell in the way of Rai Sahib Nripendra Chandra Bose as Assistant Registrar, Presidency and Burdwan Divisions, and later, Burdwan Division only, in connection with the establishment and further development of irrigation societies in the districts of Bankura and Birbhum.

6. The Assistant Registrars have now been placed in the category of officers of the II class for the purpose of travelling allowances. Memorials have been submitted by each against this and are under consideration. The Assistant Registrar, Rajshahi Division, reports that each tour has involved him in financial loss. The touring of the Assistant Registrar, Chittagong Division, was restricted owing to the grant under the head of "Travelling allowance" being exhausted in the latter part of the financial year, that officer having practically to confine himself to headquarters in the later months. He also reports that the rates now in operation are inadequate to meet the expenses involved in the touring which has to be done by Assistant Registrars. Inspectors of Co-operative Societies have been classed in the category of III class officers for the purpose of travelling allowances. It is reported that reduction to the III class has not only affected their status but has seriously prejudiced them financially

and one Assistant Registrar states that it is within his personal knowledge that many of them now find it impossible to meet their actual expenses from the travelling allowances which they obtain. The inspectors of the department whose areas are frequently coterminous with that of a District Officer (in other cases with that of a subdivision) are now entitled to Re. 1-7 for a journey of 20 miles, an amount insufficient to cover even coolie hire. In the case of the Assistant Registrar, Burdwan Division, the great development of the co-operative irrigation movement necessitates expensive touring by motor car—an absolute necessity, if an enormous waste of time is to be avoided. Such touring is not practicable except at a loss on II class rates.

Without regard to any particular division I consider it incontrovertible that Assistant Registrars' touring involving the necessity of visiting most remote quarters with a considerable quantity of equipment is much more expensive and is much less easily regulated than that of officers of the general line.

7. The partition of the then combined charge of the Presidency and Burdwan Divisions came into effect from 17th May, 1924, but no separate office establishment has yet been sanctioned for the Assistant Registrar, Burdwan Division. The Assistant Registrar, Chittagong Division, continues to work with headquarters at Dacca and the office work of the Dacca and Chittagong Divisions is being carried out by the same, and at present inadequate, staff. Although requisite funds for the establishment of a separate office for Chittagong were voted in the August session of the Bengal Legislative Council in 1922 this scheme has not since been taken up and has only come under consideration in the latter part of the year under review. The efficient management of the Dacca and Chittagong Divisions and to a smaller degree that of the Presidency and Burdwan Divisions is being seriously impaired, the staff in the combined Dacca office, in particular, being utterly inadequate for the volume of work.

8. The district of Darjeeling was transferred from the special charge of the Registrar to the charge of the Assistant Registrar, Rajshahi Division, in the latter part of the year 1923.

9. In spite of the fact that money had been voted by the Council in the year 1922 for the re-organization of the pay

of the officers of the department, further consideration of these proposals was not taken up until April of this year. Consideration of this is now pending with Government. It is unnecessary to dilate upon the need of an efficient inspecting staff under the Assistant Registrars. The inspector of this department in addition to carrying out his statutory duties supplies the superior officers with information and other assistance of the utmost importance without which the performance of their statutory duties would be impossible on the part of the Assistant Registrars and the Registrar.

10. **Inspectors.**—There were on the close of the year under report 66 inspectors serving in the department including 5 Sub-Deputy Collectors, 2 Sub-Registrars and 1 Veterinary Assistant on deputation. Of these 6 are permanent non-gazetted officers and the remainder temporary officers holding their posts from year to year. Seven Sub-Deputy Collectors serving as inspectors reverted to the general line during the year and their places were filled by non-gazetted inspectors. Maulvi A. M. Arshad Ali, Sub-Deputy Collector and Inspector, was appointed Personal Assistant to Registrar on the 17th May, 1924, and one non-gazetted post was created. The improvement of the pay of the inspectors of this department is now under consideration and it is hoped that only considerations of financial stringency are now a bar in the way of an early and effective revision of their pay.

The impression has frequently been created that the present establishment of inspectors represents the maximum which would be required in the department. To this demur must be made. The present staff has been found inadequate to meet the growing needs. There is no leave reserve and with the present staff it has been found impossible to meet the varying emergent requirements of special areas or special classes of societies on which the expenditure of additional supervision would have been a most remunerative outlay. On the occasion of my wishing to depute one additional officer to assist the inspector at Madaripur, it was found impossible to make the necessary arrangements without prejudicing the interest of some other area and in spite of the universally admitted importance of assisting the development of irrigation societies in, particularly, districts of Bankura and Birbhum, I found it impossible to detail officers there from other

areas. The Assistant Registrar, Rajshahi Division, states that to meet the increased requirements of his area arising out of developments in Dinajpur sadar, Thakurgaon, Kurigram, and Alipur Doars 4 more inspectors are necessary to bring his staff up to adequate dimensions. The departmental inspectors are at present very largely employed in the executive work which although it arose out of the provisions of the Act is directly on behalf of societies. Liquidation work in the Basirhat subdivision and adjoining portion of the Khulna district, Comilla sadar, where effective liquidation has benefited the central bank to an extent far beyond expectation, in Pabna sadar, in Madaripur and Faridpur sadar has practically resulted in the deputation of 5 officers to the services of these central banks. In future the possibility of liquidation being done by private agency will be considered, and a start has been made on that policy. In addition to liquidation a number of departmental inspectors are, beyond their statutory duties, also largely employed in the executive work of difficultly-placed central banks. In 6 areas in the Rajshahi Division inspectors are giving assistance to the central banks in the matter of collections and this is the case in many areas in other divisions.

11. Never more than now was the personal influence of the inspector necessary for the welfare of the individual societies. The great need of the moment is the improvement of the *personnel* of primary societies. The co-operative form has the appearance of working automatically, but actually the possibility of the good working of societies depends upon the personal improvement of their members and for effecting this the departmental inspector is still the most efficient agency.

With the increase, in the year, of societies the ordinary work of the Divisional Auditor has been increasing rapidly and it is now difficult or impossible for one Divisional Auditor to deal efficiently with all the audit work of the Dacca and Chittagong Divisions, and for the Chief Auditor at Calcutta to deal both with general audit questions and with the audit work of the Presidency and Burdwan Divisions. Further, during the year under report the Divisional Auditor at Dacca has frequently been in charge of the duties of the Assistant Registrar of Dacca or Chittagong or both, in addition to his own duties.

12. **Auditors.**—No increase in the staff of auditors has been made after the addition of 30 new auditors in the previous year. Proposals have been formulated for an increase of 10 auditors in the next financial year. The abnormal development of some special-type societies will result in their requiring special audit staff of their own, the charges not to be met from general audit fees but to be a charge against the ordinary working expenses of a society. The actual yield from the levy of audit fees was Rs. 1,19,984 as against Rs. 67,027-10-6 during the previous year. This is the result of the enhancement of the scale of fees to cover the increased cost entailed by the addition of staff which took place in the preceding year, the rate of audit fees having been increased substantially. The rates, however, are still far from excessive and impose no undue burden upon the societies.

13. A reduction has been effected in the office staff by the abolition of the posts of the tour clerks to the Assistant Registrars. This took place on the 1st of October, 1923. As anticipated in last year's annual report, the Assistant Registrars have found difficulty in dealing with their correspondence during their tours and the inevitable result has been that they have actually had to make shorter tours and to return to their headquarters more frequently to attend to office work which they could have disposed of during the tours if they had had competent tour clerks with them. In addition all the offices have experienced a large increase of work, while the previously existing office staff had found difficulty in coping with even the smaller volume of work of the previous two or three years. Three tour clerks were discharged during the year. The position at Dacca had been particularly difficult owing to the large increase in the work of the Dacca and Chittagong divisions even before the clerks had been discharged.

14. **Honorary Organisers.**—The central banks continue gradually to take over the cost of honorary organisers. In the year under report there were only 24 honorary organisers whose travelling allowances were paid out of the departmental budget as against 41 in the previous year and 61 in the year before that. The number of honorary organisers whose travelling allowances was paid by co-operative institutions is now 32 as against 26 of the previous year. Thus

gentlemen in this capacity now total 56 as against 67 of the preceding year. The difference is accounted for by two facts: (1) that the department had unfortunately to refuse to continue to pay the travelling allowances in certain cases even though the central bank was not prepared to take up the burden itself and (2) that each year a few of the less satisfactory honorary organisers have their services dispensed with. The increase in the number of societies in the latter portion of the year 1922-23 and throughout the year 1923-24 is a justification of the continuance of the system to pay the travelling allowances of honorary organisers which the Retrenchment Committee considered to be undesirable. The question as to what is the best principle on which to remunerate honorary organisers is still under consideration and a proposal to make allowances in favour of individual central banks for the travelling allowances of honorary organisers, the central banks themselves to direct the activities of the organisers and to meet their charges will be further considered "with a view to showing clearly the precise nature and extent of the expenditure at present incurred by Government and thus fixing the limit of their responsibility in the matter and to assigning a definite place in the scheme to central societies by transferring to these bodies the direct control over the expenditure and fixing upon them the responsibility for regulating it". It is an accepted principle that organisation must be by extra-departmental agencies and in view of this consideration it is desirable that the department should have no responsibility for the progress of organization.

15. It is still a matter for regret that the general public regard the extension of co-operative institutions as largely a matter for this department only and it is perhaps due to this that unofficial activity by others than "honorary organisers" and office-bearers is still inconsiderable. It is well known that there is a large volume of opinion that jute sale societies if satisfactorily organized and managed could do much for the benefit of their members but no example has come to notice of any considerable activity by private agencies in the direction of original propaganda towards the establishment of such societies.

16. **Supervising staff under the control of the societies.**—The total number of supervisors employed within the movement has risen from 215 to 246 during the

year. Of these 35 are paid by Government as against 34 in the previous year, whilst the central banks continue to pay the travelling allowance of three supervisors whose pay is a charge on Government. The aim of the department at present is that all supervisors should ultimately be paid by the central banks and so be completely subordinate to those institutions. At present the position is to a certain extent anomalous. The Government paid supervisors are entertained on behalf of the central banks, but with a view to their ultimately being taken over by the central banks, Government each year in a certain number of cases refuses further to bear this charge. The supervisors paid by the department must naturally be to a certain extent beyond the control of the central banks with whom they are working; and a responsibility devolves on the department to keep the same body of men if possible in employment, if hardship on account of intermittent employment is not to be felt. Thus a new central institution or other institutions requiring the services of a supervisor who is to be paid by Government must in many cases accept a supervisor from the Government list in preference to a local man.

17. There is now available for appointment as supervisors a large body of men of a very good type with a certain amount of general experience of local co-operative matters; and a considerable hope of the improvement of the working of societies arises out of this fact. In the year under review supervisors have been able to officiate as auditors and in the matter of appointments both general and local their interests have not been neglected.

18. Occasional instances have arisen in which the relations between the central bank authorities, inspectors and supervisors have not been entirely satisfactory and I would take this opportunity of asking the central banks in the interests of efficiency not to resent occasional and frequently justified interference on the part of inspectors, with their supervisors, and further not to support against the inspector a mis-behaving supervisor. There is still room for great improvement in the standard of work and honesty of many supervisors and I would ask the central bank authorities not to sacrifice the efficiency which can be furthered by occasional interference from the inspector upon the altar of their *amour propre*.

II.—Summary of general progress.

19. To generalize on the prosperity or the reverse of the year under report is not easy. The producer has tended on the whole to receive a better return from his produce and the consumer has experienced a slight reduction in prices of articles other than the produce of the land. From the consumers' point of view the price of rice or paddy was satisfactory (relatively to the prices of the previous years) until the end of the calendar year but the seasonal increase of price from the time of harvest until the middle of the year 1924, though slight at first, was from early April enormously in excess of the increase of the previous year. This, however, reacted to a certain extent to the benefit of the cultivator.

20. Early and late sellers of jute received a good price but a large body of the crop which was sold in the middle of the jute season brought in an unsatisfactory price and on the average it might be accepted that the price of good jute per maund available for the producer at country stations was only Rs. 8-4. Special features of the year as a whole were the uneven distribution of rain over the province, the weak monsoon and the failure of the winter rains. After the dry March there was a general rainfall in Eastern and Northern Bengal which facilitated the hitherto delayed field operations for autumn crops of 1923 in low land tracts, and good rainfall in May further helped sowings of jute and paddy in those parts. Western Bengal on the other hand suffered throughout the season from drought. There was insufficient rain in June in the Burdwan Division and scanty or late monsoon showers all over hampered sowings and the preparation of paddy seed beds. In August Northern Bengal and a part of Eastern Bengal experienced a serious drought which with the lowness of rivers interfered with the working of jute and the transplantation of paddy.

21. Although good September rain saved the situation temporarily the monsoon ceased earlier than usual and the winter rice crops were adversely affected especially in the higher tracts. On the whole the season was unfavourable for winter rice in western and only moderate for the rest of the Province.

22. The *Bhadoi* crops except in Eastern Bengal suffered for want of rain.

23. Much jute in Western Bengal was sown too late to make a normal crop. The drought in Northern Bengal and a part of Eastern Bengal interfering with cutting and steeping resulted in an unusually large proportion of the crop being temporarily left on the ground. The situation was saved to a certain extent by good rain and a rise in river levels in September, and a total outturn of 61 lakhs of bales was returned.

The deficiency of the winter rains handicapped the *aman* crop. On the whole a satisfactory crop was reaped but conditions were less favourable in Mymensingh and in parts of North and West Bengal. The outturn for the year worked out at 85 per cent. of the normal against 98 per cent. of the previous year.

Rabi crops were also unsatisfactory. The rain of September and October was followed by almost continuous drought until the middle of January when slight rainfall gave some relief. The outturn worked out at 85 per cent. of the normal.

24. In the Presidency Division partial failure of the crops was experienced in portions of the districts of Murshidabad, Nadia, Jessore and Khulna. The loss of crops was most severe in the Raruli area of the Khulna district. Paddy and the *rabi* crops were more affected than jute.

25. In the Burdwan Division all districts suffered owing to unhappy distribution of the monsoon rain and a partial failure of the winter rains. A breach in the embankment of the Cossye led to a portion of the Tamluk subdivision being overflowed by the river Rupnarain.

In the Dacca Division early flood hampered the *aus* crops in portions of Dacca, Mymensingh and Faridpur and did some damage to jute. The outturn of winter paddy over the whole division was on the whole unsatisfactory and high prices were experienced in the month of April, May and June. The jute crop was in general slightly unsatisfactory. Good results, however, were obtained in the following areas: Gopalganj, Mymensingh, Sadar, Munshigunj, Jamalpur and Naraingunj.

In the Chittagong Division an average season was experienced. The Chagnaiya area in Feni suffered from flood water from the Tippera hills. Portions of Noakhali and Comilla on the other hand suffered from drought, and both flood and drought adversely affected

parts of Chandpur subdivision and the island of Sandwip. In the jute areas the yield was satisfactory but the price was good only in the earlier portion of the season. It is reported that cultivators tended to hold back from an attractive market at first when a sudden fall in the market disappointed them and led them to an immediate disposal of their stock which deprived them of the benefit of the better market available towards the end of October.

In the Rajshahi Division both jute and paddy crops suffered from drought except in the low areas. *Rabi* crops also suffered a partial failure. Further, the jute that was grown suffered for want of rain for steeping and washing. A variety of causes tended to diminish the returns from jute crop in Northern Bengal. The difficulty of washing in many places, and drought in Rangpur, Sadar and Nilphamari, were intensified by severe flooding of the low lands when rain actually came. Total failures were experienced in Domar, Dimla and Chilahati. The outturn of *aman* paddy was also poor. Cardamom in Darjeeling tended towards its old high rate and a good crop was also grown. The paddy and maize crops of Darjeeling were normal. In Rangpur the tobacco and sugarcane crops suffered no damage but the price was poor.

26. Financial stringency was marked in the cold weather and the early months of the new year; as this, however, coincided generally with the advent of surpluses with co-operative institutions and in particular with the provincial bank its effect on co-operative banking was not adverse. The strong reputation of the Pabna Central Bank enabled it to survive without challenge a crisis which shook local loan offices, and the recovered confidence in the Kushtea Central Bank remained unabated. Sixty-two new societies were registered in the Kushtea area after the reconstitution of the bank in March, 1923, thanks to the generous assistance of the Bengal Provincial Co-operative Bank. The total membership of its societies rose from 1,759 to 2,767 and the corresponding rise of working capital from Rs. 44,655 to Rs. 1,15,545.

27. The general advance in organization and registration made in the latter half of the preceding year was fully maintained. As before, this advance was finally governed by the limits of the controlling and supervising staff as

regards considerations of quality and the possibility of the maintenance of a high level are still ruling factors. The expansion can be seen from Table II.

The number of societies of all classes rose from 7,822 to 9,342, an increase of 19.4 per cent. as against an increase of 17.1 per cent. in the preceding year. Membership rose from 292,981 to 340,159, an increase of 16.1 per cent. as against last year's increase of 12.6 per cent. and an increase of 7.4 per cent. in the previous year. The total working capital rose from Rs. 4,33,63,800 to Rs. 5,08,94,130, an increase of 17.3 per cent. and excluding the items which are counted more than once as a result of separate treatment of the funds of the provincial bank, central banks and primary societies, the actual cash employed in the movement was 3.32 crores as against 2.82 crores in 1922-23 and 2.39 crores in 1921-22, an increase of 50 lakhs against an average annual increase of 34 lakhs in the previous four years. Of the sum of 3.32 crores which is the working capital of the primary societies the amount received from outside sources was 1.76 crores as against 1.46 crores in the previous year, while the co-operative societies and their members provided 49.8 per cent. of their capital against just over 48 per cent. in 1921-22, 46 per cent. in 1920-21 and 45 per cent. in 1919-20.

The total number of societies in the Presidency Division rose from 1,650 to 1,966, the increase being mainly, as usual, under the head of credit societies; agricultural credit societies from 1,417 to 1,725 and non-agricultural from 75 to 82. The stores movement continued to be moribund, the more hopeless being liquidated during the year. Artizans' societies on the other hand increased slightly. The demands of new credit societies were greater than the new central banks could cope with. The propaganda work of the central co-operative anti-malarial society has also created a strong demand for anti-malarial societies in the Baraset, Basirhat and Barrackpore subdivisions. No less than 40 societies were formed in the Baraset area alone. The new central bank at Kandi has also received numerous applications, and 70 new societies were organized in Chuadanga area, 27 in Narial, 50 in Jessore and 29 in Bagerhat.

In the Burdwan Division, Howrah continues to be a hopeless area, successive failures of crops and inundation largely contributing to this, while lack of

efficient supervision by the central society added to apathy and indifference on the part of members has contributed to the failure of the movement there. In Hooghly the over-cautious policy adopted by the central bank has undergone modification and the bank has agreed to finance limited liability societies of a special nature. In this case these are irrigation societies which can be stated to be the safest investment which a central bank can have as the volume of money required is little, the material advantage is visible and the arrangements for repayment by members are easy. In Burdwan progress has been more rapid, the number of societies rising from 87 to 122 at sadar and 54 to 74 in Kalna. In Midnapore the creation of a new central bank at Mughberia has lent an impetus to the movement and 97 new societies have been organized. Of these Babu Gopal Chandra Ghose is responsible for 30. Shortage of local deposits is handicapping Tamruk. There, however, the question of societies for projects for regulating the proper flow of surface water is under consideration. In Bankura credit societies show no advance but the number of irrigation societies rose from 66 to 107. The increase in the irrigation societies in Burdwan district was not large, namely, one, but a persistent demand for credit societies is being felt; the societies in Birbhum sadar rose from 103 to 128 and 39 new societies were organized in Rampurhat.

In the Dacca Division 2 central banks, 17 limited liability societies and 348 agricultural credit societies were organized in the year. Little improvement of old societies is reported but marked improvement is seen in the method of organization of new societies. The Barisal Central Bank and the Dacca Central Bank are particularly careful in the matter of the organization of new societies. In regard to the older societies the Assistant Registrar noted that "many central banks make little effort to induce affiliated societies to reduce their demand gradually and thereby to reduce the indebtedness of the members which is one of the ultimate objects of the co-operative movement. Their attention is directed only to see that kists are regularly paid, the society, if the kist is so paid, being allowed a larger loan than that previously granted with the result that in spite of a lower rate of interest the indebtedness of societies is gradually increasing".

In the Chittagong Division, two central banks were organized in 1923-24, 15 limited liability societies, 250 agricultural credit societies, 4 weaver societies and one fishermen society.

Attention is being given both in the Chittagong and the Dacca Divisions to the possibility of creating societies for the disposal of the jute crop of their members.

In the Rajshahi Division the following increases are recorded:—

Central banks	...	6
Agricultural societies	...	336
Non-agricultural societies		33

Total increase of membership was from 60,078 to 71,092 and of working capital from Rs. 95,07,714 to Rs. 1,16,08,405.

28. In all areas attention to the improvement of societies has been fruitful. Dismissal of dishonest office-bearers, expulsion of refractory members and insistence on realization of bad, doubtful and excessively large debts, splitting up of unwieldy societies, prevention of over-financing, use of caution in advancing loans and insistence of the filing of mortgages by way of security, added to the general attempt to effect the improvement of the individual member by way of education have all had their effect.

29. The credit movement is an accepted element in the national economy, although it can still be said to have touched only the fringe of national indebtedness and to find difficulty in assisting certain types including, unfortunately the poorest of the cultivators and persons situated in other exceptional circumstances. The lament that co-operative movement is now no longer based on the moral element but on material security is not only true but voices a desirable truth, for credit on a large scale with extended ramifications of mutual liabilities and responsibilities cannot depend on anything so intangible as moral qualities alone.

In general co-operative credit "serves its purpose better than anything else that has yet been devised" in India and in fact in other parts of the world. It can afford relief to almost all classes of society while its institutions are sufficiently broad-based and the variety of co-operative purposes it serves is sufficiently big to make central co-operative

banking both safe and remunerative. Co-operative money is now available in its own slack season for non-co-operative enterprise and the profits from this use are considerable, the Provincial Bank having profited and its affiliated societies with it, from the temporary diversion of its funds to the financing of trade.

30. I regret to note that the maintenance of the distinction between short-term and long-term loans has not been taken up with enterprise by most of the central banks and the advantages of which mention was made in the last year's annual report have not been realised. The distinction between long-term and short-term loans corresponds so closely with realities and is a possible source of such great advantage to its exploiters that hopes must still, be entertained of its extended acceptance. Important economic interests are bound up in considerations of the questions of the extended use (1) Home Safe Boxes and (2) Endowment or Savings Deposit Schemes. Examples of the latter are the Feni Co-operative Home Saving Deposits, Feni Non-forfeiture Endowment Deposit Scheme and Feni Provident Deposit Scheme, all largely due to the initiative of Khan Sahib Maulvi Abdul Khaleque of the Feni Central Bank. Both these types of collections of money are from a national point of view of the utmost importance. They can effect the creation of thrift in the individual and can through banking institutions make available for the outside world of trade and commerce the accumulated small savings of millions. Central banks have not taken up the project of Home Safe Boxes with adequate enthusiasm in spite of the most capable advocacy of Mr. I. B. Dutt at the Annual General Meeting of the Provincial Bank which showed that the loan of Rs. 5 to one individual (in the shape of the Home Safe Box itself) could be expected to result annually in an investment of savings deposits by the borrower with the lender of from Rs. 15 to Rs. 40. The endowment schemes which I have referred to above have the same aim before them, but involve more labour on the part of the bank.

The principal of allowing good village societies to have cash credit accounts—practically current accounts—with their central banks has received considerable and gratifying extension. All these elements towards the adoption by the

rural individual of the habit of thrift and banking are fraught with considerable possibilities if only they are pressed with sufficient determination.

31. The progress of special types or forms of co-operative societies continues on the whole to be satisfactory. Little progress, however, has been made with the agricultural associations which are chiefly to be found in the district of Pabna. Agricultural Associations have increased from 11 to 16. Agricultural supply and sale societies and purchase and sale societies are still of an elementary nature and show a very small increase in numbers. The societies under the Central Co-operative Irrigation Society, Bankura, have increased enormously and a large increase of irrigation societies is found under the central banks of Birbhum district. The Central Anti-malaria Co-operative Society has had a great effect not only on the semi-urban areas close to Calcutta but also throughout the mufassal districts. The producers' unions have increased and miscellaneous artisans' societies either affiliated to such unions or independent have increased from 232 to 270.

32. While co-operative credit is now firmly established it is desirable to review not only the general results to date but particularly the tendencies which have made themselves evident. To carry out the aims of the co-operative movement two essentials are (1) an increase in the volume of the money resources available for co-operative distribution, with the corollary that all co-operative money should be spent on co-operative enterprise, preferably local co-operative enterprise, and (2) the best possible use of this money which in turn involves the satisfactory disposal of it by the final borrowers, at present a small body, although naturally the ultimate aim is that a chain of co-operative institutions should cover the whole national economy. Arise then two questions: First, whether as much money is now available for co-operative institutions as could be obtained and, second, whether the present use of it is satisfactory. In regard to the first I am of opinion that there are now old established central banks whose apathy in respect of organization is leading to the virtual refusal of local deposits. These central banks have reached the scale which is particularly attractive to the present management who have no wish for the increased worry and changes

involved in the maximum possible extension of their business. A further element is that the too rapid creation of minor central banks out of the body of old central banks also tends temporarily to defeat this object as in many cases these banks cannot obtain satisfactory terms on which to retain the parent central bank's money with the result that the parent central bank is loaded with a troublesome superfluity, while the Provincial Bank in Calcutta is called upon to finance societies of the new central bank which were previously financed by local money, the parent central bank further being unable or unwilling to supply itself (by new organization) with sources of investment of its superfluous money. The second question is a larger question, namely, as to whether satisfactory use is at present made of co-operative money when it reaches the ultimate borrower. This involves the further consideration whether co-operative money is meant only (1) to clear the encumbered debtor or only (2) to finance him in perpetuity at advantageous rates or (3) to do both. If the first is the aim the logical result is that we should regard co-operative money as able in a certain period to effect certain results for a certain individual and then to be available to perform the same functions for another. This amounts to a policy of "Redemption", and in fact is not the present policy of co-operative institutions. The second possibility rests upon the acceptance of the principle that all agriculture is financed and must continue to be financed by overdrafts and regards co-operative money as the ordinary credit resources of the community available for periodical borrowing and repaying. The value of the distinction between long-term and short-term loans which has been propounded in the last Annual Report and throughout the year under review, is that it realized these two essential functions and provides for both: Until this difference is universally taken up central banks and village societies will continue to move blind-fold without looking under the surface and trying to discover what actually is being done with co-operative money. At present the policy of redemption is almost a complete failure—possibly because the cultivators' economic situation is such that he cannot hope to pay off "redemption" borrowing in the kists which are generally fixed. The system of short-term loan will also not effect its proper purpose until its

actual function and utility is realised separately from that of the long-term "redemption" loan. Both these elements are dependant on one another for their success and must fit in with a general banking system. The present ignoring of the essentially different functions of long-term and short-term loans with its resultant reaction by way of stultifying the intentions of the final borrower are both making his borrowing less effective for himself and at the same time making the practice of Co-operative banking less safe. In brief what is at present required is a series of surveys by central banks into the economic condition of certain broad classes of cultivators, to enable an estimate to be made of what the various types of cultivators require by way of recurring loans of a short-term nature, and of their requirements in regard to redemption of capital indebtedness, with reliable information of their possibilities in the direction of repayment both of short-term loans out of the proceeds of their produce, and redemption loans out of the net profits of the year. Only thus can we obtain the information necessary to decide on the true position of the co-operative banking institutions whose money is actually with the cultivator-members of the primary societies. There is at present the phenomenon that to all appearance a co-operative borrower is not reducing his indebtedness to his society. This may mean that he now finds it convenient to be indebted for Rs. 300 instead of for Rs. 100 at an annual cost of Rs. 45 interest and is raising his standard of living or is choosing an adequate return from the continued use of this money in preference to making the repayment of the principal; or it may mean that he is actually unable to reduce his indebtedness in respect of the principal and that his ultimate insolvency is merely delayed because the terms of a money-lending co-operative society are easier than those of a mahajan. Whatever be the fact the almost universal increase in the figures of overdues is causing anxiety in all parts of India. Personally reviewing the progress of small cultivators for years under a money-lender charging, say, 40 per cent. per annum I cannot believe that the cultivator tilling from 10 to 20 bighas of land of the average composition of his locality is unable, if he can obtain his necessary credit at 15 per cent., to make considerable

savings annually and so to reduce his indebtedness.

If this is a true view, central banks through their affiliated societies have a duty to insist rigidly upon due repayment of debts being made or they will run the risk of finding their dues ultimately incapable of realization from their members except by the procedure of selling off the individual members' property in the course of liquidation of their societies. In view of these considerations it is essential that the business of co-operative institutions should approximate more and more in method and ideals to what is understood as "commercial" banking. Co-operative banking has now reached such a scale that in the interests of their depositors greater rigidity in method must be resorted to. Hand in hand with the attempt to perfect the system must go the attempt to improve the personal element with which Co-operative banking is concerned, *viz.*, the most important factors from the point of view of a Central bank,—the quality of the management of village societies and the character of the individual member.

The personal character of individual members is no longer regarded as the main element of security. This change has been inevitable. The admission of this, however, does not belittle the importance of this personal element, but recognizes it as affording the best assurance of the safety of the outlay made upon actual material security. Complete material security is essential in banking. The maintenance of the personal factor is equally essential, but not the sole indispensable, for co-operative banking, although in our present purview of the co-operative situation we can still say that no other factor will compensate for the failure to improve the individual member. If the Central banks' interest is wrapped up in the improvement of the individual members of their affiliated societies no less does it rest upon the improvement of the management of these societies. The management of a primary society is at present the weak link in a co-operative chain. Central banks are finding the necessity of working through this medium to be their greatest difficulty. Not unless they can effect a radical improvement in this element can central banks feel that their banking is safe.

33. An interesting feature which has lately come further to light is the

tendency of mahajans to use co-operative central institutions for investment presumably with the view that in sacrificing larger rates of interest they have greater safety for their capital outlay and less difficulty in collecting their revenues. Wide extension in this direction would mean an enormous increase in the resources of co-operative societies and it could at the same time tend to ease the "communal" situation in areas where the Mahammadan borrowers and the Hindu money-lenders are at open variance.

A tendency which is not equally satisfactory is that of a portion of the community to regard participation in a co-operative bank's profits arising out of interest as an improper act for good Muhammadans. I trust that it will be realised that credit whether from a banker or other middleman is essential for the carrying out of business and that in spite of temporary enthusiasms money will not continuously flow except for "due consideration", namely, interest.

The revision of Co-operative Societies Act has not been taken up, though the question has been steadily under consideration. The legal position of co-operative societies after liquidation, the inability under the Act to prevent withdrawal of share capital in case of limited liability societies, the lack of proper provision of powers of inspecting officers, the complete lack of penal powers in the case of non-compliance with statutory provisions are some of the points which are receiving consideration.

III.—Classification and returns.

34. The figures for the Central Antimalarial Society and for producers' unions, which, though granting credit to their members, are in essence non-credit, are now shown in separate statements, J and K, and are thus separate from the statement for central banks of the credit type.

IV.—Operations of Agricultural Societies.

(a) Credit societies.

35. The proportion of agricultural credit societies to the total number of societies in the movement remains as before, being practically 90 per cent.

This is neither surprising nor unsatisfactory. The chief need of a cultivator is still cheap money for use according to his own individual needs. In fact many special types of societies are still in the main only credit societies under a different form, whether they be sale societies to buy the produce of their members at a provisionally low price (ultimately to distribute by way of deferred price or bonus the balance due to the members) or whether they be weaving societies to advance raw materials to individual members. Of course, special types of societies can generally offer additional advantages over credit societies in the way of either cheap supply to or advantageous marketing of goods for members.

The number of societies rose from 7,011 to 8,638, the total number of members from 186,944 to 216,190 and the working capital from Rs 1,48,62,021 to Rs. 1,79,33,084. The sources of the working capital of these societies are given in Table III, from which it will be seen that in a total working capital of Rs. 1,79,33,084 share capital has increased from 7.03 lakhs to 10.27 lakhs, deposits from members from 6.98 lakhs to 7.83 lakhs and reserve funds from 21.63 lakhs to 25.70 lakhs. The collections amounted to 38.51 lakhs, an increase in volume over that collected in the previous year by over 2 lakhs, but this figure represents a decline of from 33.9 due at the beginning of the year to that of 31.4. Overdues are admittedly very large and this must be recognized as dangerous, and faced.

The proportion of paid up share capital declined from over 50 per cent. to 46.04 per cent. The most gratifying feature is the increase in deposits from members, the total of which though small in proportion to the total working capital is actually more satisfactory than could be expected. It is regrettable that the extension of the use of Home Safe Boxes has not been as great as it should have been. The extension of the use of these and of various provident and endowment system should be encouraged as a substitute for the more direct system of deposits.

The total of the funds owned by the societies was 43.81 lakhs as against 35.65 lakhs in the previous year and of 29.39 lakhs in the year preceding that. Loans from Government increased to an infinitesimal degree, but the loans held

from central banks increased considerably, namely, from Rs. 1,04,93,774 to Rs. 1,24,79,134, while deposits from non-members in their individual capacity increased from Rs. 6,94,701 to Rs. 8,07,194. Plainly the societies are still mainly dependent upon Central banks.

Table XIII shows the increase or decrease in the number of agricultural credit societies in each district in the Province and the changes in their audit classification. In the case of no district except Darjeeling is there a decrease in the total. The audit classification shows an increase of 5 A class societies, 24 B class societies, 43 C class societies, 29 D class societies and 51 E class societies. This is hardly a matter for congratulation. D and E class societies now total 1,005 out of 8,368 societies in the Province or 12.01 per cent. as against 925 from a total of 7,011 societies in the previous year representing a percentage of 13.19.

The importance of improvement in the working of these societies has received due attention. To facilitate closer supervision and better local arrangements 7 new central banks were formed during the year. Great insistence has been made on the necessity of central banks' supervisors being stationed within their areas, but the response from many central banks has not been satisfactory. The necessity for this has been shown by the still frequent cases of dishonesty, and the criminal and other malpractices of office-bearers and influential members of these societies. Rectification of the defects disclosed at the annual audit is still regarded as the most convenient method of routine survey and correction of the activities of the societies.

The general review of these societies raises no rosy picture. The efficient management of an elementary society requires only energy, tact and honesty. But these qualities are still far from conspicuous in the Panchayetes to which the management of the affairs of a bank are entrusted. One has only to review the "elementary instructions given to departmental officers and supervisors" or to the "Nine main points of co-operation" to realize how far village society managements are far from carrying them out, and a perusal of the answers to audit questions will show how often the Acts, rules and bye-laws are infringed, how frequently accounts are incorrect, loans not carefully made or not for

proper periods and objects, or not on adequate security, and how often repayments are behind-hand or even not entered; in fact, to realize to what extent the habit of *laissezfaire* is the characteristic of the management of the average society. The most important aspect of this indifference is that incapable or indifferent local management can neutralize all attempts at efficiency and good banking on the part of parent central bank and if sufficiently common can bring the parent institution actually to ruin. It is on account of this that I have in a previous paragraph dilated on the necessity of the actual improvement of the individual member and the management of primary societies as the crux of the present position of co-operative banking. Co-operative money is at present limited and should be so utilized as to exercise the biggest possible effect upon a society. This can only be done by its being caused to flow from person to person—whether by short-term loans or by long-term loans—and this function is most easily negated by the continued use of the same or increasing amounts of money by the same members. I do not like to refer again to the necessity of the distinction between short-term and long-term loans, but as this distinction corresponds with a real distinction in the needs of members and the natural uses of money and is at the same time both easily followed and if followed affords the best possible guidance to village management, I can only once more emphasize the urgency of the acceptance of this distinction, as giving hope of a definite improvement in society management.

A general improvement is reported in the Presidency Division except in the Raruli area where successive failures of crops have severely prejudiced the future of the societies. The Narail Central Bank has been unfortunate in taking over a number of bad societies from the Jessore Central Bank. Several of these will have to be closed after the realization of their liabilities. Misappropriations on the other hand have not been few.

Five central banks in the Presidency Division have accepted and are working short-term and long-term loans. Short-term loans are naturally preferred in the areas where members get a variety of crops in the year or by small dealers or shopkeepers. The Assistant Registrar reports: "The movement has not yet

been able to eradicate the habit of unpunctuality which grows from the feeling induced in members that they can with impunity evade payment when they see office-bearers of their societies persistently and wilfully defaulting after appropriating the lion's share of the loan for themselves. The societies have not yet developed a sense of responsibility among office-bearers who sometimes evince a marked disinclination to take action against their defaulting colleagues." Reduction of overdue loans, efforts to split up unwieldy societies, efforts to replace incapable or mischievous office-bearers, the institution of arbitration cases against persistent defaulters, and the liquidation of incorrigible societies have all tended to the improvement of the general level of societies in all the divisions.

In the Rajshahi Division the societies under the Darjeeling Central Bank still require constant attention, Balurghat societies have improved, but there is room for further improvement. Societies in the Nachole area in Malda are unsatisfactory, but this is due to three successive failures of crops. In Pabna the position of the societies under the Pabna Central Bank remains unsatisfactory.

In the Chittagong Division the condition of societies is generally satisfactory except where failure of crops has been experienced, namely, portions of Feni, Sandwip island, portions of Chandpur subdivision and portions of Noakhali sadar.

In the Dacca Division most of the areas other than those in the Faridpur district, where the income from *aus* and jute was disappointing, were satisfactory, as they suffered on the whole but little from climatic disturbances.

In the Burdwan Divisions collections were not satisfactory in the Rampurhat area and in that of Birbhum sadar. In the case of the latter the bad harvest of the previous year was largely responsible. Progress in general was good. The societies in the Howrah district are no better, but more life is being infused in the Hooghly district. The credit element is still weak in Bankura and the local conditions are not favourable to grains banks.

(b) *Agricultural purchase and purchase and sale societies.*

36. The number of these societies increased from 21 to 22, membership from

4,147 to 4,441 and the total working capital from Rs. 1,54,641 to Rs. 1,56,149. Consolidated accounts in these societies show a profit of Rs. 3,620 during the year. It is regrettable to have to report a serious weakening in the position of the Sundarbands Supply and Sale Society, a profit of over Rs. 10,000 on the previous year being turned into one of Rs. 2,189 in spite of a most improper form of assistance given to it by the Khepupara Central Bank. Practically no business was done in disposing of the members' produce, almost the whole business of the society consisting in common stores business. The rice business of the society resulted in a loss of Rs. 1,600 and Rs. 1,300 loss was incurred in a disaster on the river; but the main cause of the poor results of the year was simple diminution in the volume of the business of the society. Management expenses have increased and the profit on the common stock of the stores has been low. In fact the prices of goods have been mistakenly low as the difference between wholesale and retail prices has not been made to allow for establishment and other proper charges. There is a weaving school which is attached to the Supply and Sale Society, although it is financed by the central bank. The society supplies yarn to the students and takes back their finished products. This business has up to the present been completely successful.

The Naogaon Sale and Supply Society shows an increase in the number of shareholders from 3,342 to 3,711 and a consequent rise in the share capital from Rs. 17,320 to Rs. 19,165 and working capital from Rs. 50,051 to Rs. 53,099. Total receipts from the sale of goods amounted to Rs. 94,247 as against Rs. 72,960; the increase is chiefly due to a greater volume of business in paddy and rice as well as to an increase in the number of members. The Press Department of the society worked satisfactorily during the year and made a profit of Rs. 800. The expenditure under the head "Establishment and contingent charges" was Rs. 2,655 as against Rs. 2,336 of the previous year. The society made a net profit of Rs. 5,624 during the year.

In the Burdwan Division only three societies in the Midnapur district are still working. The Belebera Society did not open any department for the sale of its members' produce, although this has been contemplated. The Pingla Society which

disposed of Rs. 54,292 worth of paddy of its members made a profit of Rs 898 during the year. The Khelar Society, which commenced work in the middle of the year, disposed of Rs. 12,227 worth of its members' paddy and made a profit of Rs. 74. Both the Pingla and Khelar Societies have taken loans of Rs. 2,000 from Government and have constructed paddy godowns with these amounts. The question of establishing a central godown in Calcutta to dispose of the produce of mufassal sale societies is under consideration.

In the Presidency Division the number of these societies fell from 8 to 7, the total membership from 267 to 251 and the working capital from Rs. 10,264 to just under Rs. 4,000. The Buranpur Society had worked well during the first two years of its existence, but subsequently allowing large credit sales in violation of its bye-laws incurred a loss and found its working seriously impaired. These societies have shown few signs of progress with the exception of the Gosava Paddy Sale Society which receives special help from the management of Sir Daniel Hamilton's estate. Even it has experienced difficulty in the disposal of its members' produce.

In the Dacca Division the Dewangunj Supply and Sale Society was liquidated during the year but the registration of Nardai Sale Society keeps the total of such societies at 4, including the Bakargunj Sundarbans Co-operative Supply Society. The Ghorasal and Ekduaria Societies call for no remarks.

In the Chittagong Division there are 4 societies as against 2 of the previous year. Of these three had not commenced work during the year and one is working rather unsatisfactorily.

In the Rajshahi Division there are 9 societies of this class. No new society was registered during the year. Culpable neglect and in some cases downright dishonesty are the main causes of their unsatisfactory working. In Rangpur the Burirhat Supply and Sale Society sustained a heavy loss. The Kazipur Society is the only society which is satisfactory and this is due to a certain extent to the departmental officer, Babu Upendra Lal Pakrashi. Five of the 9 societies are now working. Another bright spot is the Naogaon Supply and Sale Society which has been mentioned above. No further steps have been taken to secure for sale societies greater control

over their members' produce or to give credit to members by deposit of their produce.

The rapid increase of price for paddy and rice from the end of March, 1924, till into the rains has again revived interest in the possibility of paddy sale societies. These are in type excellent but there are certain matters to be taken to consideration. First, in a normal year the profit on aratdari business is not great. In fact, in the year 1923 many firms sustained big losses. This business should normally not be taken up except where the prospective members are actually obtaining noticeable bad returns from their crops. For instance, this is not the case in the Sundarbans area where beparis from outside districts or from trade centres of Barisal come to the very *bari* of the cultivator to buy his crop. Secondly, the business of paddy sale societies requires a large working capital and the difference of profit received through co-operative sale as against private sale must be very great to compensate for the costs of management, and interest charges. Co-operative purchase and sale will seldom eliminate any management charges which are incurred in ordinary paddy business. They will, however, secure to the producer (1) a fair price of his produce and (2) a fair share in whatever profits there may be. The functions of the primary paddy sale societies and primary jute sale societies as commonly conceived are distinct. The primary notion behind the paddy sale society is to enable the cultivator to obtain the best price of the year for his produce—incidentally the cultivator is brought into touch with a better purchaser; at present the problem of the jute sale society is to bring the producer into touch with a satisfactory purchaser and it is no part of the jute sale society's business to speculate by way of waiting for high prices. By this road several societies have gone to ruin and the experience of year after year shows that not only the cultivator but persons with better facilities for knowledge are deceived as to the prospects of prices hardening or easing. A caution must also be entered against the common notion that prices of baled jute in Great Britain and prices of raw jute purchased from the cultivators are so discrepant as to suggest that the latter gets no economic price. The Kazipur Supply and Sale Society (Jute) is doing well. The experiments of last year at Sarisabari in Tangail have shown that

arrangements can be made to bring the society or a society's members into direct touch with the big firms in Calcutta through local agencies. Enquiries at Gouripur and Daudkandi in the Chittagong Division have not been infructuous.

(c) *Irrigation societies.*

37. The development of irrigation societies which was noted in last year's report has continued. These now total 173 as against 114 in the last year and 29 in the year before that, with a membership of 7,376 as against 4,689 and working capital of Rs. 1,24,651 as against Rs. 77,658. Of these societies 1 is in Burdwan, 58 are in Birbhum, 107 in Bankura, 1 in Midnapur, 4 in Hooghly, 1 in Faridpur and 1 in Bogra. Societies irrigating more than 500 bighas of land each are 22 in number of which 17 are in Bankura and 4 in Birbhum. The total area to be irrigated is over 50,000 bighas of which 40,000 are in Bankura and about 10,000 in Birbhum. The Salbund weir in Vishnupur and the Khukrajore weir in Bankura sadar can each irrigate more than 5,000 bighas. In the Bankura sadar work was completed in the year of the Panchmura Gurusaday Samity irrigating 2,100 bighas and Raipur Jumnabund Samity irrigating 1,000 bighas and the Birbund Society irrigating 1,000 bighas. Progress sufficient to make irrigation possible was done towards the Rukhmini Khal scheme (to irrigate 1,200 bighas), the Dhabu scheme (to irrigate 1,400 bighas) and the Chankura Jorishas scheme (to irrigate over 1,000 bighas). The paid-up share capital of the societies amounted to Rs. 24,730, which indicates clearly both the interest taken in the villages and the reality of the service they expect from the societies. Overdues to date are inconsiderable.

In the Vishnupur subdivision of the Bankura district work was completed in the case of 7 societies and 14 other societies started work. The total number of societies rose from 18 to 23.

In Birbhum the number of societies rose from 45 to 58 of which 45 in sadar and 13 in Rampurhat. Of the 58 only 5 have stream or weir projects, the remainder being tank societies. Four major works were completed by the societies during the year. The Birbhum societies as a rule themselves carry out

(under departmental guidance) the construction of the work and the immediate supervision.

In the Hooghly district 4 irrigation societies have been organised of which 2 have completed their schemes. In Burdwan one tank society has been organized and further organisation is expected. The thanks of the department are due to Mr. Orr, Irrigation Engineer, Public Works Department, for kindly examining unofficially the proposals and plans for stream schemes in that district. The Khelar Murakata Society in the Midnapur district—the first irrigation society in the province.—continued to work well.

A large extension of departmental staff is now under contemplation to cope with the demand for co-operative irrigation societies in Western Bengal. The people there show a strong inclination towards such societies. There are in view now in the Bankura sadar 15 weir scheme to cost from Rs. 6,000 to Rs. 25,000 each; in Bankura, Vishnupur subdivision, 12 weir scheme to cost from Rs. 4,000 to Rs. 20,000 each; and in Birbhum district 22 schemes to cost from Rs. 2,000 to Rs. 10,000 each. Success in handling these schemes will mean an incalculable increase in such societies in other parts of these districts and in the districts of Burdwan and Midnapore. The demand for and the possibilities in the direction of tank schemes are absolutely unlimited except by the probabilities of the availability of money.

The Agricultural Engineer is only concerned with weir schemes. He has up to date been hampered by the inadequacy of his staff. It is only recently that 6 surveyors were sanctioned for him, he having up to that time had under him two surveyors and one overseer inspector, in addition to three ordinary inspectors of co-operative societies without overseer qualifications.

The average cost of a weir scheme works out at approximately Rs. 9 to Rs. 10 per bigha of land to be irrigated from the water stored. The cost of a tank society works out at about Rs. 6 per bigha, most tank societies being able to irrigate only 100 to 150 bighas. On the financial side the co-operative irrigation society is the most satisfactory type evolved up to the present, and success in the next few years will open up a prospect of a new era of prosperity for the cultivator made possible as he realises through the exercise of thrift and self-help.

The total amount to be borrowed can be repaid in 4 years at a cost to the borrower of less than Rs. 3 per bigha irrigated. The advantage from irrigation cannot be definitely stated but it is anticipated that land which is under irrigation can give 6 maunds per bigha which without irrigation or with inadequate irrigation would yield from nil to 3 maunds. The societies borrow up to the original cost of the project from the central bank to which they are affiliated and pay back out of the share capital collected from themselves. In the later societies arrangements for preliminary expenses and subsequent maintenance are now being made. The progress of the irrigation movement in Burdwan Division owes very much to the sustained interest taken by the Divisional Commissioner, Mr. J. N. Gupta, and the District Officers and the Subdivisional Officers of Bankura and Birbhum are directly responsible for a very big proportion of the results accomplished. There is an unlimited scope for tank scheme throughout Western Bengal and for weir scheme in the sloping country of Birbhum and Bankura particularly

(d) *Co-operative Agricultural Associations.*

38. The number of agricultural associations increased from 11 to 16 during the year. The total membership of the association now stands at 291 as against 172 last year and working capital stands at Rs. 5,140 as against Rs. 1,092. A loss of Rs. 597 was experienced in the working of the year. The ideas underlying these associations have not yet been fully carried out and it appears at present that they will not be successful unless they received constant attention from departmental officers in a degree out of all proportion to their intrinsic importance.

In the Rajshahi Division the Dasuria, Debhatta and Nazipur societies were reported to be doing good work until 1923 but are now reported by the District Agricultural Officer, Pabna, to be less promising. The associations, of Talat and Sujanager are making arrangements for land for experimental work. The Khabirpur Association had started a small farm but owing to the indifference of leading members it is now in a moribund condition. Of the three co-operative agricultural associations in the

Tamluk subdivision in the Midnapore district one has not yet started work on account of party faction. The Lokshya Agricultural Association is making experiments on the lands of its own members with improved seeds. It has also secured some land for itself. The Doaribaro Agricultural Association is reported to be doing well. It has secured 9 bighas of land, made a profit of Rs. 41 in the year and was awarded a first prize at the last agricultural exhibition held at Tamluk.

In the Dacca Division three agricultural associations were registered during the year, one in Mymensingh, and two in Faridpur. None has yet started work.

In the Chittagong Division there are no agricultural associations by that name.

In the Presidency Division a novel type of society with an ambitious programme was formed during the year called the Modern Co-operative Agricultural Association, Ltd. This was registered in January 1924, but shortly afterwards suffered a severe set-back from the deaths of two of its sympathisers, Sir Ashutosh Mukherjee and Sir Ashutosh Chaudhury.

It was organised with 11 members and is now directing its efforts to raising the necessary capital. At the close of the year the paid-up share capital amounted to Rs. 566 and outside deposits totalled Rs. 2,214. Its bye-laws provide for a nominal capital of Rs. 50,000. The society, it is understood from its prospectus, has arranged to secure a large tract of land in the Paresnath Hills with the object of allotting the same to the members of middle class families. The agricultural colony so formed will supply facilities for small plot cultivation, and for vocational education. The society's main aim is to afford an example of the solution of the middle class unemployment problem. It also proposes to start as adjuncts a dairy farm, an agricultural college, and a polytechnic school for training in spinning, weaving and carpentry, also a hospital and other adjuncts of town life.

(e) *Production and Sale Societies.*

39. *Milk societies.*—These societies have now extended from the Baraset subdivision into the district of Jessore. There are 50 such societies in the

former area and 4 in the latter. All of them are members of the Co-operative Milk Union in Calcutta and have progressed satisfactorily during the year. The total increase is from 52 to 54, 10 having been dissolved during the year and 12 being newly organized. The policy of consolidation was steadily pursued during the year and the following table exhibits the progress of the societies during the past 24 months:—

	1922-23.	1923-24.
Number of societies . . .	52	54
Number of members . . .	2,040	2,165
	Rs.	Rs.
Working capital	14,115	12,859
Loans made to individuals .	54,473	40,108
Loans repaid by individuals	59,249	81,633
Loans due by individuals . .	11,800	9,160
Deposits received from individuals . . .	1,268	1,567
Purchase of produce	48,681	78,331
Sale of produce	64,836	1,03,224
Cost of management	9,176	14,467
Paid up share capital	1,936	2,774
Profit	4,846	11,054

Forty societies out of 54 (as against 10 of the preceding year) or 74 per cent. of the total number have conducted their business with their own capital, while they were also able to keep in deposit Rs. 5,932 in the Co-operative Milk Union from their surplus funds. There was also a steady rise in the owned capital, profits, reserve funds and deposits in the Union by these societies taken as a whole as will be seen from the figures given below:—

	1921-22.	1922-23.	1923-24.
	Rs.	Rs.	Rs.
Share capital	2,653	1,936	2,774
Deposits by societies	Nil	Nil	5,932
Reserve fund	359	2,580	7,448
Profits	1,730	4,846	11,054
Owned capitals	3,498	9,631	16,294

The supply obtained from these societies is almost wholly consumed in Calcutta and the consistent increase recorded during the last year has been maintained. The milk has also retained its high reputation for quality. The difficulties of quick and satisfactory transport to Calcutta are still blocking the way to considerable expansion of these societies in the outlying area.

The Naogaon Ganja Cultivators' Co-operative Society, Ltd.

40. The total membership increased from 3,221 to 3,617 and the share capital from Rs. 33,710 to Rs. 40,670. Deposits from non-members increased from Rs. 1,08,210 to Rs. 1,90,170 and those from members again increased from Rs. 35,069 to Rs. 43,699. The effects of the floods in Northern Bengal which occurred in September 1922 are still felt. The advance price paid to members for total quantity of ganja deposited by them amounted to Rs. 6,16,366 as against Rs. 5,63,813 of the previous year, the increase being due to both higher prices and larger outturn. The sale proceeds amounted to Rs. 10,01,645 as against Rs. 10,84,947 of the preceding year. A slight decrease in receipts from sales was due to a fall in the demand, due both to a general political campaign and to a certain extent to an increase in the retail sale price. There was no change in the wholesale price of the drugs, the previous rates Rs. 260 for Bengal and Rs. 245 for golada's outside Bengal continuing. During the year the society suffered from over-production, 8,615 maunds of new ganja being taken over from the members out of which only 4,444 maunds were sold off. This resulted in the necessity on the part of the society of reducing the purchase price of ganja to Rs. 85 per maund for ganja of the first class. By a kind arrangement on the part of the Commissioner of Excise and Salt the hardship caused by the difference between quantities produced and quantities sold is being spread over the two years, 1923-24 and 1924-25. During the year the society paid Rs. 31,086 to Government towards the maintenance of the Excise Preventive staff. The society still maintains three charitable dispensaries and spent Rs. 8,429-12 under this head in addition to Rs. 1,869-14-9 for the maintenance of veterinary dispensary at Kirtipur and Rs. 7,737 on the Chakatitha High School and other Primary and Secondary Schools. One of the last named is a night school at which even aged cultivators have attended. Super-tax amounting to Rs. 27,129 was paid to Government on account of its profits for the years 1921-22 and 1922-23 and subsequently refunded to the society on a representation that it should be classed as deferred price due to members and not as profit. This has been earmarked by the Directors for the improvements

of the roads in the Ganja Mahals. Maulvi Hamidur Rahman, Deputy Chairman and Chief Executive Officer, has continued to do excellent work.

V.—Operations of non-agricultural Societies.

41. These societies fall under the following heads:—

(i) *Credit*—223 societies during the year as against 186 in the preceding year.

(ii) *Stores and supply societies* shown under Statement C, class II; purchase and sale societies totalling 69 during the year as against 76 in the preceding year.

(iii) *Artisans' societies* totalling 270 as against 232 in the preceding year as shown below:—

	Year under report	Preceding year
(a) Conchshell workers' societies	1	2
(b) Toy-makers	1	1
(c) Shoe-makers	9	9
(d) Weavers	174	142
(e) Cocoon rearers	16	16
(f) Cocoon reellers	2	1
(g) Fishermen's	59	54
(h) Oil-pressers	1	1
(e) Blacksmiths	2	1
(j) Spoon-makers	1	1
(k) Lac-growers	2	2
(l) Carpenters	1	1
(m) Chican workers	1	1
	270	232

(iv) *Miscellaneous societies*—40 societies during the year as against 19 of the preceding year as show below:—

	Year under report	Preceding year.
(a) Zemindari societies	2	2
(b) Medical aid	1	1
(c) Anti-malarial	32	13
(d) Electrical supply	1	1
(e) Naogaon Officers' Co-operative Club	1	1
(f) Sandwip Industrial Society	1	1
(g) Satisabari Samahaya Silpa Samity	1	Nil
(h) Tippera District Civil Court Employees' Co-operative Relief Society	1	Nil
	40	19

(a) *Credit societies*

42. These are almost wholly limited liability societies and are either town banks drawing their membership from all classes of people or are composed of members of a particular class or

community or of a particular calling or belonging to a particular business. The total membership of these societies rose from 62,070 to 72,553, the paid-up share capital from 22½ lakhs to 26½ lakhs, non-members' deposits from 27 lakhs to 32·57 lakhs and the total working capital from 83 lakhs to 97 lakhs. About 77½ lakhs were issued as loans during the year and 62·56 lakhs were realised from borrowing members, while out of outstanding loans amounting to over 90 lakhs, only 7 lakhs were overdue, the overdue loans representing little over 7·2 per cent. of the total working capital. The profit earned rose from 3 lakhs to 3·31 lakhs but the dividend paid did not exceed 12½ per cent. in any case, while the reserve fund rose from 4 lakhs to 5·18 lakhs. The paid-up share capital in the Presidency Division alone increased from 16 lakhs to 18·64 lakhs and the reserve fund from 2·42 lakhs to 2·93 lakhs. A type of societies deserving particular mention is the Azimganj Methers' limited liability society. The members of this society have paid up Rs. 500 in share capital and have taken loans of Rs. 900 from depositors and Rs. 300 from the central bank. This method of working is particularly commendable. The bulk of the societies in the Presidency Division are the Calcutta group. These continue to realise the aims of these societies and are not merely borrowing institutions as can be seen from the portion of the paid-up share capital and of own deposits. In fact they tend to approximate to the European "Mutual Benefit Society" in which the members regard the society as not only a source of borrowing but is a profitable field for investment during the time when they have no need for borrowing. The mofussil "urban banks" do not show as good a record. The personal element with which they deal is less satisfactory than that of the Calcutta group and the moral factor of co-operation tends to be completely absent. The Berhampore Municipal Methers' Society is reported to be as successful as the Azimganj Municipal Methers' Society in combating drunkenness among its members. The Jangipur Municipal Methers' Co-operative Society is also satisfactory. In the Burdwan Division the Kalna Urban Bank shows a profit of Rs. 1,646 during the year; its working capital is composed of members' deposits and share capital. The Birbhum Ministerial Officers' Society shows excessive overdues. The

Municipal Methers' Society at Tamluk is also assisting its members to reduce their indebtedness and at the same time is said to be curing them of drunkenness.

In the Chittagong Division the Chittagong Urban Co-operative Bank is the biggest of such societies in the division. It made a profit of Rs. 24,920 during the year with a working capital of Rs. 3,29,298. The Peoples' Co-operative Bank, Comilla, is successful. The Tipperah District Civil Court Employees' Co-operative Relief Society is practically a limited liability town bank. It was started in April 1923 with the object of promoting thrift among the members by enforcing a saving of Re. 1 a month from its members. Its fund is invested in the longest term deposit in the Comilla Central Bank. This is a novel form of society and a description of its working which appeared in the Bengal, Bihar and Orissa Co-operative Journal attracted enquiries from all parts of India. I wish again to call attention to the excellent initiative and vigour of Dr. Beni Madhab Das of the Chittagong Town Bank.

In the Dacca Division the condition of the Gopalganj, Perojpur, and Hashara societies is not satisfactory. The Netrakona Town Bank was liquidated just after the close of the year for bad working. Other societies are progressing favourably. The Madaripur Urban Bank and Barisal Islamia Co-operative Urban Bank are showing signs of improvement.

In the Rajshahi Division the Jalpai-guri Peoples' Bank suffered on account of the embezzlement by the Accountant, who was convicted and sentenced, and better working is expected. The Rangpur Non-gazetted Officers' Co-operative Society, which suffered on account of party faction among its members, is improving. The Pabna Urban Bank took a very serious turn early in the year but it has since been reconstituted and is expected to improve. The Hindu-Moslem party feeling in the Serajganj Urban Bank has been removed and the prospects of the society are improving.

The Mether societies have increased with the addition of two in the district of Murshidabad and one in each of the following districts:—

- (1) Mymensingh,
- (2) Bakarganj,
- (3) Chittagong,
- (4) Tippera and
- (5) Noakhali.

(b) *Stores and supply societies.*

43. Once again record has to be made that the stores movement shows few signs of progress. The total number of stores fell from 76 to 69 and membership from 12,997 to 12,416. Sales climbed down from 7.90 lakhs to 6.69 lakhs. As regards sales as before the greater part was to non-members, want of loyalty on the part of the members being as prominent as before. The total loss incurred by these societies during the year excluding the loss incurred by the Calcutta Swadeshi Co-operative Stores, which alone amounted to Rs. 12,988, was Rs. 32,435 as against Rs. 9,225 in the preceding year. The position occupied by the stores movement among co-operative societies is the same as before. Identity of interest, practical as well as theoretical between the member and the store is as little realised as ever and the necessity of both efficient executive management and constant attention to the interests of the stores on the part of the managing body does not receive sufficient notice. It must also be admitted that co-operative store work under a severe handicap as compared with private firms. Their management has not got an intimate knowledge of all the matters appertaining to the trade. The management being the trustee of the share-holders interest tends to have little freedom of action, resulting often in lack of efficiency; and the necessity of keeping an enormous body of ledgers necessitates an unusually large staff for the volume of sale which is involved. Adequate attention is still not paid to stock-taking or to the necessity of rapid turn over of stock. Many societies still regard large stocks in hand as a sign of prosperity. A store manual prescribing a simple system of accounting and providing the necessary checks against dishonesty has been published during the year. No advance has been made towards the system of joint invoicing, the problem being a difficult one. The whole position of co-operative stores in this province is disappointing. An unambitious stores dealing with the main common necessities of life need involve no great trouble to manage and could be of great benefit to its members if the latter would only realize that the services available from stores are not confined to the provision of goods at low prices and that with a modicum of hard work and honesty on the part of the management a tolerable degree of success could be ensured.

The Gosava Co-operative Stores is reported to be working well and the Khulna Co-operative Stores has succeeded in passing through a critical stage. The Kanchrapara Railway Co-operative Stores is a well-managed society which has earned a profit of Rs. 2,280. The Matlabganj Co-operative Stores was placed under liquidation, but the Chittagong Co-operative Stores, owing to the efforts of Dr. Beni Madhab Das and the generosity of the Central Bank and the Urban Bank, is recovering from the heavy loss sustained in 1922. In the Dacca Division the Dacca Farm Co-operative Stores has earned a profit of Rs. 1,174 on a working capital of Rs. 3,788. The Dacca University Co-operative Stores is improving and the Ichapura High English School Co-operative Stores is also doing well. In the Burdwan Division the Midnapore Co-operative Stores is working on its own share capital and Kalna Co-operative Stores is doing well. The Santiniketan Stores (Birbhum), which had hitherto been making steady progress has suffered a loss of Rs. 1,826. The Rampurhat Sale and Supply Society incurred a loss of Rs. 6,582 during the year owing to injudicious buying and to the disloyalty of its members. The Sundarbans Co-operative Supply and Sale Society, whose chief business at this moment is that of a Co-operative store, has been treated under the head of "Purchase and Sale Societies".

The general decline which on the whole co-operative stores have suffered might well have been avoided if from the first membership had involved larger risk to the part of the members through larger initial outlay in paid-up share capital and greater liability under their bye-laws.

(c) *Artisans' societies.*

44. The Dacca Conch-shell Workers' Society, which had conferred great benefits upon the conch-shell industry by rescuing it from the hands of certain middlemen, was liquidated during the year, on account of the manipulation of the bye-laws by interested Directors. Fortunately the bulk of members have remained loyal to the notion of prosecuting their industry under the co-operative form and it has been a comparatively easy task for the Dacca Industrial Union both to liquidate the cancelled society and to organize under itself new

societies of the same conch-shell workers, their immediate subscription of adequate share capital making continuous and advantageous business with the Madras Government possible. The liquidation proceedings disposed of shells to the value of Rs. 71,800, the sale resulting in a profit of Rs. 17,899. The thanks of the conch-shell workers are due to Babu Nripendra Chandra Basu, B.L., Secretary to the Dacca Industrial Union, who has carried out the exacting work of liquidation.

Eight societies among the Dacca conch-shell workers have been formed and the share capital paid by them amounts to Rs. 95,000, which has been invested in the Dacca Industrial Union. The Union has secured on their behalf the monopoly of the Ramnad and Tuticorin shell catches which are sold by the Madras Government.

The Illiambazar Toy-makers' Society (Birbhum) again worked at a slight loss. This, however, does not necessarily imply a loss to the individual workers. The two shoe-makers' societies in the Presidency Division with the same membership as before have increased their reserve fund from Rs. 172 to Rs. 397 and working capital from Rs. 1,723 to Rs. 1,948. The Madhayamgram Chican Society is the only society of its kind in the province. Its working has received a great impetus from the fact that its products were taken by the Bengal Commissioner to the British Empire Exhibition where they have found a most favourable sale. There is one conch-shell society in the district of Khulna, but so far as its co-operative aspect is concerned it is purely a credit society. The benefits of joint purchase of conch-shells and, if possible, of the joint sale of the products are now being pressed upon the members along with the possibility of its being affiliated to the Dacca Industrial Union.

Fishermen's societies.

45. The number of these societies increased from 54 to 59, their membership from 1,098 to 1,386 and the total working capital from Rs. 49,018 to Rs. 59,611. As before the majority of these societies are on a credit basis though some have obtained fishery leases also. The latter tend to regard punctuality of payment of rent either to Government or to private proprietors as unimportant. This is most undesirable as

the leases at present amount to valuable concessions of which the enforced surrender would be a disaster. Once these societies have shown capacity for management and organization it will be possible to consider arrangements on their behalf for improved methods of transport by rail, to bring them in touch with better markets of Calcutta and other centres. This is in any case not an easy matter as it will bring them in conflict at the selling end with many vested interests.

The Natuapara Dhibar Samity in Pabna made considerable improvement during the year. Its working resulted in a profit of Rs. 2,827 against Rs. 605 in the previous year. If it is successful in renewing its now expiring lease for 5 years more with the landlord, it will arrange to purchase a motor boat both for better control of its business and for transport of its catches. Two new limited liability societies in the districts of Pabna and Bogra will, it is hoped, combat successfully many of the evils now prevailing in the Ganges fishing areas.

Weavers' societies.

46. The impetus received by weavers' societies during the preceding year from the formation of industrial unions continued to be felt in the year under review, weavers' societies increasing from 142 to 174, membership from 1,882 to 2,701 and working capital from Rs. 62,754 to Rs. 1,33,879. The Bankura group of societies increased from 52 to 56 but difficulties have again been felt in disposing of the products of the members. It is now reported that only those societies, which are taking yarn from the Union and disposing of their finished articles by their own efforts, can be said to be working well. The difficulty of sale on the part of the Central Union is, of course, intensified by the increasing difficulty with which hand-loom output competes with mill-made goods. In the district of Burdwan three societies have still failed to start working and one society is working only as a credit society. The situation in the Burdwan societies is complicated by the facts that the societies' members are still dependent on the mahajans for the disposal of their goods. This will receive the attention of the Department. In Bankura some of the societies have actually ceased to work with the Union and many of the weavers have become disloyal under the offer of

higher rates from the mahajans. The societies ask for a guarantee from the Union both of sufficient work and of disposal of their finished products. The question of weavers primary societies dealing solely with their Union is not free from difficulties, either as regards the purchase of raw materials or the sale of finished articles. Unless credit facilities are arranged it would require a large (though quickly turned over) working capital, or credit, in the hands of the weaving union to enable it to purchase and resell to members the total amount of yarn required by them in their industry, and the societies whose members have at present a satisfactory system of purchase without being in consequence tied under disadvantageous terms to their suppliers must hesitate before giving up a good working system for an idealistic system of difficult working. In the Presidency Division there are now 29 weaving societies (and the working capital increased during the year from Rs. 14,958 to Rs. 37,966) as against 25 societies in the previous year. These include the Bagerhat weaving Union which is on a limited liability basis and is of a nature of a hand-loom factory. This institution has found some difficulty in raising the capital necessary for the continuance of its business. It has, however, certain distinct advantages over similar but more expensive institutions in the towns and if it can organize satisfactorily its subsidiary processes and take up more attractive and profitable lines of production than it has followed up to the present, its future should be successful. The question now occurs whether on economic considerations there is any room for the hand-loom factory between the power-driven factory and the ordinary cottage industry. The Union now has a working capital of Rs. 22,602 and a membership of 158. The weaving societies of Nadia continue to progress satisfactorily under the Nadia Union. The one weaving society at Meherpur has been far from satisfactory and runs the risk of having to be closed down. In the Murshidabad district out of 10 weaving societies 4 are of silk weavers. These with the cotton weavers and one blanket weavers' society are on unlimited liability basis and work on the credit system but their principal difficulties are want of a good market for their finished goods. In the Chittagong Division there are 6 weaving societies in the Tippera district, 9 in Noakhali, and

one in Chittagong. The possibility of establishing a weaving union at Begun-
gunj, where there is already a weaving
school, continued to be considered and a
weaving union has been registered short-
ly after the close of the year under report.
Most of the weaving societies of this
division are working under the credit
system and are financed by and affiliat-
ed to the local central banks. An ex-
ception is the Joara Panchanagar Socie-
ty, Chittagong, which is affiliated to
the Chittagong District Industrial
Union. In the Dacca Division weavers'
societies increased from 13 to 16 of
which 10 are found in the Dacca dis-
trict and 4 in the Mymensingh district.
The Dacca societies are working well
with one exception and in Mymensingh
the Bajitpur society continues to be the
best in the Division. The Dacca Co-
operative Industrial Union is taking up
the question of the supply of raw
materials to its affiliated societies and
the sale of their finished products. In
the Rajshahi Division two new socie-
ties have been registered in the district
of Jalpaiguri bringing its total to 8.
All are working under the credit sys-
tem. An industrial inspector and a
supervisor are trying to spread instruc-
tion in modern methods and the weav-
ing of better cloths. The weavers'
societies in the district of Rajshahi
have been transferred from the Naogaon
Supply and Sale Society to the Naogaon
Co-operative Central Industrial Society
and are now being regularly financed
and their working has considerably im-
proved. In the Pabna district the
position is the same as before, all the
societies being plain credit societies.
A considerable increase in the number
of weaving societies from 5 to 11 has
taken place in the Bogra district, 2 are
under the Bogra Central Bank and the
remainder are under the Naogaon Co-
operative Central Industrial Society;
the working of these have improved.
The establishment of the Bengal Relief
Committee's office at Atrai has caused
inconvenience as the weavers there have
received much higher wages from the
Relief Committee for work on the yarns
supplied by the Committee.

A considerable hope of improvement
in the prospects of weavers' societies
arises if the parent unions are able to
take full advantage of the credit
arrangements now established by Rai
Sahib Nripendra Chandra Bose, Assis-
tant Registrar, Burdwan Division,
with a Calcutta agency of certain mills.

47. The number of cocoon rearers'
societies remained stationary at 16,
while the silk reelers' societies increas-
ed from 1 to 2. Each of these silk
reelers' societies requires capital of
about Rs. 20,000 and the Malda Cen-
tral Bank is at present able to finance
only two such societies. The working
of the societies is good and it is gratify-
ing to find that they fully appreciate
the working of the Sericultural Depart-
ment which is in their midst. These
societies would prefer to sell their silk
to co-operative weaving societies which
can be found in the district of Bankura
if only the latter can pay cash. At
present one society is selling to these
but on credit. It is too early to go into
the question of amalgamating the co-
coon rearers', silk reelers' and silk
weavers' societies in one composite body.

(d) *Zamindari societies.*

48. Two zamindari societies conti-
nued to work as before. The membership
of the Bengal Young Men's Zamindari
Society increased from 381 to 385. Its
working capital rose from Rs. 39,794 to
Rs. 44,137. Its profit rose from Rs. 3,285
to Rs. 4,188.

The Tamruk Zamindari Society shows
a stationary working capital after a large
increase in the preceding year. Its
profits rose to Rs. 2,671 from Rs. 2,149
in last year and Rs. 182 in the next pre-
ceding year. The Bengal Young Men's
Zamindari Society still shows no tendency
to encouragement of khas cultivation by
bhadraloks. The Modern Co-operative
Agricultural Association, Ltd., which
has also been dealt with under the head-
ing of Agricultural Associations is in a
sense a zamindari society. There is at
present no indication as to whether it
will succeed in the problem of inducing
the *bhadralok* members to follow khas
cultivation or will result in the establish-
ment of a set of intermediate tenures
between the present proprietors and the
actual tillers of the soil.

(e) *Anti-malarial societies.*

49. The total number of registered
societies rose from 13 to 33 and their
total membership from 357 to 858. The
Rohanpur anti-malarial society in the
district of Malda is a matter for parti-
cular congratulation to the Central Anti-
malarial Society and the thanks of the

public are due to its munificent patrons. The Gholá Society continues to do particularly good work.

VI.—Cattle insurance societies.

50. After an exhaustive enquiry it has been found that the expenditure involved in a Cattle Insurance Scheme is too heavy for experiments to be made at present. It had been hoped that this could be done through the Calcutta Milk Union, Limited.

VII.—Higher Co-operative Organizations.

51. These organizations are represented by central anti-malarial societies, producers' unions, central banks, credit unions and the Provincial Co-operative Bank.

(a) The central anti-malarial societies.

52. The Calcutta Central Co-operative Anti-malarial Society, Ltd., is the only society of this kind in the province. During the year it more than maintained its excellent record. It has now a membership comprising 204 societies and 55 individuals as against a total membership of 116 in the preceding year. Not all the societies are registered co-operative societies. The work which can be done by these associations is so valuable that it would be well worth while for more attention to be devoted to the actual organization and this aspect is now receiving increased attention. Out of the 33 registered societies, 11 are in the Presidency Division alone, 10 being in the 24 Parganas. Particular attention may be drawn to the Gholá Society which excavated a big tank to provide good drinking water at a cost of Rs. 1,200, the expenditure being largely met from the sale of fish caught from the tank. The Central Society is now carrying on under the energetic guidance of Rai Bahadur Dr. Gopal Chandra Chatarji an extensive propaganda over the whole of the Province; its monthly grant to its affiliated societies varies from Rs. 5 upwards to assist these to provide medical aid, to clear jungles and to promote in other ways the sanitation and health of their respective areas. In addition to the Gholá Society, special mention may again be made of the Rohanpur Anti-malarial Society in the district of Malda. During

the year the Central Anti-malarial Society received a grant of Rs. 50,000 from Government and has been assisted in miscellaneous ways by this department.

(b) Producers' unions.

53. There are seven such unions, namely:—

- (i) The Milk Union and
(ii) the Industrial Unions at—

- (1) Bankura,
- (2) Dacca,
- (3) Nadia,
- (4) Chittagong,
- (5) Satkania and
- (6) Noagaon.

54. **The Milk Union.**—During the year Babu Nirendra Nath Basu, Sub-Deputy Collector, continued to be the Deputy Chairman of the Milk Union and was assisted by the Veterinary Inspector and an auditor. It has still before it a big task to persuade the goals to adopt and keep to new and sanitary methods but the fact that their incorporation with the Union has led to considerable monetary assistance, advice and profitable business, helps towards this object. The policy of consolidation was steadily pursued during the year, the Union devoting its attention not so much to the increase of the number of societies or of the quantity of milk, as to ensuring a regular supply of good milk and to weeding out bad societies and recalcitrant members and to the exercise of adequate checks. In this it has been successful as will be obvious from the figures given below.

During the year the Union earned a profit of Rs. 15,472. The profit or loss of the Union since the year 1919 is as below:—

	Profit.		Loss.	
	Rs.	Ni	Rs.	Ni
1919-20	Nil	8,516
1920-21	2 173	
1921-22	8,590	
1922-23	13,524	
1923-24	15,472	

The number of affiliated societies year by year rose as shown below:—

1920-21	..	..	40
1921-22	..	..	47
1922-23	..	..	52
1923-24	..	..	54

The composition of the working capital for the last 4 years is given below:—

	1920-21	1921-22	1922-23	1923-24
	Rs.	Rs.	Rs.	Rs.
Share capital	1,740	2,670	3,490	4,470
Deposits and borrowings	18,308	11,379	11,941	13,842
Members' deposits	Nil	Nil	Nil	5,932
Government loans	8,000	3,200	Nil	Nil.
Provincial bank and cash credit	22,006	22,500	8,970	Nil
Special reserve fund				
—Reserve fund	Nil	1,000	8,248	18,287
Sinking fund	Nil	200	3,000	6,000
Total	50,054	40,949	35,649	48,531

A most satisfactory feature in the progress of the Milk Union is the steady advance towards achieving financial independence. Out of a total working capital of Rs. 48,869 only Rs. 13,842 has been obtained from outside sources. The Union also has current deposits amounting to Rs. 13,698 in the Bengal Provincial Co-operative Bank and it has in the year under report paid off the whole of its heavy liabilities to the Provincial Bank. The percentage of the owned capital to outside liabilities has been as follows:—

Year.	Percentage.
1920-21	3.6
1921-22	10.4
1922-23	70.4
1923-24	34.9.5

The maximum supply of milk during the year was 55 maunds a day in the month of May as against 35 maunds in the preceding year. The lowest yield—in October—was 36 maunds a day against 26 maunds in the preceding year.

Severe outbreaks of rinderpest were speedily attended to and effective inoculation of anti-rinderpest serum was given by the Veterinary Inspector attached to the Union. Stray cases of foot and mouth disease were promptly treated.

There are with the Union 25 milk cows by a Montgomery bull. These in yield are superior to local animals, some of them are at present yielding about 5 seers of milk a day. This demonstration has had a great effect upon the members who are now anxious to have such bulls in every society.

Cattle Insurance Scheme.—The Veterinary Inspector took a cattle census of the constituent societies of the Union. This, however, revealed a high death-rate and the sum available from the Union for starting a cattle insurance scheme was inadequate. The question is therefore being further investigated.

Loans to societies.—The loans granted to and repaid by the constituent societies were as follows:—

	Loans granted	Principal repaid.	Balance outstanding on account of principal
	Rs.	Rs.	Rs.
1920-21	7,760	1,580	20,172
1921-22	5,969	6,905	20,235
1922-23	10,351	20,766	9,820
1923-24	6,774	13,810	2,783

55. Industrial Unions.—The Bankura Industrial Union continues to be the principal society of this nature. The number of weavers' societies affiliated to it rose only slightly. The share capital also slightly increased and the working capital rose from Rs. 39,060 to Rs. 44,646. It has distributed to its societies yarn to the value of Rs. 41,123 but the sale of the fabrics woven by the societies has decreased. In consequence the profits have fallen from Rs. 1,191 to Rs. 1,094.

Nine societies have taken up the new "Yarn sale system," 14 have ceased to work with the Union, and 5 of these may have to be liquidated.

Only one new industrial union was formed during the year, namely, Naogaon Co-operative Central Industrial Society, Ltd.

The Dacca Industrial Union shows a considerable increase on its figures of last year, but the Nadia Union remains comparatively stationary. The two unions in the Chittagong Division, the Chittagong Industrial Union and the Satkania Industrial Union, have only recently started their work and it is too early to speak about them in detail at present. The Dacca Industrial Union is doing particularly useful work in affiliating to itself the newly formed conch-shell workers' societies and so enabling them to obtain the advantage of wholesale dealings with the Madras Government. It is also effectively attending to the interests of its affiliated weaving societies. The Naogaon Co-operative Central Industrial Society has taken over the weavers' societies affiliated to the Naogaon Co-operative Supply and Sale Society and is making satisfactory arrangements for their financing. It is, however, premature to make other than general comments upon the working of this society.

There is at present one particularly weak point in the position of the co-operative unions, *viz.*, that there is no sufficient

identity of risk between the union and its constituent members. It is still possible for an affiliated society to use the union just as long as is convenient to itself and to abandon the union with small loss to itself when such a course appears preferable. It now appears desirable (1) to provide against the possibility of members of such unions withdrawing their share capital and (2) to ensure a community of risk between members and the parent society by enforcing the payment of an adequate amount of share capital by an affiliated member, adequate, that is, to secure that a proper share of damage to the interests of the parent union will be transferred to the particular society. This is particularly necessary as the working of industrial unions is most difficult in their early stages. At the same time pressure should not be brought to bear upon either affiliated societies or on members to abandon a satisfactory system of purchase of raw materials or sale of finished articles before their union can equally satisfactorily cope with these problems.

(c) *Credit unions.*

56. There are no credit unions in the Chittagong Division. In the Burdwan Division the credit union of Mugberia has been converted into a pure type central bank, while of the Pingla and Panchetgarh unions, Pingla has greatly improved and Panchetgarh is doing well. In the Rajshahi Division, the Jalpaiguri Co-operative Union is not satisfactory and it has been requested to curtail its expenditure by dispensing with the services of its overseers. There are no supervisory unions in the Dacca Division and the Presidency Division has only the Madanpur Union. The registration of the Nalhāti Union in Birbhum has been cancelled.

(d) *Central banks.*

57. There was an increase during the year of 7 central banks not including the industrial unions. These are (1) the Mughberia Central Bank split off from the Midnapur Central Bank, (2) the Dhanbari Central Bank, (3) the Cox's Bazar Central Bank (Chittagong), (4) the Matlab Central Bank split up from the Chandpur Central Bank, (5) the Dinajpur Central Bank, (6) the Thakurgaon Central Bank and (7) the Raipura Central Bank. Thus Dinajpur sadar

has now a central bank of its own and Thakurgaon is also represented. The Matlab Bank has taken over a large block of excellent societies from the Chandpur Central Bank. The Dhanbari Central Bank has been registered but has not yet started operations. The central banks at Baraset, Kandi, Madargunj, and Lakshimpur have started work during the year and are all working well. The Pingna Central Bank has not yet started work as the local situation has to be cleared up first. The Netrakona Central Bank, and the Mymensingh Central Bank, from which it is an off-shoot, are still negotiating as to the terms under which the Netrakona Central Bank should take over the societies in its area which are affiliated and in debt to the Mymensingh Central Bank.

The total number of affiliated societies rose from 7,082 to 8,289, working capital from Rs. 1,51,25,775 to Rs. 1,75,06,244, deposits from non-members, being Rs. 1,10,21,456 against 97.78 lakhs in the previous year. The total collections in the year by central banks from societies rose from 48.68 lakhs to 53.31 lakhs or 41.7 per cent. New loans granted during the year amounted to 76.66 lakhs as against 58.85 lakhs in the previous year. The proportion of share capital plus reserve fund to the total working capital declined from 17.9 to 17.1.

On the 30th June, 1924, the central banks had 22.16 lakhs as liquid resources as shown below against 35.15 lakhs of deposits maturing within the following 12 months and 13.24 lakhs in current and savings bank deposits or 48.39 in all:—

	Rs. (in lakhs).
Cash in hand and bank	3 31
Government paper	4 48
Post Office Savings Bank	2 82
Undrawn balance of cash credit	1 37
Other investments of a liquid nature outside the movement	1 43
In current and short-term deposits with the Provincial Bank	8 25
	22 16

The proportion of the fluid resources was thus 45.7 per cent.

The central banks in general made good progress during the year and there was an improvement in their relations with the village societies although complaints of inconsiderate treatment and of difficulties of obtaining loans without exasperating delays are still made. The

system of allowing "A" class societies and some "B" class societies to have cash credit accounts with their central banks will assist further to remove these inconveniences. Central banks continue to realize the need and value of an efficient executive staff. The proportion of the cost of their management to the working capital, however, remained practically unchanged, as only one more central bank has employed a paid secretary. It cannot be too frequently insisted that the margin of profit between borrowing and lending rates is such that with an efficient management a sufficient income is assured to enable a well-paid staff to be maintained and that the better the staff the greater in turn will be the improvement in income.

The Kushtea Central Bank is still rehabilitating itself. This has been made possible by the helpful attitude of the Provincial Bank which in turn is justified by the condition of the village societies of that area. Thirty-one new societies have been formed in the Kustea area.

58. The chief need of the Central Banks at present is (1) to tighten up their financial relations with their affiliated societies and (2) to attend to the improvement of the societies. At a risk of "damnable iteration" I must point out that the prosperity of a central bank is endangered by the existence of weakness in the personnel of the management of its affiliated societies. It is unfortunate that the knowledge of what is advisable in respect of the management of a primary co-operative society lies chiefly with the central bank which is powerless, and the power to effect improvement in the hands of village panchayets which are chiefly uninformed. Once more we come to the root necessity of the need of the education and general improvement of the individual members and of the managing committees.

A word of caution is also necessary to some of the newly established central banks. These in addition to taking over the liabilities of a certain body of societies affiliated to the old parent bank have frequently also taken up a policy of rapid expansion without ascertaining the certainty of resources to finance an increased number of societies. In justice to the societies and to the Provincial Bank all new central banks should be careful to ascertain from the Provincial

Bank to what extent finance will be available before creating new societies, thus avoiding the necessity of making embarrassing appeals "*ad misericordiam*" to the Provincial Bank. It should also be realized by central banks that the duty of repayment of kists to the Provincial Bank (and other creditors), is sacred whatever be the local conditions. The Provincial Bank was on one occasion most awkwardly placed owing to the default of a large kist from one central bank, the explanation of the default being that the money collected from primary societies was at once lent out again to new societies. The habit of keeping the accommodating bank in ignorance of the real situation is fatal to banking as a condition of the working of a banking institution is the most complete knowledge of the facts affecting its own financial position.

A word of caution may also be entered in the interests of certain central banks which show a tendency to too literal an interpretation of technicalities and too small a regard to their own real interests. The legal right to any line of conduct does not compensate for the disadvantages incurred, particularly if such are in the direction of reducing the confidence of outside financiers in the institution. The Padmapara Central Bank has shown (and abandoned) the tendency to sacrifice public confidence in order to insist upon technicalities, and at Ullapara the good offices of the Assistant Registrar and the Subdivisional Officer were necessary to dissuade the majority of the Directors from a line of conduct gratifying to their pride but prejudicial to the interests of the central bank. Central banks have been known to be restive over departmental recommendations as to the management of their supervisors. The aims of the department and the central bank are identical, namely, the prosperity and safety of the bank.

In the Presidency Division the position of the Taki Central Bank has further improved and its out-door staff has been strengthened. The acute danger which reached its highest point in 1920-1921 can now be considered to have passed.

The pernicious habit of allowing paper transactions is noticeable in the Nimta Co-operative Banking Union. The new central bank at Baraset has achieved a gratifying rate of progress

due to the interest taken by the present Subdivisional Officer, Babu Tarak Ch. Roy. The Meherpur Central Bank shows poor figures for the year but this is due to the failure of crops in many parts of the subdivision and the central bank is attending to the imperative necessity of reducing the overdues. The pure type Chuadanga Central Bank is doing well. A new central bank was established at Narail in January 1923. It has issued short-term loans during the year totalling Rs. 16,800 out of Rs. 44,363 issued during the year. No long-term issues were necessary to extend the kists of short-term loans. The number of societies under the Magura Central Bank has increased from 58 to 74, the dealings between it and affiliated societies being of a business-like nature. Raruli continues to suffer from failure of crops in its area. Greater increase could have been expected in the Khulna Central Bank. There has been a total increase of 8 societies only in the year under report, yet owing to superfluity of funds the Central Bank had to suspend the acceptance of fixed deposits. The work of the central bank remained almost exemplary. The returns of the central banks in the Murshidabad district show the effects of crop failures. In the Burdwan Division the only new central bank was Mughberia. The Midnapore Central Bank continues to be well managed but the Tamluk Central Bank, like many other new central banks, has not yet been able to secure adequate local deposits and is still dependant to a large extent upon loans from the Provincial Bank. The Burdwan Central Bank has extended its current deposit business and may be trusted to be sufficiently cautious in connection with this branch of its work. The Howrah Central Bank is in a moribund condition and the Ulubaria Union is unhappy. This, however, is due to partial failure of crops. The Bankura Financing and Irrigation Central Bank serves a very useful function, while at the same time its business is of the safest possible nature as its loans on account of irrigation projects represents no more than Rs. 10 or Rs. 12 per bigha of the land which has to be irrigated. This society is unique in the province. Membership has increased from 33 to 58. Share capital rose from Rs. 13,125 to Rs. 24,160 and working capital from Rs. 18,792 to Rs. 46,363.

In the Rajshahi Division the Ullapara Central Bank has appointed a paid

secretary and the Pādmāpara Central Bank a paid assistant secretary. Central Banks with paid management are reported to be doing relatively better than those without such management. Collections on the whole were not satisfactory owing to local failures of crops and the fall in the price of jute in the middle of the jute season. There are 6 areas in the Rajshahi Division in which departmental officers were asked to be of special assistance in the collection of central banks' funds. The Nilphamari Central Bank's loss of last year has been counter balanced by a profit in this year. The Malda Central Bank has taken up the financing of silk reeler's societies but owing to the large amount of money required to finance such societies it cannot at present take over more than two such societies. The Naogaon Central Bank appears to have injudiciously over-financed a large number of societies. Its default in May, 1924, to the Provincial Bank, was most disappointing. Improvement is seriously required in the Nator Central Bank and, in particular, strict "supervision" over its supervisors. Hopes of considerable improvement in the Pabna Central Bank had been entertained, but owing to disappointing prices from jute and early floods collections were unsatisfactory. The management of the Serajgunj Central Bank can be congratulated on its results.

In the Dacca Division it is particularly unfortunate that Faridpur, Madaripur and Gopalganj areas suffered so severely from flooding that hopes of their return to prosperity did not materialize. The Raipura and Dhanbari central banks did not commence work during the year. The Bikrampur Central Bank, well-known for its excellent management, has been able to attract a largely increased amount of deposits from the public during the year. The Naraingunj Central Bank is still unable to attract local deposits and depends almost entirely upon the Provincial Bank. The working of the Mymensingh, Madarganj and Barisal central banks has been more than satisfactory, the last named acquiring 48 new societies. It is hoped that the Mymensingh Central Bank will devote its attention to the organization of new societies to absorb its superfluous resources. The working of the Khepupara Central Bank for the year is disappointing.

In the Chittagong Division a new central bank at Matlabganj is functioning well. The Chittagong Central Bank

may still be considered to be over-cautious, but is a well managed concern. The Comilla Central Bank can now congratulate itself on the sound position it has achieved and can look back with gratification on its recovery through the last 8 years. During the year 38 new societies were organized and although a substantially lower rate of interest is offered to depositors the receipts under this head amounted to 3 lakhs. Its relations with its affiliated societies are unexceptionable. The Chandpur Central Bank resolved to appoint a paid secretary and take a rented house for the bank. The thanks of the bank as well as of the department are due to Rai Bahadur Nalini Nath Banerjee for the time and energy he has expended in the interests of the co-operative movement for many years now past.

(e) *The Bengal Provincial Co-operative Bank, Ltd.*

59. The Provincial Bank now shows an increase in membership from 89 to 109, in working capital from 34.73 lakhs to 36.77 lakhs—no great increase—and in reserve and other funds from Rs 66,238 to over one lakh and in share capital from 3.59 lakhs to 4.57 lakhs. In spite of the adherence of lower rates of interest public deposits have amounted to one crore and 20.45 lakhs as against 87.29 lakhs up to the close of the preceding year. Nevertheless the Provincial Bank has been in no difficulty satisfactorily to invest its incomings. In fact in May 1924, it was glad to receive and accept an offer of 5 lakhs from the Madras Central Urban Bank, Ltd. The surpluses of November and December were invested mainly in the 5 per cent. Government loan of 1945-55.

The Bank received in interest 2.71 lakhs as against 2 lakhs in the previous year and paid out 2.61 lakhs against 1.51 lakhs in the previous year. The total receipts during the year amounted to 238.48 lakhs as against 162.17 lakhs, and loans issued to members during the year amounted to 24.15 lakhs as against 21.53 lakhs. The working year of the Provincial Bank showed a profit of Rs. 42,918 after deduction of the statutory reserve. Of this Rs. 10,000 was placed to the Building Fund and Rs. 3,300 was carried forward. The relations between the Provincial Bank and its constituent members were satisfactory, but on the business side the large

number of defaults of kists resulting from the failure of crops and immediate financing of newly organized societies might have embarrassed an institution less strongly placed. It cannot yet be said that the Bank can carry out its aim of restricting itself almost wholly to the short-term requirements of its members. On the 30th June 1924, the Provincial Bank held 25.69 lakhs of Government paper and the sum of 8.25 lakhs of its undrawn cash credit was available. Its liquid resources then amounted therefore to 8.25 lakhs, while deposits to mature in the succeeding 12 months amounted to 5 lakhs only and current deposits from members amounted to 6.92 lakhs; its total liabilities being 47.68 lakhs in comparison with 29.28 lakhs at the completion of the previous year.

Surplus of co-operative money accumulated in the Provincial Bank were in the slack season available for the needs of outside trade and commerce through the joint stock banks to the advantage of both parties.

Mr. S. R. Das, Advocate General, Bengal, at a great sacrifice of his time, has continued to be the Chairman. He was re-elected Chairman for the year 1924 at the last Annual General Meeting.

The need of a whole-time salaried officer employed solely in the Provincial Bank's business was felt by the Directors to enable independent information of the position of the central banks to be available at the time of decision by the Board of Directors on their loan applications. The Annual General Meeting shortsightedly refused to sanction the expenditure. As against this disappointment the Board of Directors can set off the continued confidence of the General Meeting which refused to recommend an amendment of its bye-laws tending to weaken the position of the Board of Directors in the matter of declaration of dividends.

The Provincial Bank is still maintaining caution in regard to the adoption of dealings in cash or cheques, withdrawals from current account being still effected by means of demand drafts. Regular *hundi* business has also not been taken up, although this would be convenient to some other constituent central banks.

60. The primary need in connection with the working of the Provincial Bank is now for greater certainty as to

probable requirements and possible repayments respectively of and from its constituent members. Unexpected and unjustifiable defaulting in March and April by certain central banks reduced the available resources of the Provincial Bank to a very low level and it was very fortunate for other borrowing members that ample funds were immediately available from an unexpected source. The Provincial Bank must also have complete information of the probable registration of new central banks and the extent to which these will create a probable net increase of its duties. Central banks have been warned that the inadequate notice given in the past of requirements will not be considered satisfactory and may result in accommodation not being given, however severely the necessity of the accommodation may affect them. The last thing of all that the management of the Provincial Bank wishes to be placed in is the necessity of either having to make payments embarrassing to itself or of seeing a client bank in danger of a severe disaster.

VIII.—Reserve and other funds.

61. The figures of these funds are set out in Table XI. The total now stands at 43.40 lakhs as against 36.99 lakhs in the previous year, an increase of 6.4 lakhs in the year. As the actual cash now working in the movement is 3.31 crores, the proportion of the reserve fund to the actual cash is 12.9 per cent.

IX.—Disputes and litigation.

62. The arbitration procedure has been freely resorted to during the year and the policy of appointing selected non-official co-operative workers as arbitrators has continued. The total number of cases entertained was over 1,200 and out of this it was necessary to go to court for the execution of the award in 310 cases. Many of these cases were, however, amicably settled as soon as taken to court. The dependence of non-official co-operators on the arbitration procedure and their insistence upon its necessity and even upon a more arbitrary method of enforcement are disquieting symptoms. One satisfactory feature noticed during the year is, however, that in a smaller proportion have arbitration cases been filed against a large number of members of the same society.

X.—Liquidation.

63. Table XII gives the figures of progress made in the liquidation of societies. Pending from the preceding year were 403 cases, the total number of fresh cases being 44 or .5 per cent. of the total number of societies in existence at the beginning of the year as against .8 per cent. in the previous year. Liquidation is resorted to as the last possible means of safeguarding the position of the society. The proceedings were closed in 16 cases and 431 cases were pending at the close of the year. The assets of the societies which remained outstanding for collection on 30th June 1923, were 8.23 lakhs; 1.91 lakh have to be added during the year and out of the total of 10.14 lakhs a sum of 2.30 lakhs was collected. The continuance of unsatisfactory agricultural conditions in the districts most concerned with liquidation, namely, Faridpur and Pabna, prevented better results being realized. During the year the cost of liquidation amounted to Rs. 13,118 or 5.6 per cent. on the total collections. Liquidation has been perhaps most successful in the areas of the Comilla and Taki Central Banks. More non-official co-operative workers were appointed liquidators in the course of the year.

XI.—Co-operation with the Departments of Agriculture, Fisheries, Sericulture and Industries.

64. There was the closest possible collaboration between these departments to the great advantage of the movement particularly in directions other than credit. The present difficulty is not to ensure this co-operation but to persuade the societies of the benefits which can be secured by using the results of the investigations of the various departments.

XII.—Miscellaneous.

65. I should like to mention here the excellent social work done by the Naogaon Officers' Co-operative Club, which is in form a co-operative society. In addition to providing recreation to its members it has the following sections:—

- (1) Library.
- (2) Literary and Musical.
- (3) Stores.
- (4) Credit.
- (5) Social Service.

The work under the last head is most important, 31,771 patients were treated during the year and medicine has been distributed free in the town and environs to all classes. First-aid instructions on the lines of St. John Ambulance course has been given. The society owes much to Dr. Hope of the Baptist Mission and Dr. Shital Chandra Banerjee, M. D. (Homeo.), Sub-Registrar.

66. A new development of which much is hoped in the Midnapore district is the establishment of "fish and sanitation" societies whereby it is intended to assist the maintenance and improvement of tanks by the profits acquired from fishing in them.

67. District Conferences were held as follows:—

- (i) The Baraset Industrial Exhibition and Conference held in February, 1924, including a conference of milk societies.
- (ii) The Ghola Anti-malarial Society organized a conference of anti-malarial societies in Calcutta and was attended by the Registrar.
- (iii) The Khulna Co-operative Conference held on 23rd September 1924.

68. The Bengal Co-operative Organization Society completed its 6th year on the 31st of December 1923. While it cannot be claimed that the increase of interest on the part of the public was considerable the society continues to do steady and useful work. The number of ordinary members rose from 51 to 59 and that of member-societies from 914 to 1,103. This, however, is a disappointing figure. "The Bengal and Bihar and Orissa Co-operative Journal" continued to be edited by Professors J. C. Coyajee and P. Mukherjee and maintained its excellent reputation. A vernacular organ "The Bhandar" continued to be edited by Rai Sahib Tarak Nath Maitra with the help of the Assistant Editor, Babu Nibaran Chandra Chakraburty. Illustrations were introduced and the size of the periodical was increased. On account of lack of funds no pamphlets were issued during the year. An informal conference was organized in early February to consider the ways and means of making propaganda work more systematic and more effective. It was decided that at present the most effective method was by lantern

lectures and cinema performances. The Publicity Department of Government made over the "Pallisri" films to the Organization Society. The society took part in all local conferences organized during the year, Rai Radhika Mohan Lahiri Bahadur delivering valuable lectures on all occasions and being supported by the Honorary Assistant Secretary and Babu Nibaran Chandra Chakrabarty. The invitation of the Manchester Co-operative Union to all co-operators in the Province to participate in the International Co-operators' Day led to strenuous activities in the month of June which resulted in a satisfactory and adequate demonstration on the 5th of July which coincided with the last day of a Provincial Co-operative, Industrial and Agricultural Conference organized by the Hon'ble Minister in charge of the Department of Agriculture and Industries. The greatest handicap under which the society is working is the want of adequate funds. There is hope of the present grant being increased. The second disadvantage arises out of the position of the society. It is still centralized in Calcutta and unable effectively to take up any work in outlying districts other than propaganda. The re-organization of the society is therefore under consideration and a scheme is now ready for final consideration by which divisional and district bodies can assume an adequate share in the work of the society.

69. The Information Bureau attached to the department was able to show exhibits at the Chittagong, Suri, Baraset and other exhibitions and this activity was efficiently carried on by the Inspector in charge, who was at the same time engaged in the work connected with the British Empire Exhibition. Manufactures from many societies were selected by the Bengal Commissioner for the British Empire Exhibition through the Information Bureau. These represented the following among the cottage industries of Bengal:—

- (1) Silk reeling.
- (2) Silk weaving.
- (3) Chican embroidery.
- (4) Muslin and calico weaving.
- (5) Bell-metal and brassware.
- (6) Conch-shell.
- (7) Shellac toys.
- (8) Mat weaving.

All these have been materially benefited by the participation of Bengal in the British Empire Exhibition.

Grey yarns to the value of Rs. 40,000 were supplied through the Bureau to the industrial unions of the department. Contracts were arranged through the Bureau with the Bengal Nagpur Cotton Mills for forward contracts with credit facilities. Thus prolonged advantages were received after a subsequent rise of price by 25 per cent. The work of the Bureau in assisting unions in the purchase of yarn is hampered by the conservatism of weavers in adhering only to one particular mark and the inability of the mill to supply counts higher than 20. Cloths, dyed yarns of cotton, silk, spun silk, artificial silk and wool and other raw materials to the value of Rs. 60,000 were purchased from the Calcutta market for industrial unions and the larger purchase and sale societies.

XIII.—Attitude of the public.

70. General sympathy of the public with the movement suffered no change. The department would, however, welcome the translation of that sympathy into positive propaganda, particularly as organization is essentially a matter for local bodies and local persons with particular knowledge not only of the needs of the localities, but also of the actual possibilities, whereas organization from the outside must tend to considerable waste of efforts on lines in which there is actually no real hope of success.

XIV.—Official and non-official assistance.

71. The department owes a deep debt of gratitude to all non-official gentlemen engaged definitely in co-operative work and equally to those who have from time to time assisted the department or local institutions in a less formal manner. While all officials have been most helpful when occasion has arisen, special acknowledgment is due to the following District and Subdivisional Officers:—

Collectors.

- (1) Mr. J. R. Blackwood, i.c.s., Birbhum.
- (2) Mr. J. R. Blair, i.c.s., Mymensingh.

- (3) Mr. G. W. H. Davies, i.c.s., Midnapore.
- (4) Rai Atul Chandra Dutt Bahadur, Bogra.
- (5) Mr. D. Gladding, i.c.s., Khulna.
- (6) Mr. Braja Durlabh Hajra, Bankura.
- (7) Mr. S. N. Roy, i.c.s., Hooghly.
- (8) Mr. J. Younie, i.c.s., Burdwan

Subdivisional Officers.

- (9) Babu Jatindra Mohan Banerji, Kushtia.
- (10) Mr. H. G. S. Bivar, Rampurhat (Birbhum).
- (11) Babu Sukumar Chatterji, Bankura, Sadar.
- (12) Maulvi M. H. M. Furrakh, Nagaon.
- (13) Late Babu Krishna Gopal Ghose, Vishnupur.
- (14) Mr. N. L. Hindley, i.c.s., Serajgunj.
- (15) Babu Tarak Chandra Roy, Baraset.
- (16) Mr. W. M. Sharpe, i.c.s., Kurseong.
- (17) Mr. H. S. E. Stevens, i.c.s., Kurseong, now at Serampore.

With few exceptions the whole of the departmental staff has worked well. Babu Susil Kumar Ganguli was relieved of the post of Personal Assistant in May last. His administrative work in that capacity could not be too highly praised. The Assistant Registrar of Co-operative Societies, Burdwan Division, Rai Sahib Nripendra Chandra Bose, has been fortunate in having a field of most important work before him. The Assistant Registrar of Co-operative Societies, Presidency Division, Babu Sushil Kumar Ganguly, has carried out most effectively the difficult and complicated executive duties in connection with the British Empire Exhibition. All Assistant Registrars have given their most valuable services, the common sense of Khan Sahib A. K. Kabiruddin Ahmad, in particular, having been invaluable on many occasions. Babu Upendra Nath Sen, Divisional Auditor of Co-operative Societies, Dacca Division, has officiated with credit as Assistant Registrar of both Dacca and Chittagong Divisions. I am indebted to each Assistant Registrar for a more than conscientious report on the work in his division during the year.

'APPENDIX.

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APPENDIX.

TABLE I.—Touring.

Officer.	Name of officer and dates between which he held the post.	Number of days on tour.
Registrar	Rai J. M. Mitra Bahadur, from 1st July 1923 up to 10th January 1924.	44
Do.	Mr. M. Thorp, I.C.S., from 11th January to 30th June 1924.	21
Personal Assistant to the Registrar	Babu Sushil Kumar Ganguly, from 1st July 1923 to 16th May 1924.	Nil
	Maulvi A. M. Arshad Ali, from 17th May to 30th June 1924.	Nil
Assistant Registrar, Presidency and Burdwan Divisions	Rai Sahib Nripendra Chandra Bose, from 1st July 1923 to 16th May 1924.	137
Assistant Registrar, Burdwan Division.	Rai Sahib Nripendra Chandra Bose, from 17th May to 30th June 1924.	
Assistant Registrar, Presidency Division.	Babu Sushil Kumar Ganguly, from 17th May to 30th June 1924.	6
Assistant Registrar, Dacca Division	Babu Upendra Nath Sen, from 1st July 1923 to 21st January 1924.	76
	Khan Bahadur Qamaruddin Ahmad, from 22nd January to 31st March 1924	28
	Khan Sahib Sayid Muazzamuddin Hussain, from 31st May to 30th June 1924	14
Assistant Registrar, Chittagong Division	Khan Sahib Abdul Jahl Khan, from 1st July 1923 to 16th May 1924.	98
	Babu Upendra Nath Sen, from 17th May to 30th June 1924.	20
Assistant Registrar, Rajshahi Division	Khan Sahib Abul Khan Kabiruddin Ahmad, from 1st July 1923 to 30th June 1924	156
Chief Auditor	Babu Bata Krishna Das, from 1st July 1923 to 30th June 1924.	13
Divisional Auditor, Dacca and Chittagong Divisions.	Maulvi Muhammad Shamsuzoha, from 1st July 1923 to 21st January 1924.	24
	Babu Upendra Nath Sen, from 22nd January to 16th May 1924.	33
Divisional Auditor, Rajshahi Division	Babu Suresh Chandra Sen, from 1st July 1923 to 30th June 1924	35

TABLE II.—General progress of the movement.

	SOCIETIES		MEMBERSHIP.		WORKING CAPITAL.	
	Last year.	This year.	Last year.	This year.	Last year.	This year.
					Rs.	Rs.
Provincial Bank	1	1	89	109	34,73,386	36,77,559
Central Banks	82	88	11,288	12,457	1,50,40,462	1,75,06,244
Central anti-Malarial Society ...	1	1	116	259	2,868	2,652
Producers' Unions	6	7	318	443	82,445	1,37,591
Supervising Unions	6	4	213	156	...	...
Agricultural Societies	7,213	8,638	2,01,236	2,34,821	1,56,73,987	1,89,93,111
Non-agricultural Societies	513	623	79,721	91,914	90,90,652	1,05,76,973
Total	7,822	9,342	2,92,931	3,40,159	4,33,63,800	5,08,94,130
This year's increase ... ..	...	1,520	...	47,178	...	75,30,334
Last year's increase ... ..	...	1,143	...	32,839	...	64,95,625
Percentage ... ..	...	19.4	...	16.1	...	17.3

Table III.—Sources of Working Capital of Agricultural Credit Societies.

	1922-23.		1923-24	
		Rs.		Rs.
1. Share capital paid up ...	7,03,769	10,27,801		
2. Deposits from members ...	6,98,103	7,83,463		
3. Ditto non-members ...	6,94,701	8,07,194		
4. Ditto other societies ...	1,04,786	1,17,609		
5. Ditto Provincial or Central Banks	1,04,93,774	1,24,79,134		
6. Loans from Government ...	3,086	3,428		
7. Reserve fund ...	21,63,802	25,70,441		

Table IV.—Collections from Rural Credit Societies.

Year.	Amount due at the beginning of the year.		Amount of principal repaid during the year		Percentage.
	Lakhs.	Lakhs.	Lakhs.	Lakhs.	
1922-23 ...	106.52	36.12	33.9		
1923-24 ...	121.31	38.51	31.4		

Table V.—Overdue Loans in Rural Credit Societies.

Year.	Amount due at the end of the year.		Of which overdue.		Percentage.
	Lakhs.	Lakhs.	Lakhs.	Lakhs.	
1921-22 ...	106.52	40.04	37.5		
1922-23 ...	121.31	44.73	36.3		
1923-24 ...	143.35	51.78	34.4		

Table VI.—Classification of Village Societies.

Year.	A	B	C	D	E	Under probation.	Total classified.
1922-23 ...	63	432	4,189	605	320	550	6,159
1923-24 ...	69	456	4,232	634	371	965	6,726

Table VII.—Progress of the Sunderban Supply and Sale Society.

Year.	Members.	Share capital.	Sale of goods to members.	Profit.	Working capital.
		Rs.	Rs.	Rs.	Rs.
1922-23 ...	3,279	21,486	1,24,885	10,107	1,30,087
1923-24 ...	3,730	26,714	49,698	754	1,32,545

TABLE VIII.—Progress of Baraset and Jessore Milk Societies.

Year.	Number of societies.	Number of members.	Loans made to individuals	Loans repaid by individuals.	Deposits received from individuals.	Purchase of produce	Sale of produce.	Cost of management.	Share capital paid up.	Profit.
			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1921-22	47	2,468	90,303	83,557	3,308	73,892	1,05,769	19,834	2,653	+ 1,730
1922-23	52	2,040	54,473	59,249	1,268	48,681	64,836	9,176	1,936	+ 4,846
1923-24	54	2,155	40,108	81,633	1,567	78,331	1,03,224	14,467	2,774	+11,054

TABLE IX.—Deposits in Central Banks, Central Anti-malarial and Producers Unions.

Description.	Amount
	Rs.
1. Deposits for not more than three months ...	1,06,549
2. Deposits maturing in 1924-25 ...	35,15,074
3. Ditto 1925-26 ...	26,32,095
4. Ditto 1926-27 ...	16,96,706
5. Ditto subsequent years ...	19,39,047

TABLE X.—Collections of Central Banks, Central Anti-malarial and Producers Unions.

Year.	Loans outstanding at the beginning of the year.	Repayments of principals	Percentage (approximate).	Payment of interest.	Loans granted during the year.
	Rs.	Rs.		Rs.	Rs.
1921-22	1,07,93,344	34,71,010	32.1	11,21,572	38,62,045
1922-23	1,11,93,853	48,68,698	43.4	11,41,009	58,85,561
1923-24	1,27,05,434	54,48,676	42.8	13,55,285	78,27,394

TABLE XI.—Reserve and other funds.

Banks	30th June 1922.	30th June 1923.	30th June 1924.
	Rs.	Rs.	Rs.
1. Central Banks including Anti-malarial and Producers' Unions ...	7,17,328	8,65,684	9,71,663
2. Non-agricultural Societies ...	3,85,260	4,76,373	5,94,667
3. Agricultural Societies ...	20,05,168	23,57,561	27,74,243
Total	31,07,756	36,99,618	43,40,573

TABLE XII.—Liquidation.

	1913 to 1914.	1914 to 1915.	1915 to 1916.	1916 to 1917.	1917 to 1918.	1918 to 1919.	1919 to 1920.	1920 to 1921.	1921 to 1922.	1922 to 1923.	1923 to 1924.
Number of societies liquidated.	2	4	43	39	29	81	38	53	147	53	44
Number of societies closed.	...	2	2	4	8	3	39	20	7	18	16
Number of cases pending.	5	9	50	85	106	184	185	228	368	403	431

TABLE XIII.—Progress of Agricultural Credit Societies.

Districts.	NUMBER OF SOCIETIES.			CLASSIFICATION.				
	This year.	Last year.	Increase or decrease.	A.	B.	C.	D.	E.
Burdwan ...	183	141	+ 42	1	4	64	31	8
Birbhum ...	393	329	+ 64	4	20	228	38	32
Bankura ...	37	36	+ 1	...	2	31	16	15
Midnapore ...	545	450	+ 95	6	21	260	22	20
Hooghly ...	43	40	+ 3	...	5	22	4	1
Howrah ...	61	60	+ 1	...	1	29	6	11
24-Parganas ...	184	140	+ 44	...	6	83	17	5
Nadia ...	446	341	+ 105	...	13	180	29	19
Murshidabad ...	346	282	+ 64	6	24	164	12	13
Jessore ...	357	284	+ 73	...	2	136	52	14
Khulna ...	392	370	+ 22	8	19	287	22	8
Dacca ...	506	445	+ 61	...	58	282	23	13
Mymensingh ...	831	639	+ 192	4	39	335	35	36
Bakarganj ...	474	394	+ 80	2	18	245	31	5
Faridpur ...	443	424	+ 19	5	18	265	45	72
Chittagong ...	87	65	+ 22	8	10	31	4	6
Noakhali ...	342	266	+ 76	7	14	128	14	5
Tippera ...	712	574	+ 138	10	64	324	59	24
Rajshahi ...	424	372	+ 52	...	17	250	20	6
Bogra ...	287	230	+ 57	...	7	139	8	6
Malda ...	111	87	+ 24	1	1	73	16	4
Rangpur ..	316	296	+ 20	2	24	180	50	20
Pabna ...	555	510	+ 45	1	24	375	58	20
Dinajpur ...	169	114	+ 55	3	12	58	8	2
Jalpaiguri ...	45	42	+ 3	...	...	42	2	...
Darjeeling ...	79	80	- 1	...	33	21	12	6
Total ...	8,368	7,011	+1,357	68	456	4,232	634	371

STATEMENT
OPERATIONS

Classification.	Number of Members—		Number of affiliated societies holding shares in Central Banks—					Loans made during the year by—		Receipts from loans and deposits repaid during the year by—		Loans due by—		Loans and deposits received during the year from—		
	Individual.	Societies.	Central Credit	Agricultural Credit	Non-agricultural Credit	Others	Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Central Banks.	Primary Societies.	Individuals and other sources.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
(a) PROVINCIAL BANK.																
Bengal Provincial Co-operative Bank, Limited.	109	79	1	17	12	...	Rs. 24,16,739	Rs. 16,17,635	...	Rs. 28,81,090	Rs. 23,93,081	10,39,352	1,20,46,794	...	...
Figures of the last year ...	89	88	1	14	8	...	21,53,123	18,85,161	...	18,32,888	35,04,844	10,59,010	87,29,842	...	...
(b) CENTRAL BANK.																
Burdwan—																
1. Burdwan Central Co-operative Bank, Limited.	78	104	...	103	...	1	...	88,860	...	35,948	...	1,39,693	...	...	6,15,683
2. Kalna Central Co-operative Bank, Limited.	...	65	...	61	...	2	...	79,809	...	40,128	...	86,261	20,000	...	28,861	
Total ...	78	169	...	164	...	3	...	1,68,669	...	77,077	...	2,30,948	20,000	...	6,44,487	
Birbhum—																
1. Rampurhat Central Co-operative Bank, Limited.	2	398	...	354	...	5	...	1,46,080	...	1,17,775	...	2,76,893	...	...	1,37,055
2. Birbhum Central Co-operative Bank, Limited.	28	161	...	158	...	3	...	66,826	...	29,514	...	1,35,288	15,000	...	66,979	
Total ...	30	434	...	412	...	8	...	2,12,906	...	1,47,289	...	4,02,166	15,000	...	1,94,008	
Bankura—																
1. Bishanpur Central Co-operative Bank, Limited.	43	13	...	3	...	10	...	3,664	...	13,191	...	5,752	...	190	1,433	
2. Bankura Central Co-operative Irrigation and Finance Bank, Limited.	189	68	...	...	...	58	...	21,730	...	3,018	...	35,966	10,000	...	11,859
Total ...	232	71	...	3	...	68	...	25,394	...	16,209	...	41,718	10,000	190	13,099	
Midnapore—																
1. Midnapore Central Co-operative Bank, Limited.	55	188	...	173	...	4	...	5,98,761	...	2,10,072	...	2,52,445	18,000	...	1,01,629	
2. Kishor Bahadur Central Co-operative Union, Limited.	...	139	...	137	...	2	...	81,258	...	86,751	...	1,32,695	50,000	306	25,362	
3. Belera Co-operative Union, Limited.	...	76	...	75	...	1	...	33,141	...	33,416	...	1,08,397	14,000	...	10,414	
4. Tamuk Central Co-operative Bank, Limited.	28	73	...	70	...	3	...	81,888	...	23,821	...	92,170	25,000	...	10,885	
5. Magberia Central Co-operative Bank, Limited.	...	70	...	70	...	...	...	97,588	...	...	...	97,588	45,000	...	45,861
Total ...	83	346	...	334	...	10	...	8,87,716	...	2,94,950	...	6,94,735	1,60,000	306	1,98,942	
Howrah—																
1. Howrah Central Co-operative Bank, Limited.	17	21	...	19	...	2	...	...	...	747	...	8,364	...	...	...
2. Uluberia Central Co-operative Union Bank, Limited.	...	82	...	30	...	1	...	1,300	...	1,005	...	16,130	...	...	100
Total ...	17	83	...	49	...	3	...	1,800	...	1,752	...	26,494	...	...	100
Hooghly—																
1. Hooghly Central Co-operative Bank, Limited.	28	37	...	37	...	...	...	10,470	...	4,405	...	14,212	...	...	3,800
24-Paraganas—																
1. Taki Central Co-operative Bank, Limited.	...	125	...	122	...	3	...	89,172	...	61,162	...	1,45,338	20,000	479	88,538	
2. Nimra Co-operative Banking Union, Limited.	...	18	...	16	...	...	...	9,507	...	17,185	...	13,848	...	...	6,691
3. Diamond Harbour Central Co-operative Bank, Limited.	19	8	...	5	...	1	...	7,874	...	2,760	...	5,090	8,800	...	1,250	
4. Baranah Central Co-operative Bank, Limited.	18	33	...	33	...	1	...	34,300	...	5,923	...	37,917	35,100	...	3,778	
Total ...	33	183	...	177	...	5	...	1,40,853	...	87,631	...	1,99,088	50,000	479	94,248	
Nadia—																
1. Nadia Central Co-operative Bank, Limited.	110	123	...	120	...	2	...	1,42,029	...	1,25,223	...	2,25,545	...	...	97,461
2. Kushid Central Co-operative Bank, Limited.	65	95	...	92	...	3	...	88,920	...	33,518	...	51,989	...	...	2,095
3. Mithapur Central Co-operative Bank, Limited.	46	110	...	109	...	1	...	42,251	...	35,846	...	38,532	...	...	19,464
4. Ranaghat Central Co-operative Bank, Limited.	18	46	...	46	...	...	...	37,027	...	11,654	...	48,860	7,500	...	24,714
5. Chudanga Central Co-operative Bank, Limited.	...	55	...	54	...	1	...	71,345	...	15,442	...	86,809	50,000	...	5,941	
Total ...	234	439	...	421	...	7	...	3,82,072	...	2,31,162	...	4,86,528	87,500	...	1,69,679	
Jessore—																
1. Jessore Central Co-operative Bank, Limited.	85	180	...	173	...	2	...	77,299	...	44,354	...	1,05,773	...	2,338	16,695	
2. Magura Central Co-operative Bank, Limited.	28	74	...	74	...	...	...	87,442	...	34,254	...	68,251	4,000	...	26,797
3. Narail Central Co-operative Bank, Limited.	40	100	...	100	...	...	...	44,368	...	37,345	...	91,117	8,000	250	55,306
Total ...	153	354	...	347	...	4	...	1,79,109	...	1,16,953	...	2,17,300	12,000	2,338	78,700	

A.

CENTRAL BANKS.

Sales of goods to members.	Purchase of members' produce.	Cost of management.	Share capital paid up.	Loans and deposits held at the end of the year from—				Reserve Fund and other funds.	Working Capital.	Profit and loss of the year.	Usual dividend paid on shares.	Most usual rate of interest—			Uncalled and unsubsribed share capital.
				Societies.	Provincial or Central Banks.	Government.	Individual and other sources.					On borrowings.	On lendings.	Per cent.	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.	Per cent.	Rs.	
...	...	11,483	4,37,325	2,84,767	8,88,001	-	19,45,958	1,08,608	26,72,650	+ 41,536	7½	3 to 7	7½	4,67,225	
...	...	6,784	5,58,800	1,53,753	10,07,515	...	19,05,071	68,338	24,75,328	+ 40,194	7	3 to 8	7½	5,58,800	
...	...	2,087	32,280	...	...	...	1,77,745	2,365	2,12,970	+ 2,418	7	3 to 7	9½	3,030
...	...	714	12,330	...	12,800	...	75,932	800	1,02,692	+ 1,387	...	7 to 7½	9½	...	
...	...	2,751	44,510	...	12,800	...	2,54,677	2,766	2,16,652	+ 4,805	...	...	...	3,030
...	...	4,179	29,760	2,765	...	...	2,70,283	12,191	3,81,000	+ 4,580	...	7 to 5, 4 to 5½	10, 9 to 8	18,460
...	...	2,641	27,970	...	18,000	...	88,800	2,744	1,22,320	+ 1,724	6½	6, 6½ to 7	9½	18,460	
...	...	6,920	69,720	2,768	15,000	...	3,26,889	21,326	4,63,320	+ 6,314	...	...	...	18,480
...	...	40	1,800	147	...	...	7,540	92	2,728	+ 218	7½	3½ to 6½	9½	11,150
...	...	1,013	24,160	...	10,000	...	12,112	90	46,368	+ 1,545	4	7½ to 3 to 6	9½	46,740	
...	...	1,043	28,110	147	10,000	...	19,652	189	26,029	+ 1,742	...	...	...	26,820
...	...	3,096	31,640	336	...	...	2,54,060	16,128	2,09,372	+ 2,221	6½	4 to 5, 6 to 7	7½ to 9½	47,460
...	...	1,718	18,720	499	27,981	...	56,792	4,049	1,28,051	+ 2,001	7½	...	9½	...	
...	...	1,220	18,600	...	46,888	...	40,225	7,124	1,09,227	+ 1,718	9½	6½ to 7, 7 to 8	9½	...	
...	...	902	17,125	95	29,500	...	44,201	2,700	1,05,021	+ 2,468	6½	5½, 5 to 6, 6 to 7	9½	28,225	
...	...	117	10,700	...	48,000	...	45,661	...	1,01,251	+ 398	...	...	9½	...
...	...	7,153	21,845	1,129	1,29,649	...	4,41,099	31,021	7,26,742	+ 10,250	...	...	...	76,626
...	...	99	4,825	...	...	...	8,350	1,416	9,651	+ 149	...	7	9½	28,625
...	...	249	2,670	...	...	...	17,058	621	20,289	+ 329	7½	8, 7 to 8	9½ to 10½	60
...	...	242	7,525	...	...	...	20,409	2,647	20,011	+ 408	...	...	...	28,220
...	...	97	2,205	...	...	...	5,300	794	14,429	+ 222	6½	6, 6½ to 7	10½ to 12	12,925
...	...	4,211	24,820	792	10,000	...	1,06,423	14,068	1,26,212	+ 2,221	6½	8 to 8	12	...	
...	...	2,626	2,626	...	...	...	15,052	1,009	19,026	+ 440	9½	4½, 6 to 7	10	1,065
...	...	26	220	...	2,500	...	1,220	...	5,280	- 47	...	2, 6½, 7 to 7½	10½	1,060	
...	...	124	2,425	...	28,500	...	2,775	...	20,720	+ 220	...	7½	10½	2,220	
...	...	4,471	21,100	792	27,000	...	1,26,222	15,007	2,19,628	+ 2,221	...	...	...	6,240
...	...	2,797	29,225	...	...	...	2,27,277	2,712	2,26,222	+ 2,622	10	4 to 5 to 6½	7½, 8 to 10½	48,700
...	...	1,247	12,225	...	...	...	78,228	1,221	22,624	+ 1,202	...	4, 4½ to 5	12½	12,225
...	...	1,254	17,440	...	40,000	...	22,225	2,200	1,16,710	+ 1,221	6½	4½ to 7½	10½ to 12½	20,221	
...	...	272	2,224	...	76,022	...	26,422	227	47,228	+ 1,127	...	7, 7½ to 8	9½ to 12½	2,222	
...	...	617	2,470	...	64,120	...	2,221	...	25,221	+ 1,224	...	7, 7½ to 8½	9½, 12½ to 14	6,220	
...	...	2,212	72,022	...	26,222	...	4,21,227	17,224	2,40,229	+ 2,122	...	...	...	1,26,022
...	...	4,214	22,272	...	...	...	1,26,272	12,428	2,21,227	+ 2,622	6½	2 to 2½, 3 to 4	11	22,272
...	...	1,225	2,120	...	22,242	...	27,225	424	22,225	+ 1,225	2½	4, 4½, 7 to 7½, 8 to 9	12½	1,225	
...	...	2,077	12,242	...	22,212	...	40,222	121	1,00,217	+ 1,222	...	2½, 2, 2 to 2½, 3 to 4	9½, 12½ to 14	12,222	
...	...	2,225	42,225	...	71,021	...	2,24,225	12,021	4,02,222	+ 2,720	...	...	...	42,225

STATEMENT
OPERATIONS OF

Classification.	Number of Members—		Number of affiliated societies holding shares in Central Banks—				Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—		Loans and deposits received during the year from—		
	Individuals.	Societies.	Central Credit.	Agricultural Credit.	Non-Agricultural Credit.	Others.	Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Central Banks.	Primary Societies.	Individual and other sources.
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Khulna—							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Barull Central Co-operative Bank, Limited.	196	..	118	5	3	..	21,918	..	25,769	..	77,419	5,200	8,891	12,588	
2. Khulna Central Co-operative Bank, Limited.	122	162	..	148	8	1	1,97,533	..	1,95,811	..	1,66,926	..	..	82,985
3. Bagerhat Central Co-operative Bank, Limited.	51	121	..	115	..	6	81,484	..	50,817	..	92,501	..	138	21,408	
Total	369	..	376	13	10	..	2,80,935	..	2,72,397	..	3,35,846	5,200	8,059	96,981	
Marshabd—							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1. Jangipur Central Co-operative Bank, Limited.	67	71	..	62	9	..	39,999	..	17,654	..	66,827	..	200	40,200	
2. Burhampur Central Co-operative Bank, Limited.	53	141	..	139	1	1	99,726	..	68,907	..	1,91,307	..	481	24,692	
3. Lalbag Central Co-operative Bank, Limited.	28	102	..	97	5	..	74,337	..	38,310	..	1,34,068	34,000	..	28,624	
4. Kandi Central Co-operative Bank, Limited.	30	22	..	22	..	..	44,356	..	3,241	..	41,114	37,038	..	1,058
Total	178	346	..	330	16	1	2,58,420	..	1,27,112	..	4,65,116	61,038	631	94,708	
Dacca—							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1. Dacca Central Co-operative Bank.	85	187	..	185	1	..	2,07,961	..	1,81,104	..	4,11,632	..	128	79,884	
2. Bikrampur Central Co-operative Bank.	88	69	..	67	2	..	1,17,493	..	68,200	..	1,79,016	47,500	..	23,390	
3. Manikganj Central Co-operative Bank.	88	77	..	76	1	..	60,918	..	39,733	..	90,486	..	688	50,030	
4. Narayanganj Central Co-operative Bank.	30	148	..	140	3	..	1,74,305	..	1,42,009	..	2,26,080	80,000	180	21,307	
5. Baipura Central Co-operative Bank.	No transaction.														
Total	288	476	..	469	7	..	5,60,186	..	4,51,136	..	9,07,172	1,37,500	1,188	1,74,641	
Mymensingh—							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1. Mymensingh Central Co-operative Bank.	49	280	..	277	3	..	10,65,181	..	7,08,854	..	10,72,948	50,000	3,750	5,19,666	
2. Jamalpur Central Co-operative Bank.	171	185	..	185	..	..	2,36,203	42	2,87,864	207	2,77,888	42,500	1,770	58,865
3. Kishoreganj Central Co-operative Bank.	117	113	..	111	2	..	1,17,115	..	89,811	..	2,38,366	..	5,641	1,99,441	
4. Tangail Central Co-operative Bank.	84	153	..	149	3	..	1,67,798	..	74,374	..	1,36,416	25,000	38,187	52,874	
5. Netrakona Central Co-operative Bank.	..	44	..	44	..	..	1,14,617	..	6,602	..	1,07,915	1,00,000	5,126	1,900
6. Madaripur Central Co-operative Bank.	..	29	..	28	1	..	82,223	..	5,030	..	77,204	1,11,201	5,043	8,000	
7. Dhanbari Central Co-operative Bank.	No transaction.														
8. Pinnas Central Co-operative Bank.	No transaction.														
Total	421	818	..	804	9	..	18,43,168	42	12,50,516	207	21,99,725	2,28,001	9,284	7,49,639	
Bakarganj—							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1. Barisal Central Co-operative Bank.	120	240	..	234	4	2	4,02,241	..	2,64,028	..	6,71,026	..	..	3,52,477
2. Patuakhali Central Co-operative Bank.	61	74	..	79	2	..	43,920	..	29,186	..	1,12,787	10,000	303	4,123	
3. Khoppara Central Co-operative Bank.	..	128	..	127	1	..	1,78,481	..	96,495	..	5,44,719	1,88,000	3,000	30,427	
4. Bhola Central Co-operative Bank.	135	9	..	9	..	..	20,916	..	..	..	20,916	30,000	..	10,223
Total	246	451	..	449	7	2	6,52,408	..	4,94,789	..	12,49,487	2,18,000	3,203	3,87,290	
Faridpur—							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1. Faridpur Central Co-operative Bank.	258	125	..	119	5	1	9,000	278	21,394	1,248	4,54,587	..	286	1,52,626	
2. Madaripur Central Co-operative Bank.	222	99	..	99	1	..	5,375	..	29,882	..	3,49,859	16,000	19,189	1,01,276	
3. Gopalganj Central Co-operative Bank.	77	123	..	120	3	..	9,500	..	26,262	..	8,00,864	..	..	22,723
4. Comilla Central Co-operative Bank.	69	25	..	21	3	..	67,446	..	25,549	..	2,54,611	..	..	1,06,799
Total	624	444	..	439	11	1	21,321	278	1,12,797	1,248	12,20,761	16,000	12,295	4,21,544	
Chittagong—							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1. Chittagong Central Co-operative Bank.	64	106	..	82	21	2	1,39,474	..	1,16,026	..	1,84,896	65,000	24,737	62,663	
2. Cox's Bazar Central Co-operative Bank.	No transaction.														
Total	64	106	..	82	21	2	1,39,474	..	1,16,026	..	1,84,896	65,000	24,737	62,663	

A.

CENTRAL BANKS.

Sales of goods to members.	Purchase of members' products.	Cost of management.	Share capital paid up.	Loans and deposits held at the end of the year from—				Reserve Fund and other Funds.	Working Capital.	Profit and loss of the year.	Usual dividend paid on shares.	Most usual rate of interest—		Unpaid and subscribed share capital.
				Societies.	Provincial or Central Banks.	Government.	Individual and other sources.					On borrowings.	On lendings.	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.	Per cent.	Rs.
...	...	3,123	18,080	942	...	...	58,814	12,787	86,873	+ 1,816	...	7½	10½	...
...	...	4,092	50,020	...	...	...	1,77,735	9,764	2,17,879	+ 4,308	7½	4½, 6½ & 7½	10½ & 8	11,880
...	...	2,180	15,000	2,185	5,000	...	72,886	2,665	98,826	+ 1,781	6½	7, 7½, 7½ & 8.	10½	26,810
...	...	9,405	68,140	4,127	8,000	...	2,10,495	26,216	4,02,978	+ 7,502	...	...	...	88,490
...	...	1,828	18,145	208	...	...	79,299	9,280	1,06,927	+ 2,409	8½ to 8	8½, 4½, 6½ & 7½	10½	82,506
...	...	2,822	59,770	538	...	...	1,82,065	8,189	2,30,842	+ 5,234	7½	8 to 6½	10½ & 10½	41,320
...	...	1,474	18,825	...	19,500	...	1,02,007	2,203	1,47,225	+ 2,546	6½	7½, 7, 6½ & 6.	10½ & 8½	17,155
...	...	80	4,765	...	87,022	...	1,008	...	42,892	+ 254	...	8 & 6½	10½ & 12½	6,625
...	...	7,208	68,205	741	86,868	...	2,71,426	20,622	5,17,897	+ 10,442	...	...	...	27,626
...	...	4,882	78,490	922	...	...	2,49,222	42,865	4,07,920	+ 12,774	6½ & 7½	4 to 7½	3 to 12	...
...	...	1,322	27,040	...	96,000	...	64,201	4,842	1,21,972	+ 2,614	7½ & 9½	6½ to 7½	10½	...
...	...	1,220	12,140	800	11,000	...	72,482	2,840	1,00,962	+ 2,264	7½ & 9½	8½ to 8	12½	20,680
...	...	3,417	22,765	166	1,20,000	...	25,277	2,280	2,56,488	+ 2,244	8½	7 to 8	10½	27,485
...	...	11,142	1,29,422	1,298	2,27,000	...	6,22,222	22,227	10,16,242	+ 22,222	8½ to 9½	8½ to 8	8½ to 12½	86,065
...	...	16,822	1,24,145	68,219	...	...	2,61,222	22,222	11,19,222	+ 42,222	12½	4 to 7	7½ to 10½	22,400
...	...	2,210	27,220	5,222	80,000	...	2,24,122	22,222	4,17,047	+ 2,021	12½	5 to 7½	12½	27,680
...	...	2,222	27,022	4,222	10,000	...	1,21,112	6,442	2,22,222	+ 7,022	7½	2 to 6½	10½ to 10½	41,600
...	...	2,222	41,022	42,222	25,000	...	1,22,122	12,222	2,22,222	+ 4,222	10	4 to 8	10½	41,022
...	...	1,402	12,222	2,022	1,00,000	...	1,000	...	1,12,111	+ 600	...	8 to 8	10½	12,222
...	...	422	2,220	220	72,700	...	2,000	...	22,170	+ 221	...	5 to 8	5 to 10½	2,220
...	...	22,222	2,22,222	1,22,222	2,22,700	...	12,22,222	1,17,122	22,22,122	+ 42,222	7½ to 12½	8 to 8	8 to 11½	1,22,222
...	...	2,221	24,220	...	...	...	2,22,222	22,222	7,22,222	+ 12,222	10½	3 to 7	7½ & 10½	22,220
...	...	2,222	17,102	224	20,000	...	22,222	10,022	1,12,222	+ 4,222	8½ to 7½	8 to 7½	12½	21,222
...	...	7,102	27,222	...	4,01,222	...	20,712	22,222	2,17,222	+ 12,222	6½	7½ & 8	5 & 12½	22,222
...	...	22	2,214	2,222	20,000	...	2,000	...	22,222	-222	...	8	10½	11,222
...	...	22,222	1,22,222	2,222	4,21,222	...	2,22,222	22,222	12,22,222	+ 42,222	8½ to 10½	2 to 8	8 to 12½	1,22,222
...	...	2,222	22,220	2,224	...	...	4,22,222	22,222	2,22,122	+ 12,222	6½	3 to 8	8½ to 12	22,220
...	...	2,222	40,222	721	42,022	...	2,22,222	12,000	2,22,022	-717	...	8½ to 8	12½	40,222
...	...	2,222	42,222	200	20,000	...	1,22,222	27,220	2,22,122	+ 7,222	5	2½ to 8	...	2,222
...	...	4,120	44,200	...	...	...	2,22,222	12,221	2,12,222	+ 2,222	5	8½ to 7½	7½ & 10½	44,200
...	...	22,100	1,27,140	2,222	1,24,022	...	11,22,222	1,24,724	12,22,222	+ 22,222	5 & 6½	8 to 8	7½ to 12½	1,22,222
...	...	2,222	41,222	12,221	22,000	...	1,21,022	2,222	2,22,222	+ 4,104	6½	4 to 7½	10½ & 8	41,222
...	...	2,222	41,222	12,221	22,000	...	1,21,022	2,222	2,22,222	+ 4,104	6½	4 to 7½	10½ & 8	41,222

**STATEMENT
OPERATIONS OF**

Classification.	Number of Members—		Number of affiliated societies holding shares in Central Banks—					Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—		Loans and deposits received during the year from—		
	Individuals.	Societies.	Central Credit.	Agricultural Credit.	Non-agricultural Credit.	Others.	Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Central Banks.	Primary Societies.	Individuals and other sources.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Tippera—							Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
1. Comilla Central Co-operative Bank, Limited.	269	247	...	245	2	...	4,69,271	47	5,97,771	...	5,05,828	...	...	...	3,24,416
2. Brahmanbaria Central Co-operative Bank, Limited.	...	144	...	138	8	...	98,205	...	1,39,223	...	3,04,377	...	...	...	1,51,788
3. Chaudpur, Central Co-operative Bank, Limited.	68	241	...	239	2	...	2,92,579	...	2,37,589	...	4,90,485	46,000	...	...	1,19,212
4. Tippera (S.) Central Co-operative Bank, Limited.	...	32	...	31	1	...	32,890	...	7,989	...	89,324	10,000	...	...	17,372
5. Matlab Central Co-operative Bank, Limited.	...	65	...	65	...	...	77,390	30	110	...	77,160	75,000	...	...	2,821
Total	317	729	...	718	11	...	9,60,426	67	7,62,612	...	14,47,082	1,30,000	...	...	6,09,509
Noakhali—																
1. Noakhali Central Co-operative Bank, Limited.	62	76	...	67	9	...	69,892	...	38,392	...	1,56,714	15,000	17	...	47,007	
2. Feni Central Co-operative Bank, Limited.	62	190	...	185	4	1	67,407	...	38,868	...	2,80,866	10,000	1,579	...	60,803	
3. Sandip Central Co-operative Bank, Limited.	47	53	...	51	2	...	74,465	...	18,010	...	82,370	85,000	860	...	4,676	
4. Lakshimpur Central Co-operative Bank, Limited.	32	19	...	19	...	...	34,825	...	1,868	...	33,067	85,000	...	...	3,167
Total	203	338	...	323	15	1	2,46,679	...	97,076	...	5,14,917	1,25,000	2,396	...	1,16,652	
Dinajpur—																
1. Balarghat Central Co-operative Bank, Limited.	39	128	...	128	...	...	79,997	...	39,377	...	1,85,899	85,000	...	...	21,863
2. Dinajpur Central Co-operative Bank, Limited.	...	14	...	14	...	...	19,100	...	...	...	16,100	20,000	...	...	170
3. Thakurgaon Central Co-operative Bank, Limited.	19	4	...	4	...	...	3,855	...	...	...	3,855	...	...	...	4,006
Total	66	146	...	146	...	...	1,02,952	...	39,377	...	2,05,854	75,000	...	...	26,029
Maldah—																
1. Maldah Central Co-operative Bank, Limited.	52	105	...	90	14	1	74,731	...	48,298	...	1,91,038	40,622	...	...	1,11,681
Rajshahi—																
1. Rajshahi Central Co-operative Bank, Limited.	48	121	...	120	1	...	66,237	...	44,180	...	1,98,466	350	9,992	...	1,65,391	
2. Futhia Central Co-operative Bank, Limited.	...	39	...	39	...	...	7,427	...	4,996	...	86,807	...	...	...	1,620
3. Natore Central Co-operative Bank, Limited.	22	80	...	78	2	...	...	...	18,068	...	1,52,568	...	...	...	19,656
4. Nazarov Central Co-operative Bank, Limited.	6	161	...	161	...	...	85,658	...	49,697	...	2,98,224	89,000	36,324	...	23,691
Total	71	401	...	398	3	...	1,66,417	...	1,19,941	...	6,85,693	89,350	38,186	...	1,29,658	
Pabna—																
1. Pabna Central Co-operative Bank, Limited.	293	288	...	268	16	4	40,748	...	63,775	...	8,99,887	...	49,910	...	8,15,838	
2. Serajganj Central Co-operative Bank, Limited.	...	137	...	132	4	1	89,897	...	95,933	...	2,06,199	...	...	...	1,48,611
3. Ullapara Central Co-operative Bank, Limited.	...	81	...	79	2	...	51,295	...	46,488	...	1,47,394	40,000	...	...	16,018
4. Shasarpore Central Co-operative Bank, Limited.	...	45	...	45	...	...	56,601	...	32,724	...	84,852	28,000	...	...	89,209
Total	398	551	...	524	22	6	2,38,541	...	2,38,419	...	14,07,942	68,000	49,910	...	5,19,676	
Bogra—																
1. Bogra Central Co-operative Bank, Limited.	61	192	...	191	1	...	1,41,207	...	84,781	...	4,20,091	...	...	...	1,96,081
2. Khanjapur Central Co-operative Bank, Limited.	4	50	...	50	...	...	37,317	...	21,948	...	80,848	16,100	709	...	12,118
3. Padmapara Central Co-operative Bank, Limited.	7	25	...	25	...	...	51,497	...	22,471	...	48,741	40,000	...	...	1,990
Total	72	267	...	266	1	...	2,30,021	...	1,39,200	...	5,50,680	66,100	709	...	1,40,189	
Rangpur—																
1. Rangpur Central Co-operative Bank, Limited.	...	76	...	74	2	...	49,344	...	22,304	...	2,48,355	25,000	...	...	1,22,944
2. Gaibandha Central Co-operative Bank, Limited.	83	102	...	99	3	...	23,675	...	37,988	...	2,29,836	20,000	...	...	70,026
3. Kurigram Central Co-operative Bank, Limited.	47	65	...	63	...	...	38,612	...	12,217	...	68,889	...	...	...	11,501
4. Nilphamari Central Co-operative Bank, Limited.	...	76	...	76	...	...	132,608	...	11,101	...	1,31,595	18,000	...	...	12,966
Total	180	317	...	312	8	...	1,20,239	...	70,710	...	6,62,796	63,000	...	...	2,17,437
Jalpaiguri—																
1. Jalpaiguri Central Co-operative Bank, Limited.	3	46	...	39	3	4	3,680	...	6,628	...	84,678	...	5,200	...	8,790	
Darjeeling—																
1. Kalimpong Central Co-operative Bank, Limited.	...	49	...	49	...	...	46,561	...	24,930	...	2,12,226	26,100	...	...	1,12,178
2. Darjeeling Central Co-operative Banking Union, Limited.	12	16	...	12	...	...	4,490	...	8,348	...	-11,043	1,678	...	898	433
3. Padong Central Co-operative Bank, Limited.	...	17	...	17	...	...	24,901	...	34,080	...	77,478	8,000	...	167	7,448
Total	12	82	...	78	4	...	76,952	...	81,608	...	2,81,743	31,768	1,060	...	1,21,059	
Total Central Banks	4,168	8,269	...	7,977	162	117	28,66,250	285	58,67,000	1,859	1,51,30,826	17,81,786	2,15,551	...	84,96,899	
Total of previous year	4,840	7,089	...	6,711	232	137	56,85,941	285	48,38,698	2,179	1,37,06,434	12,73,812	2,20,119	...	44,14,333	

A.

CENTRAL BANKS.

Sales of goods to members.	Purchase of members' products.	Cost of manage- ment.	Share capital paid up.	Loans and deposits held at the end of the year from—				Reserve Funds.	Working Capital.	Profit and loss of the year.	Usual dividend paid on shares.	Most usual rate of interest—		Uncalled and sub- scribed share capital.
				Societies.	Provin- cial or Central Banks	Govern- ment.	Individual , and other sources					On bor- rowings.	On lend- ings.	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.	Per cent.	Rs.
...	...	7,561	92,500	2	...	...	4,85,068	22,078	6,10,874	+ 16,868	12½	2 to 7	10½	28,500
...	...	8,446	26,010	...	...	...	2,90,845	20,680	3,46,635	+ 6,885	8½	2 to 7½	10½	20,250
...	...	7,523	48,700	...	45,000	...	472,864	16,867	5,26,421	+ 11,023	10	4 to 7½	15½, 4½, 5 & 5	48,700
...	...	396	6,360	2,000	12,910	...	26,602	416	68,278	+ 2,002	12½	4½ to 8½	10½	6,360
...	...	726	7,878	...	75,000	...	3,921	...	85,698	+ 413	...	4½ to 8	10½	7,878
...	...	21,661	1,91,655	2,008	1,32,910	...	12,38,320	72,099	16,37,603	+ 38,180	...	...	...	1,76,676
...	...	1,726	16,065	17	26,000	...	62,667	12,170	1,41,919	+ 1,058	8	4 to 8	10½	25,238
...	...	4,361	37,668	2,960	97,000	...	1,26,607	17,046	2,91,178	+ 7,872	8	4½ to 8	10½	37,918
...	...	514	14,695	19	67,000	...	9,374	22	91,020	+ 1,784	...	5 to 8	10½	32,386
...	...	128	4,560	...	25,000	...	1,082	...	40,642	+ 158	...	1	10½	9,140
...	...	6,728	74,684	4,008	2,27,600	...	2,18,630	80,228	5,54,759	+ 14,872	...	...	...	1,12,720
...	...	2,889	26,230	...	1,14,000	...	48,146	7,447	1,95,933	+ 4,048	7½	4½ to 8	10½	26,230
...	...	188	1,910	...	20,000	...	170	...	22,080	+ 200	...	8	12½	...
...	...	101	678	...	...	...	3,950	...	4,625	+ 59	...	6½ to 8½	12½ to 15½	678
...	...	5,126	22,815	...	1,84,000	...	62,298	7,447	2,22,828	+ 4,204	...	...	...	25,803
...	...	2,822	24,814	78	30,280	...	1,63,567	4,206	2,21,945	+ 4,881	6½ & 8	3½ to 8	9½ & 10½	42,628
...	...	2,289	18,220	2,544	260	...	1,88,222	4,213	2,12,620	+ 2,265	7½	4½ to 7	9½ to 12½	41,820
...	...	911	8,050	...	26,420	...	12,247	778	44,675	+ 153	...	...	10½	...
...	...	2,992	28,550	7,000	76,000	...	66,807	7,095	1,90,459	+ 3,329	3	6 to 8	10½	23,650
...	...	2,085	25,624	23,082	1,83,820	...	71,872	8,418	3,22,616	+ 7,977	6½	4½ to 8½	10½	55,660
...	...	10,277	62,624	22,626	2,56,490	...	5,29,249	20,804	7,61,698	+ 18,644	...	...	...	1,01,040
...	...	17,849	1,17,720	28,786	...	...	9,05,622	1,45,618	12,05,761	+ 17,422	8	3 to 7½	10½	1,17,720
...	...	4,988	22,560	...	...	...	2,78,670	6,149	3,12,379	+ 3,961	6½	4½ to 8	10½	22,420
...	...	60	15,120	68	98,109	...	22,329	5,428	1,58,087	+ 1,851	6½	7½	10½	18,120
...	9,630	...	29,000	...	26,692	2,601	89,873	+ 1,958	6½	7½ to 8	10½	9,630
...	...	22,297	1,77,990	28,869	1,37,108	...	12,48,533	1,61,399	17,63,900	+ 24,522	...	...	...	1,77,990
...	...	6,450	82,828	...	...	...	2,65,556	20,720	4,41,960	+ 9,111	6½	3½ to 7½	9½ to 10½	65,515
...	...	77	9,900	...	53,000	...	26,918	1,667	91,475	+ 1,055	4½	6 to 8½	10½	...
...	...	496	9,240	...	62,200	...	4,050	440	76,620	+ 2,126	...	6 to 8	12½	...
...	...	7,022	74,726	...	1,18,900	...	2,06,522	22,817	6,09,965	+ 12,312	...	...	...	69,566
...	...	6,201	26,948	...	28,000	...	2,15,850	12,951	3,24,846	+ 5,296	6½	3½ to 7½	8 to 12	22,606
...	...	2,442	28,200	...	42,823	...	1,26,026	24,224	3,62,904	+ 3,726	...	6 to 8	10½	28,200
...	...	1,817	12,418	...	...	...	25,000	2,814	71,929	+ 1,864	6½	4½ to 7½	12½	26,265
...	...	2,991	21,168	...	68,800	...	21,604	7,291	1,49,961	+ 708	...	4½ to 6	10½	...
...	...	14,221	92,728	...	1,28,633	...	5,48,579	49,689	8,29,640	+ 11,595	...	...	...	96,220
...	...	1,128	9,000	9,918	21,000	...	16,911	2,660	66,506	+ 92	...	3 to 9	10½ to 12½	9,000
...	...	2,648	26,926	...	29,261	...	1,46,060	25,247	2,66,704	+ 2,248	...	2½ to 8	10	...
...	...	228	9,620	1,058	32,296	...	24	1,678	62,196	+ 189	...	4½ to 7½	9½	9,620
...	...	1,621	12,149	...	54,700	...	12,968	11,876	90,280	+ 1,310	12½	2½ to 7½	10	...
...	...	8,250	80,712	1,028	1,50,427	...	1,28,620	35,200	2,99,280	+ 4,844	...	...	...	8,250
...	...	2,46,886	21,64,822	2,63,791	21,29,114	...	1,19,21,426	8,47,651	1,78,96,244	+ 62,112	...	...	...	12,12,480
1,81,612	1,47,029	2,22,112	18,56,700	2,16,825	22,65,770	1,00 0	2778,026	8,62,624	1,61,28,778	+ 2,75,282	...	...	...	17,22,928

STATEMENT.

OPERATIONS OF

Classification.	Number of societies.	Number of members.	Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—			Loans and deposits received during the year from—		
			Individuals	Banks and societies.	Individuals	Banks and societies.	Individuals	Of which overdue.	Banks and societies.	Individuals	Central banks.	Primary societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
CLASS I—CREDIT.												
(a) LIMITED—NL.												
(b) UNLIMITED.												
1. Bardwan—			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Sadar	83	1,359	61,795	..	30,087	..	76,094	19,221	..	5,104	66,274	..
Katwa	39	638	25,125	..	18,253	..	48,832	22,774	..	55	25,878	..
Kalna	61	1,727	67,653	..	42,255	..	96,301	16,168	..	5,083	71,204	..
Total	183	3,724	1,74,676	..	99,063	..	2,31,518	57,173	..	8,252	1,63,166	..
2. Birbhum—												
Sadar	129	2,270	51,912	..	16,942	..	1,02,222	59,972	..	1,798	80,711	..
Hampurhat	224	3,426	1,07,687	1,297	27,430	1,103	3,25,918	2,21,200	671	7,474	30,495	200
Total	353	10,704	1,59,600	1,297	54,372	1,103	4,38,140	2,74,232	671	9,260	1,11,196	200
3. Bankura—												
Sadar	15	92	..	..	488	407	2,637	..	..	..	..	..
Bishnupur	8	54	1,615	..	472	..	2,583	671	..	..	1,153	..
Total	23	146	1,615	..	960	407	5,120	671	..	..	1,153	..
4. Midnapore—												
Sadar	31	816	12,458	..	6,271	..	33,439	7,098	..	439	4,707	..
Khehar	144	4,401	1,11,737	488	60,457	1,119	1,32,490	62,837	941	31,468	78,559	..
Solbaria	75	1,591	45,040	45	22,644	..	1,15,719	15,337	42	2,557	36,578	..
Pingla	33	1,753	33,116	200	24,127	200	48,453	12,938	..	2,251	21,745	..
Ghatal	18	322	9,060	..	6,737	..	25,915	14,551	..	278	5,830	..
Sandhal	6	85	..	..	19	..	733	..	..	..	..	..
Panchetgarh	71	2,441	45,733	..	28,957	..	69,814	31,618	..	5,618	11,190	..
Tamluk	76	1,748	44,723	100	30,877	..	98,532	21,417	160	2,020	33,808	..
Mugberia	70	3,774	1,36,744	..	1,04,956	..	1,84,905	30,171	..	85,818	47,827	..
Total	648	17,600	5,32,598	878	2,80,745	1,819	7,39,067	1,96,599	438	69,227	2,46,733	..
5. Hooghly	45	1,282	25,023	..	16,719	..	35,898	15,861	..	3,391	8,900	..
6. Howrah—												
Sadar	19	382	3,610	164	4,108	68	10,729	9,339	2,821	638	1,000	167
Uttorbia	42	876	14,516	137	3,822	119	56,036	24,197	18	9,490	2,500	98
Total	61	1,258	18,335	301	14,088	178	49,825	33,433	2,839	10,118	3,500	235
7. 24 Pargannas—												
Daki	106	8,330	83,082	..	67,199	..	1,24,301	75,135	401	4,764	60,299	..
Goasaba	15	435	28,676	..	20,289	..	6,310	874	..	24,667	..	..
Niota	14	577	12,377	..	11,280	..	12,377	6,576	..	1,444	8,449	..
Miscellaneous	6	228	4,876	..	2,191	72	14,904	9,040	2,465	5,244	..	..
Barasat	32	680	23,833	..	7,573	..	25,188	989	..	87	24,326	..
Diamond Harbour ..	6	126	3,880	..	507	..	5,175	1,419	..	105	3,000	..
Total	184	6,386	1,51,904	..	1,10,044	79	1,97,845	94,582	2,868	33,411	96,878	..
8. Nadia—												
Sadar	121	3,760	68,193	111	37,539	1	1,84,916	1,14,822	49	14,438	80,798	..
Kusbia	107	2,767	84,801	..	27,739	..	1,90,224	95,011	..	3,339	97,488	..
Meherpur	111	4,809	61,723	447	60,651	..	1,78,109	1,03,267	1,708	13,257	84,719	..
Ranaghat	47	1,233	42,493	..	14,231	..	52,761	13,490	..	4,710	26,758	..
Ohadanga	60	1,989	42,617	..	34,462	..	81,452	34,523	..	9,072	64,723	..
Total	446	14,567	3,00,238	658	1,54,672	1	6,08,465	2,92,183	1,763	44,993	2,84,453	..
9. Murshidabad—												
Sadar	146	3,298	90,730	225	68,378	335	2,02,611	85,857	..	8,119	1,38,278	66
Jangpur	58	1,671	39,451	200	15,476	..	1,00,778	39,222	..	1,949	35,761	200
Lalbagh	95	1,828	58,223	..	17,445	..	1,17,212	41,949	..	2,183	48,507	..
Kandi	40	561	30,956	..	6,856	..	30,527	6,440	..	84	84,687	..
Total	349	7,361	2,18,979	625	96,265	335	4,60,126	1,60,686	..	12,317	2,72,218	366
10. Jessore—												
Sadar	128	1,917	49,624	..	16,287	..	91,493	43,129	..	3,127	42,656	..
Jhoidah	12	321	1,865	..	5,270	..	12,311	6,270	..	..	1,126	..
Naradi	107	1,578	48,128	170	25,337	..	98,837	44,820	48	207	1,05,981	..
Bongong	88	709	12,937	..	7,494	..	28,440	15,040	..	115	10,900	..
Magura	76	4,455	78,778	..	34,800	..	65,116	1,031	163	5,993	77,163	..
Total	387	8,888	1,86,945	170	76,688	..	2,92,016	1,14,900	204	8,143	2,36,934	..

B.

AGRICULTURAL SOCIETIES.

Sales of goods to members.	Purchase of members' products.	Cost of management.	Share capital paid up.	Loans and deposits held at the end of the year from—					Reserve fund.	Working capital.	Profit and loss for the year.	Usual dividend paid on shares.	Most usual rate of interest		
				Members.	Non-members.	Societies.	Provincial or central banks.	Government.					On borrowings.	On lendings.	
															Rs.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
...	...	617	5,590	2,338	4,436	..	76,087	...	3,497	92,487	+ 1,118	..	9%	12%	
...	...	340	5,672	171	21	..	49,738	...	2,722	82,181	+ 2,092	..	9%	12%	
...	...	1,154	10,650	5,682	9,907	..	84,554	...	6,623	76,170	+ 2,677	..	9%	12%	
...	...	2,121	22,642	8,381	14,024	...	2,10,379	...	10,864	2,30,838	+ 4,787	..	..	..
...	...	1,088	7,937	1,000	1,284	..	1,09,077	...	4,523	1,24,432	+ 1,818	..	9%	12%	
...	...	2,687	24,848	22,168	5,288	..	2,25,261	...	82,319	2,85,472	+ 20,110	..	6 1/2 to 10 1/2	10 1/2 to 16 1/2	
...	...	2,906	42,605	24,168	7,720	...	2,45,828	...	92,882	5,12,904	+ 21,728	..	..	..
...	460	..	..	..	2,505	...	442	3,410	+ 101	..	9%	12%	
...	...	30	352	..	..	..	2,674	...	20	2,952	+ 40	..	9%	12%
...	...	20	812	..	..	..	5,078	...	471	8,262	+ 141	..	..	..
...	...	430	1,492	1,053	127	..	16,787	..	6,103	28,179	+ 724	..	7 1/2 to 9 1/2	12 1/2 to 15 1/2	
...	...	2,103	5,002	6,719	44,928	..	1,24,108	..	40,122	2,34,281	+ 4,522	..	9%	12%	
...	...	1,187	2,728	4,263	10,799	..	1,00,897	..	19,252	1,28,452	+ 4,422	..	9%	12%	
...	...	902	1,160	2,261	4,450	..	28,491	..	12,024	40,321	+ 1,711	..	9%	12%	
...	...	228	2,156	2,404	1,921	..	18,829	..	4,866	24,437	+ 964	..	9%	12%	
...	...	12	126	2	..	..	278	..	902	1,429	+ 52	..	9%	12%
...	...	1,278	2,609	4,995	12,858	..	48,720	..	7,723	77,605	+ 1,865	..	9%	12%	
...	...	1,168	7,805	1,248	4,821	..	98,842	..	7,442	1,20,271	+ 2,798	..	9%	12%	
...	...	2,244	6,820	12,270	25,728	..	42,082	..	20,401	1,70,142	+ 6,626	..	7 1/2 to 9 1/2	12 1/2 to 15 1/2	
...	...	10,927	36,519	42,927	1,06,198	..	4,92,649	..	1,19,685	8,57,748	+ 28,824	..	..	..
...	5,027	8,227	8,942	..	12,325	..	215	2,126	46,722	+ 2,178	..	9 1/2 to 10 1/2	12 1/2 to 16 1/2
...	7	183	1,829	7,208	2,226	1,250	2,016	16,799	+ 177	..	9 1/2 to 10 1/2	12 1/2 to 15 1/2	
...	2,908	2,141	11,911	..	22,196	..	4,224	48,612	+ 962	..	9 1/2 to 10 1/2	12 1/2 to 15 1/2	
...	...	7	2,070	2,942	18,219	2,260	22,456	..	7,271	65,612	+ 1,140	..	..	..
...	...	2,222	17,246	26,674	20,247	405	76,884	..	40,722	1,81,280	+ 4,001	..	12	15	
...	...	128	102	949	7,272	..	..	..	2,268	10,291	+ 725	..	6 1/2 to 9 1/2	12 1/2 to 15 1/2
...	...	299	2,715	2,108	245	..	14,278	..	6,707	22,212	+ 2,257	..	4 1/2 to 10	12 1/2 to 15 1/2	
...	...	328	..	4,170	9,224	2,465	..	..	4,116	21,264	+ 698	..	4 1/2 to 12 1/2	9 1/2 to 15 1/2
...	...	774	2,155	425	18	..	20,562	..	1,714	22,828	+ 508	..	10 1/2	10 1/2	
...	...	190	89	722	20	..	2,400	..	1,788	6,019	+ 177	..	4 to 10 1/2	12 1/2 to 15 1/2	
...	...	6,222	22,287	24,726	27,422	2,270	1,14,122	..	57,724	2,68,219	+ 7,464	..	..	..
...	...	2,222	4,272	9,210	42,470	49	2,23,222	..	22,122	2,24,965	+ 7,106	..	9 1/2 to 10 1/2	12 1/2 to 15 1/2	
...	...	1,622	2,227	1,665	4,177	..	90,452	..	12,262	1,15,245	+ 2,420	..	12 1/2 to 15 1/2	12 1/2 to 15 1/2	
...	...	2,722	12,217	17,201	40,222	..	90,941	..	44,264	2,16,754	+ 6,902	..	6 1/2 to 7 1/2	12 1/2 to 15 1/2	
...	...	222	4,722	1,227	11,274	..	22,222	..	4,121	61,706	+ 1,212	..	9 1/2 to 12 1/2	12 1/2 to 15 1/2	
...	...	622	6,222	7,024	16,222	..	24,722	..	11,222	96,722	+ 2,622	..	9 1/2 to 12 1/2	12 1/2 to 15 1/2	
...	...	8,222	22,127	27,427	1,26,222	49	4,06,222	..	1,05,222	7,16,727	+ 20,222	..	..	..
...	...	1,222	7,222	14,227	8,222	11	1,72,222	..	20,222	2,22,222	+ 2,222	..	9 1/2 to 10 1/2	12 1/2 to 15 1/2	
...	...	601	2,222	2,222	2,222	17	89,222	..	12,072	1,10,272	+ 2,202	..	6 1/2 to 12 1/2	12 1/2 to 15 1/2	
...	2,222	2,122	2,222	..	1,02,222	..	10,222	1,22,222	+ 2,222	..	6 1/2 to 12 1/2	12 1/2 to 15 1/2	
...	...	222	1,222	2	2,222	..	22,222	..	274	44,222	+ 622	..	10 1/2 to 12 1/2	12 1/2 to 15 1/2	
...	...	2,221	21,710	22,222	22,702	28	4,14,222	..	64,222	5,24,416	+ 16,222	..	..	..
...	...	227	6,422	2,222	1,222	..	25,222	..	14,122	1,10,222	+ 4,107	..	6 1/2 to 11	12 1/2 to 15 1/2	
...	...	390	2,422	420	111	..	12,422	..	1,222	12,222	+ 427	..	6 1/2 to 11	12 1/2 to 15 1/2	
...	...	791	6,122	1,222	120	..	22,222	..	11,222	1,12,222	+ 2,702	..	6 1/2 to 12 1/2	12 1/2 to 15 1/2	
...	...	222	2,222	222	2	..	27,022	..	4,022	24,222	+ 622	..	6 1/2 to 12 1/2	12 1/2 to 15 1/2	
...	...	1,422	10,011	1,577	6,477	..	22,222	..	222	70,722	+ 2,701	..	9 1/2 to 12 1/2	12 1/2 to 15 1/2	
...	...	2,222	22,222	6,222	2,222	..	2,70,222	..	22,222	3,64,222	+ 11,222	..	..	..

STATEMENT
OPERATIONS OF

Classification.	Number of societies.	Number of members	Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—			Loans and deposits received during the year from—		
			Indivi- duals.	Banks and societies.	Indivi- duals.	Banks and societies.	Indivi- duals.	Of which overdue.	Banks and societies.	Indivi- duals.	Central banks.	Primary societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
CLASS I—CREDIT—contd.												
(b) UNLIMITED—contd.												
11. Khulna—			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Sadar	145	2,822	1,59,207		1,24,578	...	2,02,867	4,171		17,745	24,048	...
Barrut	117	2,555	27,173	218	27,168		88,941	88,308		1,708	20,124	...
Ragernat	116	2,506	1,14,988		79,483		1,51,712	19,838	...	10,730	60,997	...
Taki	15	1,614	8,620		18,253	4,274	44,753	40,292		1,928	10,400	...
Total	393	10,497	3,04,866	218	2,44,482	4,274	4,94,292	1,24,699	...	33,121	1,75,229	...
19. Dacca—												
Sadar	73	1,377	60,812		32,086	...	1,22,578	20,011	32	2,185	59,800	...
Narayanganj	276	6,098	3,07,715	814	2,48,768	808	4,85,041	87,097	1,098	9,344	2,90,838	51
Manikganj	70	1,250	1,24,306		67,808		1,72,873	82,642	336	2,279	1,19,450	...
Manikganj	87	1,377	65,793	1,122	37,684	1,445	64,603	22,810	14	4,445	69,060	...
Total	506	10,692	5,58,628	1,936	3,86,306	2,251	6,75,900	2,00,630	1,477	16,741	4,82,468	51
13. Mymensingh—												
Sadar	259	6,868	5,24,466	2,000	1,81,791	2,024	7,92,211	1,19,155	203	29,450	5,07,615	...
Jamalpur	213	...	2,59,989	2,865	1,71,651	2,262	4,51,809	1,06,828	7,601	31,272	2,18,291	...
Tangail	162	4,208	2,10,640	745	1,17,845	445	8,23,642	98,576	20	9,231	1,86,180	1,986
Nerakona	91	1,912	87,747	1,102	39,438	...	2,02,708	64,475	1,351	31,879	86,137	...
Kishoreganj	105	3,122	1,02,966	22	7,480	...	2,01,629	56,268		1,906	31,268	...
Total	829	20,197	11,56,818	7,741	5,73,142	5,735	19,70,695	4,24,227	9,080	1,09,788	10,65,066	1,986
14. Bakarganj—												
Sadar	123	3,428	1,02,188	18	36,886	18	2,87,027	48,757	...	1,270	99,468	18
Ferozpur	76	1,594	94,863		42,690		1,65,495	44,618	...	1,859	87,287	...
Faizkhabli	176	4,508	2,69,379	4,242	1,31,826	10,061	5,80,165	2,26,154	2,120	3,554	3,32,277	2,922
Bhoia	29	396	21,968		7,569		33,576	4,767		31	22,916	...
Total	474	9,926	5,84,478	4,261	2,16,971	10,079	9,53,965	3,24,291	3,120	6,704	5,41,948	2,943
15. Faridpur—												
Sadar	127	6,256	22,924	...	35,542	51	3,49,147	3,96,942		3,392	7,400	...
Goulundo	81	2,587	65,040		32,201	...	2,02,018	1,25,093		7,989	86,711	...
Gomkhanj	131	4,238	42,609	250	42,836	...	3,65,046	2,42,331	...	9,297	15,650	250
Madaripur	92	3,229	3,981	5,038	18,263	5,489	1,48,997	1,21,268	981	125	2,962	57
Total	432	16,112	1,35,554	5,808	1,27,849	2,540	10,66,806	7,97,126	861	14,729	94,728	297
8 Chittagong—												
Sadar	81	2,745	1,55,814	7,709	3,048	7,530	2,13,842	48,781	3,246	47,025	71,847	1,850
Cox's Bazar	6	187	8,856		2,778		9,773	4,178		103	8,890	...
Total	87	2,932	1,64,670	7,709	6,722	7,530	2,23,615	52,959	3,246	48,028	78,197	1,850
17. Noakhali—												
Sadar	157	2,256	1,36,372	9	42,072	1,530	2,04,205	26,554	9	8,211	1,51,050	1,000
Feni	185	4,236	84,707		46,376		2,61,677	33,036	...	2,534	87,719	...
Total	342	7,092	2,20,379	9	88,447	1,530	4,65,882	1,09,590	9	7,285	2,18,769	1,000
18. Tippera—												
Sadar	284	6,221	2,74,055	5	1,94,507	1,209	6,29,800	46,100	73	17,098	3,14,878	80
Chandpur	284	5,670	2,24,873		1,67,230		6,49,457	89,976	...	11,621	2,71,207	...
Brahmanbaria	143	3,744	1,10,603		84,645	...	3,29,959	1,28,801		6,792	70,495	...
Total	711	16,341	5,09,781	5	4,36,382	1,209	16,09,225	2,44,937	78	25,511	6,56,778	80
19. Rajshahi—												
Sadar	124	2,999	69,042	371	45,406	...	1,15,933	69,236	625	3,499	87,978	77
Puthia	40	883	9,420		8,880	...	41,422	22,414		176	7,217	...
Natore	82	2,291	23,974		14,154	...	1,61,398	1,08,157		1,413	17,962	...
Nosson	178	4,420	1,51,207	6,738	69,009	3,032	3,43,427	67,452	1,342	14,290	1,22,959	4,781
Total	424	10,593	2,50,643	7,009	1,38,469	3,032	6,26,688	3,47,269	1,867	19,878	2,08,116	4,888
20. Bogra—												
Sadar	200	4,579	1,68,426		62,200	...	4,29,209	1,44,025	...	2,118	1,40,952	...
Khanjapur	50	1,065	48,872	2,780	37,880	708	97,417	19,888	2,061	2,659	37,317	2,081
Fazlpara	37	916	6,300		28,580	100	67,795	104	...	8	67,718	...
Total	287	6,559	2,18,898	2,780	1,29,660	808	6,84,521	1,63,979	2,051	4,785	2,85,994	2,081
31. Malda	111	2,249	45,738		27,753		1,69,551	72,267		100	27,984	...
32. Bangor—												
Sadar	77	2,222	31,414	312	20,539	192	2,14,820	1,15,448	...	1,110	23,995	...
Kuligram	66	1,312	36,563	417	15,740	616	70,609	21,322	...	1,273	24,057	600
Nilohamari	76	1,727	45,968		16,716	...	1,05,411	46,493	...	499	16,793	...
Gaibandha	97	2,024	32,805	134	24,021	249	2,01,709	1,25,423	...	2,722	32,672	...
Total	318	7,295	1,47,770	863	77,028	1,067	6,92,840	3,74,693	...	6,618	88,448	600

B.

AGRICULTURAL SOCIETIES—continued.

Sales of goods to members.	Purchase of members' products.	Cost of man- u- m- s.	Share capital paid up.	Loans and deposits held at the end of the year from—					Reserve fund.	Working capital.	Profit and loss for the year.	Usual dividend paid on shares.	Most usual rate of interest.		
				Members	Non-members.	Societies.	Provincial or central banks.	Government.					On borrowings.	On lendings.	
				14	15	16	17	18					19	20	21	22	23	24	25	26	27	28
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.	Per cent.
...	...	1,161	89,575	16,859	35,893	...	1,44,417	...	27,495	2,84,530	+ 11,700	...	9½ to 10½	12 to 15½	15½
...	...	685	11,278	9,017	1,743	...	70,271	61	20,031	1,16,301	+ 5,133	...	10½	15½	15½
...	...	9	24,356	7,170	25,904	...	68,227	760	17,861	1,21,739	+ 8,393	...	10½	15½	15½
...	...	1,501	1,804	5,129	14,185	...	23,712	...	29,328	73,763	- 2,877	...	12	15	15
...	...	2,142	76,523	21,175	84,784	...	7,27,517	811	1,05,255	6,26,333	+ 22,949	...	...	...	...
...	...	804	8,575	5,115	954	...	1,14,859	...	14,780	1,44,184	+ 3,709	...	9½ to 12	15½	15½
...	...	4,181	65,889	21,283	2,605	810	4,04,998	98	80,935	5,76,484	+ 17,424	...	6½ to 10½	15½	15½
...	...	1,033	8,617	3,339	6,356	84	1,04,530	...	12,028	1,07,106	+ 6,416	...	7½ to 10½	15½ & 16½	15½
...	...	484	9,743	1,501	7,545	...	65,545	...	7,732	1,07,804	+ 6,323	...	...	...	...
...	...	6,474	83,808	41,038	12,391	894	7,71,085	98	1,16,265	10,25,657	+ 23,847	...	...	...	...
...	...	7,591	35,473	55,329	2,227	4	8,00,541	...	67,207	2,70,045	+ 16,863	...	7 to 10½	15½	15½
...	...	7,457	17,395	21,031	48,022	7,140	8,60,109	...	1,26,811	6,19,102	+ 4,823	...	11½	15½	15½
...	...	4,028	20,003	11,619	8,208	2,463	3,11,904	1,232	69,627	4,16,544	+ 9,044	...	9½ to 12½	15½ & 16½	15½
...	...	1,818	14,924	17,079	48,681	...	1,77,002	...	34,054	2,68,540	+ 4,131	...	9½ to 10½	15½	15½
...	...	1,068	21,261	6,544	937	...	800	...	20,613	2,29,772	+ 8,207	...	9½ to 10½	15½	15½
...	...	21,713	1,13,178	1,21,988	1,07,423	9,606	16,50,356	1,323	3,28,272	75,24,033	+ 44,168	...	...	...	...
...	...	2,255	13,877	5,453	490	653	2,25,684	...	29,720	3,21,727	+ 9,474	...	10½	15½ & 16½	15½
...	...	1,491	8,265	2,340	1,298	4,483	1,52,202	...	14,161	1,94,499	+ 7,523	...	10½ to 12½	15½ & 16½	15½
...	...	1,604	20,745	14,087	829	86,489	4,41,339	...	95,012	6,26,965	+ 36,320	...	10½	15½ & 16½	15½
...	...	177	1,718	78	10	...	40,284	...	3,011	44,091	+ 757	...	10½	15½	15½
...	...	5,459	63,520	20,013	2,788	47,495	8,57,609	...	1,60,024	11,47,242	+ 54,133	...	...	...	...
...	...	2,143	6,827	15,276	9,122	5,826	3,64,028	...	71,876	4,71,817	+ 11,100	...	12	15 & 16½	15½
...	...	2,348	7,078	2,793	5,041	...	3,09,891	...	35,085	3,49,228	+ 4,220	...	10½	15½	15½
...	...	272	11,379	16,244	6,611	2,093	3,28,156	...	1,07,963	4,41,807	+ 14,779	...	9½ to 10½	15½	15½
...	...	539	844	6,749	401	1,008	1,90,072	940	63,734	2,63,248	- 893	...	6½ & 12½	18½	18½
...	...	5,992	24,749	41,223	20,153	8,049	10,62,446	960	2,70,262	14,36,728	+ 29,117	...	...	...	...
...	...	1,255	16,458	27,479	56,745	2,075	1,20,575	...	29,557	2,53,290	+ 7,639	...	2½ to 12	8 to 15	15
...	...	99	1,870	144	140	...	8,564	...	1,761	13,779	+ 422	...	10½	15½	15½
...	...	1,464	18,338	27,628	66,585	2,075	1,29,639	...	21,218	2,66,078	+ 8,061	...	...	...	...
...	...	2,234	11,069	4,130	1,271	250	2,22,778	...	10,647	2,50,345	+ 6,942	...	9½ to 10½	15½	15½
...	...	2,677	12,838	5,753	6,633	...	3,66,210	...	29,490	3,09,024	+ 5,647	...	9½ to 10½	15½	15½
...	...	4,911	23,927	9,622	7,094	250	4,78,083	...	29,127	5,59,269	+ 15,490	...	...	...	...
...	...	4,522	28,778	20,822	2,177	...	5,51,661	69	68,737	7,12,037	+ 24,148	...	9½ to 10½	15½	15½
...	...	11,001	65,254	20,333	1,955	...	5,46,474	...	74,453	7,08,417	+ 23,549	...	9½ to 10½	15½	15½
...	...	2,414	14,618	18,832	10,163	...	2,86,773	...	61,232	8,91,620	+ 11,845	...	9½ to 10½	15½	15½
...	...	18,347	1,08,820	99,727	14,288	...	15,84,907	62	2,04,465	18,12,074	+ 61,545	...	...	...	...
...	...	1,864	16,465	1,999	8,745	101	1,01,708	...	11,526	1,27,642	+ 4,324	...	9½ to 12½	15½ & 16½	15½
...	...	214	5,175	846	1,387	...	66,200	...	3,277	66,123	+ 1,864	...	9½ to 10½	15½	15½
...	...	792	10,324	4,546	3,821	...	1,51,260	...	21,963	1,91,744	+ 7,171	...	9½ to 11½	16½	16½
...	...	2,726	20,722	17,324	8,245	261	3,04,584	...	27,111	3,08,260	+ 14,239	...	9½ to 10½	15½	15½
...	...	8,660	33,674	24,616	19,622	842	8,22,849	...	64,477	7,74,829	+ 27,668	...	...	...	...
...	...	2,271	45,707	1,509	2,149	...	4,01,169	...	63,228	5,10,043	+ 19,845	...	10½	15½	15½
...	...	809	10,221	2,291	6,214	2,061	20,648	...	13,015	1,12,730	+ 4,655	...	10½	15½	15½
...	...	268	4,022	409	106	...	62,609	...	93	67,271	+ 669	...	9½ to 12½	15½	15½
...	...	2,348	60,990	4,502	7,771	2,051	8,44,422	...	70,244	6,40,084	+ 25,168	...	...	...	...
...	...	1,033	12,222	4,834	19,796	...	1,22,109	...	16,210	2,03,421	+ 5,229	...	10½	15½	15½
...	...	764	8,403	14,227	8,447	970	1,62,228	...	26,221	3,19,422	+ 2,664	...	9½ to 10	12½	12½
...	...	467	6,123	2,406	123	600	22,608	...	8,529	22,228	+ 1,023	...	12½	15½	15½
...	...	627	2,043	2,440	106	...	1,51,260	...	12,922	16,720	+ 3,406	...	10½	12½	12½
...	...	2,427	22,251	17,707	828	...	2,14,401	60	1,66,219	4,12,618	+ 17,725	...	10½	12½	12½
...	...	4,685	26,029	24,124	6,322	1,270	4,40,725	80	1,04,122	7,22,218	+ 24,626	...	...	...	...

**STATEMENT
OPERATIONS OF.**

Classification.	Number of societies.	Number of members.	Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—			Loans and deposit received during the year from—		
			Individuals.	Banks and societies.	Individuals.	Banks and societies.	Individuals.	Of which overdraft.	Banks and societies.	Individuals.	Central banks.	Primary societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
CLASS I.—CREDIT—contd.												
(b) UNLIMITED—contd.												
22. Raeba—			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Sadar	297	10,818	1,24,939	27,164	1,81,104	24,309	8,11,510	2,91,501	22,883	10,594	46,529	28,537
Berajanj	133	3,299	1,79,379	5,385	1,11,984	4,193	2,34,164	1,07,393	6,005	11,178	76,070	..
Ullapara	79	2,012	71,571	4,127	52,109	1,522	1,74,848	25,694	..	3,697	58,190	..
Shahadpur	46	1,066	45,738	2,952	39,456	4,217	87,569	17,029	26	394	62,359	2,052
Total	555	16,635	4,21,677	38,628	3,45,662	24,246	13,42,691	6,44,417	29,414	24,653	2,33,492	40,689
24. Dinajpur—												
Sadar	25	504	19,988	..	1,639	..	26,432	828	364	47	21,000	..
Dinajhat	140	3,225	1,07,948	..	21,352	140	2,04,932	27,745	74	2,094	24,922	28
Thakurgaon	8	53	2,144	..	..	..	2,144	..	..	82	2,276	..
Total	163	3,782	1,30,078	28	3,691	140	2,30,698	28,671	438	2,223	1,18,837	28
25. Jalpaiguri—												
Alipur-Duar	4	72	47	..	1,050	..	3,446	2,493	..	41	..	1,726
Sadar	41	1,018	7,087	3,170	7,285	2,644	69,399	44,887	11,557	2,282	2,094	..
Total	45	1,078	7,114	3,170	8,315	2,644	72,845	47,183	11,607	2,323	2,094	1,726
26. Darjeeling—												
Kalimpong	49	2,808	68,712	2,908	52,600	100	2,32,821	1,17,006	145	6,484	44,947	..
Kurseong	13	383	4,808	..	9,180	..	39,422	29,891	..	154	4,490	..
Padung	17	725	42,230	5,259	41,888	4,814	1,03,711	56,048	4,294	1,159	37,339	3,758
Total	79	3,914	1,15,748	8,167	99,268	4,414	3,75,957	1,82,970	4,429	7,797	82,796	3,756
CREDIT—GRAIN.												
Bankura	14	210	44 Rs.	..	25 Rs.	..	108 Rs.	93 Rs.	..	..	..	..
Midnapore	2	125	88 mds.	20	200	175	432	382	..	..	..	..
Faridpur	1	78	..	..	79	..	87	..	..	..	..	..
Mymensingh	2	143	1,921 Rs.	..	..	..	1,921 Rs.	..	..	187	2,000	..
Tippera	1	18	..	..	..	..	..	..	..	..	..	..
Dinajpur	1	128	75 mds.	545	..	72	20 Rs.	20 Rs.	1,394	..	..	..
Total Grain Banks	21	704	1,985 Rs.	585	25 Rs.	247	2,047 Rs.	112 Rs.	1,394	187	2,000	..
* TOTAL CLASS I	8,398	2,16,180	70,39,837	91,628	38,61,765	87,916	1,48,25,388	61,78,032	77,667	6,41,260	57,31,313	62,668
Total previous year	7,011	1,85,844	52,74,405	23,929	28,12,745	23,915	1,21,31,615	544,70,943	19,827	4,40,040	39,94,684	47,199
CLASS II.—PURCHASE AND PURCHASE AND SALE.												
(a) LIMITED.												
Howrah	1	43	251	..	..	..	351	..	..	184	..	187
Midnapore	6	523	..	..	..	..	..	..	..	..	9,600	..
Hoochly	1	..	No transaction.	..	..	..	..	..	..	..	..	..
24-Parganas	3	174	..	..	..	..	229	..	..	..	..	..
Murshidabad	1	49	..	..	..	2	211	..	..	..	..	..
Jessore	1	10	..	..	..	..	..	..	..	..	..	..
Khulna	2	18	..	..	..	..	..	..	..	..	..	..
Dacca	2	47	..	..	..	..	..	..	..	..	..	..
Mymensingh	1	..	Not commenced work.	..	..	..	..	..	..	..	..	..
Bakarganj	1	5,730	..	..	..	..	..	..	..	47,384	7,100	759
Konkard	3	33	..	..	..	..	14	..	..	..	..	..
Tippera	1	15	..	..	..	..	..	..	..	85	..	..
TOTAL LIMITED	23	4,441	251	..	..	2	705	..	..	47,653	16,700	896
(b) UNLIMITED—NIL												
TOTAL CLASS II	23	4,441	251	..	..	2	706	..	..	47,653	16,700	896
Total previous year	21	4,147	16	2,901	..	601	225	..	42,233	50,085	8,608	4,134

* Excludes figures shown against grain

B.

AGRICULTURAL SOCIETIES—continued.

Sales of goods to members.	Purchase of members' produce.	Cost of management.	Share capital paid up.	Loans and deposits held at the end of the year from—						Reserve fund.	Working capital.	Profit and loss for the year.	Usual dividend paid on shares.	Most usual rate of interest.	
				Members.	Non-members.	Societies.	Provincial or central banks.	Government.	On borrowings.					On lendings.	
															Per cent.	Per cent.
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.	Per cent.	
...	...	9,087	4,987	31,657	5,859	37,082	7,69,188	...	2,48,680	10,47,068	- 7,638	...	8 1/2 to 10 1/2	16 1/2	
...	...	1,827	33,737	15,337	8,350	2,891	2,37,604	...	59,291	3,27,700	- 14,028	...	6 1/2 to 10 1/2	15 1/2	
...	...	1,688	16,178	7,772	4,746	...	1,45,615	...	26,780	2,00,101	+ 7,612	...	6 1/2 to 10 1/2	15 1/2	
...	...	941	6,824	1,968	293	...	79,949	...	10,975	99,353	+ 2,785	...	10 1/2	14 1/2	
...	...	12,663	61,698	56,524	16,267	30,668	12,31,308	...	3,47,728	17,34,307	+ 16,739	...	...	...
...	...	871	1,640	245	306	364	21,728	...	2,543	26,785	+ 514	...	12 1/2	16 1/2	
...	...	1,177	26,114	7,410	2,151	20	1,76,703	...	19,136	2,38,494	+ 9,449	...	10 1/2	16 1/2	
...	...	28	85	62	...	...	2,375	...	...	2,422	- 2	...	12 1/2	15 1/2
...	...	1,874	26,319	7,737	2,330	364	2,08,716	...	21,698	2,69,254	+ 9,991	...	...	...
...	...	7	657	100	4	...	2,508	...	1,880	4,549	+ 212	...	8 1/2 to 10 1/2	16 1/2	
...	...	443	3,504	9,401	27,470	6,779	35,636	...	18,692	58,712	+ 3,060	...	8 1/2 to 12 1/2	15 1/2	
...	...	449	6,961	9,501	27,474	6,779	38,124	...	15,412	1,05,261	+ 3,902	...	...	...
...	...	146	466	21,262	43	145	2,07,928	...	50,987	2,80,809	+ 4,253	...	8 1/2 to 9 1/2	12 1/2	
...	...	79	10	2,024	136	...	41,419	...	5,037	48,610	+ 363	...	9 1/2 to 10 1/2	12 1/2	
...	...	25	700	30,370	...	...	4,384	...	19,202	1,51,692	- 5,393	...	9 1/2 to 10 1/2	12 1/2
...	...	319	1,725	23,266	178	4,429	2,26,886	...	75,206	4,61,280	- 737	...	...	...
...	...	4 mds.	...	66 mds.	6	...	...	...	79 mds.	160 mds.	+ 20 mds.	...	12 1/2	18 1/2 to 2
...	...	+ 11 Rs.	...	...	...	...	...	...	498 Rs.	4,298 Rs.	+ 175 mds.	...	12 1/2	28
...	...	4 mds.	...	34 "	22 mds.	...	...	...	402 mds.	518 mds.	+ 175 mds.	...	...	...
...	...	4 Rs.	...	120 "	...	...	...	...	176 Rs.	176 Rs.	- 167 Rs.	...	...	...
...	...	3 mds.	...	...	...	...	...	...	2 mds.	188 mds.	- 11 mds.	...	...	...
...	...	31 Rs.	...	187 Rs.	...	...	2,070	...	...	2,187 Rs.	+ 143 Rs.	...	...	16 1/2
...	84 "	...	...	...	...	...	84 "	...	...	...	16 1/2	
...	...	31 Rs.	...	2 "	...	...	...	...	1,112 mds.	1,112 mds.	- 205 mds.	...	...	...
...	1,434 Rs.	1,434 Rs.	+ 24 Rs.	...	...	...
...	...	10 mds.	...	220 mds.	22 mds.	...	2,000	...	7,911 mds.	1,822 mds.	- 121 mds.	...	...	...
...	...	17 Rs.	...	278 Rs.	9 Rs.	...	...	...	1,688 Rs.	4,169 Rs.	+ 20 Rs.	...	...	...
...	...	1,34,487	10,37,801	7,83,463	6,07,194	1,17,609	1,21,79,124	5,426	36,70,441	1,79,33,084	+ 4,90,228	...	...	...
...	...	1,06,207	7,05,768	6,62,105	6,94,767	1,04,782	1,04,85,774	2,088	21,63,822	1,48,62,021	+ 4,26,224	...	...	...
...	...	4,659	...	170	532	118	7	...	...	671	+ 49	...	...	...
...	...	66,624	64,637	27	2,947	250	1,000	...	10,323	4,000	...	...	...	8 to 9 1/2
...	...	52,384	43,968	85	1,122	...	1,235	...	...	406	2,264	+ 2,428	...	6 1/2
...	...	24	...	...	247	...	40	...	...	8	53	- 124	...	10 1/2
...	...	41	...	3	87	...	...	...	...	85	185	- 8	...	6 1/2 to 11
...	...	49,608	...	5,706	26,714	4,794	3,767	1,169	87,000	4,601	1,22,545	+ 754	...	5	
...	13	134	...	...	...	...	16	116	- 6	...	10 1/2	
...	219	- 1	...	...
...	...	1,76,439	1,06,420	6,006	31,343	6,004	6,640	1,187	97,621	4,000	10,154	1,66,149	+ 3,620	...	
...	...	1,76,429	1,06,620	6,006	31,343	6,004	6,640	1,187	97,621	4,000	10,154	1,66,149	+ 3,620	...	
...	...	4,46,441	...	4,817	27,426	6,722	6,661	2,662	84,437	...	7,065	1,54,841	+ 5,919	...	

banks being mostly in grain.

**STATEMENT
OPERATIONS OF**

Classification.	Number of societies.	Number of members.	Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—			Loans and deposits received during the year from—		
			Indiv- duals.	Banks and societies.	Indiv- duals.	Banks and societies.	Indiv- duals.	Of which overdue	Banks and societies.	Indiv- duals.	Central banks.	Primary societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
CLASS III.—PRODUCTION.												
(a) LIMITED.												
Burdwan (Irrigation) ...	1		Work not commenced									
Birbhum ..	58	1,676	...	125	..	...	...	...	...	1,074	10,141	...
Bankura ..	107	5,530	..	2,266	..	2,301	...	...	430	438	33,180	109
Midnapore ..	1	78	...	...	...	...	...	...	...	...	...	...
Hooghly ..	4	83	..	...	..	..	..	..	..	210	870	..
Faridpur ..	1	14	...	...	...	...	...	...	...	..	...	...
Bogra ..	1	28	No transaction									
TOTAL LIMITED ..	173	7,376	..	2,381	..	2,301	...	...	430	1,720	44,191	109
(b) UNLIMITED—NIL.												
TOTAL CLASS III ...	173	7,376	..	2,381	..	2,301	...	...	430	1,720	44,191	109
Total previous year ...	114	4,689	..	5,382	..	2,168	...	...	19,603	2,785	22,902	155
CLASS IV.—PRODUCTION AND SALE.												
(a) LIMITED.												
24-Parganas (Milk Societies) ...	50	1,998	37,004	5,837	79,085	310	8,571	...	5,332	1,459	5,365	16
Jessore (Milk Societies) ...	4	157	3,104	..	2,547	..	889	...	..	98	1,214	...
Birbhum ..	1	28	391	..	127	...	264	..	..	10	135	...
Rajshahi (Naagoun Ganga Cultivators' Co-operative Society, Limited).	1	3,617	..	6,43,565	..	6,32,235	..	..	76,686	1,76,994	3,35,091	19,646
TOTAL LIMITED ...	56	5,796	40,499	6,49,462	81,760	6,32,555	9,424	..	82,698	1,78,571	3,41,695	19,662
(b) UNLIMITED.												
Pabna ...	2	24	40	..	288	...	1,425	..	..	8	58	...
TOTAL CLASS IV ...	58	5,819	40,539	6,49,493	82,028	6,33,555	10,859	..	82,598	1,78,579	3,41,760	19,682
Total previous year ...	55	5,234	54,473	8,25,129	89,329	8,12,682	15,516	806	86,636	1,59,728	4,33,561	1,001
CLASS VI.—OTHERS.												
(a) LIMITED.												
Calcutta (Agricultural Association).	1	17	...	..	...	...	...	...	...	3,914	..	...
Midnapore (Agricultural Association).	3	39	147	...	35	..	122	..	..	100	...	150
Mymensingh ...	1		Not commenced work.									
Faridpur ..	2	18	365	...	..	...	255	130	...	303	..	...
Pabna ..	8	210	...	...	...	...	...	...	...	...	...	...
Rangpur ..	1	18	No transaction.									
TOTAL LIMITED ...	16	291	402	..	35	..	377	130	...	3,517	...	150
(b) UNLIMITED.												
Bakarganj (Medical) ...	1		Not commenced work.									
TOTAL CLASS VI ..	17	291	402	..	35	..	377	130	...	3,517	...	150
Total previous year ...	12	172	...	...	..	...	...	...	...	89	259	...
TOTAL OF ALL CLASSES ...	8,638	2,34,921	70,72,029	7,48,300	89,38,938	7,28,778	1,48,47,329	51,76,162	1,60,618	7,71,726	61,32,961	83,406
Total of all classes previous year.	7,212	2,61,238	53,22,880	8,57,232	89,72,684	8,48,376	1,21,45,359	44,71,854	1,39,513	6,32,745	64,51,197	82,488

B.

AGRICULTURAL SOCIETIES.

Sales of goods % of memb. contribs.	Purchases of mem-ber's products.	Cost of manage-ment.	Share capital paid up.	Loans and deposits held at the end of the year from—					Reserve fund.	Working capital.	Profit and loss for the year.	Usual dividend paid on shares.	Most usual rate of interest—		
				Members.	Non-members.	Societies.	Provincial or central banks.	Government.					On borrow-ings.	On lendings.	
															18	19	20	21	22	23	24	25	26	27	28
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.	Per cent.	
...	...	681	6,321	381	312	...	12,062	...	167	15,317	+	226	...	9½	...
...	...	615	41,537	3,107	1	109	38,461	20,000	574	1,03,763	-	7,195	...	9½	3½
...	...	...	2,940	304	31	2	858	...	...	4,124	-	136	...	9½	...
...	...	...	248	310	...	...	370	...	...	1,182	-	17	...	9½	...
...	...	10	368	...	...	...	...	...	...	365	+	2	...	6½ & 12	...
...	...	1,406	81,359	4,002	234	111	63,161	20,000	741	1,24,651	-	7,120	...	...	...
...	...	1,406	81,359	4,002	234	111	63,161	20,000	741	1,24,651	-	7,120	...	...	...
...	...	1,801	28,802	3,861	240	...	22,714	20,000	1,041	77,658	-	1,362	...	...	...
99,923	76,089	13,788	2,617	153	8	...	2,070	...	7,448	12,324	+	10,842	...	12½	12½
8,801	2,342	700	167	...	...	...	362	...	...	555	+	212	...	12½	12½
...	...	...	100	10	179	...	...	...	...	269	+	5	...	9 to 10	15½
10,01,647	8,16,368	63,072	40,670	48,699	1,90,170	1,027	2,90,016	...	1,82,219	7,47,800	+	2,65,615	12½	7½	7½
11,04,669	8,94,697	77,639	47,844	43,862	1,90,352	1,027	2,92,447	...	1,89,667	7,60,948	+	2,76,574	...	...	...
...	...	86	240	249	...	...	9,246	...	3,204	13,139	+	668	...	9½ & 10½	12½ & 18½
11,04,669	8,94,697	77,634	43,884	44,211	1,90,352	1,027	2,91,692	...	1,89,871	7,74,067	+	2,77,329	...	...	...
11,08,787	8,12,494	67,504	55,632	55,427	1,08,218	281	2,15,978	...	1,85,023	6,78,678	+	3,45,814	...	...	...
...	...	...	666	2,214	...	...	...	...	...	2,780	-	161	...	...	12½
196	...	...	87	100	...	150	...	...	11	318	+	41	...	...	16½
...	...	18	62	202	...	...	...	...	...	268	+	7	...	4½ & 6	12
861	247	226	936	5	000	222	...	...	25	1,787	-	464	...	6 to 10½	...
746	247	228	1,670	2,522	000	272	...	...	26	6,160	-	697	...	...	...
746	247	228	1,670	2,522	000	272	...	...	26	6,160	-	697	...	...	...
223	246	228	662	27	13	...	259	...	...	1,692	+	222	...	...	...
12,04,634	8,03,964	2,18,791	11,54,067	8,33,902	10,03,090	1,30,206	1,39,21,211	27,428	27,74,243	1,29,20,111	+	7,50,722	...	...	...
12,04,637	8,12,000	1,06,249	8,01,811	7,46,128	8,12,271	1,07,589	1,06,25,157	22,000	22,57,261	1,58,78,927	+	7,26,215	...	...	...

STATEMENT
OPERATIONS OF NON-

Classification	Number of Societies	Number of Members	Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—			Loans and deposits received during the year from—		
			Individuals	Banks and Societies	Individuals	Banks and Societies	Individuals	Of which overdue	Banks and Societies	Individuals	Central Banks	Primary Societies
1	2	3	4	5	6	7	8	9	10	11	12	13
CLASS I.—CREDIT.			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
(a) LIMITED.												
Calcutta	88	88,503	48,11,184	830	30,51,732	2,010	66,77,180	21,048	..	5,78,151	28,977	600
Burdwan	5	612	38,320	..	52,350	..	81,887	12,282	..	3,155	8,200	..
Birbhum	1	43	800	..	..	..	1,850	1,189	..	..	..	..
Bankura	1	59	150	..	183	..	2,320	2,300	..	..	..	..
Midnapore	9	1,911	80,941	..	88,738	..	1,84,070	32,174	..	20,631	1,700	..
Hooghly	12	4,447	4,66,715	1,04,698	3,69,242	11,000	4,69,370	72,841	1,84,376	2,15,882	..	..
Howrah	1	130	3,387	..	3,256	..	3,362	..	..	..	..	..
24-Parganas	14	2,703	1,43,218	12,870	1,09,309	8,388	84,895	5,961	12,083	5,280	4,184	..
Nadia	8	1,947	1,94,923	..	1,56,125	..	2,38,827	54,946	..	18,019	..	..
Jessore	2	142	2,657	2,000	4,270	150	8,858	5,642	1,851	948	..	..
Khulna	14	1,160	48,219	..	30,717	..	74,268	22,240	..	7,509	3,745	..
Murshidabad	4	767	45,189	..	37,214	..	74,963	14,165	..	3,248	700	..
Faridpur	12	1,829	57,081	1,600	64,570	1,110	1,02,523	33,405	2,760	32,192	..	..
Dacca	6	719	30,040	..	30,106	..	31,097	8,794	..	5,192	..	..
Mymensingh	8	3,714	2,95,877	43,677	3,38,068	17,567	4,46,330	1,11,288	1,07,597	2,77,307	86,467	..
Bakerganj	6	1,056	94,342	..	85,776	..	88,048	2,539	..	36,469	6,160	..
Chittagong	25	6,671	8,95,161	..	7,67,769	54,643	8,70,029	1,15,587	..	4,68,612	83,272	16,040
Chittagong Hill Tracts	1	48	276	..	557	..	2,327	1,984	..	..	..	..
Nokkhal	10	907	86,273	..	57,346	..	82,494	18,232	..	30,690	16,800	97
Tippura	8	1,572	95,461	..	67,444	9,081	1,37,292	28,659	..	37,322	..	..
Rajshahi	6	1,073	92,184	..	64,545	1,968	1,11,385	18,039	114	94,136	52,310	300
Pabna	6	1,829	73,088	..	45,395	124	1,38,979	74,087	804	82,638	4,071	..
Rangpur	6	308	21,435	..	15,856	..	30,121	2,298	..	15,577	11,205	..
Jalpaiguri	3	782	13,667	..	29,169	..	32,750	..	1,100	18,845	700	772
Malda	2	809	54,784	..	36,742	..	1,18,687	37,302	..	1,49,245	..	..
Dinapore	3	144	3,831	..	3,168	..	2,785	70	..	180	..	..
Darjeeling	7	668	10,447	..	13,311	..	27,484	14,843	..	38,323	..	..
Total Limited	217	72,162	78,94,356	1,85,780	63,43,696	1,06,692	90,04,180	7,06,845	2,50,874	21,15,284	2,90,591	17,806
(b) UNLIMITED.												
Murshidabad	2	94	6,237	..	4,428	..	5,137	273	..	485	5,997	..
Bakerganj	1	68	4,828	890	1,190	690	5,427	..	..	883	4,668	..
Chittagong	1	187	8,732	..	6,650	..	6,749	..	..	1,861	2,508	..
Tippura	1	44	4,000	..	3,481	..	..	..	..	100	3,300	..
Nokkhal	8	300	300	..	22	..	178	26	..	..	260	..
Total Unlimited	6	401	23,787	890	13,721	860	17,471	309	..	2,809	16,513	..
Total Class I	223	72,563	78,48,143	1,86,480	62,66,417	1,07,552	90,21,650	7,07,154	2,50,374	21,18,093	2,77,104	17,809
Total, previous year	186	62,070	78,65,638	71,123	61,56,872	1,56,180	78,71,854	5,25,995	1,38,696	29,87,781	24,690	10,221
CLASS II.—PURCHASE AND PURCHASE AND SALE.												
(a) LIMITED.												
Calcutta	6	1,847	..	..	..	..	..	..	..	22,284	..	..
Burdwan	3	95	..	..	..	..	..	..	..	393	..	..
Birbhum	2	231	..	..	..	..	..	..	..	..	..	..
Bankura	2	299	..	..	..	..	..	..	..	1,886	..	..
Hooghly	3	163	..	..	..	..	..	..	..	..	..	..
Howrah	2	100	..	..	..	..	..	..	..	..	..	..
Midnapore	2	359	..	..	..	..	..	..	..	..	..	..
24-Parganas	1	540	..	..	..	..	..	..	..	..	..	..
Nadia	2	139	..	..	..	..	..	..	..	..	..	..
Khulna	3	388	..	..	..	..	..	..	..	3,154	..	..
Murshidabad	2	188	..	..	..	..	..	..	..	..	1,000	..
Dacca	13	899	..	..	..	..	..	..	..	36	..	..
Mymensingh	1	26	..	..	..	..	..	..	..	..	..	..
Bakerganj	2	728	..	..	..	..	..	..	..	184	..	..
Faridpur	4	384	..	..	..	..	..	..	..	..	..	..
Chittagong	2	170	..	..	..	..	..	..	..	8,608	..	..
Chittagong Hill Tracts	1	47	..	..	..	..	..	..	..	..	..	..
Tippura	1	94	..	..	..	..	..	..	..	..	..	..
Rajshahi	4	4,801	..	..	..	..	..	..	..	359	..	67,143
Pabna	3	118	..	..	..	..	..	..	..	..	..	100
Rangpur	6	686	..	..	..	..	..	..	..	..	..	..
Jalpaiguri	1	133	..	..	..	..	..	..	..	..	..	..
Bogra	2	90	..	..	..	..	..	..	..	..	..	..
Malda	1	46	..	..	..	..	..	..	..	..	..	..
Total Class II	60	12,416	..	..	..	..	..	..	..	1,02,294	1,000	67,343
Total previous year	76	12,697	..	..	..	..	60,501	..	..	84,776	7,974	68,624

STATEMENT

OPERATIONS OF NON-

Classification.	Number of Societies.	Number of members.	Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—			Loans and deposits received during the year from—		
			Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Individuals.	Of which overdue.	Banks and Societies.	Individuals.	Central Banks.	Primary Societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
CLASS IV.—PRODUCTION AND SALE.												
<i>(a) LIMITED.</i>												
<i>Sugar Factory.</i>												
Birbhum	1		No transaction									
<i>Chikan-workers.</i>												
24-Paraganas .. .	1	20	2,200	5,564	77		209			1,785	5,170	
<i>(b) UNLIMITED.</i>												
<i>Toy-makers.</i>												
Birbhum	1	12			26		72	72				
<i>Conch Shell-workers</i>												
Bankura	1	10										
<i>Shoe makers.</i>												
Calcutta	1	25			16		584	920		1,616		
Midnapur	1	20	38		102		815	616			865	
Birbhum	2	27	287		87		153	153				
Khulna	1	19			1		58					
Bankura	2	27			233		612	612			945	
Bankaranj	1	10	845		59		219	218				
Tippera	1	11										
Total	9	149	1,268		479		2,159	2,510		1,645	1,310	
<i>WEAVERS.</i>												
<i>(a) Limited.</i>												
Khulna	1	188								500	21,327	
<i>(b) Unlimited.</i>												
Khulna	6	54	5,202		2,568	17	2,054	12		28	1,530	
Birbhum	8	137	1,775	1,141	688		2,891	3,676	985	1,721	2,565	
Burdwan	4	20	1,170		533		1,214	44			1,250	
Bankura	86	747	101	237	80	60	650	228	224			
Nadia	11	78	91		44		1,149	1,077			119	
Murshidabad	10	145	954		1,277		7,245	4,413			718	
Jessore	1	20	100				594	528				
Dacca	10	161	898				906			190	9,672	
Mymensing	4	61	25		942		1,809	677		352	200	
Bakarganj	1	18			1		308	500				
Fardpur	1		No transaction									
Rairahali	16	227	12,207		2,946	205	15,973			78	17,185	
Jalpaiguri	8	167	2,274	837	926		4,227	2,376	116	153	1,490	280
Patna	9	121	1,648	59	1,312		2,671	1,907		43	1,205	
Bogra	11	239	12,451		1,082		14,031	1,179		490	11,295	
Tippera	6	85	671		1,331		4,145	1,034		2	1,001	
Nonkhal	9	125	5,272		961		6,098	724		20	6,220	
Chittagong	1		No transaction									
Total unlimited	175	2,843	51,681	2,274	15,604	272	69,372	18,612	1,385	3,049	65,064	280
Total	174	2,701	51,881	2,274	15,604	272	69,372	18,612	1,385	3,049	76,411	280

C.

AGRICULTURAL SOCIETIES.

Sales of goods to members.	Purchase of members' products.	Cost of manage-ment.	Share capital paid up.	Loans and deposits held at the end of the year from—					Reserve fund.	Working Capital.	Profit and loss for the year.	Usual dividend paid on shares	Most usual rate of interest—	
				Members.	Non-members.	Societies	Provi-dial or Central Banks.	Govern-ment.					On borrow-ings.	On lendings.
				14	15	16	17	18					19	20	21	22	23	24	25	26	27	28
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.
2,759	1,212		21						118	134	+ 700		12½	
			1				195			197	- 21		9½	13½
									1	1			9½	12½
308 4,998 287	279 313	60	69 70 8	69 116 42	1,334 1,388		609 112 38		262 2,105 365	1,759 2,809 1,039	+ 5 + 67 - 5		6 6½ to 12½ 9½ to 10	12½ to 15½ 15½
4,388	692	78	167	323	2,929		1,600		2,281	2,794	+ 133			
		638	6,369	500	5,904		9,929			22,602	+ 1,614		8	
4,006 4,367 15,481 21 20	4,840	22 170	649 672 65	58 10	46	2,838 6,463 1,320		2,838 6,463 1,320	171 1,712 1,335	2,744 8,848 1,335	+ 155 + 101 + 18		9½ to 10½ 9½ to 10 9½	15½ to 16½ 12½ to 15½ 15½
25,055 6,844 1	33	108 8 3 83 108 1	108 8 3 76 68 1,042 100	101 104	23	1,762 5,446		1,762 5,446	30 2,220	1,907 8,834	- 204 + 691		10½ to 11½ 14½ to 19½	15½
13,726		376	2,316	37		15,589		173	10,115	7,777	+ 234		10½	15½
		91	63	815		1,376		848	7,777	- 215			9½ to 12½	15½
		90	647	112		3,124		617	4,400	+ 329			9½ to 10½	16½ to 19½
		240	2,175	73	207	13,413		655	15,518	+ 874				15½
		22	329	13		4,783		236	3,365	+ 165			9½ to 10½	15½
		133	356	20		7,901		429	8,704	+ 24			9½ to 10½	15½
73,443	4,849	11,968	16,811	1,111	1,065	1,418	73,665		12,025	1,11,277	+ 2,439			
73,443	4,849	12,006	30,730	1,611	6,269	1,418	83,614		12,026	1,33,879	+ 4,063			

STATEMENT

OPERATIONS OF NON-

Classification.	Number of societies.	Number of members.	Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—			Loans and deposits received during the year from—		
			Individuals.	Banks and societies.	Individuals.	Banks and societies.	Individuals.	Of which overdue.	Banks and societies.	Individuals.	Central Banks.	Primary societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
CLASS IV.—PRODUCTION AND SALE—contd.												
(b) UNLIMITED.												
<i>Cocoon Reelers.</i>												
Malda	3	25	39,055	..	20,533	..	27,741	27,741	..	..	..	34,835
<i>Cocoon Reavers.</i>												
Birbhum	2	36	20	..	175	..	1,425	1,412	..	..	..	..
Malda	13	206	12,286	..	5,006	..	17,180	222	..	..	..	12,758
Rajshahi	1	23	575	..	1,013	..	1,078	1,243	..	..	..	..
Total	16	276	12,862	..	6,193	..	20,588	8,878	..	..	..	12,758
FISHERMAN.												
<i>(a) Limited.</i>												
Dacca	2	466	..	..	..	..	..	..	..	..	..	855
Fabna	1	..	No transaction.	..	..	..	..	..	..	..	..	..
Hogra	1	..	Ditto.	..	..	..	..	..	..	..	..	..
Total Limited	4	466	..	..	..	..	..	..	..	..	..	855
<i>(b) Unlimited.</i>												
Midnapore	2	93	1,103	..	1,147	..	1,411	694	..	..	..	790
Howrah	4	45	141	..	844	..	884	745	..	..	..	..
Nadia	7	97	2,257	..	867	..	2,859	947	..	..	..	1,981
Murshidabad	3	90	40	..	35	..	638	598	..	..	..	209
Khulna	7	114	3,735	..	2,344	..	5,188	287	..	..	..	2,275
Dacca	7	102	2,641	42	818	42	4,284	4,177	..	..	..	2,825
Mymensingh	1	12	..	..	163	..	1,056	1,066	..	..	..	..
Bakerganj	3	43	931	..	791	..	2,211	280	..	..	..	800
Fardpur	4	65	1,376	..	1,232	..	2,597	1,419	..	..	..	1,200
Tippora	2	41	151	..	601	..	3,655	722	..	..	..	..
Nonkhali	3	28	390	..	117	..	1,336	1,017	..	..	..	..
Fabna	11	222	4,724	700	2,910	..	14,697	7,747	700	..	..	3,930
Total Unlimited	55	920	18,189	751	11,477	42	40,274	19,698	700	..	..	18,771
Total	59	1,386	18,189	751	11,477	42	40,274	19,698	700	1,402	..	15,771
(b) UNLIMITED.												
<i>Oil Pressing.</i>												
Fabna	1	11	..	..	80	..	1,014	..	..	..	..	..
<i>Blacksmiths.</i>												
Rajshahi	1	13	655	57	98	..	558	..	..	..	..	690
Fabna	1	17	871	..	1,090	..	1,102	263	..	..	..	1,370
Total	2	30	1,526	57	1,198	..	1,660	263	..	..	..	2,030
<i>Spoon-makers.</i>												
Rajshahi	1	12	..	..	65	..	638	555	..	..	..	..
<i>Carpenters.</i>												
Fabna	1	11	470	..	242	..	498	..	..	..	..	800
LAC-GROWERS.												
<i>(a) Limited.</i>												
Birbhum	1	20	..	..	..	..	..	..	..	..	..	750
<i>(b) Unlimited.</i>												
Malda	1	45	2,079	..	1,805	..	2,470	..	..	..	..	678
Total Limited (Class IV)	8	604	2,200	3,384	77	..	809	..	..	..	..	24,747
Total Unlimited (Class IV)	268	4,048	1,26,240	8,082	57,351	314	1,68,480	72,938	2,066	5,866	..	1,31,492
TOTAL CLASS IV	276	4,707	1,31,440	8,666	57,430	314	1,68,789	72,938	2,066	5,866	..	1,46,240
Total previous year	232	3,523	62,488	289	56,758	..	1,06,852	33,991	532	5,228	..	62,005

AGRICULTURAL SOCIETIES.

Sale of goods to members.	Purchase of members' produce.	Cost of management.	Share capital paid up.	Loans and deposits held at the end of the year from—					Reserve fund.	Working capital.	Profit and loss for the year.	Usual dividend paid on shares.	Most usual rate of interest—	
				Members.	Non-members.	Societies.	Provincial or Central Banks.	Government.					On borrowings.	On landings.
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
...	...	42	9,625	..	..	...	26,995	...	8	31,918	+ 249	..	0½	10½
...	...	10	271	..	..	...	1,310	...	18	1,594	+ 89	..	10	12½ to 25½
...	...	43	1,177	8	..	...	18,453	...	952	29,830	+ 597	..	10½	16½
...	...	9	1,891	329	..	...	600	...	488	3,308	+ 307	..	10½	1½
...	...	63	2,489	237	..	...	20,363	..	1,493	24,633	+ 693	..	...	...
...	...	1,272	2,673	55	485	..	..	..	50	2,162	- 187	..	10½	3 to 15
...	...	1,272	2,673	26	483	..	..	..	50	2,162	- 187	..	..	...
...	...	63	31	11	..	...	1,396	..	124	1,622	+ 7	..	0½	22½
...	...	71	846	9	..	...	614	..	636	558	- 39	..	0½	12½ to 15½
...	...	800	274	4	..	...	1,867	..	805	3,328	+ 133	..	0½ to 12½	15½
...	...	9	1,023	61	..	...	350	..	320	1,411	- 85	..	10½	14½
...	...	56	492	304	..	...	4,122	..	777	5,094	+ 524	..	0½ to 10½	16½
...	...	151	175	..	..	...	4,423	..	453	5,672	+ 75	..	0½ to 12½	16½ to 18½
...	...	704	1,009	..	..	...	892	..	129	1,298	+ 83	..	10½	15½
...	...	673	75	1	..	...	800	..	630	3,723	- 440	..	10½ to 15½	16½
...	...	20	673	75	1	..	3,070	..	639	3,349	+ 167	..	0½ to 12	16 to 18½
...	...	13	70	811	..	...	2,920	..	695	4,497	+ 146	..	10½	15½
...	...	49	83	13	..	...	2,037	..	71	2,214	+ 33	..	10½	13½
16,223	...	1,272	1,186	178	14	..	11,347	..	10,095	23,765	+ 4,218	..	10½	15½
10,224	...	2,937	2,228	2,193	668	..	22,352	..	16,746	56,449	+ 4,654	..	...	...
16,223	...	4,620	7,911	3,229	1,061	..	32,362	..	15,608	59,611	+ 4,467	..	...	...
...	...	9	8	35	..	..	852	..	430	1,326	+ 79	..	0½ to 10½	15½
...	...	17	63	5	..	...	849	..	425	611	+ 7	..	10½	15½
...	...	48	48	5	..	...	1,513	..	...	2,000	+ 143	..	10½	16½
...	...	17	110	6	10	..	2,061	..	455	2,611	+ 149	..	..	..
...	...	68	2	..	..	...	661	..	80	761	+ 23	..	10½	18½
...	...	2	16	4	..	..	583	..	10	583	+ 31	..	10½	16½
141	...	89	..	..	..	...	161	..	..	260	- 212	..	10	..
3	...	16	260	45	618	..	2,253	..	91	2,364	+ 134	..	10½	16½
2,630	1,212	1,911	7,653	556	5,627	..	10,090	..	163	26,146	+ 1,914	..	..	..
22,964	2,441	16,161	28,962	4,946	5,201	1,416	1,69,028	..	23,199	2,61,263	+ 9,561	..	..	..
96,296	6,763	17,062	27,716	5,222	10,629	1,416	1,78,179	..	33,312	2,67,811	+ 11,479	..	..	..
42,185	12,917	2,629	78,157	4,993	4,957	1,966	1,96,091	..	24,799	1,61,577	+ 8,818	..	..	..

**STATEMENT
OPERATIONS OF NON-**

Classification.	Number of societies.	Number of members.	Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—			Loans and deposits received during the year from—		
			Individuals.	Banks and societies.	Individuals.	Banks and societies.	Individuals.	Of which overdue.	Banks and societies.	Individuals.	Central Banks.	Primary societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
CLASS VI—OTHERS			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>(a) LIMITED.</i>												
<i>Anti-malarial and Public Health.</i>												
Burdwan	6	129	...	...	...	...	...	...	...	...	...	...
Hooghly	2	52	...	...	...	...	...	...	...	...	...	...
Howrah	5	170	...	...	...	...	...	...	...	243	...	...
Midnapore	5	80	...	...	...	...	...	...	...	...	...	...
24-Parganas	10	385	...	...	...	...	...	...	...	46	308	...
Jessore	1	No transaction.										
Faridpur	1	Ditto.										
Maldah	3	42	...	...	...	...	...	...	...	...	...	...
Total	53	858								289	308	
<i>Calcutta.</i>												
Bengal Youngmen's Zemindary Co-operative Society, Limited.	1	385	7,000	...	5,375	22,452	24,751	9,000	...	1,481	...	...
<i>Midnapore.</i>												
Tamluk Agricultural and Zemindary Co-operative Society, Limited.	1	170	4,165	...	5,240	...	5,350	1,050	...	3,339	...	...
<i>Mymensingh</i>												
Sarishbari Samabanya Shilpa Samity.	1	9	...	...	...	...	...	...	...	...	...	...
<i>Noakhali.</i>												
Sandip Co-operative Industrial Society, Limited.	1	20	...	...	...	...	...	...	...	...	...	...
<i>Tipperra.</i>												
Tipperra District Civil Court Employees' Co-operative Relief Society, Limited.	1	608	...	...	...	...	...	...	...	6,682	...	...
<i>Jaipatguri.</i>												
The Co-operative Electric Production and Supply Association, Limited.	1	24	...	...	...	...	...	...	...	...	...	...
<i>Rajshahi.</i>												
Naogaon Officers' Co-operative Club, Limited.	1	189	1,550	...	1,877	...	1,951	...	...	300	...	...
Total Class VI ...	40	2,238	12,815	...	12,202	22,452	31,442	10,050	...	12,691	308	...
Total previous year ...	19	1,121	10,699	...	5,792	...	51,164	15,105	1,500	19,657	1,832	...
GRAND TOTAL OF ALL CLASSES.	603	51,914	77,92,398	1,73,118	82,26,139	1,30,079	92,21,841	7,90,140	2,52,459	39,42,174	4,24,649	55,423
Grand Total of all classes of previous year.	518	79,721	77,85,178	71,412	61,89,417	2,18,581	78,00,670	5,75,069	1,40,778	21,00,538	1,82,202	70,539

C.

AGRICULTURAL SOCIETIES.

14	15	16	17	Loans and deposits held at the end of the year from—					23	24	25	26	Most usual rate of interest.					
				Members.	Non-members.	Societies.	Provincial or Central Banks.	Government.					Reserve fund.	Working capital.	Profit and loss for the year.	Usual dividend paid on shares.	On borrowings.	On lendings.
																	Per cent.	Per cent.
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.	Per cent.					
90	...	47	50	...	...	...	...	...	884	884	+ 670	...	...	...	
...	+ 16	...	...	...	
4,748	...	48	1,687	180	...	...	...	...	180	1,847	+ 778	...	5 to 7	...
...	...	77	80	...	...	...	...	...	790	800	+ 180	...	...	...	
221	...	9	892	...	...	200	835	...	488	1,015	+ 1,120	...	6	6 to 7		
...	...	880	...	...	...	...	...	...	94	94	+ 208	...	...	...	
5,059	...	1,071	2,109	120	...	200	835	...	2,266	5,840	+ 2,942	...	...	...	
...	24,926	1,481	...	...	...	...	17,699	44,137	+ 4,188	12½	...	9 & 10½		
2,009	...	80	18,290	7,288	15,705	...	...	...	2,255	40,632	+ 2,071	9½	5 to 9	12½ & 12¾	
...	...	14	67	...	...	...	...	...	...	67	- 6	...	...	...	
...	...	42	228	...	...	...	...	...	...	228	- 163	...	...	...	
...	...	6	...	8,298	...	...	...	...	25	8,270	+ 52	...	6½	...
...	38	289	...	...	...	...	...	217	- 227	...	...	...	
...	...	451	1,720	...	300	...	...	...	34	2,064	+ 220	...	...	...	
8,061	...	1,644	44,308	17,472	18,005	200	835	...	22,279	1,01,390	+ 9,687	...	...	...	
1,082	...	4,044	22,698	4,225	21,776	...	728	...	12,149	24,234	+ 8,217	...	...	...	
7,73,600*	79,172	69,708	20,24,418	21,73,077	22,19,289	24,598	4,12,762	...	6,24,627	1,06,75,972	+3,07,278	...	...	...	
2,24,524	24,878	1,94,270	22,72,722	22,21,222	27,49,264	42,265	2,52,242	...	4,72,272	22,22,222	+2,17,222	...	...	...	

* Represents sales to the public, shown here for want of an appropriate column.

STATEMENT D.

OPERATIONS OF UNIONS.

District.	Number of Unions.	Number of Societies affiliated to Unions in column 2.	Total number of individual Members in Societies affiliated.	Total Working Capital of affiliated Societies	Expenditures in year.	Percentage of column 6 on column 5 (one place of decimals)	Number of supervising staff maintained by Unions.
1	2	3	4	5	6	7	8
				Rs.	Rs.		
Murshidabad ...	1	25	596	30,352	...	...	...
Midnapore ...	2	126	4,487	1,38,618	300	2	...
Jalpaiguri ...	1	5	194	30,540	253	8	1
Total Unions ...	4	156	5,277	1,99,510	553	...	1
Total previous year	6	213	8,509	2,98,732	719	...	1

STATEMENT G.

STATEMENT

CENTRAL BANKS—RECEIPTS

Classification.	RECEIPTS.														
	Share receipts	Receipts by loans and deposits from—					Loans and deposits recovered from—			Income realized—				Other items.	Opening balance.
		Non-members and members in an individual capacity.	Provincial and central banks.	Societies.	Government.	Individual members.	Provincial and central banks.	Societies.	Interest received.	Sale of goods to members.	Other items.	Total income of the year (columns 10 to 12).			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
(a) PROVINCIAL BANK.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
The Bengal Provincial Co-operative Bank, Limited.	99,775	1,20,45,788	33,93,081	10,39,882	.	..	13,29,747	1,87,888	2,71,094	.	11,117	2,82,211	54,70,651	235	
(b) CENTRAL BANKS.															
Burdwan—															
1. Burdwan Central Co-operative Bank, Limited.	6,225	6,15,633	..	.	..	..	..	36,943	11,212	.	515	11,727	1,801	14,947
2. Kalna Central Co-operative Bank, Limited.	5,120	28,854	20,000	.	..	..	..	40,128	6,640	.	531	7,191	627	1,332
Total ..	11,345	6,44,487	20,000	..	..	..	..	77,071	17,852	..	1,086	18,918	2,428	16,179
Birbhum—															
1. Rampurhat Central Co-operative Bank, Limited.	4,800	1,27,035	..	..	..	..	90,500	27,373	18,265	..	2,494	20,769	11,805	6,675
2. Birbhum Central Co-operative Bank, Limited.	5,000	66,971	15,000	..	..	..	16,333	13,181	6,229	..	159	6,388	2,285	6,876
Total ..	9,800	1,94,006	15,000	..	..	..	1,06,833	40,454	24,494	..	2,653	27,147	14,090	13,551
Bankura—															
1. Bankura Central Co-operative Bank, Limited.	800	1,425	..	190	..	..	12,500	691	1,222	..	88	1,310	16	411
2. Bankura Central Co-operative Irrigation and Financing Bank, Limited.	11,895	11,657	10,000	..	..	..	..	2,013	1,804	..	125	1,029	97	1,348
Total ..	11,895	13,082	10,000	190	..	..	12,500	2,704	3,026	..	213	2,339	113	1,759
Midnapore—															
1. Midnapore Central Co-operative Bank, Limited.	5,640	1,01,920	16,000	..	..	..	89,191	1,11,781	28,638	..	273	28,811	45,143	4,528
2. Khelar Balarampur Central Co-operative Union, Limited.	5,980	25,682	50,000	306	..	..	..	38,751	9,083	..	1,279	10,362	14,978	877
3. Belebera Co-operative Union, Limited.	2,210	10,414	14,000	..	..	..	..	23,418	9,358	..	60	9,418	1,164	622
4. Tamruk Central Co-operative Bank, Limited.	4,145	10,685	25,000	..	..	..	23,821	..	8,939	..	190	9,128	5,069	3,369
5. Mugbera Central Co-operative Bank, Limited.	10,700	45,661	45,000	..	..	..	..	..	..	..	..	..	12,330	..
Total ..	28,675	1,93,942	1,50,000	306	..	..	1,23,012	1,71,948	55,917	..	1,802	57,719	78,804	9,596
Howrah—															
1. Howrah Central Co-operative Bank, Limited.	..	..	..	..	..	..	..	747	418	..	..	418	81	2,608
2. Uluberia Central Co-operative Union Bank, Limited.	120	100	..	..	..	..	..	1,005	1,585	..	179	1,764	..	1,729
Total ..	120	100	..	..	..	..	..	1,752	2,003	..	179	2,182	81	4,332
Hooghly—															
1. Hooghly Central Co-operative Bank, Limited.	2,060	3,800	..	..	..	..	..	4,405	1,069	..	60	1,129	270	2,287
24 Parganas—															
1. Taki Central Co-operative Bank, Limited.	3,600	53,532	20,000	479	..	..	16*	61,147	13,567	..	1,343	14,910	55,049	6,503
2. Nimta Co-operative Banking Union, Limited.	280	5,691	..	..	..	..	4,494	12,691	1,610	..	182	1,742	862	233
3. Diamond Harbour Central Co-operative Bank, Ltd.	700	1,250	5,800	..	..	..	1,000	1,760	276	..	75	351	30	121
4. Barasat Central Co-operative Bank, Limited.	3,455	3,775	25,100	..	..	..	140	6,383	809	..	..	300	516	..
Total ..	8,035	64,248	50,900	479	..	..	5,650	81,994	15,852	..	1,550	17,402	57,357	6,857
Nadia—															
1. Nadia Central Co-operative Bank, Limited.	1,270	57,461	..	..	..	..	48,812	76,410	22,876	..	678	23,349	16,409	17,192
2. Kusbua Central Co-operative Bank, Limited.	5,455	2,095	..	..	..	..	793	32,725	3,797	..	1,372	5,169	97,610	1,299
3. Meherpur Central Co-operative Bank, Limited.	1,762	18,464	..	..	..	..	2,684	32,662	9,170	..	861	10,031	18,915	4,256
4. Ramghat Central Co-operative Bank, Limited.	3,389	24,714	7,500	..	..	..	..	11,634	2,537	..	250	2,787	6,655	2,574
5. Ohandanga Central Co-operative Bank, Limited.	5,470	5,941	50,000	..	..	..	1,883	13,559	4,009	..	408	4,417	17,6	216
Total ..	17,346	1,03,675	57,500	..	..	..	54,172	1,66,990	42,189	..	3,564	43,753	1,41,827	25,529
Jessore—															
1. Jessore Central Co-operative Bank, Limited.	6,275	16,595	..	2,328	..	..	21,658	22,696	21,567	..	203	21,869	36,133	403
2. Magura Central Co-operative Bank, Limited.	3,250	26,797	4,000	..	..	..	11,324	23,969	4,771	..	205	4,976	497	5,389
3. Narail Central Co-operative Bank, Limited.	2,545	35,308	8,000	250	..	..	..	37,345	7,432	..	90	7,522	55,251	3,160
Total ..	12,070	78,700	12,000	2,578	..	..	32,982	83,001	33,770	..	588	34,368	91,881	8,952

G.

AND DISBURSEMENTS.

DISBURSEMENTS.																			
Grand total including opening balance (cols. 9 to 14 and 15).	Share capital withdrawn.	Loans and deposits repaid to—					Loans to—				Expenses.						Other Items.	Closing balance.	Grand total disbursement including closing balance (cols. 17 to 24, 26, 27 and 28).
		Members and non-members in no individual capacity.	Provincial and Central Banks.	Societies.	Government.	Individual members.	Provincial and Central Banks.	Societies.	Interest paid on loans and deposits.	Dividend and bonus paid.	Stock bought.	Establishment and contingencies.	Other items.	Total expenditure (cols. 25 to 29).					
															18	19				20	21	22	23	24	25	26	27	28	29	30
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33		
2,88,48,708	2,480	1,09,08,028	84,07,628	8,10,705	..	..	21,88,788	2,36,950	2,81,170	27,204	..	11,499	8,128	5,05,001	65,82,622	22,340	2,38,48,708
6,87,076	35	5,65,880	..	..	..	..	..	88,850	6,178	1,886	622	1,653	1,729	19,088	1,970	18,688	6,87,076
1,08,052	..	8,422	7,500	..	..	..	..	79,809	4,105	..	408	714	..	5,226	1,817	5,209	1,08,052
7,90,128	28	8,60,012	7,800	..	..	..	..	1,08,689	10,268	1,888	1,028	2,367	1,729	17,298	5,887	22,902	7,90,128
2,88,847	610	88,168	..	..	..	..	87,368	78,817	14,999	1,375	..	3,520	3,401	21,298	16,816	6,079	2,88,847
1,82,084	880	80,205	..	..	..	..	7,102	89,724	5,462	825	..	1,821	988	9,104	3,589	1,610	1,82,084
4,90,881	1,480	1,48,371	..	..	..	..	74,385	1,89,541	20,461	2,211	..	4,341	3,387	20,400	20,185	7,889	4,90,881
16,853	100	1,160	..	10,400	..	..	861	2,808	183	..	..	89	80	322	16	1,001	16,853
38,739	..	5,212	..	..	..	..	..	21,780	80	171	..	929	66	1,205	90	10,602	38,739
55,898	100	8,891	..	10,600	..	..	861	24,632	183	171	..	1,028	145	1,827	108	11,503	55,898
4,12,714	8,880	40,294	16,000	..	..	..	1,88,191	1,07,870	11,616	1,378	..	2,207	618	16,714	87,824	3,021	4,12,714
1,44,716	220	16,278	16,728	880	..	..	..	81,288	6,112	820	53	1,711	2,987	11,684	17,472	928	1,44,716
61,244	..	1,610	6,427	..	..	..	..	22,141	6,728	1,074	..	1,298	398	9,023	2,847	4,408	61,244
81,217	160	10,514	10,004	..	..	..	..	21,898	5,226	124	..	878	417	6,880	10,829	1,162	81,217
1,15,711	..	..	..	..	..	..	..	97,888	..	..	..	..	117	2,400	2,817	1,240	1,15,711
8,13,802	8,880	78,102	61,162	1,284	..	..	1,88,191	2,61,928	29,617	3,406	63	7,208	6,726	47,077	81,028	10,802	8,13,802
3,849	..	3,000	..	..	..	..	..	..	440	..	..	39	..	479	87	283	3,849
4,718	..	80	..	..	..	..	..	1,800	1,208	181	..	281	272	1,220	78	1,276	4,718
8,587	..	3,020	..	..	..	..	..	1,400	1,648	191	..	200	272	2,299	180	1,858	8,587
12,251	78	1,760	..	..	..	..	..	10,470	261	278	..	97	..	726	452	468	12,251
2,46,126	800	68,408	26,000	80	..	..	2,022	87,120	8,209	1,686	31	4,072	294	14,480	48,408	112	2,46,126
25,998	200	2,788	2,716	..	..	..	..	9,507	1,017	144	..	..	226	1,297	2,222	55	25,998
11,012	..	..	2,200	..	..	..	1,084	6,850	28	..	119	102	70	320	260	168	11,012
29,788	..	..	1,600	..	..	..	..	24,200	162	..	275	65	..	602	2,289	676	29,788
2,22,909	700	71,192	21,612	60	..	..	3,076	1,27,777	9,527	1,628	629	4,240	200	18,220	60,678	1,001	2,22,909
2,40,902	2,626	26,210	..	800	..	..	21,227	20,772	18,612	2,074	25	2,616	227	22,623	19,221	17,164	2,40,902
1,45,127	20	81,282	20,900	..	..	..	1,227	27,282	6,780	8	..	998	..	7,897	2,212	102	1,45,127
89,774	2	9,200	887	..	..	..	5,216	26,826	6,700	212	..	1,621	1,061	6,524	24,175	2,264	89,774
59,228	..	400	8,551	..	..	..	..	27,027	1,226	..	291	272	..	1,780	7,614	2,571	59,228
22,220	..	..	9,248	..	..	..	2,024	69,211	288	..	224	609	..	1,421	2,421	677	22,220
6,18,267	2,878	97,292	26,294	200	..	..	29,222	2,22,122	20,616	2,294	820	6,277	1,986	62,126	61,200	22,020	6,18,267
1,27,948	..	11,000	..	80	..	..	11,226	84,972	11,902	1,627	4	2,222	172	10,064	16,268	4,067	1,27,948
79,182	726	2,226	11,160	..	..	..	14,200	42,242	2,741	..	..	1,104	122	4,000	212	1,678	79,182
1,49,221	..	9,208	22,212	..	..	..	..	44,222	2,222	..	..	1,222	222	7,211	21,222	1,222	1,49,221
2,64,222	726	24,201	24,622	60	..	..	22,222	1,22,222	20,211	1,627	4	2,222	221	20,222	72,222	2,647	2,64,222

STATEMENT

CENTRAL BANKS—RECEIPTS

Classification.	RECEIPTS.													
	Share receipts.	Receipt by loans and deposits from—				Loans and deposits recovered from—			Income realised.				Other items.	Opening balance.
		Non-members and members in an individual capacity.	Provincial and Central Banks.	Societies.	Government.	Individual members.	Provincial and Central Banks.	Societies.	Interest received.	Sale of goods to members.	Other items.	Total income of the year (columns 10 to 12)		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(b) CENTRAL BANKS—contd.														
Khulna—														
1. Baruk Central Co-operative Bank, Limited.	550	12,536	5,200	3,321	...	...	...	25,769	9,641	...	288	9,929	6,718	3,244
2. Khulna Central Co-operative Bank, Limited.	1,775	62,957	...	...	...	...	1,16,155	79,656	20,232	...	140	20,372	16,031	4,049
3. Bagerhat Central Co-operative Bank, Limited.	3,426	21,402	...	138	...	...	1,943	48,874	9,397	...	741	10,138	2,076	3,262
Total ...	5,750	96,895	5,200	3,459	...	...	1,18,008	1,54,290	39,270	...	1,169	40,439	26,426	10,555
Murshidabad—														
1. Jangipur Central Co-operative Bank, Limited.	5,250	40,399	...	200	...	...	2,800	14,854	7,503	...	78	7,881	4,570	12,537
2. Berhampore Central Co-operative Bank, Limited.	6,125	24,620	...	431	...	...	14,078	54,529	19,890	...	602	20,492	3,396	4,364
3. Lalbag Central Co-operative Bank, Limited.	3,731	28,624	24,000	...	...	...	3,685	34,325	9,338	...	209	9,547	11,827	3,715
4. Kandi Central Co-operative Bank, Limited.	4,765	1,065	37,063	...	...	...	...	3,241	362	...	332	694	1,137	...
Total ...	19,871	94,708	61,063	631	...	...	20,563	1,07,149	36,893	...	1,221	38,114	20,980	20,416
Dacca—														
1. Dacca Central Co-operative Bank, Limited.	5,160	79,894	...	128	...	...	66,633	1,14,471	42,309	...	1,180	43,489	4,436	10,988
2. Birkampur Central Co-operative Bank, Limited.	5,420	23,320	47,500	...	...	...	520	67,770	9,938	...	686	10,624	800	4,061
3. Maukganj Central Co-operative Bank, Limited.	2,780	50,030	...	868	...	...	3,348	36,345	7,947	...	287	8,234	3,498	10,425
4. Narayanganj Central Co-operative Bank, Limited.	4,525	21,807	80,000	160	...	...	642	1,41,407	16,813	...	966	17,779	2,291	12,173
5. Raipura Central Co-operative Bank, Limited.	No transaction.													
Total ...	17,885	1,74,541	1,27,500	1,156	...	...	71,133	2,59,933	77,007	...	3,119	80,128	11,016	37,597
Mymensingh—														
1. Mymensingh Central Co-operative Bank, Limited.	44,210	5,19,566	50,000	3,750	...	...	5,42,537	2,44,297	98,992	...	2,084	1,01,076	1,17,989	49,071
2. Jamalpur Central Co-operative Bank, Limited.	3,320	53,955	42,600	1,770	...	42	...	2,87,854	47,417	...	294	47,711	1,53,488	37,549
3. Kishorganj Central Co-operative Bank, Limited.	3,975	1,39,444	...	5,541	...	...	...	89,811	21,832	...	536	22,568	39,446	9,036
4. Tangail Central Co-operative Bank, Limited.	18,325	52,874	25,000	38,137	...	...	...	74,374	25,235	...	1,003	20,238	6,157	4,552
5. Netrokona Central Co-operative Bank, Limited.	12,325	1,000	1,00,000	5,126	...	...	2,500	4,102	816	...	170	988	3,155	...
6. Madaragunj Central Co-operative Bank, Limited.	8,650	3,000	1,11,301	5,042	...	...	...	5,020	72	...	395	407	36,366	...
7. Dhanbari Central Co-operative Bank, Limited.	No transaction.													
8. Pingua Central Co-operative Bank, Limited.	No transaction.													
Total ...	90,805	7,69,839	3,28,801	69,366	...	42	5,45,067	7,05,458	1,97,364	...	4,482	2,01,846	3,58,601	1,00,908
Bakarganj—														
1. Barisal Central Co-operative Bank, Limited.	12,200	3,52,477	...	...	...	...	3,01,568	67,515	58,526	...	1,504	60,080	6,015	23,576
2. Patuakhali Central Co-operative Bank, Limited.	2,110	4,123	10,000	308	...	...	...	29,186	11,177	...	434	11,611	78	16,411
3. Khepupara Central Co-operative Bank, Limited.	14,666	20,427	1,85,000	3,000	...	...	...	96,485	45,655	...	691	46,346	20,490	14,126
4. Bhola Central Co-operative Bank, Limited.	2,225	10,233	20,000	...	...	...	...	...	5	...	105	110	...	173
Total ...	31,191	3,87,260	2,15,000	3,303	...	...	3,01,568	1,93,186	1,15,363	...	2,734	1,18,097	27,213	53,286
Faridpur—														
1. Faridpur Central Co-operative Bank, Limited.	...	1,32,666	...	336	...	276	...	21,394	49,948	...	69	46,017	2,60,584	10,015
2. Madaripur Central Co-operative Bank, Limited.	290	1,01,376	15,000	12,189	...	...	...	29,582	27,006	...	628	27,634	46,595	3,164
3. Gopalganj Central Co-operative Bank, Limited.	623	33,733	...	...	...	...	...	26,352	42,901	...	73	49,084	11,979	2,745
4. Goalundo Central Co-operative Bank, Limited.	3,775	1,06,799	...	...	...	...	...	35,569	21,930	...	147	22,077	1,56,927	3,256
Total ...	4,690	4,74,564	15,000	12,523	...	276	...	1,12,787	1,37,845	...	917	1,38,762	4,76,085	19,180
Chittagong—														
1. Chittagong Central Co-operative Bank, Limited.	5,750	62,662	65,000	34,737	...	...	24,823	91,203	18,154	...	709	18,663	4,292	13,996
2. Cox's Bazar Central Co-operative Bank, Limited.	No transaction.													
Total ...	5,750	62,662	65,000	34,737	...	...	24,823	91,203	18,154	...	709	18,663	4,292	13,996
Tippera—														
1. Comilla Central Co-operative Bank, Limited.	14,583	3,34,416	...	...	...	47	2,23,447	1,64,324	45,871	336	1,000	47,207	15,623	16,077
2. Brahmanbaria Central Co-operative Bank, Limited.	1,450	1,51,788	...	...	...	...	69,617	69,606	35,810	...	259	36,069	1,20,569	6,144
3. Chandpur Central Co-operative Bank, Limited.	5,350	1,13,212	45,000	...	...	...	87,350	1,40,189	43,068	...	749	43,817	27,115	11,549
4. Tippera Raj Central Co-operative Bank, Limited.	3,300	17,272	10,000	...	...	...	...	7,969	5,073	...	82	5,155	5,563	744
5. Matlab Central Co-operative Bank, Limited.	7,875	2,821	75,000	...	...	20	...	110	...	...	835	835	534	...
Total ...	32,360	6,09,509	1,30,000	...	...	67	3,80,414	3,82,198	1,29,822	336	2,923	1,33,083	1,69,404	34,514

G.

AND DISBURSEMENTS.

DISBURSEMENTS.																						
Grand total including opening balance (cols. 1 to 9, 13, 14 and 15).	Loans and deposits repaid to--										Loans to--					Expenses--				Other items.	Closing balance.	Grand total disbursement including closing balance (cols. 17 to 24, 30, 31 and 32).
	Share capital with drawn.	Members and non-members in an individual capacity.	Provincial and Central Banks.	Societies.	Government.	Individual members.	Provincial and Central Banks.	Societies.	Interest paid on loans and deposits.	Dividend and bonus paid.	Stock bought.	Establishment and contingencies.	Other items.	Total expenditure (cols. 25 to 29).								
															16	17	18	19	20				21	22	23	24	25	26	27	28	29	30	31	32
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.			
67,787	90	10,055	8,500	3,315	...	...	...	21,018	4,909	128	410	3,174	290	8,518	15,289	185	67,787		
8,00,998	...	73,091	1,000	...	...	...	1,16,876	80,477	12,822	2,242	21	4,600	321	19,687	8,168	1,701	8,00,998		
91,838	426	5,828	10,000	...	...	...	2,327	58,867	6,099	620	...	2,007	848	8,669	2,885	2,922	91,838		
4,60,620	516	88,630	19,500	3,315	...	...	1,19,708	1,61,222	22,180	2,289	487	9,981	1,454	36,751	26,237	4,808	4,60,620			
87,721	345	24,737	...	...	...	...	112	89,887	4,140	1,184	149	1,318	293	7,494	900	4,318	87,721		
1,28,038	1,880	8,237	...	2	...	...	9,848	89,786	10,480	1,667	547	429	16,498	2,205	16,498	2,065	1,28,038			
1,19,884	42	10,222	4,600	...	...	...	20,065	54,174	6,907	245	...	1,264	901	9,417	15,292	4,942	1,19,884		
47,985	...	...	...	...	...	...	...	44,266	...	...	242	79	42	262	2,822	884	47,985		
8,32,448	1,027	48,898	4,600	2	...	...	20,117	2,28,202	21,207	2,246	208	6,788	1,662	82,772	22,260	12,728	8,32,448			
3,25,139	1,220	88,879	...	144	...	...	88,888	1,44,076	24,122	5,702	95	4,908	1,160	26,042	6,229	14,841	3,25,139			
1,60,016	...	2,626	20,000	...	...	...	507	1,17,146	7,422	1,622	222	1,429	700	11,509	2,626	1,663	1,60,016		
1,16,868	...	2,485	15,000	1,801	...	...	2,822	56,620	4,608	1,028	85	1,240	190	7,112	2,026	6,407	1,16,868			
2,40,224	...	24,229	20,000	161	...	...	612	1,75,622	11,626	221	77	2,269	2,266	17,769	4,229	2,211	2,40,224			
8,20,998	1,220	1,09,982	25,000	1,608	...	...	6,629	4,91,607	47,822	8,222	410	10,020	4,222	72,222	16,222	22,222	8,20,998			
16,72,816	2,200	2,98,828	50,000	3,222	...	...	5,222,001	5,09,120	50,222	8,222	24,222	16,222	2,702	1,02,729	22,222	56,720	16,72,816			
6,21,129	2,422	22,222	22,222	2,222	2,22,222	24,222	4,222	7,222	2,722	2,722	422	42,222	1,72,222	6,222	6,21,129				
3,08,621	900	1,19,222	...	2,222	...	...	...	1,17,146	9,022	1,612	124	2,200	422	16,222	44,222	4,124	3,08,621		
2,48,627	50	20,629	20,000	2,702	...	...	...	1,67,726	12,172	2,211	517	5,247	211	22,626	2,222	5,222	2,48,627		
1,29,124	...	...	...	40	...	...	2,222	1,11,227	...	...	...	1,222	...	1,222	12,042	222	1,29,124		
1,69,246	...	...	25,601	4,222	...	...	...	22,222	68	...	424	422	422	1,222	42,222	222	1,69,246		
21,60,022	12,422	4,92,222	1,62,101	22,222	...	...	5,222,222	12,67,244	27,222	17,222	22,222	24,222	5,222	1,62,222	22,222	72,222	21,60,022			
2,22,222	4,740	2,12,222	...	...	...	...	2,22,222	1,62,222	24,222	7,101	...	2,072	517	21,101	16,222	22,222	2,22,222		
72,422	72	2,222	15,000	22	...	...	...	42,222	2,207	722	116	2,412	220	7,222	212	2,222	72,422		
4,00,222	...	27,122	22,024	4,024	...	...	...	1,72,422	22,222	2,222	126	6,241	1,222	42,222	22,222	21,222	4,00,222		
22,741	...	...	...	...	...	...	...	20,222	80	...	222	27	22	444	2,000	2,222	22,741		
18,20,104	4,212	2,42,222	1,02,024	4,112	...	...	2,22,222	2,22,222	71,222	12,222	210	16,222	2,222	1,02,672	22,222	22,222	18,20,104			
5,21,272	20	1,22,222	...	221	...	...	...	2,222	22,222	1,107	...	2,222	212	22,222	22,222	417	5,21,272		
2,22,222	2,170	1,12,122	22,222	11,222	...	...	...	5,272	21,722	12	...	2,222	202	22,222	22,222	4,122	2,22,222		
1,12,222	2,120	11,222	20,000	...	...	...	...	2,222	12,222	...	...	2,222	122	22,222	4,210	12,222	1,12,222		
2,22,222	72	22,222	...	...	...	...	...	27,422	12,640	1,020	272	4,162	222	12,222	1,212	222	2,22,222		
12,02,272	2,412	2,72,222	22,222	12,222	...	...	...	21,222	22,222	2,162	272	22,222	2,222	1,12,472	2,04,722	22,222	12,02,272		
2,21,222	2,072	22,222	20,000	27,222	...	...	...	12,222	12,222	2,222	222	2,222	2,222	1,122	19,017	4,222	2,21,222		
2,21,222	2,022	22,222	20,000	27,222	...	...	...	12,222	12,222	2,222	222	2,222	2,222	1,122	19,017	4,222	2,21,222		
2,02,222	1,222	2,21,222	...	22	...	...	...	1,22,222	22,222	2,222	224	7,241	2,022	20,222	20,222	22,222	2,02,222		
4,22,222	2,122	2,10,222	...	...	...	...	...	22,102	22,100	12,722	1,200	72	2,440	221	22,222	1,22,222	4,22,222		
4,72,222	722	22,072	...	...	...	...	...	22,247	27,222	27,242	4,412	...	7,162	...	22,222	42,222	4,72,222		
20,022	...	7,000	...	3,000	...	...	...	22,222	1,222	120	...	222	22	2,222	2,222	212	20,022		
27,122	...	...	...	...	...	...	...	27,222	122	...	417	720	222	1,442	7,200	720	27,122		
12,71,722	7,222	2,71,222	...	2,012	...	...	...	2,02,122	22,222	12,222	727	21,222	2,712	1,12,222	1,22,222	22,222	12,71,722		

STATEMENT
CENTRAL BANKS—RECEIPTS

Classification.	RECEIPTS.															
	Share receipts.	Receipts by loans and deposits from—				Loans and deposits recovered from—				Income realised.			Other items.	Opening balance.		
		Non-members and members in an individual capacity.	Provincial and Central Banks.	Societies.	Government.	Individual members.	Provincial and Central Banks.	Societies.	Interest received.	Sale of goods to members.	Other items.	Total Income of the year (columns 10 to 12).				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
(B) CENTRAL BANKS—contd.																
Noakhali—																
1. Noakhali Central Co-operative Bank, Limited.	5,065	47,007	15,000	17	...	...	8,055	30,267	11,820	...	...	864	12,784	800	5,897
2. Feni Central Co-operative Bank, Limited.	5,100	60,803	10,000	1,579	...	...	2,766	35,119	26,825	...	...	741	37,666	4,154	4,844
3. Sandip Central Co-operative Bank, Limited.	7,385	4,678	65,000	680	...	...	...	18,010	4,470	...	...	653	5,922	176	38
4. Lakshmipur Central Co-operative Bank, Limited.	4,560	2,167	35,000	...	...	...	...	1,868	678	...	...	239	906	133	...
Total ...	22,110	1,16,655	1,25,000	2,256	...	...	11,821	85,264	48,301	...	...	2,377	66,278	5,261	15,864
Dinajpur—																
1. Balurghat Central Co-operative Bank, Limited.	4,265	21,868	55,000	...	...	...	...	29,377	12,283	...	...	560	12,803	21,411	9,464
2. Dinajpur Central Co-operative Bank, Limited.	1,910	170	20,000	...	...	...	...	...	...	...	...	138	138	...	...
3. Thakurgaon Central Co-operative Bank, Limited.	675	4,008	...	...	...	...	...	...	...	...	...	90	90	...	...
Total ...	7,850	26,046	75,000	...	...	...	...	29,377	12,283	...	...	788	13,031	21,411	9,464
Maida—																
1. Maida Central Co-operative Bank, Limited.	6,067	1,11,881	40,522	...	...	...	...	43,293	17,141	...	...	281	17,422	7,130	2,697
Rajshahi—																
1. Rajshahi Central Co-operative Bank, Limited.	2,520	1,55,591	250	9,962	...	...	...	44,180	16,581	...	...	857	17,438	1,32,978	39,564
2. Puthia Central Co-operative Bank, Limited.	390	1,620	...	...	...	...	...	7,998	4,130	...	...	84	4,214	4,227	3,313
3. Natore Central Co-operative Bank, Limited.	675	19,666	...	...	...	...	...	18,068	14,548	...	...	592	15,197	2,407	2,511
4. Naogaon Central Co-operative Bank, Limited.	6,870	25,691	59,000	22,214	...	...	...	49,697	23,261	...	...	2,457	26,488	31,486	...
Total ...	6,965	1,99,858	59,850	36,186	...	...	...	1,19,941	66,340	...	...	57	2,900	65,387	1,71,091
Fabna—																
1. Fabna Central Co-operative Bank, Limited.	6,080	2,15,838	...	48,910	...	...	...	63,276	28,491	...	...	1,884	94,876	2,12,801	7,729
2. Sarajwari Central Co-operative Bank, Limited.	2,280	1,48,811	...	...	...	...	...	95,923	28,263	...	...	848	29,111	1,49,957	20,964
3. Ulapara Central Co-operative Bank, Limited.	1,815	16,018	40,000	...	...	...	...	46,488	14,247	...	...	283	15,661	4,220	1,589
4. Shashtipur Central Co-operative Bank, Limited.	2,720	39,209	29,000	...	...	...	...	22,724	4,909	...	...	119	5,221	6,422	56
Total ...	12,815	4,19,876	68,000	48,910	...	...	...	2,26,410	1,40,010	...	...	389	3,966	1,44,858	3,76,410
Bogra—																
1. Bogra Central Co-operative Bank, Limited.	9,765	1,28,061	...	...	...	...	...	66,721	23,255	...	...	1,249	24,414	62,521	9,564
2. Khajaurpur Central Co-operative Bank, Limited.	2,090	18,118	18,100	709	...	...	...	21,948	7,011	...	...	608	7,616	873	2,827
3. Padmapara Central Co-operative Bank, Limited.	1,470	1,990	40,000	...	...	...	...	22,471	2,471	...	...	193	2,664	11,277	211
Total ...	13,325	1,48,169	58,100	709	...	...	...	1,11,140	32,737	...	...	2,050	34,694	74,671	12,602
Rangpur—																
1. Rangpur Central Co-operative Bank, Limited.	2,700	1,22,944	29,000	...	...	...	...	28,204	15,971	...	...	1,018	16,967	7,074	55,169
2. Gaibandha Central Co-operative Bank, Limited.	820	70,026	20,000	...	...	...	...	27,968	20,244	...	...	56	31,699	47,288	12,288
3. Kurigram Central Co-operative Bank, Limited.	2,675	11,801	...	...	...	...	...	17,217	5,203	...	...	247	5,449	8,506	6,266
4. Nilphamari Central Co-operative Bank, Limited.	2,524	12,848	18,000	...	...	...	...	11,101	10,124	...	...	249	10,378	68,257	46
Total ...	8,719	2,17,619	67,000	...	...	...	...	76,710	51,548	...	...	1,370	64,493	1,24,936	74,769
Jalpaiguri—																
1. Jalpaiguri Central Co-operative Bank, Limited.	290	6,700	...	2,200	...	...	...	6,828	2,089	...	...	52	2,142	2,292	4,641
Darjeeling—																
1. Kailashpur Central Co-operative Bank, Limited.	2,720	1,18,178	25,190	...	...	...	...	26,680	21,900	...	...	1,610	23,490	8,359	8,260
2. Darjeeling Central Co-operative Banking Union, Limited.	...	488	1,575	498	...	...	...	8,243	5,075	...	...	299	3,277	19,294	...
3. Pefong Central Co-operative Bank, Limited.	1,128	7,448	5,700	187	...	...	...	26,020	2,037	...	...	471	9,808	2,214	1,679
Total ...	4,648	1,26,114	36,880	1,085	...	...	...	61,543	29,012	...	...	2,380	36,775	24,827	10,299
Total Central Banks ...	5,62,118	54,99,629	17,81,726	2,15,551	19,06,679	22,22,824	941	68,654	18,99,021	22,98,664	5,61,272

6.

AND DISBURSEMENTS.

Illustrative																			
Grand total including reserve fund (cons. 2 to A, 16, and 16).	Receipts—						Disbursements—												Grand Total Disbursements including reserve fund (cons. 2 to 26, 30 and 32).
	Share capital withdrawn.	Reserve fund—members in an individual capacity.	Provisional and General Funds.	Stocks.	Government.	Individual and General Funds.	Individual and General Funds.	Subsidiaries.	Interest paid on loans and deposits.	Dividend and bonus paid.	Stock bought.	Retained profit and other disbursements.	Other items.	Total disbursements—26 to 30.	Other items.	Other items.	Other items.	Other items.	
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1,57,000	1,100	12,372	22,000	—	—	—	5,200	62,000	6,000	000	400	1,800	400	5,377	000	2,500	1,57,000		
2,00,000	75	48,000	2,000	000	—	—	4,000	60,000	10,000	2,000	1,100	4,200	6,000	20,000	2,000	5,300	2,00,000		
3,01,000	—	1,000	10,000	000	—	—	70,000	2,000	30	300	400	100	3,000	5,000	3,000	1,00,000			
48,000	—	2,000	—	—	—	—	20,000	—	—	—	—	—	—	—	—	—	48,000		
4,20,000	1,200	62,372	34,000	1,000	—	—	10,000	1,20,000	18,000	6,000	2,500	6,000	7,000	21,000	10,000	10,000	4,20,000		
1,50,000	000	10,000	10,000	—	—	—	10,000	2,000	1,700	2,700	2,700	000	10,000	10,000	3,000	3,000	1,50,000		
20,000	—	—	—	—	—	—	10,000	—	—	—	—	—	100	100	2,000	000	20,000		
6,770	—	00	—	—	—	—	3,000	—	—	—	—	—	00	000	—	700	6,770		
1,80,000	000	10,000	10,000	—	—	—	1,00,000	2,000	1,700	2,700	2,000	200	10,000	10,000	3,000	3,000	1,80,000		
2,50,000	100	10,000	10,000	—	—	—	70,000	2,000	2,000	100	2,000	100	10,000	10,000	3,000	3,000	2,50,000		
1,00,000	000	1,00,000	100	2,700	—	—	60,000	11,000	1,000	50	2,000	000	10,000	1,00,000	10,000	10,000	1,00,000		
10,000	—	10,000	10,000	10,000	—	—	—	2,000	000	—	—	—	400	2,000	2,000	2,000	10,000		
2,50,000	100	10,000	10,000	—	—	—	10,000	17,000	711	2,000	2,000	200	10,000	10,000	1,100	1,100	2,50,000		
8,00,000	000	1,00,000	20,000	10,000	—	—	1,00,000	10,000	2,000	2,000	2,000	1,000	10,000	1,00,000	1,00,000	1,00,000	8,00,000		
7,00,000	6,000	2,70,000	—	10,000	—	—	40,000	60,000	6,000	100	10,000	—	10,000	2,00,000	2,00,000	20,000	7,00,000		
4,00,000	100	1,00,000	20,000	—	—	—	10,000	10,000	100	—	4,000	100	10,000	1,00,000	1,00,000	2,000	4,00,000		
1,00,000	4,000	2,700	10,000	00	—	—	10,000	2,000	1,000	100	2,700	000	10,000	1,00,000	1,00,000	100	1,00,000		
1,00,000	1,000	10,000	10,000	—	—	—	10,000	2,000	100	400	100	—	1,000	1,000	000	000	1,00,000		
10,00,000	12,770	2,70,000	1,00,000	10,000	—	—	2,00,000	10,000	25,000	000	10,000	1,000	1,00,000	1,00,000	1,00,000	10,000	10,00,000		
3,00,000	1,000	10,000	10,000	—	—	—	1,00,000	10,000	2,000	—	6,000	—	10,000	10,000	10,000	10,000	3,00,000		
60,000	—	000	10,000	000	—	—	27,000	5,000	200	—	1,000	1,000	1,000	1,000	1,000	100	60,000		
10,000	—	2,000	1,000	—	—	—	10,000	1,000	—	—	600	500	2,000	10,000	10,000	100	10,000		
8,00,000	1,000	10,000	10,000	000	—	—	2,00,000	10,000	2,000	—	7,000	1,000	10,000	1,00,000	1,00,000	10,000	8,00,000		
2,00,000	2,000	1,10,000	10,000	—	—	—	40,000	17,000	1,000	—	6,000	000	10,000	1,00,000	1,00,000	2,000	2,00,000		
1,00,000	—	10,000	10,000	—	—	—	10,000	10,000	1,000	20	2,000	10	10,000	1,00,000	1,00,000	1,000	1,00,000		
40,000	—	—	—	—	—	—	10,000	2,000	00	100	1,000	—	1,000	1,000	1,000	1,000	40,000		
1,00,000	000	6,000	1,000	—	—	—	10,000	6,000	10	—	2,000	100	1,000	1,000	1,000	100	1,00,000		
6,00,000	4,000	1,70,000	10,000	—	—	—	1,00,000	10,000	2,000	277	10,000	000	10,000	1,00,000	1,00,000	10,000	6,00,000		
70,000	—	11,000	—	4,000	—	—	6,000	2,000	—	00	1,000	100	2,000	2,000	2,000	000	70,000		
2,00,000	000	1,00,000	10,000	—	—	—	40,000	10,000	700	100	2,000	700	10,000	1,00,000	1,00,000	1,000	2,00,000		
10,000	—	000	4,000	000	—	—	4,000	2,000	—	—	377	170	1,000	1,000	1,000	100	10,000		
60,000	400	10,000	10,000	1,000	—	—	10,000	6,000	000	00	1,000	100	1,000	1,000	1,000	1,000	60,000		
3,10,000	000	1,00,000	10,000	2,000	—	—	10,000	10,000	1,000	100	1,000	1,000	1,000	1,00,000	1,00,000	1,000	3,10,000		
1,70,00,000	71,000	67,01,700	10,17,100	1,10,000	—	—	17,10,100	10,00,000	1,10,000	10,000	1,10,000	10,000	1,10,000	1,10,00,000	1,10,00,000	1,10,000	1,70,00,000		

STATEMENT
CENTRAL BANKS—

Classification.	ASSETS.								
	Own in hand and bank.	Market value of invest-ments.	Loans due by members (Individuals).	Loans due by banks and societies.	Interest accrued to the bank	Present value of stock in hand.	Other Items	Total.	
	1	2	3	4	5	6	7	8	9
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
(a) PROVINCIAL BANK.									
The Bengal Provincial Co-operative Bank, Limited.	23,340	25,69,876	..	28,81,080	1,41,812	972	42,638	56,59,738	
(b) CENTRAL BANKS.									
Burdwan—									
1. Burdwan Central Co-operative Bank, Limited.	18,638	1,728	..	1,32,892	6,100	694	60,797	2,30,594	
2. Kalna Central Co-operative Bank, Limited.	5,289	1,353	..	88,251	1,702	251	196	1,06,919	
Total ...	23,927	3,081	..	2,21,143	7,802	945	60,993	3,37,513	
Birbhum—									
1. Birbhum Central Co-operative Bank, Limited.	6,079	10,876	..	2,76,893	14,810	7,489	32,051	3,48,107	
2. Birbhum Central Co-operative Bank, Limited.	1,510	2,744	..	1,25,363	6,359	465	3,043	1,38,284	
Total ...	7,589	13,620	..	4,02,256	21,069	7,954	35,094	4,86,491	
Bankura—									
1. Bankura Central Co-operative Bank, Limited.	1,001	..	..	5,752	408	141	3,318	10,620	
2. Bankura Central Co-operative Irrigation and Financing Bank, Limited.	10,503	1,000	..	35,988	829	184	61	48,543	
Total ...	11,504	1,000	..	41,740	1,237	325	3,379	59,163	
Midnapore—									
1. Midnapore Central Co-operative Bank, Limited.	3,031	32,868	..	2,62,446	5,408	41	92,291	2,75,884	
2. Kheolar Belarampur Central Co-operative Union, Limited.	930	6,890	..	1,32,695	2,998	378	3,807	1,47,693	
3. Bembura Co-operative Union, Limited.	4,408	..	..	1,03,357	2,077	27	8,221	1,18,090	
4. Tamalik Central Co-operative Bank, Limited.	1,162	4,000	..	98,170	3,968	168	4,631	1,11,047	
5. Mugberia Central Bank, Limited.	1,266	..	..	97,688	770	..	6,078	1,05,709	
Total ...	10,805	43,758	..	6,94,356	14,119	605	1,16,118	8,56,255	
Howrah—									
1. Howrah Central Co-operative Bank, Limited.	283	..	..	8,384	1,566	31	72	10,816	
2. Ujberia Central Co-operative Union Bank, Limited.	1,375	405	..	18,130	1,930	105	55	21,880	
Total ...	1,658	405	..	26,514	3,496	136	127	32,706	
Hooghly—									
1. Hooghly Central Co-operative Bank, Limited.	468	654	..	14,212	417	..	..	15,751	
24 Parganas—									
1. Taki Central Co-operative Bank, Limited.	119	23,804	..	1,45,238	4,760	1,328	2,052	1,77,044	
2. Nimta Co-operative Banking Union, Limited.	55	4,908	..	13,843	317	..	623	19,746	
3. Diamond Harbour Central Co-operative Bank, Limited.	168	850	..	5,093	72	129	33	6,833	
4. Barasat Central Co-operative Bank, Limited.	676	..	..	27,917	268	52	3,476	31,421	
Total ...	1,001	29,562	..	1,92,081	5,317	1,500	3,118	2,34,098	
Nadia—									
1. Nadia Central Co-operative Bank, Limited.	17,165	14,383	..	2,35,545	14,667	728	57,622	2,40,310	
2. Kusandia Central Co-operative Bank, Limited.	103	58	..	5,989	2,264	326	61,678	1,16,618	
3. Meherpur Central Co-operative Bank, Limited.	2,504	1,223	..	98,532	2,098	643	18,291	1,20,279	
4. Rangghat Central Co-operative Bank, Limited.	3,571	..	..	43,880	978	148	1,289	49,846	
5. Chondanga Central Co-operative Bank, Limited.	677	..	..	58,602	2,149	863	1,151	60,942	
Total ...	26,020	16,674	..	4,86,628	22,256	2,307	1,35,221	6,07,996	

H.

BALANCE SHEET.

LIABILITIES.												
Loans and deposits from members and non members in an individual capacity.	Loans and deposits from Provincial and Central Banks.	Loans and deposits from societies.	Loans from Government.	Share capital paid-up.	Interest due by the bank.	Cost of management due.	Other items.	Reserve fund under Section 33 of Act II of 1913.	Other funds, e.g., building fund, etc.	Other undistributed profits carried forward.	Total.	Profit+ and Loss- (Column 14 Profit and Loss Statement)
10	11	12	13	14	15	16	17	18	19	20	21	22
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
19,48,258	8,88,001	2,84,787	..	4,57,225	45,982	5	18,98,667	51,372	52,226	989	56,18,202	+41,526
17,745	..	..	..	32,280	2,821	209	789	2,925	39	297	2,17,176	+ 2,418
76,933	18,500	..	..	12,250	2,865	84	..	880	470	1	1,04,522	+ 1,887
2,54,677	12,500	..	..	44,810	5,688	988	789	2,245	509	298	2,22,798	+ 4,805
2,70,283	..	2,786	..	28,760	8,012	254	4,342	8,833	10,298	9	2,48,817	+ 4,880
58,808	15,000	..	..	27,670	4,280	418	881	2,010	784	1	1,57,550	+ 1,734
2,56,889	15,000	2,786	..	66,730	12,292	672	4,872	10,903	11,082	10	4,81,187	+ 6,314
7,840	..	147	..	1,560	642	2	121	99	..	..	10,408	+ 218
22,118	10,000	..	..	24,180	858	15	61	90	..	..	46,997	+ 1,846
19,652	10,000	147	..	24,110	1,100	18	128	189	..	..	57,399	+ 1,768
2,84,060	..	..	..	81,640	15,776	230	48,122	10,550	5,888	1	2,88,508	+ 9,881
86,729	57,981	..	..	18,730	1,590	89	4,728	2,400	649	22	1,44,491	+ 2,001
40,285	48,888	..	..	15,650	1,286	122	4,921	4,550	2,584	106	1,16,872	+ 1,718
44,301	39,200	95	..	17,125	1,745	84	1,195	1,800	1,900	594	1,08,599	+ 2,488
43,881	18,900	..	..	10,700	291	..	2,688	..	..	..	1,05,340	+ 822
4,41,050	1,89,640	1,120	..	98,845	20,688	526	62,655	20,200	10,721	894	8,41,206	+16,960
2,250	..	..	..	4,888	92	65	..	418	1,000	258	10,187	+ 149
17,059	..	..	..	2,870	618	10	148	429	192	..	21,121	+ 259
20,409	..	..	..	7,552	711	78	142	864	1,122	258	21,298	+ 404
8,200	..	..	..	2,268	90	..	2	642	146	222	14,779	+ 972
1,09,422	10,000	722	..	24,880	2,600	491	10,460	2,025	6,032	..	1,72,768	+ 2,221
15,082	..	..	..	2,022	286	..	224	1,009	..	100	19,206	+ 440
1,220	2,260	..	..	520	267	..	22	..	..	..	2,579	- 47
2,775	22,200	..	..	2,425	412	29	..	..	..	..	21,201	+ 220
1,29,229	27,000	722	..	21,190	4,075	220	11,216	2,024	6,032	100	2,20,149	+ 2,944
2,87,677	..	..	..	29,525	7,022	278	2,122	7,220	2,186	217	2,26,688	+ 2,622
78,268	..	..	..	12,622	1,512	262	10,227	1,000	291	..	2,12,116	+ 1,202
52,268	40,008	..	..	17,542	1,270	121	720	2,200	2,400	77	1,12,928	+ 1,251
25,462	15,402	..	..	5,624	922	..	..	126	102	..	42,712	+ 1,127
5,241	44,120	..	..	5,472	2,672	22	214	..	..	..	56,272	+ 1,224
4,21,627	29,228	..	..	72,042	14,642	711	22,272	11,225	6,212	294	6,78,200	+ 2,202

STATEMENT
CENTRAL BANKS—

Classification.	ASSETS.							
	Cash in hand and bank.	Market value of investment.	Loans due by members (individuals)	Loans due by banks and societies.	Interest accrued to the bank.	Present value of stock in hand.	Other items.	Total.
1	2	3	4	5	6	7	8	9
CENTRAL BANKS—continued.								
Jessore—								
1. Jessore Central Co-operative Bank, Limited.	4,067	59,888	..	1,62,772	7,199	940	8,014	2,42,360
2. Magura Central Co-operative Bank, Limited.	1,676	2,800	..	63,251	2,439	567	3,686	73,121
3. Narail Central Co-operative Bank, Limited.	1,502	1,600	..	91,177	2,801	378	5,858	1,04,411
Total	7,245	64,288	..	2,17,100	12,439	1,885	14,758	4,10,912
Khulna—								
1. Barisal Central Co-operative Bank, Limited.	185	18,614	..	77,419	2,600	802	339	99,872
2. Khulna Central Co-operative Bank, Limited.	1,701	..	..	1,65,928	4,788	189	54,673	2,27,178
3. Bagerhat Central Co-operative Bank, Limited.	2,929	2,835	..	92,501	2,544	342	3,401	1,04,835
Total	4,805	21,449	..	2,35,848	9,932	1,333	58,328	4,31,483
Murshidabad—								
1. Jaugipur Central Co-operative Bank, Limited.	4,316	6,304	..	96,627	5,482	139	316	1,12,093
2. Berhampore Central Co-operative Bank, Limited.	3,086	9,850	..	1,91,207	3,907	755	27,102	2,36,116
3. Lalbag Central Co-operative Bank, Limited.	4,843	3,855	..	1,34,068	9,184	182	2,274	1,51,304
4. Kanail Central Co-operative Bank, Limited.	384	1,700	..	41,114	988	45	25	44,366
Total	12,729	21,609	..	2,63,016	19,561	1,121	32,717	5,47,779
Dacca—								
1. Dacca Central Co-operative Bank, Limited.	14,841	55,771	..	4,11,632	27,717	480	2,137	5,12,548
2. Birkampur Central Co-operative Bank, Limited.	1,502	9,600	..	1,78,016	10,614	260	634	2,01,606
3. Manikganj Central Co-operative Bank, Limited.	6,497	2,900	..	90,495	5,821	212	1,026	1,06,761
4. Narayanganj Central Co-operative Bank, Limited.	9,371	19,000	..	2,28,020	11,322	339	2,023	2,68,985
5. Rajshahi Central Co-operative Bank, Limited.	No transaction.	..	..	..	..	..	..	..
Total	32,582	87,271	..	2,07,173	55,474	1,121	6,829	10,90,200
Mymensingh—								
1. Mymensingh Central Co-operative Bank, Limited.	56,710	14,275	..	10,72,948	66,837	27,071	4,636	12,41,527
2. Jamalpur Central Co-operative Bank, Limited.	5,338	79,061	807	2,77,686	18,822	7,466	1,128	4,90,708
3. Tangail Central Co-operative Bank, Limited.	5,989	10,500	..	2,36,366	20,333	627	6,904	4,03,219
4. Kishoreganj Central Co-operative Bank, Limited.	4,194	31,235	..	1,46,416	10,174	320	1,277	2,42,626
5. Netrakona Central Co-operative Bank, Limited.	338	10,000	..	1,07,915	4,750	217	122	1,23,351
6. Madaripur Central Co-operative Bank, Limited.	297	38,822	..	77,204	2,981	482	..	1,19,487
7. Dhansiri Central Co-operative Bank, Limited.	No transaction.	..	..	..	..	..	..	..
8. Pingna Central Co-operative Bank, Limited.	Ditto.	..	..	..	..	..	..	..
Total	73,858	1,85,894	807	21,89,725	1,23,366	36,093	14,173	26,51,013
Bakarganj—								
1. Barisal Central Co-operative Bank, Limited.	29,791	59,627	..	6,71,095	12,706	1,222	299	7,74,809
2. Patuakhali Central Co-operative Bank, Limited.	2,829	3,650	..	1,12,787	4,474	1,504	783	1,35,266
3. Khepura Central Co-operative Bank, Limited.	11,311	10,300	..	5,44,719	21,960	4,543	11,300	6,04,032
4. Bhoja Central Co-operative Bank, Limited.	9,381	2,000	..	20,916	717	226	..	22,242
Total	53,322	75,577	..	13,49,517	39,857	7,455	12,382	15,36,349
Faridpur—								
1. Faridpur Central Co-operative Bank, Limited.	417	88,410	1,343	4,54,587	61,006	1,790	2,515	6,20,067
2. Madaripur Central Co-operative Bank, Limited.	6,199	55,808	..	2,49,699	58,628	681	2,548	3,74,859
3. Gopalganj Central Co-operative Bank, Limited.	13,650	20,700	..	2,00,864	23,460	212	5,609	3,74,306
4. Goalando Central Co-operative Bank, Limited.	306	93,708	..	2,24,611	17,465	992	2,782	2,40,855
Total	20,482	2,68,626	1,343	12,70,761	1,60,578	2,675	16,356	17,19,817
Chittagong—								
1. Chittagong Central Co-operative Bank, Limited.	22,702	20,020	..	1,84,896	2,904	690	981	2,42,203
2. Cox's Bazar Central Co-operative Bank, Limited.	No transaction.	..	..	..	..	..	..	..
Total	22,702	20,020	..	1,84,896	2,904	690	981	2,42,203

H.

BALANCE SHEET.

LIABILITIES.												
Loans and deposits from non-members and members in an individual capacity.	Loans and deposits from provincial and central banks.	Loans and deposits from societies.	Loans from Government.	Share capital paid up.	Interest due by the bank.	Cost of management due.	Other items.	Reserved fund under section 33 of Act II of 1912.	Other funds, e.g., building fund, etc.	Other undistributed profits carried forward.	Total	Profit + and Loss - (column 14 Profit and Loss statement).
10	11	12	13	14	15	16	17	18	19	20	21	22
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1,86,378	...	...	...	29,578	8,077	128	5,220	8,047	7,359	18	2,36,685	+ 2,695
27,306	22,048	...	...	9,150	1,972	287	315	244	250	17	71,626	+ 1,496
40,920	49,018	...	...	10,540	1,200	282	704	141	...	18	1,02,881	+ 1,280
2,84,592	71,081	...	...	49,268	8,889	607	8,289	8,432	7,609	48	4,14,192	+ 5,720
59,614	...	942	...	15,080	2,202	187	9,289	7,260	5,537	...	98,266	+ 1,616
1,77,705	...	...	...	20,020	2,664	822	2,276	4,544	5,220	20	2,22,871	+ 4,308
72,886	8,000	2,186	...	15,090	2,150	208	1,862	1,496	1,170	8	1,02,504	+ 1,781
8,10,496	5,000	4,127	...	52,140	7,017	727	12,021	12,289	11,927	26	4,22,722	+ 7,702
79,299	...	202	...	16,146	2,929	162	295	4,708	4,677	...	1,10,684	+ 2,409
1,82,065	...	228	...	29,770	2,277	702	5,619	5,800	2,259	41	2,20,262	+ 5,224
1,09,007	19,800	...	...	15,925	2,729	226	1,487	2,222	950	71	1,51,768	+ 2,628
1,066	27,028	...	...	4,765	1,011	10	28	...	...	...	44,012	+ 294
8,71,486	56,568	741	...	62,205	10,716	1,112	7,729	12,756	7,896	112	4,37,226	+ 10,412
2,40,228	...	922	...	72,420	11,922	227	18,504	26,201	18,284	40	4,22,774	+ 12,774
64,291	95,000	...	...	27,040	5,804	120	276	2,602	940	10	1,22,229	+ 2,614
72,428	11,000	600	...	12,140	2,012	146	71	1,950	1,890	...	1,04,197	+ 2,664
25,877	1,00,000	166	...	22,725	2,227	424	1,402	2,025	1,025	...	2,62,541	+ 2,244
8,22,222	2,97,000	1,222	...	1,22,222	2,022	1,022	20,222	22,222	22,022	20	10,22,222	+ 22,222
8,61,222	...	65,612	...	1,24,122	2,122	222	22,222	22,022	21,412	...	1,12,222	+ 22,222
2,24,122	20,000	2,222	...	27,222	2,222	222	27,222	21,222	16,222	1,222	4,22,222	+ 2,222
1,72,122	20,000	22,222	...	21,222	22,222	222	10,222	7,122	8,022	61	2,22,222	+ 2,222
1,21,122	10,000	4,222	...	27,222	2,222	222	222	2,222	2,022	114	2,22,222	+ 2,022
1,000	1,00,000	2,022	...	12,222	2,222	120	222	...	...	...	1,22,222	+ 200
2,000	75,700	220	...	8,220	2,000	...	22,222	...	...	...	1,12,222	+ 222
14,72,722	2,60,700	1,22,712	...	2,22,222	21,122	2,422	1,24,070	22,222	27,222	1,222	22,22,222	+ 24,222
8,22,222	...	...	...	22,222	12,122	222	2,222	12,222	11,122	22	7,22,172	+ 16,222
22,222	20,000	222	...	17,102	2,011	222	1,222	2,222	2,222	...	1,21,222	+ 2,222
20,712	4,01,222	...	...	27,222	2,222	222	1,222	16,010	22,222	...	2,22,222	+ 19,222
2,000	20,000	2,222	...	2,222	222	...	...	...	...	...	22,222	+ 222
7,70,222	4,41,222	2,222	...	27,222	21,222	1,222	7,222	22,222	20,222	22	14,22,222	+ 20,222
4,42,222	...	2,222	...	22,222	19,222	...	12,101	22,222	24,222	6	6,12,222	+ 12,070
2,22,222	44,222	721	...	20,222	12,222	222	12,222	16,222	1,222	...	2,22,222	+ 717
1,72,222	20,000	220	...	22,222	12,222	222	12,222	12,222	14,222	22	2,22,222	+ 7,222
2,22,222	...	...	...	22,222	2,222	222	2,222	2,222	2,222	...	2,22,222	+ 2,222
11,22,222	1,24,222	2,222	...	1,27,122	22,222	1,222	22,222	22,222	22,222	22	12,22,222	+ 22,222
1,41,222	22,000	12,222	...	21,222	2,222	22	222	2,222	1,222	19	2,22,222	+ 4,104
1,41,222	22,000	12,222	...	21,222	2,222	22	222	2,222	1,222	19	2,22,222	+ 4,104

STATEMENT
CENTRAL BANKS—

Classification	ASSETS.							
	Cash in hand and bank.	Market value of investment.	Loans due by members (individuals)	Loans due by banks and societies.	Interest accrued to the bank.	Present value of stock in hand.	Other items.	Total.
	2	3	4	5	6	7	8	9
(5) CENTRAL BANKS—concluded.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Tippera—								
1. Comilla Central Co-operative Bank, Limited.	22,347	46,457	...	5,05,526	27,313	1,550	57,348	6,60,561
2. Brahmanbaria Central Co-operative Bank, Limited.	1,785	60,072	..	3,04,377	21,040	725	0,490	3,97,407
3. Chaudpur Central Co-operative Bank, Limited.	4,168	25,707	...	4,90,485	27,010	465	2,540	5,51,356
4. Tippera Raj Central Co-operative Bank, Limited.	913	1,000	...	69,334	2,171	...	...	73,408
5. Matlab Central Co-operative Bank, Limited.	790	7,500	...	77,150	2,787	390	44	88,641
Total ...	30,973	1,40,826	..	14,47,082	81,280	3,131	69,431	17,71,673
Nonkhali—								
1. Nonkhali Central Co-operative Bank, Limited.	2,886	4,400	..	1,86,714	4,903	173	530	1,61,005
2. Feni Central Co-operative Bank, Limited.	5,302	28,273	...	2,60,866	8,926	745	3,067	3,06,189
3. Sandip Central Co-operative Bank, Limited.	3,217	6,850	...	83,370	1,743	239	114	94,623
4. Lakshmapur Central Co-operative Bank, Limited.	4,460	3,500	...	32,947	743	250	121	42,040
Total ..	15,865	43,023	...	5,14,917	16,323	1,407	3,832	5,94,457
Dinajpur—								
1. Balirghat Central Co-operative Bank, Limited.	2,185	11,400	..	1,86,699	6,310	207	3,242	2,11,343
2. Dinajpur Central Co-operative Bank, Limited.	932	3,000	...	12,700	572	338	..	22,543
3. Thakurgaon Central Co-operative Bank, Limited.	799	..	..	8,355	193	20	..	4,767
Total ..	3,776	13,400	...	2,08,854	7,075	565	3,242	2,38,643
Maldia—								
1. Maldia Central Co-operative Bank, Limited.	27,150	12,051	...	1,31,936	7,557	731	584	3,39,109
Rajshahi—								
1. Rajshahi Central Co-operative Bank, Limited.	13,955	3,500	...	1,04,466	7,109	500	1,737	2,35,247
2. Puthia Central Co-operative Bank, Limited.	7,105	25	...	26,507	1,426	161	1,037	40,061
3. Navar Central Co-operative Bank, Limited.	6,104	6,600	...	1,52,566	13,173	8,870	559	1,90,161
4. Naogaon Central Co-operative Bank, Limited.	1,171	16,975	..	2,98,264	16,667	120	9,101	3,43,198
Total ..	28,335	27,100	...	6,82,563	40,276	2,960	12,724	6,04,667
Pabna—								
1. Pabna Central Co-operative Bank, Limited.	28,849	2,44,288	...	8,69,587	1,20,101	1,735	4,600	12,79,149
2. Sarajganj Central Co-operative Bank, Limited.	3,508	8,856	..	3,06,189	16,186	1,437	1,808	3,26,496
3. Ullapara Central Co-operative Bank, Limited.	105	12,128	..	1,47,304	7,893	223	1,118	1,69,800
4. Shariatpur Central Co-operative Bank, Limited.	407	3,000	...	84,852	4,494	321	988	94,960
Total ..	33,869	2,68,272	...	14,07,932	1,58,674	3,745	8,021	16,79,397
Bogra—								
1. Bogra Central Co-operative Bank, Limited.	10,075	7,363	...	4,30,091	23,275	1,001	3,758	4,64,678
2. Khatyanpur Central Co-operative Bank, Limited.	190	5,578	..	60,648	3,525	453	4,940	94,236
3. Padmapara Central Co-operative Bank, Limited.	10	6,300	...	66,741	3,829	500	1,550	80,930
Total ..	10,275	19,241	...	5,60,480	28,729	1,954	10,143	6,39,844
Rangpur—								
1. Rangpur Central Co-operative Bank, Limited.	7,343	61,129	..	2,48,355	26,222	1,200	973	3,45,222
2. Gaibandha Central Co-operative Bank, Limited.	9,672	43,464	...	2,39,866	24,239	1,427	20,149	3,37,707
3. Korigram Central Co-operative Bank, Limited.	6,428	3,400	...	63,989	3,277	28	743	77,663
4. Nilphamari Central Co-operative Bank, Limited.	165	27,737	..	1,31,555	4,149	916	715	1,66,267
Total ...	23,609	1,54,730	...	6,83,765	57,687	3,569	32,539	9,04,069
Jalpaiguri—								
1. Jalpaiguri Central Co-operative Bank, Limited.	491	3,084	...	64,678	3,793	800	521	68,667
Darjeeling—								
1. Kalimpong Central Co-operative Union Bank, Limited.	5,791	14,552	..	2,13,236	13,180	26,121	3,180	2,76,060
2. Darjeeling Central Co-operative Banking Union, Limited.	10	7,067	...	41,043	2,455	180	603	51,311
3. Padam Central Co-operative Bank, Limited.	2,829	13,773	..	77,475	4,019	478	751	99,027
Total ..	8,630	35,392	...	3,31,754	19,654	26,779	4,534	4,36,288
Total Central Banks ...	4,89,814	15,46,578	1,650	1,51,30,923	9,46,241	1,19,430	8,44,204	1,68,77,666

H.
BALANCE SHEET.

LIABILITIES.												
Loans and deposits from members and non-members in an individual capacity.	Loans and deposits from Provincial and Central Banks.	Loans and deposits from societies.	Loans from Government.	Share capital paid-up.	Interest due by th: bank.	Cost of management due.	Other items	Reserve fund under section 33 of Act II of 1912.	Other funds, e.g. buildings fund, etc.	Other undistributed profits carried forward.	Total	Profit + and loss (column 14, Profit and Loss Statement).
10	11	12	13	14	15	16	17	18	19	20	21	22
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
4,85,088	...	8	...	93,600	23,323	106	9,691	25,923	6,118	210	6,44,003	+ 16,868
2,90,845	...	...	...	85,010	12,844	823	30,300	14,621	6,049	20	3,90,522	+ 6,825
4,19,864	48,000	...	...	48,700	2,281	867	4,693	14,500	5,557	72	5,40,334	+ 11,022
86,603	19,910	2,000	...	8,350	1,511	...	3,848	414	...	743	70,408	+ 3,008
2,921	75,000	...	...	7,875	2,217	55	180	...	...	...	88,228	+ 413
12,38,320	1,38,910	2,008	...	1,91,435	48,805	1,651	44,600	55,507	17,622	1,045	17,33,492	+ 39,180
82,627	39,000	17	...	18,065	4,027	62	444	4,520	8,620	85	1,46,287	+ 5,068
1,28,607	97,000	2,980	...	37,565	11,178	241	2,608	10,000	7,046	14	2,29,317	+ 7,672
9,274	87,000	20	...	14,685	1,750	44	25	22	...	10	92,949	+ 1,784
1,023	35,000	...	...	4,560	1,240	...	...	...	...	...	41,823	+ 128
2,18,650	2,27,000	4,008	...	74,855	18,198	447	6,075	14,672	15,866	109	2,70,685	+ 14,872
48,148	1,14,000	...	...	26,220	2,471	240	7,445	4,254	3,123	119	2,07,198	+ 4,045
170	20,000	...	...	1,910	582	...	...	...	...	...	22,642	+ 200
2,980	...	...	...	875	78	...	...	...	...	...	4,988	+ 59
52,268	1,24,000	...	...	28,918	4,108	240	7,445	4,254	3,123	119	2,24,238	+ 4,304
1,52,557	20,280	78	...	24,214	10,225	633	825	2,270	928	...	2,24,222	+ 4,621
1,88,323	280	2,544	...	18,220	4,244	217	4,251	2,720	1,483	...	2,22,822	+ 2,585
12,247	26,620	...	...	5,020	812	74	240	628	150	...	45,908	+ 123
69,807	76,000	7,000	...	22,850	4,222	218	1,229	6,201	694	...	1,26,823	+ 2,229
71,872	1,28,220	22,023	...	25,624	7,222	104	2,722	2,222	4,622	1,012	2,26,622	+ 7,277
2,25,240	2,26,620	22,023	...	22,624	18,012	712	2,722	18,624	8,210	1,012	2,21,012	+ 18,624
9,03,922	...	28,722	...	1,17,722	10,212	2,212	48,202	61,222	82,012	...	1,21,612	+ 17,422
2,72,670	...	...	...	22,620	16,224	210	2,222	4,220	1,222	...	2,22,222	+ 2,222
22,222	28,720	22	...	18,120	7,124	80	1,217	5,042	4,224	21	1,26,242	+ 1,221
28,622	20,000	...	...	9,220	2,447	410	1,127	1,122	1,222	...	22,722	+ 1,222
12,48,222	1,27,102	28,622	...	1,77,920	26,621	2,202	60,227	71,214	89,722	21	1,84,672	+ 24,622
2,65,222	...	...	...	22,222	6,127	224	6,712	2,222	11,022	...	4,22,222	+ 2,211
24,212	22,000	...	...	9,200	1,201	77	202	222	1,022	...	22,222	+ 1,022
4,020	22,220	...	...	2,240	2,022	22	240	200	...	6	22,724	+ 2,122
2,26,222	1,12,200	...	...	74,222	2,624	272	7,024	2,222	12,222	2	2,27,222	+ 12,212
2,26,220	20,000	...	...	22,242	10,002	221	4,670	6,207	7,014	2	2,29,224	+ 2,222
1,26,222	22,222	...	...	22,200	2,222	222	21,221	11,420	12,224	...	2,22,222	+ 2,222
26,000	...	...	...	12,222	2,272	224	1,022	1,722	1,722	120	22,222	+ 1,224
21,224	22,200	...	...	21,222	2,712	212	627	2,221	4,070	...	1,24,222	+ 702
2,42,672	1,22,622	...	...	22,222	24,640	1,022	27,227	22,410	26,270	120	2,24,622	+ 11,022
12,241	21,000	2,212	...	2,020	2,227	124	122	722	1,772	...	22,772	+ 22
1,42,620	22,221	...	...	22,222	2,242	222	2,420	11,027	14,120	...	2,72,702	+ 2,242
24	22,222	1,022	...	2,220	222	44	1,210	1,242	122	...	21,222	+ 122
11,222	24,700	...	...	12,142	2,272	17	2,422	2,220	2,720	17	27,717	+ 1,210
1,22,220	1,22,227	1,022	...	20,712	12,024	222	2,627	21,222	17,027	17	4,21,444	+ 2,222
1,12,21,622	27,22,114	2,22,721	...	21,24,222	4,72,622	21,222	2,14,722	2,22,222	4,22,222	2,222	1,22,21,221	+ 2,22,712

* Based on audited figures.

STATEMENT

CENTRAL BANKS—PROFIT

Classification	Profit brought forward from the last year.	PROFIT.				
		Interest accrued.	By sale of goods to members	By purchase and sale of members' products.	Other items.	Total.
1	2	3	4	5	6	7
(a) PROVINCIAL BANK.						
The Bengal Provincial Co-operative Bank, Limited	989	3,18,448	...	..	10,389	3,29,737
(b) CENTRAL BANK.						
Burdwan—						
1. Burdwan Central Co-operative Bank, Limited	297	18,577	..	...	381	19,958
2. Kalna ditto	1	7,054	..	..	156	7,210
Total	298	25,631	..	..	537	26,168
Birbhum—						
1. Rampurhat Central Co-operative Bank, Limited	9	24,928	..	..	3,200	27,218
2. Birbhum ditto	1	9,416	..	..	352	9,768
Total	10	34,344	..	..	3,552	37,896
Bankura—						
1. Baidyapur Central Co-operative Bank, Limited	...	838	..	..	40	878
2. The Bankura Central Co-operative Irrigation and Financing Bank, Limited.	...	2,415	..	..	846	3,261
Total	..	3,253	..	..	886	4,139
Midnapore—						
1. Midnapore Central Co-operative Bank, Limited	1	27,844	..	...	380	28,174
2. Kheiser Bazarampur ditto	35	10,377	..	..	615	10,892
3. Bolebarn Co-operative Union, Limited	100	10,042	..	..	202	10,344
4. Tamuk Central Co-operative Bank, Limited	584	9,482	..	..	169	9,651
5. Mugheria Central Co-operative Bank, Limited	..	769	..	..	..	769
Total	694	58,414	..	..	1,317	59,731
Howrah—						
1. Howrah Central Co-operative Bank, Limited	888	563	..	..	..	563
2. Uluberia Central Co-operative Union Bank Limited	...	1,790	..	...	80	1,870
Total	888	2,353	..	..	80	2,413
Hooghly—						
1. Hooghly Central Co-operative Bank, Limited	222	1,808	..	...	00	1,896
24-Portanna—						
1. Taki Central Co-operative Bank, Limited	...	15,158	..	...	1,052	16,210
2. Nitta Co-operative Banking Union, Limited	100	1,552	..	..	132	1,684
3. Diamond Harbour Central Co-operative Bank, Limited	...	848	..	..	84	932
4. Barasat Central Co-operative Bank, Limited	...	767	..	..	194	961
Total	100	17,893	..	...	1,472	19,299
Nadia—						
1. Nadia Central Co-operative Bank, Limited	217	25,983	..	..	488	26,471
2. Kushtia ditto	..	4,325	..	..	5,820	7,155
3. Meherpur ditto	77	9,965	..	...	1,007	10,672
4. Bamughat ditto	...	2,330	..	..	247	2,577
5. Chuadanga ditto	...	6,158	..	...	189	6,347
Total	294	47,371	..	..	6,721	54,092
Jessore—						
1. Jessore Central Co-operative Bank, Limited	18	19,406	..	...	292	20,148
2. Masura ditto	17	6,202	..	..	264	6,448
3. Narail ditto	16	9,931	..	..	152	10,083
Total	48	35,539	..	...	688	36,227
Khulna—						
1. Barul Central Co-operative Bank, Limited	..	9,578	..	...	371	9,949
2. Khulna ditto	20	20,208	..	..	144	20,412
3. Bagerhat ditto	8	9,694	..	..	488	10,182
Total	28	39,480	..	...	1,003	40,483
Murshidabad—						
1. Jangipur Central Co-operative Bank, Limited	...	8,336	..	..	321	8,717
2. Berhampore ditto	41	20,070	..	...	448	20,518
3. Lalbagh ditto	71	12,650	..	...	335	13,075
4. Kandi ditto	...	1,360	..	...	876	1,736
Total	112	42,316	..	...	1,440	43,756
Dacca—						
1. Dacca Central Co-operative Bank, Limited	40	40,438	..	..	1,597	42,035
2. Bikrampur ditto	10	14,070	..	...	758	14,828
3. Manikganj ditto	..	9,080	..	...	385	9,465
4. Narayanganj ditto	...	16,390	..	..	2,099	18,489
5. Raipura ditto	...	No transaction	..	...	...	...
Total	60	81,978	..	...	4,749	86,727
Mymensingh—						
1. Mymensingh Central Co-operative Bank, Limited	...	1,14,802	..	...	1,811	1,16,613
2. Jamalpur ditto	1,853	66,072	..	...	274	67,129
3. Tangail ditto	61	22,238	..	...	294	22,532
4. Kishoriganj ditto	114	18,639	..	...	479	19,118
5. Noakhata ditto	...	5,573	..	...	170	5,743
6. Madaraj ditto	..	8,058	..	..	80	8,138
7. Pingra ditto	...	No transaction	..	...	...	...
8. Dhansbari ditto	...	Ditto	..	...	...	...
Total	1,728	2,19,880	..	...	2,847	2,22,727

AND LOSS STATEMENT.

Loss.						Net profit + or loss - (column 7 of balance sheet).	Amount of column 7 actually received.	Amount of column 15 actually disbursed.	
Interest due.	Cost of manage- ment paid and due.	Provision for bad and doubtful debts.	Depreciation of stock and buildings.	Other items.	Total.				
9	10	11	12	13	14	15	16		
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.		
2,68,648	11,488	...	...	10,101	2,87,311	+	41,626	2,69,664	1,46,098
6,884	8,087	...	55	664	16,540	+	2,418	9,252	7,100
4,906	714	...	30	184	6,828	+	1,867	5,785	5,001
11,790	8,781	...	75	748	16,968	+	4,806	16,047	12,102
17,092	4,179	...	854	1,078	22,888	+	4,680	30,759	20,270
6,092	2,964	...	1	300	8,054	+	1,784	3,597	2,388
23,114	6,890	...	855	1,878	30,872	+	6,314	24,168	28,608
464	40	...	95	61	660	+	318	451	322
678	1,018	...	40	91	1,716	+	1,645	2,371	1,148
1,087	1,058	...	144	143	2,376	+	1,768	3,893	1,488
16,920	2,296	...	5	472	19,703	+	9,381	22,709	2,265
5,743	1,718	...	25	406	7,892	+	8,001	7,794	6,312
8,809	1,890	...	...	897	9,596	+	1,718	8,094	7,118
28,532	922	...	...	208	7,153	+	2,468	6,569	6,132
890	117	...	...	...	407	+	363	...	117
24,014	7,188	...	44	1,870	42,781	+	16,980	46,046	23,048
818	90	...	...	...	414	+	149	477	265
1,175	249	...	45	123	1,651	+	359	1,857	868
1,490	868	...	45	123	2,005	+	408	2,074	1,219
396	97	...	...	82	494	+	972	1,132	390
8,908	4,811	...	46	14	12,874	+	8,331	11,339	6,722
1,047	...	...	...	197	1,244	+	460	1,641	1,214
304	36	...	...	149	489	+	47	591	141
876	124	...	...	48	741	+	320	658	248
10,429	4,471	...	46	402	15,248	+	8,944	12,294	10,426
17,228	2,797	...	...	700	20,229	+	2,642	2,804	18,508
1,490	1,847	...	...	807	8,653	+	1,508	2,670	2,787
6,890	1,684	...	...	728	9,331	+	1,581	10,030	9,448
3,077	272	...	...	...	2,300	+	1,127	2,485	1,366
2,964	617	...	...	164	4,743	+	1,264	4,168	397
28,658	6,618	...	81	2,872	42,908	+	9,186	29,987	26,991
11,970	4,914	...	87	528	17,483	+	2,698	20,148	17,496
2,619	1,265	...	...	158	4,041	+	1,496	4,007	2,748
4,489	2,077	...	...	9	6,653	+	1,820	6,681	7,010
21,967	8,246	...	87	687	30,907	+	6,720	20,784	27,268
4,871	2,128	...	48	296	8,223	+	1,618	9,325	7,622
11,282	4,092	...	41	691	16,107	+	4,206	12,516	12,448
4,914	2,120	...	20	278	8,401	+	1,791	9,598	7,880
22,170	6,408	...	104	1,163	32,841	+	7,702	24,779	26,260
4,172	1,822	...	10	34	6,306	+	2,409	7,286	6,062
10,908	2,922	...	...	25	12,294	+	2,224	16,138	10,225
7,944	1,474	...	...	20	10,339	+	2,248	8,601	7,274
1,911	89	...	...	262	1,463	+	264	694	263
24,031	7,308	...	10	69	32,313	+	10,442	27,017	24,248
22,442	4,688	...	...	883	26,220	+	12,774	13,028	16,287
2,243	1,512	...	...	250	11,212	+	2,214	2,120	2,290
2,298	1,220	...	...	262	6,802	+	2,264	2,627	2,714
22,980	8,417	...	...	27	17,065	+	2,264	4,064	2,246
49,822	11,148	...	1,208	2,124	62,428	+	22,226	27,017	22,226
22,226	12,422	...	...	2,704	72,812	+	42,622	60,207	26,276
20,728	8,810	...	...	497	24,323	+	9,021	23,944	19,147
21,224	2,227	...	...	240	27,803	+	4,729	11,600	2,218
2,226	2,608	...	...	22	25,016	+	7,022	9,121	17,246
2,210	1,408	...	...	20	6,248	+	600	686	1,276
2,062	422	...	...	20	2,611	+	601	111	611
...	+
1,14,672	22,277	...	652	2,121	1,67,622	+	64,206	26,276	68,272

STATEMENT

CENTRAL BANK—PROFIT

Classification	Profit brought forward from last year	PROFIT.				Total
		Interest accrued	By sale of goods to members.	By purchase and sale of members' produce	Other items.	
1	2	3	4	5	6	7
(b) CENTRAL BANKS—concd.						
	Rs.	Rs.			Rs.	Rs.
Bakarganj—						
1. Barisal Central Co-operative Bank, Limited	58	58,320	...	...	1,931	60,151
2. Patuakhali ditto	...	12,768	...	...	809	18,127
3. Kheupara ditto	...	50,685	...	...	249	60,014
4. Bhoia ditto	...	722	...	...	65	776
Total	58	1,31,486	...	...	2,608	1,34,087
Faridpur—						
1. Faridpur Central Co-operative Bank, Limited	6	48,614	...	...	2,293	50,908
2. Madaripur ditto	...	24,216	...	...	29,214	51,130
3. Gopalganj ditto	83	32,414	...	...	3,322	35,736
4. Goalanda ditto	...	25,642	...	...	149	25,791
Total	89	1,31,886	...	...	49,787	1,74,682
Ohitangong—						
1. Ohitangong Central Co-operative Bank, Limited	19	18,444	...	...	1,124	19,778
2. Cox's Bazar ditto	No transaction.	...	...	...	...	...
Total	19	18,444	...	...	1,124	19,778
Tippura—						
1. Comilla Central Co-operative Bank, Limited	...	51,061	...	...	1,326	52,387
2. Brahmanbaria ditto	30	32,319	...	...	1,326	33,644
3. Ohandpur ditto	72	46,505	...	...	1,077	47,582
4. Tippura Raj ditto	748	5,540	...	...	32	5,922
5. Madhab ditto	...	2,787	...	...	892	3,680
Total	1,045	1,38,510	...	...	4,708	1,43,218
Nonkhali—						
1. Nonkhali Central Co-operative Bank, Limited	55	12,688	...	...	405	14,528
2. Feni ditto	14	27,894	...	...	891	28,475
3. Sandip ditto	10	5,544	...	...	270	6,314
4. Lakshimpur ditto	...	1,417	...	...	148	1,565
Total	109	48,538	...	...	1,694	50,237
Dinajpur—						
1. Balurghat Central Co-operative Bank, Limited	119	16,903	...	...	304	17,307
2. Dinajpur ditto	...	672	...	...	276	245
3. Thakurgaon ditto	...	229	...	...	110	225
Total	119	17,608	...	...	790	18,398
Malda—						
1. Malda Central Co-operative Bank, Limited	...	20,784	...	...	152	20,936
Bajshahi—						
1. Bajshahi Central Co-operative Bank, Limited	...	17,855	...	...	751	18,106
2. Pubna ditto	...	4,128	...	...	30	4,158
3. Nator ditto	...	15,969	...	...	59	16,028
4. Naogaon ditto	1,018	29,696	...	...	1,259	31,155
Total	1,018	67,387	...	...	2,021	69,968
Fabna—						
1. Fabna Central Co-operative Bank, Limited	...	92,221	...	...	1,865	94,086
2. Sonaganj ditto	...	26,627	...	...	596	27,223
3. Uliapara ditto	61	13,435	...	...	1,091	14,526
4. Shazadpur ditto	...	6,215	...	...	240	6,455
Total	61	1,41,658	...	...	4,312	1,46,070
Bogra—						
1. Bogra Central Co-operative Bank, Limited	...	37,132	...	...	1,068	38,199
2. Khandarpur ditto	...	6,901	...	...	482	7,383
3. Padmapara ditto	6	5,291	...	...	166	5,457
Total	6	49,324	...	...	1,714	51,038
Rangpur—						
1. Rangpur Central Co-operative Bank, Limited	9	29,029	...	...	1,117	30,146
2. Gaibandha ditto	...	26,179	...	...	860	27,039
3. Kurigram ditto	130	6,861	...	...	279	7,140
4. Nilphamari ditto	...	11,884	...	...	595	12,479
Total	139	72,644	...	...	2,671	75,315
Jaipalguri—						
1. Jaipalguri Central Co-operative Bank, Limited	...	5,100	...	...	53	5,153
Darjeeling—						
1. Kalimpong Central Co-operative Union Bank, Limited	...	21,890	...	...	3,860	25,750
2. Darjeeling Central Co-operative Banking Union, Limited	...	2,479	...	...	439	2,918
3. Pedong Central Co-operative Bank, Limited	17	8,298	...	...	292	8,590
Total	17	32,167	...	...	4,601	36,768
Total Central Banks	5,565	14,60,305	...	...	22,354	15,72,657

AND LOSS STATEMENT.

Loss.						Net profit + or loss - (column 13 of balance sheet.)	Amount of column 7 actually received.	Amount of column 13 actually disbursed.
Interest due.	Cost of management paid and due.	Provision for bad and doubtful debts.	Depreciation of stock and buildings.	Other items.	Total.			
9	9	10	11	12	13	14	15	16
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
88,895	9,241	..	360	518	43,514	+ 16,637	48,819	30,234
8,018	2,362	..	134	350	8,864	+ 4,383	8,380	4,452
88,225	7,108	..	297	780	40,448	+ 19,966	58,065	35,064
920	88	..	6	97	1,180	- 245	85	207
79,606	18,898	..	788	1,745	33,946	+ 40,121	98,112	69,947
99,288	8,888	..	115	1,455	37,838	+ 13,070	89	12,928
91,237	5,495	..	654	908	31,947	- 717	325	13,008
91,904	6,488	..	11	394	28,871	+ 7,995	11,985	15,771
15,994	4,190	..	35	1,345	19,068	+ 6,288	8,268	6,767
68,418	29,100	..	716	4,103	1,47,089	+ 26,634	20,507	57,460
11,885	5,468	..	8	885	15,074	+ 4,104	15,074	11,982
11,885	5,468	..	8	885	15,074	+ 4,104	15,074	11,982
35,004	7,881	..	639	2,025	35,829	+ 16,898	25,899	3,708
17,034	8,448	..	423	139	26,759	+ 6,365	12,071	13,092
32,711	7,223	..	24	600	26,568	+ 11,022	18,768	37,886
2,804	398	..	..	30	3,930	+ 3,002	4,751	1,297
2,460	732	..	..	85	3,267	+ 413	583	735
76,337	24,651	..	1,145	2,870	1,02,033	+ 38,180	62,182	48,116
7,086	1,725	..	1	493	9,236	+ 5,038	9,060	5,145
12,309	4,331	..	..	713	20,303	+ 7,372	16,518	5,370
8,980	114	..	..	..	4,130	+ 1,784	4,171	2,316
1,389	128	..	..	..	1,387	+ 188	778	149
27,443	6,738	..	..	..	36,266	+ 14,872	32,487	15,879
10,303	2,938	..	..	..	13,189	+ 4,045	5,592	6,891
863	188	..	..	..	748	+ 200	..	..
78	101	..	..	..	174	+ 89	90	101
10,938	3,128	..	..	..	14,024	+ 4,304	5,682	6,932
11,440	3,862	..	..	..	16,085	+ 4,381	17,304	18,208
11,890	3,269	..	..	..	15,591	+ 2,535	13,197	8,279
3,948	911	..	..	..	4,005	+ 188	2,732	2,151
8,276	2,992	..	..	..	13,299	+ 2,329	2,701	7,901
20,118	3,066	..	..	..	28,578	+ 7,877	25,437	20,500
44,837	10,277	..	..	..	56,334	+ 18,544	44,067	29,941
59,409	17,249	..	..	..	77,754	+ 17,489	45,701	68,026
12,008	4,328	..	..	..	20,652	+ 1,961	13,204	9,436
9,641	60	..	..	..	12,675	+ 1,491	6,609	4,402
4,967	..	..	..	..	6,397	+ 1,268	2,161	2,538
94,016	22,297	..	..	..	1,21,648	+ 24,522	67,867	81,408
22,863	6,450	..	..	..	39,087	+ 9,111	14,956	22,042
4,859	77	..	..	..	4,318	+ 1,065	871	1,448
2,829	496	..	..	..	2,811	+ 1,136	2,008	1,598
20,287	7,023	..	..	..	25,725	+ 12,312	17,345	26,081
17,524	5,231	..	..	..	24,043	+ 5,228	16,215	22,504
17,025	2,462	..	..	..	22,025	+ 2,729	1,039	13,308
3,273	1,617	..	..	..	5,378	+ 1,604	7,114	5,272
7,558	2,901	..	..	..	11,471	+ 708	10,343	10,068
46,608	14,221	..	..	..	62,620	+ 11,595	24,511	31,151
3,378	1,188	..	..	..	5,190	+ 62	1,419	959
46,736	8,008	..	..	..	31,908	+ 2,245	8,644	11,522
3,144	392	..	..	..	2,779	+ 159	26	1,601
3,637	1,821	..	..	..	7,480	+ 1,210	5,571	2,516
24,458	8,800	..	..	..	22,124	+ 4,344	12,300	17,068
8,08,480	2,65,865	..	..	..	12,16,546	+ 2,58,712	7,25,027	7,12,988

STATEMENT J.

OPERATIONS OF CENTRAL ANTI-MALARIAL SOCIETIES.

Classification.	Number of Members.		Number of affiliated societies holding shares in Central Banks.				Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—	
	Individuals.	Societies.	Central Credit.	Agricultural Credit.	Non-agricultural Credit.	Others.	Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Individuals.	Banks and Societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
<p>CALCUTTA.</p> <p>The Central Co-operative Anti-Malarial Society, Limited.</p>	55	204	..	..	..	204	..	Rs. 160	..	Rs. 1,450	..	Rs. 250
* Figures of last year	51	65	..	..	..	66	..	Rs. 650	..	Rs. 1,900	..	Rs. 600

Classification.	Loans and deposits received during the year from—			Subscription received from individual members.	Contribution from affiliated societies.	Contribution and grant from Government or local bodies.	Sale of commodities to members.	Expenses on account of propaganda work.	Contribution to affiliated societies.	Purchase of commodities required by members.	Cost of management.	Share capital paid up.
	Individuals.	Central Banks.	Primary Societies.									
—	14	15	16	17	18	19	20	21	22	23	24	25
<p>CALCUTTA.</p> <p>The Central Co-operative Anti-Malarial Society, Limited.</p>	Rs. ..	Rs. ..	Rs. 155	Rq. 54	..	Rs. 20,554	..	Rs. 708	Rs. 1,595	..	Rs. 2,720	Rs. 2,000
* Figures of last year	80	600	..	..	..	..	..	..	..	..	Rs. 1,660	Rs. 2,000

Classification.	Loans and deposits held at the end of the year from—				Reserve Fund.	Working capital.	Profit and loss of the year.	Unpaid dividend paid on shares.	Most usual rate of interest.		Unpaid and subscribed share capital.
	Individuals.	Societies.	Provincial or Central Banks.	Government.					On borrowings.	On lendings.	
—	26	27	28	29	30	31	32	33	34	35	36
<p>CALCUTTA.</p> <p>The Central Co-operative Anti-Malarial Society, Limited.</p>	..	Rs. 155	..	..	Rs. 467	Rs. 2,652	Rs. + 11,025	..	..	Per cent. 6	Rs. ..
* Figures of last year	Rs. 2,868	Rs. - 491	4½	..	7	..

* The present for m being a revised one last year's corresponding figure in respect of certain items are wanting.

STATEMENT K.

STATEMENT

Operations

Classification.	Number of members.		Number of affiliated societies holding shares in Central Banks.				Loans made during the year to—		Receipts from loans and deposits repaid during the year by—		Loans due by—		Loans and deposits received during the year from—		
	Indivi- duals.	Soci- eties.	Central Credit.	Agricul- tural Credit.	Non-agri- cultural Credit.	Others.	Indivi- duals.	Bank and Societies.	Indivi- duals.	Banks and Societies.	Indivi- duals.	Bank and Soci- eties.	Indivi- duals.	Central Banks.	Prime Soci- eties
Ontario— The Co-operative Milk Societies Union, Limited		54	...	54	...	...	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Nadia— The Nadia District Co-operative Indus- trial Union, Limited.	57	5	...	..	..	5	..	98	...	84	...	668	...	1,780	...
Bankura— Bankura District Co-operative Indus- trial Union.	76	64	...	8	56	..	..	...	...	454	...	5,639	5,918	..	28
Dacca— Dacca Co-opera- tive Industrial Union, Limited	60	19	...	..	18	...	...	11,176	...	4,498	...	9,041	8,008	4,150	..
Chittagong— 1. Chittagong Dis- trict Co-operative Industrial Union, Limited.	20	1	..	..	1	..	..	...	..	..	...	690	...	1,000	..
2. Satkhala Co-opera- tive Industrial Union, Limited.	16	..	..	..	..	..	..	...	..	...	...	...	...	...	...
Total ..	36	1	...	..	1	..	..	..	..	..	..	690	...	1,000	..
Rajshahi— Naogaon Co-opera- tive Central Indus- trial Society, Limited.	48	25	...	..	25	...	..	28,790	...	5,148	...	35,647	1,100	29,000	...
Total Producers Unions.	278	127	...	82	100	5	..	1,60,294	...	1,16,226	590	40,672	40,676	44,920	6,458
*Total of pre- vious year.	202	116	...	80	58	...	...	15,474	...	22,850	..	16,796	15,333	17,795	430

* The present form being a revised one, last year's correspondi

Producers Union.

Purchase of goods from—		Sale of goods to—		Miscellaneous receipts.	Cost of management.	Share capital paid-up.	Loans and deposits held at the end of the year from—				Reserve fund.	Working capital.	Profit and loss of the year.	Usual dividend paid on shares.	Most usual rate of interest.		Uncalled and subscribed share capital.
Members.	Non-members.	Members.	Non-members.				Individuals.	Societies.	Provincial or Central Banks.	Government.					On borrowings.	On lendings.	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.	Per cent.	Rs.
1,16,085	...	...	1,54,91	10,376	11,460	4,470	18,949	5,932	...	...	18,327	48,869	+15,473	...	7½	12½	...
...	1,824	1,600	2,869	408	408	1,012	...	...	2,650	...	100	4,012	+244	9½	7½	10½	4,268
...	...	25,907	24,212	884	2,909	14,259	15,980	269	...	800	5,760	44,448	+1,094	8½ to 9½	6 to 7½	9½	4,750
39	14	167	16	247	17	2,686	8,008	...	4,650	...	...	10,084	+169	...	7½	9½	2,215
988	656	...	60	2	9	780	1,000	...	...	...	18	1,798	-885	...	5	10	...
...	...	...	...	...	7	266	...	...	...	...	...	268	-7	...	...	...	260
968	668	...	60	2	16	1,046	1,000	...	...	...	18	2,064	-592	...	...	...	260
811	...	444	...	121	67	2,220	600	...	28,974	...	...	27,904	+294	...	7½	10½	2,284
1,16,428	2,604	28,018	1,91,265	19,028	15,267	26,752	24,411	6,201	31,374	600	24,155	1,37,591	+16,981	8½ to 9½	6 to 7½	9½ to 12½	16,868
...	...	...	...	...	15,101	12,504	25,076	444	12,854	1,000	10,562	22,446	+14,845	9½	8 to 9	9½ to 12½	10,662

figures in respect of certain items are wanting.

GOVERNMENT OF BENGAL.

AGRICULTURE AND INDUSTRIES DEPARTMENT.

Co-operative.

DARJEELING, THE 16TH MAY 1925.

RESOLUTION No. 461 T.—A. I.

READ—

The Report on the working of the Co-operative Societies in Bengal for the year ending 30th June 1924.

Administration.—Bai J. M. Mitra Bahadur held the office of the Registrar till the 10th January 1924, when he left for England to take charge of the Bengal Court of the British Empire Exhibition. Mr. M. Thorp, Deputy Registrar, then assumed charge of the department and held it for the rest of the year. The post of Deputy Registrar was abolished with effect from the 11th January 1924, the date on which Mr. Thorp was appointed to act as the Registrar. The recommendation of the Bengal Retrenchment Committee that the post of Personal Assistant to the Registrar of Co-operative Societies should ordinarily be filled by a Sub-Deputy Collector instead of by a Deputy Collector was given effect to during the year. The long deferred division of the combined charge of the Presidency and Burdwan Divisions by the appointment of an Assistant Registrar for each was carried out during the year. The new arrangement should facilitate the growth of the co-operative movement in those two divisions, and should enable more effective supervision to be exercised over the societies already in existence. In accordance with the principle that the number of Sub-Deputy Collectors employed as Inspectors should be kept at its minimum, an additional post of departmental inspector was created to fill the place of Maulvi A. M. Arshad Ali appointed Personal Assistant. The question whether a further reduction in the number of Sub-Deputy Collectors employed in the department is practicable is now under the consideration of Government. The proposal for the revision of pay of the subordinate inspecting staff of the department has been approved, and it is proposed to give effect to it as soon as the financial situation permits.

It is gratifying to note that the central banks continue to take over gradually the cost of honorary organisers. While agreeing with the view expressed in paragraph 14 of the report that the work of organisation should be left more and more to extra departmental agencies so far as the credit movement in advanced areas is concerned, Government would reiterate the principle, already accepted by them in connection with the recommendation of the Provincial Retrenchment Committee on the subject, that departmental stimulation will still be necessary not only in developing special types of societies, but also in organising credit societies in areas still remaining undeveloped. At the same time His Excellency trusts that the training of non-official agencies in the work of organisation will be regarded as one of the most important duties of the officers of the Co-operative Department.

2. **General Progress of the movement.**—During the year under review the total number of societies of all kinds rose from 7,822 to 9,342 and the membership from 292,981 to 340,159, while the working capital increased from Rs. 4,33,63,800 to Rs. 5,07,66,290. It is satisfactory that in the general expansion of the movement the internal improvement of the societies has not been lost sight of: dishonest office bearers have been dismissed, refractory members expelled and steps have been taken for the realisation of bad debts and for splitting up unwieldy societies.

The Registrar again calls attention to the important part which the movement can play in encouraging habits of thrift among the rural population. It would seem that this aspect of co-operation is not yet fully realised by most central banks, and it is to be hoped that no effort will be spared to

encourage the poorer classes to make greater use of co-operative societies as depositories for their small savings, thereby not only effecting a permanent improvement in their economic condition, but also making available to the outside world of trade and commerce the accumulated savings of millions of agriculturists during their surplus season which usually coincides with the period of tightness in the money market.

3. Turning to details, co-operative organisations in the province may be broadly classified as follows:—

I. Primary Societies—

(a) Agricultural,

(b) Non-agricultural; and

II. Central Co-operative Organisations.

Steady progress has been made in all these directions during the year under review.

(I) PRIMARY SOCIETIES.

(a) Agricultural Societies.

(i) **Credit Societies.**—Agricultural credit societies constitute 90 per cent. of the total number of societies in the province.

The number of this class of societies rose during the year under report from 7,011 to 8,368, their membership from 186,944 to 216,190, working capital from Rs. 1,48,62,021 to Rs. 1,77,89,251, share capital from 7'03 lakhs to 10'27 lakhs and deposits from members from 6'98 lakhs to 7'83 lakhs. While there has been some increase in deposits from members, they still form but a small fraction of the total working capital, the societies mainly depending on central banks and outside deposits. The primary object of a credit society should be the promotion of thrift among its members, and the Registrar should take every possible step to inculcate this essential principle on the societies.

Another unsatisfactory feature of the situation is the unpunctual repayment of loans. The collections during the year amounted to 38½ lakhs and though the outstandings were reduced from 33'9 lakhs to 31'4 lakhs, this formidable sum still constitutes a real menace to the movement. Steps are being taken to effect internal improvement in the working of the societies and to secure closer supervision over their proceedings and His Excellency trusts that the central banks will actively co-operate with the department in carrying through these much-needed improvements.

(ii) **Agricultural purchase and purchase and sale societies.**—During the year the number of these societies rose from 21 to 22, membership from 4,147 to 4,441 and working capital from Rs. 1,54,641 to Rs. 1,56,161. The profits made by these societies amounted to Rs. 3,620 against Rs. 5,910 in the preceding year.

It is reported that the Sundarbans Supply and Sale Society, the only society of this type which has hitherto been a marked success financially, made a profit of only Rs. 2,189 against Rs. 10,000 in the previous year. The main reason appears to have been a diminution in the volume of business, which consisted mainly of ordinary store transactions to the neglect of sale of the members' agricultural produce. Moreover, the prices of goods were fixed without reference to the actual cost of establishment and other charges. His Excellency the Governor trusts that this lesson will not be lost upon other societies. He also hopes that the experiments which are now being carried out in the organisation of paddy and jute sale societies in several districts will be attended with success.

(iii) **Irrigation Societies.**—This class of societies has developed considerably during the year. Their number increased from 114 to 173 (of which as many as 107 are in the Bankura district alone), membership from 4,689 to 7,376, and working capital from Rs. 77,658 to Rs. 1,29,598. The possibilities of these societies in the direction of solving the difficult problem of agricultural deterioration in the Western Bengal districts are very great.

The Registrar roughly estimates that in many areas by means of adequate irrigation, production can be increased, by 100 per cent. Moreover these irrigation societies dealing as they do, not only with stream schemes but also with tank schemes are indirectly serving the purpose of anti-malarial societies. Apart from the stream schemes for which there are special facilities in the districts of Bankura and Burdham, the whole of Western Bengal affords splendid opportunities for the development of tank schemes. Financially these societies have hitherto been most successful and it is hoped that with the increased departmental staff for this class of societies which has now been sanctioned by the Legislative Council, the development of co-operative irrigation movement will be substantially accelerated.

(iv) **Co-operative Agricultural Associations.**—The number of this type of societies during the year rose from 11 to 16, but they have not as yet achieved any striking results. A new type of society called the Modern Co-operative Agricultural Association, Limited, was formed in the Presidency Division during the year under report, with a laudable, though ambitious programme. The main object of this society appears to be the solution of the vexed problem of middle-class unemployment by providing an agricultural colony for the middle-classes, with facilities for small plot cultivation and vocational education. The society unfortunately sustained a severe set back through the death of two of its principal sympathisers, Sir Ashutosh Mukherjee and Sir Ashutosh Choudhury. It is, however, hoped that the society will be able to surmount the initial difficulties under which it is still labouring, and its future career will be watched with interest.

(v) **Production and Sale Societies.—Milk Societies.**—These societies, which were formerly confined to the Barasat subdivision of the 24-Parganas district, have now spread into the Jessore district. During the year their number increased from 52 to 54, membership from 2,040 to 2,155, share capital from Rs. 1,936 to Rs. 2,774, reserve fund from Rs. 2,580 to Rs. 7,448, and profit from Rs. 4,846 to Rs. 11,054. All these societies are members of the Calcutta Milk Union, and their supply is almost wholly consumed in Calcutta. A sum of over a lakh was realised by the sale of the produce, and in spite of transport difficulties which stand in the way of a wider supply, these societies are proving more and more useful in solving the difficult problem of the milk supply of Calcutta.

(vi) **The Naogaon Ganja Cultivators' Co-operative Society, Limited.**—During the year the membership of this society increased from 3,221 to 3,617 and share capital from Rs. 33,710 to Rs. 40,670. The sale proceeds totalled Rs. 10,01,645 as against Rs. 10,84,947 in the preceding year. The slight decrease in receipts from sales was due to a fall in the demand owing to the influence of the temperance movement and also to an increase in the retail sale price. The society continued to maintain its charitable institutions.

(b) **Non-Agricultural Societies.**

These mainly fall under three groups, viz., Credit, Stores and Supply, and Miscellaneous societies.

(i) **Credit Societies.**—Their number rose during the year from 186 to 223, membership from 62,070 to 72,553, share capital from 22½ lakhs to 26½ lakhs, and working capital from 83 lakhs to 97 lakhs. The Registrar reports that the novel method of working adopted by the Tippera district civil court employees' co-operative relief Society has attracted notice from other parts of India. This society, with the object of promoting thrift among its members, enforces a compulsory deposit of Re. 1 a month from every member and invests the proceeds in the longest term deposit in the Comilla Central Bank. It is interesting to find that some of the Mehtars' societies, while fulfilling the primary object of ameliorating the economic condition of their members, have been successful in combating drunkenness.

(ii) **Stores and Supply Societies.**—The co-operative stores movement has made no progress. Their number during the year fell from 76 to 69 and membership from 12,997 to 12,416, while the sales were reduced from 7'90

lakhs to 6.69 lakhs. The loss incurred during the year amounted to Rs. 32,435. The main cause of this failure seems to be inefficient management which, not unnaturally, leads to distrust and lack of co-operation among the members. The Registrar has recently published a Stores Manual, which should be useful to societies of this class. A few of them are already doing useful work. The management of small stores dealing with the ordinary necessities of life should not present any insuperable difficulties and, if properly run, they should be of considerable benefit to their members.

(iii) **Miscellaneous Societies.**—The Dacca conch-shell workers' society, which was doing good work in resuscitating the old and renowned conch-shell industry of Dacca, had to be liquidated owing to the capitalistic spirit in which the society was being run. The Dacca industrial union has, however, succeeded in organising eight new societies among the Dacca conch-shell workers, and it is hoped that these societies will profit by the lessons of the liquidated society and manage their affairs in a truly co-operative spirit. Among other societies of this class may be mentioned the Madhaymagram Chican society, some of the products of which were taken to the British Empire Exhibition and found a ready sale there. Good work has been done by fishermen's and weavers' societies, and the latter have received a considerable impetus through the formation of industrial unions.

II.—CENTRAL CO-OPERATIVE ORGANISATIONS.

(i) **The Bengal Provincial Co-operative Bank, Limited.**—Satisfactory progress was made by this apex bank during the year. Its membership increased from 89 to 109, working capital from 34.73 lakhs to 36.77 lakhs, reserve and other funds from Rs. 66,238 to over one lakh, and its share capital from 3.59 lakhs to 4.57 lakhs. The amount of public confidence that the bank has now secured is shown by the fact that in spite of lower rates of interest, public deposits still continue to flow into an even larger extent than before. Satisfactory relations continue to subsist between the Provincial Bank and its constituent members, and the link between the financing of agriculture and that of trade and commerce has at last been forged by placing in the joint stock banks the surplus of co-operative money accumulated in the Provincial Bank during the slack season. Government are much indebted to Mr. S. R. Das, Advocate-General, who at considerable sacrifice of his time has held the post of Chairman of the Provincial Bank during the last two years.

(ii) **The Central Banks.**—Excluding the industrial unions the number of Central Banks increased by seven during the year. The total number of societies affiliated to these banks rose from 7,082 to 8,289, their working capital from Rs. 1,51,25,775 to Rs. 1,75,06,244, deposits from non-members being Rs. 1,10,21,456 against 97.78 lakhs in the previous year. The total collections from societies were 53.31 lakhs against 48.68 lakhs. The relations of the Central Banks with the village societies were generally satisfactory, but the Registrar's remarks as to the necessity of maintaining an efficient managing staff deserve attention.

(iii) **The Calcutta Central Co-operative Anti-malarial Society, Limited.**—This Central Society has now 204 societies affiliated to it as against 116 in the preceding year, but only 33 of these affiliated societies are registered under the Act. It is reported that one of the main reasons why most of these societies do not apply for registration is the liability of registered societies to pay audit fees. In recognition of the beneficent activities of these societies which, unlike other co-operative organisations, aim at benefiting not only their members but also the general public in their respective localities, the Registrar exempted these societies from payment of audit fees for last year. His Excellency takes this opportunity of placing on record his high appreciation of the spirit which has prompted Rai Bahadur Dr. G. C. Chatterji to undertake the work of guiding this movement at considerable personal sacrifice.

4. **Miscellaneous.**—**The Bengal Co-operative Organisation Society.**—This organisation continues to do useful work, but its activities are restricted to propaganda and publicity and it does not undertake actual organisation or

the supervision and control of primary societies. These functions are now vested in the Central Banks which have generally discharged them satisfactorily so far, but the combination of all these functions in a financing body is obviously not an ideal arrangement, and the feasibility of these duties being ultimately taken over by a body other than and independent of the financing authority will be examined in connection with the proposal for the reorganisation of the Bengal Co-operative Organisation Society which has been engaging the Registrar's attention.

5. **Attitude of the public.**—His Excellency the Governor notices with pleasure that the sympathy of the public with the co-operative movement shows no sign of abatement. It is, however, reported that the general public are still inclined to regard the extension of co-operative institutions as largely a matter for departmental effort. It should be realised that unless voluntary organisations take the initiative in the field of co-operative organisation, the far-reaching possibilities of the movement for the moral and economic uplift of the population of the Presidency cannot be brought within the sphere of accomplishment.

6. The thanks of Government are due to Rai J. M. Mitra Bahadur and Mr. Thorp for their efficient administration of the department during the year. His Excellency has noticed with pleasure the good work done by the Assistant Registrars and particularly by Babu Susil Kumar Ganguli whose services have been specially commended by the Registrar. His Excellency also takes this opportunity of acknowledging the assistance received by the officers of the department from many non-official gentlemen who have freely given of their time and energy in furthering the progress of the movement, and also from those District and Subdivisional Officers who are reported to have given active help to the movement within their respective jurisdictions.

By order of the Government of Bengal
(Department of Agriculture and Industries),

G. S. DUTT,

Secretary to the Government of Bengal.

No. 2146.

COPY forwarded to the Registrar, Co-operative Societies, Bengal, for information.

No. 2147.

COPY, with copy of the report, forwarded to the Appointment Department of this Government for information, with reference to paragraph 6 of the resolution and paragraph 71 of the report.

By order of the Government of Bengal
(Department of Agriculture and Industries),

J. C. SEN,

Assistant Secretary to the Government of Bengal (offg.).

DARJEELING,
AGRI. AND IND. DEPT.—*Co-operative,*
The 16th May 1925.

REPORT
ON THE WORKING OF THE
CO-OPERATIVE SOCIETIES IN COORG
For the year ending 30th June 1923.

I.—ADMINISTRATION AND TOURING.

I held the post of the Registrar of Co-operative Societies and Companies throughout the year as usual in addition to my other duties as Deputy Director of Land Records and Agriculture. I was also in charge of the Veterinary Department. There was only one clerk. It is hardly possible to manage the enormous office work, which has accrued owing to the extended activities of the movement, without strengthening the office staff.

2. I was on tour for 126 days as compared with 169 of the previous year. This deficiency is accounted for by the fact that I was placed on special duty for over two months in connection with the Coorg Census Report. Co-operative principles were explained at several conferences held by me at various centres of the country, special attention being given to impress upon co-operators the absolute necessity of organising a non-official supervising agency entirely supported by the societies. Opportunity was also taken to point out the advantages of organising co-operative supervising Unions and also societies for eradicating lantana.

II.—SUMMARY OF GENERAL PROGRESS.

3. The year under report was mainly devoted for consolidation rather than expansion of the movement. This was inevitable as the movement has reached a stage when a further expansion without an adequate supervising staff could not but spell disaster to the whole movement. Thanks to the large view taken of the importance of the movement on the uplift of the country by the societies and the public in Coorg, efforts made to secure a non-official supervising agency were at last crowned with success. During the year under report arrangements were made to appoint 5 supervisors in addition to the one already entertained by the societies in the old Kiggatnad Taluk. These supervisors have since been appointed. At the same time the Government have also recognised the necessity of appointing an official Co-operative Inspector, for whose entertainment sanction has just been received. It is felt that with the help of this supervising staff it would be possible to set right the defects of the societies, consolidate them and then to proceed in the direction of further expansion. It is also gratifying to note that steps taken to start co-operative supervising Unions were partially successful. Two Unions were registered and it is hoped that some more would come into existence in the course of the current year. The following figures will show the progress made during the year under report:—

Year.	Agricultural credit societies dealing in cash and in grain, non-agricultural credit societies, purchase, purchase and sale society and weavers' society.							Cattle Insurance.				
	No. of societies.	No. of mem- bers.	Paid up share capital	Deposits from indivi- duals & societies	Loans from Central Bank	Loans from Govern- ment.	Reserve fund.	Work- ing capital.	No. of socie- ties.	No of mem- bers.	No of cattle insured	Cash on hand at the close of the year
1922-23...	158	7,910	1,38,995	54,278	83,572	1,995	94,622	3,17,569	10	191	237	3,401
1921-22...	143	7,150	1,15,630	53,117	9,500	1,400	84,054	2,64,701	10	220	266	3,809
1920-21...	132	6,332	99,015	51,896	...	970	74,053	2,25,934	10	233	381	3,738

The progress is on the whole satisfactory notwithstanding the absence of supervising agency. Four agricultural credit societies, five grain banks and one society for weavers at Sanivarsante were registered during the year. The total number of societies, including the Central Bank, two supervising Unions and ten cattle insurance societies, rose up to 166. Three applications were pending

for registration at the close of the year. The Central Bank has been working satisfactorily. There is a slight improvement in the recoveries made by the agricultural credit societies, but still greater efforts are needed to reach a creditable standard. As regards non-agricultural credit societies all but three have shown satisfactory progress. The cattle insurance societies are not showing signs of improvement, nor is there any indication that they will do so in the near future.

III.—WORKING OF SOCIETIES.

(1) *The Central Bank.*

4. During the year under report the membership of the bank rose to 96 societies and 26 individuals as compared with 48 and 16 respectively at the end of the previous year. There are a large number of societies yet to join the bank. I hope they will do so before long. The share capital amounted to Rs. 6,560 against Rs. 4,440 and deposits by members and others rose to Rs. 34,125 from Rs. 9,500. The working capital was Rs. 40,724 as against 13,940. The net profit was Rs. 41. Fifty-five loans amounting to Rs. 43,250 were granted to societies and three loans aggregating Rs. 1,728 to individuals. Loans to individuals are governed by the rule that they should not exceed 90 per cent of the deposits held by the borrowers. Recoveries from societies amounted to Rs. 18,756 and from individuals to Rs. 1,450 against a total recovery of Rs. 300 in the previous year. The loans due to the bank at the close of the year amounted to Rs. 35,272 of which societies were responsible for Rs. 34,994 and individuals for Rs. 278. Of Rs. 34,994 a sum of Rs. 568 was overdue by two societies. It is however satisfactory that almost all the societies were punctual in paying up their dues. The Central Bank has become a useful factor in the development of co-operative work in Coorg. As the law of the province prohibits the attachment of immovable properties for money debts and as there is a restriction on mortgage of a large portion of land for certain kinds of loans, the activities of the societies and the Central Bank cannot expand to the same extent as they would have done otherwise. As the need for which loans can be advanced on the security of immovable properties arises just before the cultivation season, the societies do not generally borrow during the other parts of the year. This results in the capital of the Central Bank remaining idle for months together and accounts for the small profit shown above. As the Central Bank was in its infancy, no special arrangements were made regarding fluid resources. All the unspent balances which sometimes used to be large were deposited in the post office savings bank. As the deposits received by the Central Bank are increasing, the question of keeping fluid resources will be taken up for consideration in the near future. The Central Bank is very thankful to Mr. C. A. Souter, I.C.S., the Commissioner, for his active sympathy towards its development.

(2) *Supervising Unions.*

5. Two supervising Unions were registered in Ponnampet and Srimangala Nads, but they did not commence work during the year. Ten societies consisting of 518 members with a working capital of Rs. 31,610 have been affiliated to them.

(3) *Agricultural Societies*

(a) *Class I. Societies dealing in cash.*

6. During the year two societies were split up into four and two new societies were registered bringing the total to 91 as against 87 at the close of the previous year. Of those that were newly registered only one was of limited liability. The membership and share capital stood at 4,689 and Rs. 84,951 against 4,182 and Rs. 75,327 respectively of the previous year. The members' deposits fell from Rs. 16,795 to Rs. 15,507. There was however a comparative increase in the deposits by non-members, which rose from Rs. 21,949 to Rs. 22,841. The slight reversal of the proportions in these deposits was more or less due to the rectification of errors committed by a few societies in classifying them. The working capital rose to Rs. 2,32,472 showing an increase of Rs. 36,337 over the previous year's figure. The total amount of loans advanced

was Rs. 98,616 against Rs. 74,140 showing an increase of Rs. 24,476. There was a similar increase in the number of loans granted, the figure being 1,145 against 867. 291 loans were of Rs. 50 and under, 515 of Rs. 51 to 100 and 339 of Rs. 101 and above. The outstanding amount of loans at the close of the year was Rs. 2,10,958 against Rs. 1,70,516 of the previous year. Of this, Rs. 1,86,354 were advanced for purchase of cattle and agricultural purposes, Rs. 18,902 for liquidation of debts and Rs. 5,702 for domestic and other purposes. The comparative increase in the amount advanced for liquidation of old debts was mainly due to the initiation of a novel experiment whereby the society would take the debtor's property on lease for a limited period and appropriate the rent towards the debt. As the society cannot work the land, it leases it out to some tenant. As remarked in paragraph 6 of the report for 1921-22, the success of this scheme entirely depends upon the availability of reliable tenants. There is also some risk in this method as there will be no landed security for the realization of the rent. Should the experiment succeed, it would be a great incentive to extend this mode of help in future years.

7. The total amount due for collection during the year was Rs. 1,24,619 of which Rs. 4,165 was covered by further time given for payment. There was thus only Rs. 1,20,454 to be actually collected in the year under report. Rs. 58,041 were collected, leaving a balance of Rs. 62,413. The percentage of collection works out to 48.10 as against 42.17 of the previous year. Although a slight increase in the percentage of collection is noticeable, it is by no means satisfactory, as nearly 52 per cent of the amount due for collection still remained uncollected. The paddy crop was good and the prices were low at the beginning of the season though they rose towards the end of the year, while the prices of all the necessaries of life ruled high throughout the year. The defects found in the societies in the previous years still continued. Owing to these facts the collections did not show a better result. It is hoped that in the current year the societies will work with greater earnestness and reduce the outstandings to a more appreciable degree.

8. The total net profits earned by the agricultural societies dealing in cash amounted to Rs. 13,326 against Rs. 13,823 in the previous year. Three societies incurred a loss of Rs. 149. A sum of Rs. 85 had also to be written off as bad debt. The decrease in the net profits is mainly accounted for by the fact that the interest the societies had to pay to the Central Bank could allow only a small margin of profit. There was also an increase in the establishment charges. The rate of interest charged on loans was $12\frac{1}{2}$ per cent per annum except in the case of one society which reduced its rate to $9\frac{3}{4}$ per cent in 1919-20. The usual rate of interest on deposits and debentures was $6\frac{1}{2}$ per cent, but in a few cases societies paid only 5 per cent. As in the previous years the small sums deposited by cattle insurance societies secured interest at 8 per cent. The total amount of interest collected during the year was Rs. 20,934 against Rs. 19,161 in the previous year. In the case of one agricultural limited society the dividend declared was Rs. 160 against Rs. 168 in the previous year. Including a sum of Rs. 6,196 reserved last year out of the net profits, the total amount reserved for distribution among the shareholders now comes to Rs. 11,305. It was understood last year that the distribution of dividend could only be seriously considered in the event of the societies showing satisfactory progress in the matter of collections. As the members are very keen on having a moderate dividend on the paid-up share capital, which they were getting when they belonged to the old societies previous to their being split up into the smaller unlimited liability concerns, the matter will be separately reported to the Hon'ble the Chief Commissioner for consideration.

(b) *Class I. Societies dealing in grain.*

9. The number of grain banks registered during the year was 5 which raised the total from 45 to 50 at the close of the year. Of these, eight societies did no work during the year. The question of dissolving those which have shown no progress during the past two years is under consideration. The total value of grain capital at Rs. 3 per batti of paddy being $\frac{3}{5}$ ths of the market value amounted to Rs. 23,657 as compared with Rs. 19,773

of the previous year. The value of paddy lent out to members was Rs. 19,595 against Rs. 17,100 of 1921—22. Collections during the year amounted to Rs. 17,493 leaving a balance of Rs. 3,210 against Rs. 16,154 and Rs. 1,020 respectively in the previous year. The large balance is decidedly due to the slackness of the managing committee members of some of the societies which enabled the needy member, attracted by good prices, to dispose of the paddy otherwise. The total value of paddy due by members at the close of the year was Rs. 7,928 as against Rs. 5,458 in the previous year. The majority of the banks charged interest at the rate of 25 per cent, the market rate being 50 per cent. A few societies reduced their rates of interest to $12\frac{1}{2}$ and $18\frac{3}{4}$ per cent.

10. The net profit in grain was worth Rs. 3,603. Of this, a sum of Rs. 1,270 was declared as dividend and Rs. 137 allotted to the common good fund. Paddy worth Rs. 109 was received as deposit. The tendency of some of the grain banks to indulge in paper transaction is being carefully watched and action will be taken when occasion arises.

(A) *Non-Agricultural Societies.*

(a) *Class I. Credit Societies.*

11. There was no change in the number of non-agricultural credit societies which is ten. The membership however rose from 1,031 to 1,110, the corresponding increase in the share capital being Rs. 6,714 over that of the previous year. The figures for 1922—1923 and 1921—22 are Rs. 33,489 and Rs. 26,775 respectively. The working capital rose from Rs. 36,495 to Rs. 47,049. The amount lent out to members was Rs. 61,728 as against Rs. 39,121 in the previous year. Collections amounted to Rs. 48,030 against Rs. 26,332. The balance overdue was Rs. 10,725, the societies mainly responsible therefor being the Mercara Mahadevapet, the Indian Coffee Planters' and the Somwarpet Societies. The first by far is the worst offender, the uncollected amount to its credit being Rs. 7,729. It is under contemplation to take suitable action against this society. There is no material improvement discernible over the last year's conditions of the Indian Coffee Planters' Society.

(b) *Class II. Teachers' Co-operative Store.*

12. The membership decreased from 131 to 126. The share capital was Rs. 750 against 779 in the previous year. The value of books and other articles purchased came to Rs. 3,417 as against Rs. 5,247 in the previous year. The value of stock sold was Rs. 4,381 against Rs. 4,944. The net profit realised was Rs. 200 against Rs. 284 of the previous year. The reserve fund rose to Rs. 412 from Rs. 362 of 1921—22. There is an all round decrease in the activities of this institution. This set-back in the progress of the society can only be attributed to the indifference of the managing committee of the society, and unless it can show better results in the near future, there appears to be no justification for its continuance.

(c) *Class III. Weavers' Society.*

13. This society was registered in February 1923. The object of the society is to obviate the difficulties of the indigenous weavers by securing funds for purchasing yarn at the cheapest market for distribution among the members. The cloth manufactured by the members will be sold by them and the cost of yarn paid to the society. In the rare cases where the weaver member may not be able to find a market for his produce, the managing committee of the society will take over the stuff, arrange for its sale and recover the cost of yarn and a small commission from the sale proceeds and pay the balance, if any, to the member. The membership of this society stood at 18 with a working capital of Rs. 347 made up of Rs. 71 share capital, Rs. 175 deposits from members and Rs. 100 from non-members. During the short period of its existence the society has worked at a profit of Rs. 28.

(d) Class V. Cattle Insurance Societies.

14. The number of cattle insured fell from 281 to 237. The value of stock insured rose from Rs. 2,887 to Rs. 2,905. Forty-four policies of the value of Rs. 874 were redeemed against 43 policies of the value of Rs. 512 in the previous year. The increase in the value of the policies redeemed is due to a large number of those of higher values becoming ripe for redemption during the year under report. No policies which were ripe remained unredeemed. All the societies worked with a profit. The total capital was Rs. 3,401 as against Rs. 3,809. The capital exceeded the total of the risks insured by Rs. 496. The reserve fund at the close of the year amounted to Rs. 2,058 as against Rs. 2,021. The whole capital has been invested in co-operative credit societies at 8 per cent interest per annum with the exception of Rs. 135 pertaining to Murnad Insurance Society. The method of working the societies is described in Appendix F. There is complete stagnation in the working of these societies and it remains to be seen whether the newly appointed supervisors would be able to infuse some enthusiasm in the people in favour of societies of this class. Failing this, it would be necessary to wind them up before long.

IV. RESERVE FUND.

15. The reserve fund of all the credit societies excluding grain banks aggregated Rs. 83,649 against Rs. 75,220 in the previous year. No portion of the reserve fund was invested outside the societies during the year under report. The previous years' investments amounted to Rs. 12,752 in 3½ per cent Government paper of the nominal value of Rs. 13,786. As resolved in the fourth Provincial Co-operative Conference, post office investment certificates of the nominal value of Rs. 2,044 were sold and a sum of Rs. 1,452 was realised against a sum of Rs. 1,998 invested therein. The reserve fund of the grain banks was Rs. 10,944 worth of paddy against Rs. 8,834 of the previous year. The portion invested outside the societies was the same as in the previous year, viz., paddy worth Rs. 683. The balance was held in kind and lent out to members. The reserve fund of the credit societies excluding grain banks ranged from 5 to 36 per cent of the assets of the societies. In the grain banks it was 46 per cent of the total stock as against 45 per cent of the previous year. The reserve fund of the cattle insurance societies rose from 70·70 per cent of the total value insured in the previous year to 70·84 per cent during the year under report.

V. RESOURCES.

16. The following table shows the sources from which each class of societies, except those for cattle insurance, derived its funds:—

Type of society.	Total working capital at the close of the year.	Percentage of working capital derived from							Total.
		Paid up share capital.	Deposits from		Loans from Central Bank.	Loans from other societies.	Loans from Government.	Reserve fund.	
			Mem- bers.	Non- mem- bers.					
	Rs.								
Agricultural credit societies dealing in cash.	2,40,690	33·30	6·44	9·50	12·41	2·12	0·73	33·50	100·00
Do. grain ...	25,852	56·99	0·68	...	...	...	...	42·33	100·00
Non-agricultural credit societies ...	47,903	69·91	14·21	6·15	3·90	...	0·42	5·41	100·00
Teachers' Co-operative Store ...	3,769	27·09	...	28·14	28·88	...	...	14·89	100·00
Weavers' Society ...	375	19·26	46·67	26·67	...	...	...	7·46	100·00

The cattle insurance societies depend for funds chiefly on premia paid on cattle insured. The aggregate fund of these societies amounted to Rs. 5,459 which included a reserve fund of Rs. 2,058. Agricultural credit societies mainly rely on their share capital, reserve fund and loans from the Central Bank and non-agricultural credit societies on their share capital as well as on loans obtained from the Central Bank.

VI. DISPUTES AND LITIGATION.

17. No suits were filed in the civil courts during the year. Including 8 cases pending at the close of the previous year, there were 187 cases referred to me for disposal under the arbitration rules, of which 155 were disposed of during the year, leaving a balance of 32 at end of the year. None of them were passed on to arbitrators by me. It is not a good policy to resort to arbitration instead of putting moral pressure upon defaulters. But a majority of the cases referred to me relate to debts incurred long ago and the pressure put upon the defaulters by the officers of societies had very little effect. In 45 cases execution was applied for, resulting in the recovery of Rs. 4,325. In 4 cases lands under mortgage were sold, all of which were of sagu tenure. One gratifying feature of the decisions passed in the cases referred to me is the prompt recovery of dues in a majority of them without recourse to execution applications. So far none of the decisions given by me have been appealed against.

VII. AUDIT AND INSPECTION.

18. Almost all the rural societies were inspected by me during the year. The accounts of the Central Bank and 28 primary societies were also audited by me. The Parpattigars audited the accounts of 135 societies. Owing to their heavy revenue and other duties, the Parpattigars cannot find the necessary leisure nor do they possess the experience to do the audit work in a satisfactory manner. During the year under report, some of the Directors of the Central Bank inspected a few affiliated societies.

VIII. ACTS, RULES AND BY-LAWS.

19. The only new by-laws framed during the year under report were for the use of the Weavers' Society. No other by-laws or rules were issued.

IX. MISCELLANEOUS.

20. The two cases of misappropriation referred to in the previous year's report were enquired into; there being no sufficient evidence to proceed criminally against the persons concerned, matters were allowed to drop as the misappropriated amounts were produced during the enquiry.

21. On 4th November 1922 a representative Conference of Co-operators was held under the presidency of the Commissioner of Coorg to consider the question of starting co-operative supervising Unions and the appointment of non-official supervisors. It was decided that half per cent contribution on the working capital of each society and one-fourth per cent on the amount lent by the Central Bank should be levied with a view to find funds to meet the pay of the supervisors. It was also decided to start Unions on the basis of one for

each of the old taluks. After sometime it became apparent that the sum raised as above would be inadequate to meet the pay of the supervisors. As regards Talukwar Unions also, objections were raised that the jurisdiction would be too big to ensure effective supervision over the societies, specially as the officers of the Unions selected from so wide an area would be lacking in intimate knowledge of the affairs of the affiliated societies. These matters were therefore again brought forward for discussion on 23rd April 1923 on the occasion of the fifth Provincial Co-operative Conference held at Virajpet under the presidency of the Hon'ble the Chief Commissioner of Coorg. After further consideration it was resolved that societies should contribute at the rate of $\frac{2}{3}$ per cent on the working capital and the Central Bank at $\frac{1}{3}$ per cent on the money lent to the societies. As regards Unions it was decided that Nads should form the units.

22. In the course of his inaugural address in the fourth Provincial Co-operative Conference held in 1922, the Hon'ble Mr. Barton, C.S.I., C.I.E., had emphasised the necessity of clearing lantana and providing good grazing grounds for the cattle which are the mainstay of the ryot. In accordance with his wishes a comprehensive scheme for the purpose of eradicating lantana on a co-operative basis was drawn up by me and published widely throughout the district. The fifth Co-operative Conference has appointed a committee to frame by-laws for adoption by Lantana Eradication Co-operative Societies when they are started. The committee is expected to submit the draft by-laws shortly for the approval of the Government.

X. ATTITUDE OF THE PUBLIC.

23. Signs are not wanting that the public have come seriously to realise that the salvation of the Coorg ryot lies in the spread of the co-operative movement in the country. The enthusiasm with which they attended the Provincial Co-operative Conference in April last and the fact that they cheerfully bore the expenses of the conference bear ample testimony to their absorbing interest in the movement. The local vernacular newspaper "Kodagu" has been doing all it can to stimulate this attitude. It remains for me to express my thanks to the various gentlemen, both official and non-official, who worked for the furtherance of the movement during the year.

MERCARA,
Dated 4th October 1923.

K. N. SUBBARAYA,
Registrar, Co-operative Societies, Coorg.

Statement A.

Classification.	Number of members.			Number of affiliated societies holding shares in Central Banks.			Loans made during the year to		Receipts from loans and deposits repaid during the year by		Loans due by		Loans and deposits received during the year from		
	Individuals.	Societies.	Central credit.	Agricultural credit.	Non-agricultural credit.	Others.	Individuals.	Banks and societies.	Individuals.	Banks and societies.	Individuals.	Banks and societies.	Central banks.	Primary societies.	Individuals and other sources.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coorg Co-operative Central Bank, Mercara.	26	96		88	8	.	1,728	48,250	1,450	18,756	278	34,994	...	...	27,975
Total of previous year.	16	48	..	44	4	...	...	10,800	...	300	...	10,500	...	...	9,500

Statement B.

Classification.	Number of societies.	Number of members.	Loans made during the year to		Receipts from loans and deposits repaid during the year by		Loans due by			Loans and deposits received during the year from		
			Individuals.	Banks and societies.	Individuals.	Banks and societies.	Individuals.	Of which overdue.	Banks and societies.	Individuals.	Central banks.	Primary societies.
1	2	3	4	5	6	7	8	9	10	11	12	13
			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Class I Credit Societies dealing in cash	*91	4,689	98,616	...	58,041	1,432	2,10,958	66,578	2,253	3,433	34,750	44
Societies dealing in grain, limited.	50	1,967	19,595	...	17,493	...	7,928	3,210	1,170	109	..	...
Total	141	6,656	1,18,211	...	75,534	1,432	2,18,886	69,788	3,423	3,542	34,750	44
Total of previous year including grain banks	132	5,988	91,240	...	64,588	1,417	1,75,974	68,399	6,618	3,750	8,950	964

* 2 Limited, 89 Unlimited.

Statement C.

Classification.	Number of societies.	Number of members.	Loans made during the year to		Receipts from loans and deposits repaid during the year by		Loans due by			Loans and deposits received during the year from			
			Individuals.	Banks and societies.	Individuals.	Banks and societies.	Individuals.	Of which overdue.	Banks and societies.	Individuals.	Central banks.	Primary societies.	
1	2	3	4	5	6	7	8	9	10	11	12	13	
			Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	
Class I. Credit Limited	...	10	1,110	61,728	..	48,030	...	46,187	10,725	..	7,165	5,100	...
Class II. Purchase and sale.	1	126	2,487	...	1,584	...	1,361	...	...	1,137	800	...
Class III. Weavers' Society, unlimited.	1	18	508	...	277	...	229	..	..	275	..	...
Total	13	1,254	64,721	...	49,891	..	47,777	10,725	...	8,577	5,900	...	
Total of previous year.	11	1,162	41,379	..	29,023	...	32,894	5,480	300	6,738	300	300	

Statement D.

District.	Number of unions.			Number of societies affiliated to unions in col 2.	Total number of individual members in affiliated societies.
1	2	3	4	5	6
Coorg.	10	618

Operation of Central Bank, Coorg.

17	18	19	20	Loans and deposits held at the end of the year from					25	26	27	28	Most usual rate of interest.		31	33
				Societies.	Provincial and Central banks.	Government	Individuals and other sources.	Reserve and other funds.					On borrowings	On lendings.		
...	...	156	6,560	...	...	...	84,125	89	40,724	41	...	64%	84%	...	
4	...	85	4,440	...	...	...	8,500	...	13,940	39	...	64%	84%	...	

Operations of Agricultural Societies, Coorg.

14	15	16	17	Loans and deposits held at the end of the year from					22	23	24	25	26	Most usual rate of interest.		28	29
				Members.	Non-members	Societies	Provincial and central banks	Government.						Reserve fund	Working capital			Profit and loss for the year.	Usual dividend paid on shares.	On borrowings	On lendings.
...	...	Rs 6,404	Rs 84,951	Rs 15,507	Rs 23,941	Rs 4,922	Rs 29,872	Rs 1,775	Rs 72,604	Rs 2,32,472	Rs 13,326	10%	5, 64, 8% & 84%	9 1/2 % & 12 1/2 %			
...	...	1,060	14,734	175	...	...	...	...	8,748	23,657	8,603	10%	64%	25%		
...	...	7,464	98,685	15,682	22,841	4,922	29,872	1,775	84,352	2,56,129	16,929	...	...	...
...	...	8,876	88,076	16,801	21,949	6,587	8,950	900	72,585	2,15,008	16,822	..	..	..

Operations of Non-Agricultural Societies, Coorg.

14	15	16	17	Loans and deposits held at the end of the year from					22	23	24	25	26	Most usual rate of interest.		28	29
				Members.	Non-members	Societies	Provincial and central banks	Government.						Reserve fund.	Working capital.			Profit and loss for the year.	Usual dividend paid on shares.	On borrowings.	On lendings.
...	...	Rs. 1,491	Rs. 33,439	Rs. 6,808	Rs. 2,943	...	Rs. 1,900	Rs. 200	Rs. 1,709	Rs. 47,049	Rs. 2,068	10%	64% & 84%	9 1/2 % & 12 1/2 %			
4,881	...	539	750	...	806	...	800	...	362	2,718	200	10%	64% & 84%	12 1/2 %			
...	71	175	100	...	...	...	...	347	28	...	64%	12 1/2 %			
4,381	...	2,020	34,310	6,983	3,849	..	2,700	200	2,071	50,114	2,291	...	...	..
4,944	...	1,423	27,854	4,743	4,227	300	...	500	1,365	38,659	1,883	...	...	...

Operations of Unions.

Total working capital of affiliated societies.	Expenditure in year.	Percentage of col. 6 or col. 5 (one place of decimals).	Number of supervising staff maintained by unions.	Remarks.
5	6	7	8	9
21,610	

Statement E. Operations of

Classification.	Number of societies.	Number of members.	Amount of risk insured.	Premia collected	Supplementary contributions collected	Number of animals	
						Insured	Lost.
1	2	3	4	5	6	7	8
Class V.							
A.—Cattle Insurance.	10	191	Rs 2,905	Rs. 6,376	Rs 3,373	693	456
I. Agricultural	...	...	...	...	...	...	...
II. Non-agricultural	...	...	...	...	...	...	...
Total cattle insurance	10	191	2,905	6,376	3,373	693	456
Total of previous year 1922	10	220	2,387	6,111	3,170	691	425
Do. 1921	10	233	3,379	5,748	3,005	663	382
Do. 1920	10	277	3,819	5,368	2,913	665	359

Statement G. Central Bank

RECEIPTS

Classification.	Share receipts.	Receipts by loans and deposits from			
		Non-members and members in an individual capacity	Provincial and Central Banks.	Societies.	Government.
1	2	3	4	5	6
Co-operative Central Bank, Coorg.	2,120	27,975	...	...	...

Continued.

DISBURSEMENTS.

Classification.	Share capital withdrawn.	Loans and deposits repaid to				Loans to		
		Non-members and members in an individual capacity.	Provincial and Central Banks.	Societies.	Government.	Individual members	Provincial and Central Banks.	Societies.
	16	17	18	19	20	21	22	23
	...	3,350	...	...	...	1,728	...	43,250

Statement H. Central

Classification.	ASSETS							
	Cash in hand and bank.	Market value of investments.	Loans due by members (individuals)	Loans due by banks and societies	Interest accrued to the bank	Present value of stock in hand.	Other items.	Total.
1	2	3	4	5	6	7	8	9
Co-operative Central Bank, Coorg.	5,807	...	278	34,094	512	...	..	41,591

Statement I. Central Banks.

Classification.	Profit brought forward from last year.	PROFIT.				Total.	
		Interest accrued.	By sale of goods to members.	By purchase and sale of members' products	Other items		
1	2	3	4	5	6	7	
Co-operative Central Bank, Coorg	1,681	92	1,773

Insurance Societies, Coorg.

Claims paid.	Cost of management.	Funds in hand at end of year.	Amount of risk re-insured.	Amount of premia paid for re-insurance	Remarks.
9	10	11	12	13	14
Rs. 6,348	..	Rs 3,401	.	...
...	
...	
6,348	...	3,401	...	..
5,479	...	3,809	...	...
4,921	...	3,793	...	...
4,269	...	4,033	...	..

Receipts and Disbursements.

Loans and deposits recovered from			Income realized.				Opening balance.	Grand total including the opening balance (cols. 3, 9, 13 and 14).
Individual members.	Provincial and Central Banks.	Societies.	Interest received.	Sale of goods to members.	Other items.	Total income of year (cols. 10-12)		
7	8	9	10	11	12	13	14	15
1,450	...	18,756	1,244	...	92	1,336	3,415	55,052.

Continued.

Expenses.						Closing balance.	Grand total disbursements including closing balance (cols. 16 to 23, 29 and 30).	Remarks.
Interest paid on loans and deposits.	Dividend and bonus paid.	Stock bought.	Establishment and contingencies.	Other items.	Total expenditure (cols 24 to 28).			
24	25	26	27	28	29	30	31	32
761	156	...	917	5,807	55,052	

Banks. Balance sheet.

LIABILITIES.													Remarks.
Loans and deposits from non-members and from members in an individual capacity	Loans and deposits from provincial and Central Banks.	Loans and deposits from societies	Loans from Government.	Share capital paid up.	Interest due by the bank.	Cost of management due.	Other items.	Reserve fund under section 23 of Act, II of 1912	Other funds e.g. building funds etc.	Other undistributed profits carried forward.	Total.	Profit + loss (col. 14, profit and loss statement).	
10	11	12	13	14	15	16	17	18	19	20	21	22	23
34,125	6,560	826	...	...	39	...	..	41,550	41	

Profit and Loss Statement.

LOSS.						Net profit + or loss (col. 22 of balance sheet).	Amount of column 7 actually received.	Amount of column 13 actually disbursed.	Remarks.
Interest due.	Cost of management paid and due.	Provision for bad and doubtful debts.	Depreciation of stock and building.	Other items.	Total				
8	9	10	11	12	13	14	15	16	17
1,516	216	...	...	...	1,732	41	1,336	917	

APPENDIX A. Receipts and Disbursements--

Classification.	Number of societies.	Share payments.	Loans and deposits.					Loans repaid by members.
			By members.	By non-members.	By other societies.	By Government.	By Central societies.	
1	2	3	4	5	6	7	8	9
<i>Class I, Agricultural Credit Societies.</i>								
North Coorg ...	40	2,500	738	245	44	750	7,500	17,574
South Coorg ...	51	6,777	2,326	126	..	250	27,250	40,467
Total ...	91	10,277	3,062	371	44	1,000	134,750	58,041
Grain Banks, Limited ...	50	2,041	109	..	..	..	..	17,493
Non-agricultural Societies ...	10	3,763	7,165	..	..	..	5,100	48,030
Teachers' Store Society ...	1	7	..	1,137	..	..	800	1,534
Weavers' Society ...	1	72	273	..	..	..	..	277
Cattle Insurance Societies ...	10	..	263	..	..	..	..	..
Grand Total ...	163	21,136	10,876	1,508	44	1,000	40,650	1,25,425

Continued.

Classification.	Number of societies.	Share capital withdrawn.	Members deposits withdrawn.	Loans repaid to				Loans to members on personal security.	Loans to members on mortgage security.
				Government.	Central societies.	Other societies.	Non-members.		
		18	19	20	21	22	23	24	25
<i>Class I, Agricultural Credit Societies.</i>									
North Coorg ...	40	235	1,083	20	2,756	1,405	..	..	27,561
South Coorg ...	51	453	2,922	105	10,897	415	235	730	70,322
Total ...	91	688	4,005	125	13,653	1,820	235	730	97,886
Grain Banks, Limited ...	50	43	..	..	..	..	..	19,595	..
Non-agricultural Societies ...	10	2,067	3,760	360	5,000	..	..	61,728	..
Teachers' Store Society ...	1	36	1,150	..	200	..	..	2,487	..
Weavers' Society ...	1	..	..	..	..	..	..	506	..
Cattle Insurance Societies ...	10	..	874	..	..	..	..	..	..
Grand Total ...	163	2,834	9,799	425	18,853	1,820	235	85,046	97,886

APPENDIX B.

Serial No.	District.	ASSETS.						Total.
		Cash in hand and bank.	Value of investments.	Loans due by members.	Loans due by societies.	Value of stock in hand.	Other items.	
1	2	3	4	5	6	7	8	9
<i>Class I, Agricultural Credit Societies.</i>								
1	North Coorg	9,842	5,600	74,984	1,059	690	1,360	93,245
2	South Coorg	7,984	10,966	1,35,964	1,194	477	3,410	1,59,995
	Total	17,826	16,566	2,10,948	2,253	1,167	4,770	2,53,240
3	Grain Banks, Limited	19,458	685	7,999	487	..	..	28,550
4	Non-agricultural Societies	2,547	..	44,187	..	18	680	49,432
5	Teachers' Store, Limited	742	..	1,361	..	928	100	3,131
6	Weavers' Society	145	..	229	..	..	..	374
7	Cattle Insurance Societies	135	..	..	2,266	..	..	3,401
	Grand Total	40,947	17,249	2,66,683	6,006	2,313	5,550	3,38,128

Provincial Statements.

RECEIPTS.							
Loans repaid by Central societies.	Loans repaid by other societies.	Interest received.	Sale of goods to members.	Other income.	Total income of the year.	Opening balance.	Grand total including the opening balance.
10	11	12	13	14	15	16	17
1,296	1,331	7,832	333	605	41,761	5,822	47,573
...	101	13,102	193	1,686	32,278	8,959	1,01,231
1,296	1,432	20,934	531	2,291	1,34,029	14,775	1,48,804
...	...	4,674	...	88	24,405	16,633	41,638
...	...	4,176	2	193	73,375	5,469	78,844
...	...	9	4,381	178	8,057	589	8,676
...	...	241	642	18	1,293	...	1,293
...	...	...	...	1	507	8,808	4,315
1,296	1,432	30,034	5,556	2,789	2,41,696	41,274	2,82,970

Continued.

DISBURSEMENTS.										
Loans to Central societies	Loans to other societies	Interest paid on loans and deposits.	Dividend and bonus paid	Stock bought.	Establishment and contingencies	Other items.	Carried to reserve.	Total expenditure	Closing balance.	Grand total of expenditure including closing balance.
26	27	28	29	30	31	32	33	34	35	36
735	12	1,454	6	333	2,584	44	...	38,231	9,349	47,573
830	...	1,931	251	222	3,820	64	...	93,247	7,984	1,01,231
1,565	12	3,485	257	555	6,404	108	...	1,31,478	17,826	1,48,804
...	...	761	751	...	1,060	187	...	21,586	19,432	41,638
480	...	690	20	1,431	1,431	...	...	76,237	3,547	79,844
...	...	36	79	3,417	539	...	...	7,934	749	8,676
...	...	...	...	642	...	...	...	1,148	145	1,293
...	...	...	...	...	...	40	...	914	3,401	4,315
2,046	12	4,332	1,777	4,634	9,434	285	...	2,39,357	43,618	2,82,970

Balance sheet.

LIABILITIES.										Profit + and loss
Loans and deposits by non-members	Loans and deposits from other societies.	Loans from Government.	Deposits of members.	Share capital.	Interest and dividend due by society.	Other items.	Reserve fund, i.e., undistributed profits under section 53 of Act II of 1912	Total.		
10	11	12	13	14	15	16	17	18	19	
9,894	2,207	7,549	8,504	32,772	2,305	53	25,683	88,914	+ 4,331	
13,947	2,715	24,098	7,003	52,179	5,037	49	46,971	1,51,000	+ 3,996	
23,841	4,922	31,647	15,507	84,951	7,340	102	72,654	2,39,914	13,326	
2,943	...	2,100	175	14,734	1,160	130	8,748	24,847	+ 3,603	
808	...	6,808	33,489	295	25	...	1,709	47,369	+ 2,063	
100	...	803	730	71	213	...	362	3,331	+ 900	
...	...	1,345	...	...	...	...	...	946	+ 28
...	...	...	...	...	...	...	2,058	3,401	...
26,690	4,922	34,547	24,008	1,33,995	9,008	257	85,481	3,18,068	19,220	

* Except Rs. 1,375 which are made up of loans from Government, the remainder is loan from Central Bank.

APPENDIX C.

N ^o .	Name of Society.	Added to reserve.	Amount of dividend.	Allotment for common good fund.	Percentage.
<i>Agricultural Societies.</i>					
		Rs.	Rs.	Rs.	
1	North Coorg	2,457	1,516	88	10 per cent.
2	South Coorg	5,761	3,293	62	"
	Total	8,218	5,109	148	"
3	Grain Banks Limited	2,186	1,270	137	"
4	Non-agricultural Societies Limited ..	854	1,194	15	"
5	Teachers' Co-operative Store Limited .	50	150	.	"
6	Weavers' Society	26	.	.	"
	Grand Total ...	11,346	7,723	300	

APPENDIX D.

No.	Name of Society.	Total amount of loans which were repayable in 1923	Amount repaid.	Amount outstanding.	Loans repayable in 1924 and thereafter.	Purpose of loans.					
						Agr-culture		Liquidation of debts.		Other purposes.	
1	2	3	4	5	6	7	8	9	10	11	
		Rs.	Rs.	Rs.	Rs.	No.	Rs.	No.	Rs.	No.	Rs.
<i>Agricultural Societies.</i>											
1	North Coorg	49,994	17,574	32,420	42,574	1068	55,536	140	15,965	27	3,493
2	South Coorg	74,625	40,467	34,158	1,01,806	1245	1,30,818	30	2,937	32	2,209
	Total ..	1,24,619	58,041	66,578	1,44,380	2313	1,86,354	170	18,902	59	5,702
3	Grain Banks Limited .	20,703	17,493	3,210	4,719	485	7,028	...	...	...	...
4	Non-agricultural Societies, Limited	58,754	46,030	10,724	35,462	84	3,472	149	19,218	227	23,406
5	Teachers' Co-operative Store Limited.	1,584	1,584	...	1,362	...	...	...	...	26	1,362
6	Weavers' Society	277	277	...	229	...	...	...	...	13	229
	Grand Total ...	2,05,937	1,25,425	80,512	1,66,151	2632	1,97,754	319	38,120	365	80,769

§ This includes Rs. 4,165 for the payment of which time has been granted till 1924 by competent authority.

APPENDIX E.

No.	Name of Society.	Working capital including share capital.	Reserve fund.	Amount invested in Government paper.	Amount not invested.	Percentage of reserve fund.
<i>Agricultural Societies.</i>						
		Rs.	Rs.	Rs.	Rs.	Rs.
1	North Coorg	84,021	28,062	5,600	22,462	33%
2	South Coorg	1,48,451	52,611	10,967	31,644	36%
	Total	2,32,472	80,673	16,567	64,106	35%
3	Grain Banks Limited ..	23,656	10,945	...	10,945	46%
4	Non-agricultural Societies Limited.	47,040	2,564	...	2,564	5%
5	Teachers' Co-operative Store Limited.	2,719	412	...	412	15%
6	Weavers' Society	347	28	...	28	8%
	Grand Total .	3,06,248	94,622	16,567	78,055	30%

APPENDIX F.

Table of Cattle Insurance fees.

Amount insured.	Insurance fees.											
	1st year per month.			2nd year per month.			3rd year per month.			4th year per month.		
1	2			3			4			5		
Rs.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
6	0	8	0	0	2	0	0	2	0	0	1	0
9	0	4	6	0	3	0	0	3	0	0	1	6
12	0	6	0	0	4	0	0	4	0	0	2	0
15	0	7	6	0	5	0	0	5	0	0	2	6
18	0	9	0	0	6	0	0	6	0	0	3	0

Note.—The by-laws are based on the following principles:—

- (a) Each society is managed by a committee.
- (b) For each village there shall be a panchayat of three persons, whose duties are:—
 - (i) to value cattle, (ii) to certify death of insured animals.
- (c) The insurance will accept only two-thirds of the actual value.
- (d) Indemnity is paid for death due to:
 - (i) Rinderpest.
 - (ii) Destruction by wild animals.
 - (iii) Accidents or illness over which the owner had no control.
- (e) No claim will be paid:
 - (i) For loss, or theft, or for the act of a third party who is legally liable to compensate the owner.
 - (ii) If in case of contagious disease, or rinderpest, or other serious illness veterinary aid is not asked for.
- (f) Premia are payable for 4 years only, after which period the insurer is entitled to the full value of the policy, provided that the insured animal is certified to be unfit for work, or dead. In the meantime the value of the policy is invested in the society at 6½ per cent interest.

Animals will not be accepted until they have been at least for one year in the possession of the owner.

- (g) No animal above the age of 7 years will be accepted.

APPENDIX G.

Profit and loss account.

No.	Classification.	PROFIT.				LOSS.						Net profit + or loss—
		Interest earned.	Gross profit on sale of stock.	Other items.	Total.	Interest paid and due.	Establishment and contingent charges paid and due.	Debts written off.	Depreciation of stock.	Other items.	Total.	
1	2	3	4	5	6	7	8	9	10	11	12	13
	Agricultural Societies.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1	North Coorg ...	7,832	...	634	8,466	1,454	2,556	85	...	...	4,125	+ 4,351
2	South Coorg ..	18,102	...	1,737	14,365	2,050	3,704	...	...	30	5,804	+ 8,565
	Total ...	20,934	...	2,381	23,315	3,504	6,260	85	...	20	9,929	13,326
3	Grain Banks, Ltd. ...	4,674	...	87	4,761	...	1,188	...	...	...	1,188	+ 3,573
4	Non-agricultural Societies, Limited.	4,176	...	153	4,329	761	1,515	...	...	...	2,276	+ 2,053
5	Teachers' Store Society Limited.	...	569	242	811	36	536	...	...	39	611	+ 200
6	Weavers' Society ..	10	...	18	28	...	...	...	...	...	...	+ 28
	Grand Total ..	29,794	569	2,591	32,354	4,301	9,569	85	...	59	14,034	19,220

APPENDIX H.

*Annual Account of the Coorg Cattle Insurance Societies
for the year ending 30th June 1923.*

No.	Name of Society.	No. of members.	No. of cattle insured.	Value insured.	Receipts.		
					Entrance fees.	Premia.	
						1922.	1923.
1	2	3	4	5	6	7	8
1	Coorg Cattle Insurance Society	191	237	2,905	177	6,111	265

Continued.

Receipts.				Disbursements		Premia paid by owner for the deceased cattle	Balance.	Profit plus, or loss minus
Interest on amount deposited in Co-operative Society.	Other income.		Total.	No. of policies redeemed	Amount paid.			
	From hides	From forfeited policies						
9	10	11	12	13	14	15	16	17
2,148	296	752	3,748	469	6,348	5,083	3,401	+
								2,055

ANNUAL REPORT

ON THE WORKING OF THE

CO-OPERATIVE SOCIETIES

IN THE

BARODA STATE.

FOR THE YEAR 1915-16.

Baroda

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I N D E X

Annual Report of the Co-operative Societies in the Baroda State for the year 1915-16.

:o:

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ANNUAL REPORT
ON THE
WORKING OF CO-OPERATIVE SOCIETIES
IN THE
BARODA STATE
FOR THE
YEAR 1915-16
ENDING
JULY 31ST, 1916.

I. ADMINISTRATION AND TOURING.

STAFF.

1. The office of Registrar was held by me during the year under report, except for one month in May when I went on privilege leave during which time Mr. J. C. Sen acted for me. Mr. Sen joined this Department in January 1916 as an understudy and remained here till the end of the year.

2. The post of Assistant Registrar was held by Mr. M. K. Adhikari. One more Auditor was sanctioned during the year under report, thus bringing their number to five in all. Of these, two worked in the Baroda District and the rest in each of the remaining three Districts.

3. Mr. Narbheram Jamietram of Pattan, Patel Raghunath Kamraj of Bhandu and Patel Dhanjibhai Motibhai of Ladol were enlisted as Honorary Organisers for their Talukas. There are now seven Honorary Organisers and they are rendering fairly good help. However, the number is not enough. Many more men are wanted, but unfortunately they are not coming forward—specially from the educated class. There are men ready to show lip sympathy, but when it comes to actual work of going to villages and working among people their enthusiasm evaporates. However, we must persist in getting as many active workers as possible.

TOURS.

4. I was on tour for 122 days. My work in the Department of Commerce and Industry is increasing and I do not find time to leave the head-quarters for a long period. The time has come when Government should seriously consider the appointment of a separate officer for the post of the Registrar. If that is not possible, some more staff should be sanctioned to assist the Registrar in his work. Unless this is done, the Co-operative movement in the State is not likely to progress well. It has grown to such an extent that it must receive the undivided attention of the Registrar.

II. SUMMARY OF GENERAL PROGRESS.

5. The following table will show the general progress of the Co-operative movement in the State during the year under report :—

The detailed statistics are given at the end of the report. The
SUMMARY OF GENERAL PROGRESS.

Kind of Societies.	Number of Societies.		Number of Members.		Working Capital.	
	1914-15.	1915-16.	1914-15.	1915-16.	1914-15.	1915-16.
	Central	8	3	220	244	1,34,032-0-0	2,34,403-0-0
Agricultural ...	258	295	8,071	8,647	5,36,499-5-4	6,22,375-5-7
Non-agricultural ...	18	25	978	1,729	79,719-0-0	97,158-5-0
Total ...	307	323	9,267	10,620	8,00,250-4-4	9,54,141-10-0

Government of India have revised the forms of these returns and the statements appended to the report are given in the revised forms. The old forms, however, gave full details and they are also printed along with the new ones. The statements of the Central Societies are in the new forms only, while those of

the Agricultural and Non-Agricultural Societies are given in the new as well as old forms.

It will appear from the condensed statement given in the margin that the progress during the year has been rather slow. The Khariff crop failed in both the Kadi and the Amreli Districts and the Rabi crop was also poor as the farmers had to devote their energies to the growth of fodder to save cattle. In the Naosari District the crops were good, but in the Baroda District, on account of the unequal distribution of rains, crops were not full. Had it not been for the high value of cotton, the conditions in this District would have been unfavourable. It has been our experience that societies started in famine years do not work well and they do not show healthy growth. In the early months of the year, some applications for societies were received from the Kadi District and except in villages where the demand was genuine, they were refused. However, taking advantage of the circumstances, efforts were directed towards helping the existing societies and improving their working. More attention is now being paid to putting the existing societies on a sound footing and less to starting new ones. For a year or two more, I propose to follow the same policy.

CANCELLATION OF SOCIETIES.

6. The number of societies at the beginning of the year was 307 and 29 new societies were organised in the year, thus bringing the total to 336. Out of these, 13 societies were closed, thus leaving 323 at the end of the year. Out of the 13 that were closed, three were sent into liquidation as they did not work well, while the rest were cancelled as they failed to start work for one reason or other.

MEMBERSHIP.

7. The total membership of societies has now come up to 10,620 against 9,269 or an increase of 351 over the previous year. The average membership per society was 32.50 against 30.15 in the previous year. The total (gross) working capital of societies increased from Rs. 8,00,280 to Rs. 9,51,191 or from Rs. 2,607 per society to Rs. 2,944. There was a similar rise in the working capital per member from Rs. 86 to Rs. 89. There was a proportionate rise in the deposits received by the societies. At the beginning of the year they amounted to Rs. 2,37,827, while at the end of the year to Rs. 3,19,395.

RESERVE FUND, PROFITS, LOANS, ETC.

8. The Reserve Fund of all the societies amounted to Rs. 98,591 against Rs. 69,585 in the previous year. The net profits earned by all the societies was Rs. 39,576 against Rs. 35,221 in the previous year.

During the year under report loans for Rs. 6,32,915 were given against Rs. 5,86,566 in the preceding year. Out of Rs. 6,02,759 that were due at the end of the year, Rs. 1,08,168 were overdue, most of which were in the Amreli District where there was almost a complete failure of the monsoon current.

GENERAL REMARKS.

9. In the previous report I had stated that the expansion of the co-operative movement will depend upon the ability of the Central Bank and Unions to finance the societies, since Credit Societies are going to form a great majority in the new organisations. I am glad to report that all the Banks and Unions are now able to meet the financial requirements of the old as well as the new societies that may be registered in the near future, with this reservation that they will supply only the short term credit. These Banks and Unions are able to receive short term deposits and they cannot afford to lock up this money in granting loans for long terms. In Gujarat, the agricultural indebtedness is heavy and unless some provision is made for the supply of long term credit through the existing institutions or through special Banks organised for the purpose, the question of old debts is going to be a stumbling block in the development of Co-operative Societies. Out of the produce of the land, the members of Credit Societies have to pay Sowkar's interest or the rent of the land mortgaged but taken for cultivation; these annual charges are heavy and have to be met anyhow. While paying these, the loans from societies become overdue or if re-paid somehow, larger loans are drawn every year with no appreciable reduction in the burden of debts. To meet this situation, I have proposed to Government to give some concessions and allow me to organise a Debt Redemption Bank. The proposal is still before the higher authorities.

10. With the provision of adequate financial facilities, the question of supervision of the existing societies should receive our serious attention. At present this is exercised by the staff of the Department and by the few Honorary Workers. But except the Kodinar Union, the other Banks and Unions have not seriously considered this question. During the year under report, these institutions were several times approached to make some arrangement by which they can see to the working of the societies; but as yet they have not shown any remarkable disposition to take up this function. I hope to arrive at some understanding in the near future and enlist their co-operation. That the primary societies need constant supervision and education in co-operation, there is not the slightest doubt. Special attention is being paid to the improvement of the C and D Class Societies and I am glad to report that slow but certain improvement in their working is noticeable. Now the loans are repaid punctually and the members of Committee do not appropriate to themselves an undue proportion of the loans. Co-operative principles are better understood than before. There are, however, many minor defects in the organisation—in account keeping, in calling Committee meeting at stated intervals, in the observance of the formalities of a well organised institution. But they are found only in societies for which competent secretaries are not available. In the beginning, we depended upon voluntary workers from the villages, from among the society members, but they were not educated enough to satisfactorily discharge their duties: then we took up the school master and in many cases he did well. Group Secretary or the Talati was avoided for the secretarial work. Experience has shown that it is useless to trust too much to a half educated

voluntary worker. He neglects work and the society deteriorates in a short while. All the societies are now closely studied and arrangements are being made to provide competent and paid Secretaries who will do their work regularly and in accordance with the rules. Group Secretaries will be engaged as a last measure. In this way, it is hoped that most of the minor defects will be removed and there will be less need for the close supervision that is required at present. The staff of the Department may well then devote their energies to co-operative education than to finishing incomplete accounts and teaching of men who are not likely to improve. This work will take a year or two more, till when no special attention will be paid to expand the movement. When a new society is now organised, special care is taken that a competent person is available on the spot to work as Secretary.

11. We want to consolidate the movement before expanding it any further. We do not want to take chances. With enthusiasm there should be strict observance of the principles of Co-operation and the formalities required in the conduct of the business.

III. WORKING OF SOCIETIES.

A.—Central Banks and Banking Unions

12. The number of Financing and Supervising Banks and Unions remained the same. I had expected to organise a District Bank at Mehsana for the societies of the Kadi District, but on account of the famine conditions prevailing in the District the idea was given up.

THE BARODA CENTRAL CO-OPERATIVE BANK, LTD.

13. The Bank confines its business to the Baroda and the Kadi Districts and is doing useful work. Though the number of individual share-holders remained the same, *i. e.*, 62, the society share-holders increased from 77 to 99. The working capital of the Bank was Rs. 1,34,387 in the previous and at the end of the year under report it reached Rs. 1,75,161. There was a proportionate rise in the deposits also from Rs. 88,977 to Rs. 1,28,567. It is satisfactory to note that the Bank is now able to get as many deposits from the general public as are required for its business. The loans outstanding with the societies at the end of the year were for Rs. 1,75,161 against those for Rs. 88,977 in the previous year. Most of the loans were punctually returned except those given to some of the societies of the Kadi District which had to be renewed as there was a failure of the crops in that District.

14. I have been requesting the Directors of the Bank to go to the villages and come in close contact with the affiliated societies, but so far, I have not been successful. Most of them are very busy persons with large business of their own and it does not appear that they will take very active part in this way. They are willing to devote any amount of time at the office. In the management of the Bank, I have found them taking a keen interest. If they cannot move out, they should now engage a competent Inspector who will visit the societies and keep the Bank in close touch with the societies financed by it. The Bank is, however, not in a position to engage a well paid man and therefore a scheme of receiving contributions from the societies towards these expenses is being worked out.

The management of the Bank is efficient and Mr. Gandhi, the Manager, is conducting its affairs very satisfactorily.

THE NAOSARI CO-OPERATIVE BANKING UNION, LTD.

15. Like the Co-operative movement in the Naosari District, this Union also stagnated to a certain extent. The number of affiliated societies remained the same, *i.e.*, 36, though the deposits and the working capital increased from Rs. 7,300 and Rs. 37,635 to Rs. 14,549 and Rs. 45,631 respectively. The Agricultural Graduate, whose services were lent by the Agricultural Department, and who served as the Manager of the Union, was called back to the Department and since then the management became rather slack and no great progress was made. His successor fell ill and went on long leave and ultimately resigned his service and another man had to be appointed after some interval. In the present year, the affairs of the Union are going on regularly. The retiring Manager is employed as an Agricultural Inspector for the District, so that his experience could be utilized for the Union.

THE KODINAR BANKING UNION, LTD.

16. * On account of the failure of rains, the Union was not able to do any appreciable business. The recoveries were very poor. The Manager of the Union, whose services were borrowed from the Agricultural Department, was sent back to his Department and a local man appointed in his place. The retiring Manager remains in the District as an Agricultural Inspector and he will be helping the new man in his work.

AGRICULTURAL BANKS.

17. In accordance with the policy laid down by Government, the Agricultural Banks at Bhadran, Amreli, Songhad and Vyara continue to give loans to Co-operative Societies in their Talukas. Every year they are doing an increasing amount of business, especially the Amreli Bank which confines all its new business to Co-operative Societies alone and may be treated as a Central Bank for the societies of the District.

B.—Agricultural Societies.

(1) CREDIT.

18. The table given in the margin shows the growth of the Agricultural Societies in the four Districts of the State during the last three years. Out of the 295 Agricultural Societies, that were on register at the end of the year under report, 292 were Credit and 3 Non-credit. These societies had 8,647 members against 8,142 and a working capital of Rs. 6,22,575 against Rs. 5,43,429 in the previous year. Their loans and deposits from members and non-members increased from Rs. 75,608 to Rs. 1,07,063. In the beginning of the year loans to the extent of Rs. 4,82,362 were due and loans to the extent of Rs. 4,19,492 were made and loans to the extent of Rs. 3,41,367 were repaid leaving Rs. 5,52,334 due from the members. Out of these, Rs. 1,08,163 were overdue (Baroda Rs. 28,193,

District.	1913-14.	1914-15.	1915-16.
Baroda ...	83	116	122
Kadi ...	41	50	50
Naosari ...	52	52	47
Amreli ...	70	68	66
Total ...	246	286	295

Naosari Rs. 15,936, Kadi Rs. 3,105 and Amreli Rs. 60,993). It will be noticed that Amreli shows the largest amount. Successive bad years have almost paralyzed the work of the societies of the District specially of the Amreli Taluka. There are huge Government arrears and till these are cleared, it seems almost impossible for the societies to work. In the Kadi District, the season was bad and the societies had to extend the time of repayment. In the Baroda District, the Padra Taluka has a large amount of unauthorised arrears. Several societies have been cancelled in the Taluka. Some more are served with notices and unless they show some improvement, they will be sent into liquidation. The reserve fund of these societies amounted to Rs. 93,587 against Rs. 66,977 in the previous year and is engaged in the working of the societies except the amount invested in the shares of the Banks and the Unions.

19. In my last year's report, a short summary of the constitution and the system of working of the Agricultural Societies was given. I do not propose to repeat the same over again since no change has been made therein.

20. The principle drawback in the working of these societies is to get competent persons to manage their affairs. In their absence sometimes things are allowed to drift and loans are not collected punctually even though the members may be ready to pay. However, the cases of downright dishonesty are rare and the cases of the Committee members getting an undue share of the loan are becoming rare. The classification of societies according to their status has enabled us to know where greater attention should be paid. It was revised during the year.

PURPOSES OF LOANS.

21. Loans to the extent of Rs. 4,74,091 were made by all the primary societies—Agricultural and Non-agricultural. The table in the margin gives the purposes of these loans.

No	Purpose.	Amount.
		1915-16.
1	For purchasing seeds, manures, etc.	1,71,816- 7- 9
2	For purchasing cattle	48,141-15- 4
3	For implements	4,424- 0- 0
4	For paying land revenue	63,526- 4-10
5	For improving land	15,749- 5- 3
6	For trade... ..	81,101- 7- 3
7	For arts	611- 0- 0
8	For paying debts	61,628-12- 9
9	For household purposes	63,122- 8- ½
10	Miscellaneous	13,669-12- 8
	Total	4,74,091- 9-10½

22. As usual, most of the loans were made for meeting the ordinary expenses of agriculture. Rs. 63,826 were advanced for paying the land revenue. In my previous report, I have explained why loans for this purpose have to be made by the societies. Gradually, more money is advanced for paying old debts. Most of the well-

established societies are freely advancing money for this purpose. Special inquiries were made of three villages to see if it is possible to advance loans for paying old debts. The Baroda Central Co-operative Bank has also consented to set apart some money annually for advancing loans for such purpose. Forms for inquiry into old debts are also prepared and printed, so that accurate information can be collected and placed before the society as well as the Bank. As desired by the Dewan in the Review of this Depart-

ment's working of the year 1914-15, a scheme for a Debt Redemption Bank has been submitted.

Distribution of Agricultural Credit Societies.

BARODA DISTRICT.

23. As usual, the Co-operative movement in this District is leading all the other Districts. There were 122 societies against 116 in the previous year. The most important societies were situated in the Baroda and the Karjan Talukas. Group Conferences of these societies are being frequently held and subjects of common interest discussed. We wanted to have Guaranteeing Unions in these Talukas, but the societies have shown no disposition to have them and I do not like to force them. The Padra Taluka is the weakest in the District and a number of the societies are marked down for cancellation. A Group Secretary was engaged during the year but he failed to make any improvement in the working of societies. It is waste of time and trouble to try to improve these societies and in the current year most of them were sent into liquidation. Most of these societies are the oldest on record.

KADI DISTRICT.

24. The number of societies in this District increased from 50 to 60 during the year and most of these societies were working satisfactorily. In the absence of a Central Bank in the District, it becomes difficult to get money from Baroda. Had it not been for the bad year, we would have succeeded in starting a Central Bank. However, the need is being supplied in the new year. The Honorary Organisers in the District are assisting the movement fairly well.

NAOSARI DISTRICT.

25. There were 47 societies in this District against 52 in the previous ones. Most of the D. class societies that were marked down for cancellation were closed. They were useless societies and were not likely to improve. For a year or so special attention will be paid to the weak societies in the District. However, the societies in the Velachha Taluka were rapidly improving and the societies in the Kamrej Taluka—Variav, Shevni and others were doing good work.

AMRELI DISTRICT.

26. This District was effected by famine this year again and there was no chance of developing the Co-operative movement. We will have to wait for a year or two till we get abundant rain and good harvest. The number of societies in this District was 66 against 68 in the previous year. The Amreli Agricultural Bank was of very great use to the societies in the District. However, it should be noted that it was not doing business as freely as is necessary.

Agricultural Societies.

(2) NON-CREDIT.

27. *Milk Supply Societies.*—Both the Nizampura and the Sayajipura Milk Societies worked at a profit during the year. The Nizampura Society sold 82,551 lbs. of milk, of which 57,362 lbs. were disposed of through the

Depot in the Baroda City. A net profit of Rs. 218-2-0 was made by the society. The Sayajipura Society sold 67,425 lbs. of milk and derived a net profit of Rs. 353-0-0. This society used to sell most of its milk through the Depot at Baroda, but afterwards, on account of some dispute over the quality of supply, the society opened a separate Depot of its own. It also supplied milk to the Countess of Dufferin Hospital. It is necessary to mention here that though the members of the societies profitted in this business, the supply of milk was not very hygiene. These societies require careful supervision for a very long time. It is difficult to persuade the members to keep their utensils clean and to wash their hands before milking and to observe other sanitary precautions. A few of them still believe that it paid them better when they adulterated milk with water.

28. The third society in this group is the Agricultural Machinery Society of Sarar. The society was not working well. In the beginning some mistake was made in fixing the rate for water. Instead of charging per hour of water supplied, a lump sum was fixed for irrigating a bigha of land for the whole season. Then the members became careless and over-irrigated their fields with the result that the crops of sugar-cane were almost ruined. The canes were also affected by disease. The members were scarred and do not now propose to irrigate their lands. No pacca water channels were made and the black soil of the place absorbed a good deal of water. The cost of working the engine and pump came to be rather high and but for the good income that was received from the working of the flour mill and the rice huller, the society should have worked at a loss. Some more money is now required to construct pacca channels but the members are unwilling to incur any more expenditure on the project. This is a new venture and we are all anxious that it should succeed. Efforts are being made to set the whole matter right. Until this society is put on a sound and working basis, the other projects of having Cattle Insurance and Fodder Societies in the village are being held up.

OTHER FORMS OF CO-OPERATION.

29. Besides doing credit business, several societies transacted distributive business for their members. As usual, some societies purchased seeds, "gul", etc., in common and a few societies sold their products together. From the books of the societies, it appears that goods worth Rs. 11,576 were sold to the members. However, in several cases, separate books of accounts are kept and only the net profit entered into the societies' books. I have asked the Auditors to inspect these accounts and see that they are also systematically kept. In the early beginning several societies started separate stores, but all of these had to be closed as they could not get competent men to manage them.

30. The co-operative sale of members' produce has been practised by several societies, but hitherto no separate accounts are kept. The members sell their goods and the proceeds are credited in the books of the societies against the members' individual account. There are good many societies that want to practise co-operative sale, but so long as the members are compelled to sell produce to their Sowkars in payment of the old debts, they are not free men and could not work co-operatively. However, a beginning has been made and the practice is bound to grow as time goes on.

31. Among the other important steps taken in the co-operative ownership of machinery is the purchase of an oil engine and a pump by the Vatadra Society. The machines are working well.

C. Non-agricultural Societies.

(1) CREDIT.

32. In this group there were twenty-two societies. Out of these, 4 were Government Servants' Societies, 5 were Urban Societies, 11 were Weavers' Societies and two were societies for the Antyajias. Of the four Government Servants' Societies, two were situated at Baroda and the other two at Naosari and Mehsana. The Baroda Societies as usual were doing splendid work and they would compare favourably with similar societies anywhere else. The Baroda Government Servants' Society had a membership of 332 against 287 in the previous year. The working capital had increased from Rs. 19,407 to Rs. 24,887 and the deposits from Rs. 14,757 to Rs. 19,465. All the loans were punctually repaid and there was no case of default. The Judicial Departments' Co-operative Society was also working on sound lines and doing useful work. The membership increased from 95 to 110; the working capital from Rs. 5,121 to Rs. 7,323 and the deposits from Rs. 3,974 to Rs. 5,865. All the loans were punctually repaid. It has been observed that members prefer to open savings account here than in the Government Post Office as they can withdraw their money without any trouble. The Naosari Government Servants' Society commenced very recently and it is difficult to say what impression it would make. The Mehsana Society was composed of school teachers of the Kadi District and was doing fairly good work.

33. The Anyoanya Sahakari Mandali, Ltd., was doing fairly good work. Its membership increased from 158 to 200, the working capital from Rs. 33,393 to Rs. 42,905 and the deposits from Rs. 34,291 to Rs. 38,775. Though these statistics indicate a satisfactory state of things, its method of doing business is objectionable. Since the society insist upon taking some tangible security, the Committee of management is careless whether the loans are punctually returned. Personal security is not freely accepted, therefore, the better class of persons do not take advantage of the society. Large deposits are accepted and are placed with the President, the members having no faith in any other Bank. Disproportionately large dividend is declared merely to attract more members. It appears as it is going to be a pawnshop with no consideration for the welfare of the members. Most of the members are Deccani clerks in the various offices and they have peculiar notions of business. I have issued strict notices and unless they improve their method and abide by co-operative principles, I will be compelled to close the society.

34. With the object of rendering financial assistance to small merchants and artisans of the Baroda City, a small Co-operative Town Bank was organised just at the end of the previous year. It has not yet started work, but I hope to set it going in the current year. One such Bank is badly needed. A Town Bank with a similar object has been organised at Vaso and has commenced work very recently. One of its objects is to serve the Co-operative Societies round about the place. It is worked under the supervision of Mr. Motibhai N. Amin and I have every hope that it would serve a very useful purpose.

35. There were 11 Weavers' Societies, of which 10 were in the Kadi District, round about Pattan, and they were doing fairly good work. On account of the failure of rain in the District, the weaving industry was brought to a close and the idea of having a Central Yarn Store could not be carried out. However, a few of the societies purchased yarn for their members. The Fly-shuttle Hand loom Demonstrations were kept going in all the Districts except Amreli.

36. The two Antyaja Societies started in Baroda and reported to have been doing fairly good work in the previous year collapsed in spite of the incessant care from my Assistant. In most cases, the loans remained in arrears and it was difficult to get the members to repay them punctually. Drink and illiteracy are ruining them. There is very good work to be done among these people. They require social workers to constantly visit them and win them over to better methods of living. I approached the Baroda Social Service League to take up the supervision of these societies, but as yet no one has come forward. Unless some such help is received, I will be compelled to wind up the Antyaja Societies.

(2) NON-CREDIT.

37. There were three societies in this group, of which two were stores and one was a Co-operative Milk Depot. The Piludra Co-operative Store was organised during the year, but it has not started work yet and it does not appear it will commence work. The enthusiasm of the members has disappeared. The Baroda Co-operative Store is an old Institution started by Dewan Bahadur V. M. Samarth in the nineties of the last century. It worked well for the first twelve or fifteen years and gathered very valuable experience. It was then working on strictly co-operative principles, but later on the management became lax and the Manager got all the powers. Sales on credit though prohibited were made and large debts accumulated. There are large arrears even now. To rescue this useful Institution from utter ruin, it was decided to reorganise it and get it registered under the Co-operative Societies' Act. Efforts are now being made to clear the old arrears. No credit is now given. Total sales during the year amounted to Rs. 5,816 and a profit of Rs. 353 was made.

38. As reported before, there were two village Co-operative Milk Societies. As an outcome of their organisation, the necessity for a Milk Depot was felt and the Baroda Co-operative Milk Depot was organised to handle their milk in the City. In the beginning, the Depot worked only for the societies, but later on the societies developed tendencies to manage their business independently of the Depot and the Store was left to make its own arrangement for the supply of milk to its 120 members. Now it purchases milk from various sources, many of which are not quite desirable. There is a great demand for good milk, but the members are not willing to pay the proper price.

39. During the year under report, the Depot supplied 1,19,662 lbs. of milk and made a net profit of Rs. 343. To meet the demands of the members, the management was considering to have a dairy farm of its own. The management was quite efficient. Mr. Pradhan, the President, took a keen interest in the work; but I am sorry to report that the handling of the milk was not at all careful. In the early beginning, a Government Supervisor

was engaged for the milk societies. During his term sanitation was carefully attended to, but the post was soon abolished and the necessary precautions were neglected by the societies. I think the withdrawal of Government support was premature. There is an immense scope for the organisation and development of the dairy business on co-operative lines and unless the State lends its full support and sanctions a special staff, the work can not be done.

IV. RESERVE FUND.

40. The Reserve Fund of all the societies amounted to Rs. 98,591-1-3 against Rs. 69,584-15-2 in the previous year.

					Rs. a. p.
Centrals	...	...	...	...	2,184-4-4
Agricultural	...	...	...	...	93,587-9-5
Non-agricultural	...	...	...	...	2,819-3-6
				Total	98,591-1-3

The Reserve Fund of the Central Societies is small. All of them have to work on very small margins and their expenses are comparatively large. It is not possible, therefore, to have a large accumulation of this fund in the early stages. Compared to the total working capital, the Reserve Fund of the Agricultural Societies is very good.

41. The Reserve Fund of all the societies is invested in their working, except a small amount for which shares of the Central Banks are purchased. The Reserve Fund of the Central Societies will now be invested outside.

42. The following table shows the profit and loss statement of all the societies during the last two years.

Year.	Name.	Central.	Agricultural.	Non-agricultural.	Total.
1914-15	1. Profit	10,078-6-5	51,884-4-1	4,912-8-10	66,874-14-7
	2. Expenses	7,288-1-8	21,284-15-0	2,860-15-1	31,458-13-4
	3. Net-profit	2,790-5-5	30,599-7-1	2,051-4-9	35,441-1-3
1915-16	1. Profit	18,785-0-9	62,350-6-6	7,304-8-11	88,440-0-3
	2. Expenses	9,868-11-0	28,694-13-7½	5,079-12-1	43,668-4-8½
	3. Net-profit	8,916-11-9	33,655-8-10½	2,224-12-10	43,800-11-5½

The expenses of management are slowly increasing, however, they are in no way disproportionate to the amount of business done. Some of the defects that are notice-

able in the working of the Agricultural Societies are due to the employment of inadequately paid Secretaries; the societies have been advised to pay them well and get better work. Economy in this respect does not conduce to efficiency. The profits shown will be carried to the Reserve fund next year. No society incurred loss in its working.

V. RESOURCES.

43. The following table gives the sources of the working capital as compared with those of the last two years:—

The different sources of the Working Capital, as compared with those of the last two years.

Number.	NAME.	Central.			Non-agricultural.			Agricultural.			TOTAL.					REMARKS.	
		1913-14	1914-15	1915-16	1913-14	1914-15	1915-16	1913-14	1914-15	1915-16	1913-14	Percentage.	1914-15	Percentage.	1915-16		Percentage.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Loans and Deposits from Non members.	16,744- 9- 2	30,568- 0- 2	45,685- 8- 11	13,149- 12- 0	17,541- 6- 0	11,568- 7- 0	15,313- 8- 2	23,385- 9- 8	4,320- 7- 10	75,207- 13- 4	12 3	76,524- 15- 10	9 5	1,98,569- 7- 9	20 1	
2	Loans and Deposits from other societies.	6,352- 12- 0	3,238- 1- 11	3,034- 2- 1	1,725- 10- 10	4,721- 6- 7	4,792- 6- 0	1,09,804- 2- 9	1,69,549- 9- 1	2,10,218- 10- 1	1,17,338- 9- 7	19 2	1,77,504- 4- 7	22 5	2,16,095- 4- 2	22 1	
3	Loans from Government.	7,200- 0- 0	22,554- 3- 10	48,554- 3- 10	10,770- 0- 0	10,260- 0- 0	9,060- 0- 0	1,84,568- 0- 0	1,79,850- 12- 0	1,71,243- 5- 10	2,02,163- 0- 0	33 2	2,12,604- 15- 10	26 5	2,28,847- 9- 2	28 9	
4	Deposits of Members.	12,005- 5- 3	68,562- 4- 2	† ..	24,080- 8- 9	35,777- 12- 8	54,701- 2- 7	80,572- 11- 8	40,001- 15- 6	66,005- 3- 10	66,606- 9- 9	11 3	1,53,845- 0- 6	19 1	1,50,786- 6- 5	12 6	
5	Share Capital	28,000- 0- 0	81,805- 0- 0	84,900- 0- 0	5,877- 0- 0	7,604- 0- 0	14,212- 0- 0	40,638- 0- 0	42,682- 4- 0	40,120- 0- 0	74,665- 0- 0	12 2	82,091- 4- 0	10 2	59,232- 0- 0	9 3	
6	Reserve Fund	448- 4- 8	1,144- 7- 6	2,154- 4- 4	537- 0- 10	1,468- 2- 2	2,819- 3- 6	43,220- 4- 10	66,977- 5- 6	53,587- 9- 5	41,500- 10- 2	7 8	69,584- 15- 2	8 7	98,591- 1- 3	10 3	
7	Miscellaneous	28,000- 0- 0	28,158- 4- 0	...	2,066- 9- 4	2,411- 9- 10	...	150- 13- 0	51- 11- 3	...	28,228- 6- 4	4 5	28,621- 9- 1	8 6	...	...
	TOTAL	123,806- 14 11	1,81,031- 5- 7	2,34,408- 3- 5	56,567- 9- 9	79,710- 0- 8	97,168- 5- 1	4,23,805- 8- 0	5,35,499- 3- 2	6,22,575- 5- 0	9,19,000- 0- 8	...	8,00,200- 1- 0	..	9,54,141- 13- 9	...	

NOTE - † These are not loans, but they are deposits from the Accountant-General like his deposits with any other Banks.

‡ Included in NO. 1, Col. 5, deposits of members are not shown separately.

44. The gross working capital of the societies was Rs. 9,54,141-13-3. Of this sum, Rs. 2,18,095-4-2, the item of loans and deposits from other societies, was counted twice as these are included in the resources of both the Central as well as primary societies. Taking this sum away, the net working capital of all the societies came to Rs. 7,36,046. Of the various sources of the working capital, the most important item was the loans from Government of Rs. 2,28,847 or 23.9 p.c. Out of this sum, Rs. 48,554-3-10 were Government loans to Central Banks. These loans are not given at any concession rate. The Accountant-General has always large surpluses on hand which he deposits with several Banks at market rate of interest and these loans, really speaking, are not "loans" but are "deposits" and as a matter of fact ought not to be included in that column. If we take away these deposits from the "Loans from Government", it will appear that Government loans are slowly being reduced. Except in a special case when a new type of society is organised, financial assistance from Government is not given. As the instalments fall due, the existing loans will be reduced. All the primary societies are now financed by the Central Banks, Unions and Agricultural Banks. It is satisfactory to note that deposits from members and non-members in all the primary societies are increasing. As the societies are getting established, they are attracting deposits. It is impossible to get large deposits all at once.

VI. DISPUTES AND LITIGATION.

45. Under Sec. 19 of the Rules under the Co-operative Societies' Act, 9 suits were filed, of which two were decided while seven were pending at the end of the year.

VII. AUDIT AND INSPECTION.

46. All the societies except those that were organised towards the end of the year were audited by the Auditors and most of them were inspected by myself or by my Assistant or the Honorary Organisers. Most of the weak societies were inspected twice.

VIII. ACT, RULES AND BYE-LAWS.

47. Rules under the Revised Act were prepared and submitted to Government and were sanctioned during the year under report. Bye-laws for Cattle Insurance, Creameries, and Guaranteeing Unions were prepared.

IX. MISCELLANEOUS.

48. *Conferences.*—Two District and four Taluka Conferences were held during the year under report. The two District Conferences met at Padra for the Baroda District and at Mehsana for the Kadi District and were presided over by Shrimant Ganpatrao Gaekwad, the Naib Dewan and by Shrimant Sampatrao Gaekwar, the Suba, Kadi District, respectively. The Taluka Conferences were held at Miyagaum, Sadhali, Amreli and Kodinar. All the Conferences were very well attended.

49. *Quarterly.*—The editing of the "Agricultural Quarterly" was transferred from the Agricultural to the Co-operative Department. It is now published under the title of "Agriculture and Co-operation". Several improvements have been made in its get up and in the arrangement of subjects.

X. ATTITUDE OF THE PUBLIC AND ASSISTANCE RECEIVED
OFFICIAL AND NON-OFFICIAL.

50. The attitude of the General Public, as usual, continued to be increasingly favourable towards the Co-operative movement. There are more men now ready to help the movement than before. If there be any opposition, it generally comes from the village money-lenders whose interest conflicts with that of the society. Though the Sowkars have, in a few cases, been able to wreck the societies in their early stages their opposition breaks down soon after and better class of money-lenders have been forced helping the societies with their deposits. For a few years we will have to pay more attention to the propaganda work and leaflets and pamphlets are being prepared in Gujarati with the object.

OFFICIAL.

51. Official sympathy and good-will has always helped the movement and during the year under report very good assistance was received from the officers of the Revenue Department. All the four Subas and many Vahiwatdars, specially Messrs. Shevaklal Parikh, Divetia and Vaghjibhai, rendered good help.

NON-OFFICIAL.

52. As remarked in my previous report, most of the assistance from the non-officials comes from the leaders of successful societies and they have been found ever ready to help the movement, specially the backward societies in their neighbourhood.

Thanks of the Department are due to all those official as well as non-official workers.

53. In conclusion, the staff of the Department, the Assistant and the Auditors heartily co-operated in the work and rendered good assistance.

MANILAL B. NANAVATI,

Registrar,

Co-operative Societies.

STATEMENTS.

I.

Central Banks.

STATEMENT*Operations of Central*

Classification.	Number of Members.		Number of affiliated Societies holding shares in Central Banks.				Loans made during the year to	
	Individuals.	Societies.	Central credit.	Agricultural credit.	Non-Agricultural credit.	Others.	Individuals.	Banks and Societies.
I	2	3	4	5	6	7	8	9
I.								
Provincial Bank ... ..	...	...	...	...	...	...	...	...
II.								
CENTRAL BANKS.								
<i>District Baroda.</i>								
Baroda C. C. Bank, Ltd. ...	62	99	...	99	...	...	...	1,26,495
<i>District Navsari.</i>								
Navsari C. Banking Union, Ltd.	16	36	...	36	...	...	...	28,400
<i>District Amreli.</i>								
Kodinar C. Banking Union, Ltd.	..	31	...	31	...	...	...	3,616
Total Central Banks	78	166	...	166	...	...	...	1,58,511
Total Previous year	77	143	...	66	...	...	...	1,33,990

A.

Banks for 1915-16.

Receipts from loans and deposits repaid during the year by		Loans due by		Loans and deposits received during the year from			Sales of goods to members.	Purchase of members' products.
Individuals.	Banks and Societies.	Individuals.	Banks and Societies.	Individuals.	Central Banks.	Primary Societies.		
10	11	12	13	14	15	16	17	18
...
...	1,05,908	..	1,31,568	2,02,170	...	...	...	...
...	29,079	...	30,271	21,663	...	83	...	...
...	3,270	...	11,971	1,368	2,000	691	42	...
...	1,38,257	...	1,73,810	2,25,201	2,000	774	42	...
...	81,997	...	1,53,556	1,59,483	...	534	133	...

STATEMENT

Classification.	Cost of management.	Share capital paid up.	Loans and deposits held at the end of the year from			
			Individuals.	Societies.	Provincial or Central Banks.	Government.
1	19	20	21	22	23	24
I.						
Provincial Bank ... ..	...	...	...	...	...	...
II.						
CENTRAL BANKS.						
<i>District Baroda.</i>						
Baroda C. C. Bank, Ltd. ...	1,365	25,650	1,28,567	...	...	20,354
<i>District Navsari.</i>						
Navsari C. Banking Union, Ltd.	444	4,900	14,549	20	...	26,000
<i>District Amreli.</i>						
Kodinar C. Banking Union, Ltd.	258	4,350	2,570	1,064	2,000	2,200
Total Central Banks ...	2,067	34,900	1,45,686	1,084	2,000	48,554
Total Previous Year ...	1,580	31,805	99,166	3,233	...	22,554

‡ For the purposes of this statement the working capital

A.—*Concluded.*

Reserve Fund.	Working Capital. †	Profit and Loss of the year.	Usual dividend paid on shares.	Most usual rate of Interest.		Uncalled and subscribed Share Capital.
				On borrowings.	On lendings.	
25	26	27	28	29	30	31
...
590	1,75,161	+2,557	P. C. 5½	P. C. 5	7	25,650
1,62	45,631	+ 619	4	4½	6¼	2,700
1,432	13,616	+ 720	...	6	9	1,550
2,184	2,34,408	3,896	...	...	...	29,900
1,144	1,57,903	2,790	5%	5%	7%	29,900

taken to be the total of columns 20 to 25.

STATEMENT
CENTRAL BANKS—
Receipts.

Classification.	Share receipts.	Receipts by Loans and Deposits from			
		Non-members and members in an individual capacity.	Provincial and Central Banks.	Societies.	Government.
1	2	3	4	5	6
I.					
Provincial Bank ... ..	...	...	...	....	....
II.					
CENTRAL BANKS.					
<i>District Baroda.</i>					
Baroda C. C. Bank, Ltd. ...	750	2,02,170	...	...	40,300
<i>District Navsari.</i>					
Navsari C. Banking Union, Ltd.	1,600	21,663	...	83	...
<i>District Amreli.</i>					
Kodinar C. Banking Union, Ltd.	770	1,368	2,000	691	...
Total Central Banks...	3,120	2,25,201	2,000	774	40,300

RECEIPTS AND DISBURSEMENT FOR 1915-16.

Loans and deposits recovered from			Income realized.				Opening balance.	Grand Total including the opening balance (Columns 2 to 9, 13 and 14.)
Individual members.	Provincial and Central Banks.	Societies.	Interest received.	Sale of goods to members.	Other items.	Total income of year. (Columns 10-12.)		
7	8	9	10	11	12	13	14	15
..
..	..	1,05,908	9,890	..	26,145	36,035	392	3,85,555
..	..	29,079	2,354	..	48,004	50,358	127	1,02,910
..	..	3,270	13	42	300	355	204	8,658
..	..	1,38,257	12,257	42	74,449	86,748	723	4,97,123

3 D. C.

STATEMENT

Disburse-

Classification.	Share capital withdrawn.	Loans & deposits repaid to				Loans to		
		Non-members and members in an individual capacity.	Provincial and Central Banks.	Societies.	Government.	Individual members.	Provincial and Central Banks.	Societies.
1	16	17	18	19	20	21	22	23
I.								
Provincial Bank ... ..	...	...	...	...	...	...	...	...
II.								
CENTRAL BANKS.								
<i>District Baroda.</i>								
Baroda C. C. Bank, Ltd. ... ..	...	1,32,581	...	...	40,300	...	...	1,26,495
<i>District Navsari.</i>								
Navsari C. Banking Union, Ltd	25	14,487	...	68	...	...	...	28,400
<i>District Amreli.</i>								
Kodinar C. Banking Union, Ltd	...	1,609	2,000	860	...	..	...	3,616
Total Central Banks ...	25	1,78,677	2,000	928	40,300	...	...	1,58,511

G.—*Concluded.*
ments.

Expenses.		24	25	26	27	28	29	30	31	32
	Interest paid on loans and deposits.	...	...	...	...	...	...	...	...
	Dividend and bonus paid.	...	...	...	...	...	...	...	...
	Stock bought.	...	...	...	...	...	...	...	...
	Establishment and Contingencies.	...	...	...	...	...	...	...	...
	Other items.	...	...	...	...	...	...	...	...
	Total expenditure (Columns 24 to 28).	...	...	...	...	...	...	...	...
	Closing balance.	...	...	...	...	...	...	...	...
	Grand total disbursements including closing balance. (Columns 16 to 23, 29 and 30.)	...	...	...	...	...	...	...	...
	Remarks.									
6,542	1,110	84	2,067	60,319	70,422	46,280	4,97,123			
5,978	1,110	9	1,365	1,635	10,097	46,082	3,85,555			
378	...	...	444	58,984	59,806	124	1,02,910			
186	...	75	258	...	519	54	8,653			

STATEMENT
CENTRAL BANKS—

Classification.	Assets.								Loans and deposits from non-members and from members in an individual capacity.
	Cash in hand and bank.	Market value of investments.	Loans due by members. (Individuals.)	Loans due by banks and societies.	Interest accrued to the bank.	Present value of stock in hand.	Other Items.	Total.	
1	2	3	4	5	6	7	8	9	10
I.									
Provincial Banks ...	...	...	...	...	...	...	...	...	...
II.									
CENTRAL BANKS.									
<i>District Baroda.</i>									
Baroda C. C. Bank, Ltd.	46,082	...	...	1,31,568	...	265	...	1,77,915	1,28,567
<i>District Navsari.</i>									
Navsari C. Banking Union, Ltd.	124	...	...	30,271	693	...	15,889	46,977	14,549
<i>District Amreli.</i>									
Kodinar C. Banking Union, Ltd.	54	...	...	11,971	2,835	33	45	14,938	2,570
Total Central Banks ...	46,260	...	...	1,73,810	3,528	298	15,934	2,39,830	1,45,686

II.
BALANCE SHEET FOR 1915-16.

Liabilities.			
11	Loans and deposits from Provincial and Central Banks.	..	2,000
12	Loans and deposits from societies.	..	1,084
13	Loans from Government.	..	48,554
14	Share capital paid up.	..	34,900
15	Interest due by the bank.	..	880
16	Cost of management due.	..	..
17	Other items.	..	200
18	Reserve fund under section 33 of Act II of 1912.	..	2,184
19	Other funds, <i>e. g.</i> , building funds, etc.	..	342
20	Other undistributed profits carried forward.	..	104
21	Total.	..	2,35,934
22	Profit + and loss—(Column 14, Profit and Loss Statement).	..	+ 3,896
23	Remarks.		
..		..	2,000
..		..	1,064
..		20	26,000
..		..	4,350
..		..	602
..	
..		93	107
..		590	162
..		..	342
..		104	..
..		1,75,358	46,358
..		+ 2,557	+ 619
..		..	14,218
..		..	+ 720

STATEMENT
CENTRAL BANKS—

Classification.	Profit brought forward from last year.	Profit.				Total.
		Interest accrued.	By sale of goods to members.	By purchase and sale of members' products.	Other items.	
1	2	3	4	5	6	7
I.						
Provincial Bank
II.						
<i>Central Banks.</i>						
DISTRICT BARODA.						
Baroda C. C. Bank, Ltd.	9,890	...	...	...	9,890
DISTRICT NAVSARI.						
Navsari C. Banking Union, Ltd.	2,440	...	...	13	2,453
DISTRICT AMRELI.						
Kodinar C. Banking Union, Ltd.	1,142	...	...	300	1,442
Total Central Banks	13,472	...	...	313	13,785

II.

Agricultural Societies.

STATEMENT*Operations of Agricultural*

Classification.	Number of Societies.	Number of Members.	Loans made during the year to		Receipts from loans and deposits repaid during the year by	
			Individuals.	Banks and Societies.	Individuals.	Banks and Societies.
1	2	3	4	5	6	7
CLASS I, CREDIT.						
(a) Limited ... ..	...	...	...	...	...	...
(b) Unlimited ... ..	...	...	...	...	...	...
Baroda	119	3,224	2,28,851	...	1,93,967	2,064
Kadi... ..	60	2,659	74,284	...	50,627	2,250
Navsari	47	1,290	1,01,043	...	95,000	133
Amreli... ..	66	1,386	15,314	...	11,305	...
Total Unlimited...	292	8,559	4,19,492	...	3,50,899	4,447
Total Class I...	292	8,559	4,19,492	...	3,50,899	4,447
Total previous year...	283	8,000	3,95,334	3,922	2,90,632	5,637
CLASS II, PURCHASE.						
Purchase and sale ... ..	...	...	...	...	...	...
CLASS III, PRODUCTION .						
(a) Limited—						
Baroda	1	31	1,619	...	...	...
Kadi... ..	...	...	...	...	...	...
Navsari ... ..	...	...	...	...	...	...
Amreli ... ..	...	...	...	...	...	...
Total Limited...	1	31	1,619	...	...	...
(b) Unlimited ... ..	...	...	...	...	...	...
Total Class III...	1	31	1,619	...	...	...
Total previous year...	1	31	355	...	...	...

B.*Societies for 1915-16.*

Loans due by		Banks and Societies.	Loans and deposits received during the year from			Sale of goods to members.	Purchase of members' products.
Individuals.	Of which over- due.		Individuals.	Central Banks.	Primary Societies.		
8	9	10	11	12	13	14	15
...
...
2,47,601	28,194	2	43,250	1,17,946	...	2,698	...
1,20,355	3,105	315	12,018	16,412	...	2,849	...
1,14,016	15,936	9	13,206	32,150	...	2,343	...
79,650	60,934	...	1,917	9,463	...	384	...
5,61,622	1,08,169	326	70,391	1,75,971	...	8,274	...
5,61,622	1,08,169	326	70,391	1,75,971	...	8,274	...
4,82,293	85,235	1,707	63,953	1,39,933	...	13,412	...
...
213	...	...	2,218	3,112	...	3,302	...
...
...
...
213	...	...	2,218	3,112	...	3,302	...
...
213	...	...	2,218	3,112	...	3,302	...
355	...	...	6,582	1,500	...	576	...

STATEMENT*Operations of Agricultural*

Classification.	Cost of management.	Share capital paid up.	Loans and deposits held		
			Members.	Non-Members.	Societies.
1	16	17	18	19	20
CLASS I, CREDIT.					
(a) Limited ... ..	...	...	...	...	...
(b) Unlimited ... ..	...	...	...	...	...
Baroda	1,910	7,321	29,463	25,767	...
Kadi... ..	761	6,730	18,266	10,834	...
Navsari	669	26,812	13,139	4,050	...
Amreli	689	...	5,039	500	...
Total Unlimited...	4,029	40,863	65,912	41,151	...
Total Class I...	4,029	40,863	65,912	41,151	...
Total previous year...	2,933	41,303	47,322	28,286	...
CLASS II, PURCHASE.					
Purchase and sale ... ..	...	...	...	...	...
CLASS III, PRODUCTION.					
(a) Limited—					
Baroda	1,374	1,420	...	170	...
Kadi ... ..	...	...	...	...	...
Navsari ... ..	...	...	...	...	...
Amreli ... ..	...	...	...	...	...
Total Limited...	1,374	1,420	...	170	...
(b) Unlimited ... ..	...	...	...	...	...
Total Class III...	1,374	1,420	...	170	...
Total previous year...	555	1,300	1,680	100	...

B.*Societies for 1915-16.*

at the end of the year.		Reserve fund.	Working Capital.	Profit and loss for the year.	Usual dividend paid on shares.	Most usual rate of interest	
Provincial or Central Banks.	Government.					On borrowings.	On lendings.
21	22	23	24	25	26	27	28
...
...
1,25,420	53,658	28,383	2,70,017	10,502	..	4½%	9½%
21,627	54,324	17,754	1,29,535	8,031	...	4½%	9½%
36,699	19,360	26,564	1,26,624	6,412	...	4 ¹¹ / ₁₆ %	9½%
23,473	44,727	23,738	97,477	7,923	...	4½%	12½%
2,07,219	1,72,069	96,439	6,23,653	32,868	...	4½%	9½%
2,07,219	1,72,069	96,439	6,23,653	32,868	...	4½%	9½%
1,68,050	1,77,851	66,977	5,29,789	30,169	...	4½%	9½%
...
3,000	2,000	6	6,596	16	...	7%	9½%
...
...
...
3,000	2,000	6	6,596	16	...	7%	9½%
...
3,000	2,000	6	6,596	16	...	7%	9½%
1,500	2,000	...	6,580	6	...	7%	9½%

STATEMENT

Classification.	Number of Societies.	Number of Members.	Loans made during the year to		Receipts from loans and deposits repaid during the year by	
			Individuals.	Banks and Societies.	Individuals.	Banks and Societies.
1	2	3	4	5	6	7
CLASS IV, PRODUCTION AND SALE.						
(a) Limited ... ..	...	...	...	...	...	...
Baroda	2	57	2,307	...	1,205	...
Kadi ... ..	...	...	...	...	...	...
Navsari ... ..	...	...	...	...	...	...
Amreli ... ..	...	...	...	...	...	...
Total Limited...	2	57	2,307	...	1,205	...
(b) Unlimited ... ..	...	...	...	...	...	...
Total Class IV...	2	57	2,307	...	1,205	...
Total previous year...	2	40	214	...	...	...

STATEMENT

Classification.	Cost of management.	Share capital paid up.	Loans and deposits held		
			Members.	Non-Members.	Societies.
1	16	17	18	19	20
CLASS IV, PRODUCTION AND SALE.					
(a) Limited ... ..	...	...	...	...	...
Baroda	1,035	277	173	...	...
Kadi... ..	...	...	...	...	...
Navsari ... ..	...	...	...	...	...
Amreli ... ..	...	...	...	...	...
Total Limited...	1,035	277	173	...	...
(b) Unlimited ... ..	...	...	...	...	...
Total Class IV ...	1,035	277	173	...	...
Total previous year...	318	79	...	...	...

B.—*Concluded.*

at the end of the year.		Reserve fund.	Working Capital.	Profit and loss for the year.	Usual dividend paid on shares.	Most usual rate of interest	
Provincial or Central Banks.	Government.					On borrowings.	On lendings.
21	22	23	24	25	26	27	28
...
..	1,500	58	2,008	572	...	6%	12%
..
..
..
...	1,500	58	2,008	572	...	6%	12%
...
...	1,500	58	2,008	572	...	6%	12%
...	...	...	79	224	...	...	...

STATEMENT

Number and Constitution of Societies.

District.	Taluka.	Class of Society, <i>i. e.</i> , I, II, III, IV, V, or VI.	Type of Society.	Number of Societies.	Number of Members	
			Limited or Un- limited.		At the begin- ning of the year.	At the end of the year.
$\frac{1}{1}$	$\frac{1}{2}$	2	3	4	5	6
Class I, Credit:-						
(a) Limited ...	...	I	Limited.	...	...	...
(b) Unlimited.-						
Baroda ...	Baroda ...	I,	Unlimit- ed.	26	752	670
	Padra ...	I	"	16	333	334
	Sinor ...	I	"	13	220	259
	Dabhoi ...	I	"	6	89	133
	Karzan ...	I	"	25	647	712
	Petlad ...	I	"	14	324	378
	Savli ...	I	"	4	90	96
	Bhadran ...	I	"	7	293	457
	Vaghodia ...	I	"	8	141	190
Total Baroda	District ...	...	...	119	2,889	3,224
Navsari...	Velachha ...	I	Unlimit- ed.	22	666	645
	Vyara ...	I	"	4	90	95
	Songhad ...	I	"	2	66	51
	Kamrej ...	I	"	5	235	217
	Palsana ...	I	"	1	18	18
	Navsari ...	I	"	3	113	62
	Gandevi ...	I	"	3	72	70
	Mahuva ...	I	"	6	113	114
	Vakal ...	I	"	1	34	18
Total Navsari	District ...	...	...	47	1,407	1,290

No. I.

—Agricultural Societies. 1915-16.

Working Capital		Most usual dividend paid on shares.	Most usual rate of interest		Remarks.
At the beginning of the year.	At the end of the year.		On loans issued by Societies.	On deposits.	
7	8	9	10	11	12
...	
66,299-11- 9	66,270- 0- 0	...	9 $\frac{3}{8}$ %	4 $\frac{1}{2}$ %	
22,914-14- 8	22,278-11-11	...	"	"	
15,187- 3- 5	16,117- 4- 5	...	"	"	
5,730-10- 5	11,967-12-10	...	"	"	
52,391-14-10	64,188-15- 1	...	"	"	
23,296- 6- 6	27,746- 8-10	...	"	"	
4,879-15- 6	4,446- 2- 1	...	"	"	
27,544- 5- 7	43,093-13- 9	...	"	"	
8,757- 5- 3	13,907- 5- 8	...	"	"	
2,27,032- 7-11	2,70,016-10- 7	...	9 $\frac{3}{8}$ %	4 $\frac{1}{2}$ %	
78,575- 9- 8	83,137-14-10	...	9 $\frac{3}{8}$ %	4 $\frac{11}{16}$ %	
1,205-14- 2	5,123- 5- 4	...	"	"	
7,084- 2- 6	5,421- 4- 3	...	"	"	
18,587-10- 0	21,412-10- 6	...	"	"	
...	600- 0- 0	...	"	"	
1,299- 7- 6	446- 4- 8	...	"	"	
2,265-10- 0	2,580-15- 2	...	"	"	
2,239- 6- 1	1,687- 7- 0	...	"	"	
1,392- 9-10	195- 5- 0	...	"	"	
1,12,650- 5- 9	1,20,605- 2- 9	...	9 $\frac{3}{8}$ %	4 $\frac{11}{16}$ %	

STATEMENT

District.	Taluka.	Class of Society, <i>i.e.</i> , I, II, III, IV, V or VI.	Type of Society. Limited or Un- limited.	Number of Societies.	Number of Members	
					At the begin- ning of the year.	At the end of the year.
$\frac{1}{1}$	$\frac{1}{2}$	2	3	4	5	6
Kadi ...	Mehesana ...	I	Unlimit- ed.	9	451	501
	Pattan ...	I	"	7	366	500
	Harij ...	I	"	3	63	64
	Visnagar ...	I	"	7	189	227
	Kheralu ...	I	"	1	76	77
	Sidhpur ...	I	"	11	390	366
	Vijapur ...	I	"	4	293	330
	Kalol ...	I	"	6	234	240
	Chanasma ...	I	"	3	106	109
	Kadi ...	I	"	7	194	208
	Dehgam ...	I	"	1	...	16
Atarsumba ...	I	"	1	...	21	
Total Kadi District ...		...	...	60	2,367	2,659
Amreli ...	Amreli ...	I	Unlimit- ed.	26	531	525
	Damnagar ...	I	"	4	81	78
	Dhari ...	I	"	3	65	85
	Kodinar ...	I	"	31	665	667
	Khamba ...	I	"	1	16	16
	Okhamandal ...	I	"	1	...	15
Total Amreli District ...		...	...	66	1,408	1,386
Grand Total Class I. Baroda State ...		...	...	292	8,071	8,559

No. I.—Continued.

Working Capital		Most usual dividend paid on shares.	Most usual rate of interest		Remarks.
At the beginning of the year.	At the end of the year.		On loans issued by Societies.	On Deposits.	
7	8	9	10	11	12
22,773- 8- 3	24,582- 0- 6	...	9 $\frac{3}{8}$ %	4 $\frac{1}{2}$ %	
16,510-12- 9	21,648-12- 9	...	"	"	
4,272- 3- 7	4,462-11- 7	...	"	"	
13,350- 7- 9	17,223- 8- 7	...	"	"	
3,009- 3- 4	3,002-15- 3	...	"	"	
8,031- 8- 6	10,382-11- 2	...	"	"	
15,255- 3-11	17,803-12- 4	...	"	"	
11,569- 4- 4	14,251- 0-11	...	"	"	
4,478- 5- 2	4,831-13- 9	...	"	"	
7,475-13-11	10,343-12- 5	...	"	"	
...	"	"	
...	1,000- 0- 0	...	"	"	
1,06,726- 7- 6	1,29,533- 3- 3	...	9 $\frac{3}{8}$ %	4 $\frac{1}{2}$ %	
53,467- 0- 9	53,344- 7- 1	...	12 $\frac{1}{2}$ %	5%	
4,018-10- 3	5,044- 0-11	...	"	"	
2,457- 1- 4	3,023- 4- 5	...	"	"	
29,847- 1- 8	32,095- 5- 9	...	"	"	
300- 0- 0	309-10- 4	...	"	"	
...	
90,089-14- 0	93,816-12- 6	...	12 $\frac{1}{2}$ %	5%	
5,36,499- 3- 2	6,13,971-13- 1	...	...	...

STATEMENT

District.	Taluka.	Class of Society, <i>i. e.,</i> I, II, III, IV, V, or VI.	Type of Society. Limited or Un- limited.	Number of Societies.	Number of Members	
					At the begin- ning of the year.	At the end of the year.
$\frac{1}{1}$	$\frac{1}{2}$	2	3	4	5	6
Class III.—Pro- duction.						
(a) Limited—						
Baroda	Baroda	III	Limited.	1	31	31
Total Limited	...	...	...	1	31	31
Unlimited—						
Total Class III	...	...	...	1	31	31
Class IV.—Pro- duction and Sale.						
Baroda	Baroda	IV	Limited.	2	40	57
Total Limited	...	...	...	2	40	57
Unlimited—						
Total Class IV	...	...	...	2	40	57
Grand Total Baroda State Agricultural Societies.		...	...	295	8,142	8,647

No. I.—*Concluded.*

Working Capital		Most usual dividend paid on shares.	Most usual rate of interest		Remarks.
At the beginning of the year.	At the end of the year.		On loans issued by Societies.	On deposits.	
7	8	9	10	11	12
6,626-14- 6	6,596- 1- 6	...	9 $\frac{3}{8}$ %	7%	
6,626-14- 6	6,596- 1- 6	...	...	...
...	
6,626-14- 6	6,596- 1- 6	...	9 $\frac{3}{8}$ %	7%	
303- 2- 8	2,007- 6- 5	...	12%	6%	
303- 2- 8	2,007- 6- 5	...	...	...
...	
303- 2- 8	2,007- 6- 5	...	12%	6%	
5,43,429- 4- 4	6,22,575- 5- 0	...	...	...

STATEMENT*Receipts.—Agricultural*

Item No.	District.	Taluka.	Class of Society, s, I, II, III, IV, V or VI.	Type of Society.	Receipts.					
					Share payments.	Loans and Deposits.				
						By Members.	By Non-mem- bers.	By Central and other Societies.	By Govern- ment.	
1	2	3	4	5	6	7	8	9		
	Class I. Credit:—									
	(a) Limited. .. ..				..	..	..	..	..
	(b) Unlimited.—									
1	Baroda.	Baroda ..	I	Unlimit- ed.	...	2,740- 9- 7	8,394-15-6	24,400- 0- 0	...	
		Padra ..	I	..	...	600- 0- 0	...	500- 0- 0	...
		Sinor ...	I	..	5	921- 5- 3	30- 0- 9	12,200- 0- 0	...	
		Dabhoi ..	I	..	...	474- 0- 0	2,458- 0- 0	9,650- 0- 0	...
		Karjan ..	I	..	130	4,589- 2- 4	4,770- 8- 0	39,886-10- 4	1,000	
		Petlad ...	I	..	...	932- 0- 0	2,257- 1- 0	6,300- 0- 0	...
		Savli ...	I	..	...	446- 0- 1	422- 7- 9	...	...
		Bhadran.	I	..	410	3,447- 0- 9	10,312- 5- 9	15,108-14- 0	3,000	
		Vaghodia.	I	..	...	455- 0- 0	...	9,900- 0- 0	...
	Total Baroda District...				...	545	14,605- 2- 0	28,645- 6- 9	1,17,945- 8- 4	4,000
2	Navsari.	Velachha.	I	Unlimit- ed.	170	1,652- 8- 0	3,065- 0- 0	23,850 0- 0	...	
		Vyara ...	I	..	...	...	..	3,800- 0- 0	...
		Songhad.	I	..	...	...	...	...	...
		Kamrej ...	I	..	80	6,127- 0- 0	1,440- 0- 0	2,000- 0- 0	...	
		Palsana ...	I	..	...	...	510- 0- 0	1,000- 0- 0	...
		Navsari ...	I	..	...	85- 0- 0	...	...	...
		Gandevi ..	I	..	...	100- 0- 0	...	1,000- 0- 0	...
		Mahuva ...	I	..	...	210- 0- 0	...	...	...
		Vakal ...	I	..	...	17- 0- 0	...	500- 0- 0	...
	Total Navsari District...				...	250	8,191- 8- 0	5,015- 0- 0	32,150- 0- 0	...

No. II.

Societies, 1915-16.

Loans repaid by		Interest received.	Sale of goods to Members.	Deposits from surplus balance received back.	
Members.	Central and other Societies.			From individuals.	From Central Bank, Union, Agri. Bank, Post Office, or Societies.
10	11	12	13	14	15
...
49,120-13-8	...	4,604-14-7	330-3-9	6,405-0-9	716-10-4
3,557-14-2	...	1,565-6-1	...	...	1,267-11-2
17,334-8-0	...	1,285-4-3	...	...	..
9,791-3-0	...	694-1-11	...	...	..
50,843-6-5	...	4,165-1-6	1,958-1-6	250-0-0	50-0-0
9,093-7-4	...	1,902-2-2	410-0-6	285-0-0	30-0-0
4,273-1-9	...	471-0-9	...	...	..
34,961-15-6	...	3,289-6-7	...	175-0-0	..
7,875-12-0	...	588-2-2	...	...	..
1,86,832-1-10	...	18,565-8-0	2,698-5-9	7,115-0-9	2,064-5-6
69,108-1-2	...	7,166-6-11	...	...	..
647-12-8	...	168-2-9	...	90-0-0	..
745-5-2	...	910-12-11	...	...	133-0-0
15,811-4-3	...	1,521-10-2	1,467-10-10½	3,515-0-0	..
...	875-4-0	...	..
1,246-13-3	...	98-10-4	...	...	..
1,204-1-5	...	208-6-2	...	...	..
832-7-11	...	255-7-11	...	...	..
1,799-0-0	..	128-3-6	...	...	..
91,394-13-10	...	10,457-12-8	2,342-14-10½	3,605-0-0	133-0-0

STATEMENT

Receipts.—Agricultural

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Income.		Opening balance.	Grand total including the Opening balance.
					Other income.	Total income of the year.		
1	2	3	4	16	17	18	19	
Class I. Credit :—								
	(a) Limited .. ..	..	..	..	..	..	..	..
	(b) Unlimited.—							
1	Baroda.	Baroda ...	I	Unlimited.	253-13- 0	96,967- 1- 2	2,450-11- 1	99,417-12- ;
		Padra ...	I	..	41- 0- 0	7,531-15-5	549- 6-11	8,681- 6- 4
		Sinor ...	I	..	158- 0- 0	31,934- 2- 3	717- 4- 6	32,651- 6- 9
		Dabhoi ...	I	..	292- 0- 0	23,359- 4-11	19- 6- 3	23,378-11- 2
		Karjan ...	I	..	413- 0- 0	1,08,055-14- 1	3,524-13- 0	1,11,580-11- 1
		Petlad ...	I	..	74- 3- 3	21,283-14- 3	992- 2- 1	22,276- 0- 4
		Savli ...	I	..	14- 4- 0	5,626-14- 4	144-10- 7	5,771- 8-11
		Bhadran.	I	..	90-14- 6	70,795- 9- 1	1,562-12- 8	72,358- 5- 9
		Vaghodia.	I	..	110- 0- 0	18,928-14- 2	274- 3- 5	19,203- 1- 7
		Total Baroda District...	...	...	1,447- 2- 9	3,84,483- 9- 8	10,235- 6- 6	3,94,719- 0- 2
2	Navsari	Velachha.	I	Unlimited.	194- 0- 0	1,05,206- 0- 1	2,777- 1- 2	1,07,983- 1- 3
		Vyara ...	I	..	105- 0- 0	4,810- 15- 5	4-13- 9	4,814-13- 2
		Songad ...	I	..	...	1,789- 2- 1	6-15- 9	1,796- 1-10
		Kamrej ...	I	..	25- 0- 0	31,987- 9-3½	2,529-15-10	34,517- 9- 1½
		Palsana ...	I	..	54- 0- 0	2,439- 4- 0	...	2,439- 4- 0
		Navsari ...	I	..	5- 0- 0	1,435- 7- 7	90-10-10	1,526- 2- 5
		Gandevi..	I	..	...	2,512- 7- 7	44- 6- 5	2,556-14- 0
		Mahuva ...	I	..	2- 0- 0	1,299-15-10	202- 5- 0	1,502- 4-10
		Vakal ...	I	..	20- 0- 0	2,464- 3- 6	7-15- 4	2,472- 2-10
		Total Navsari District..	...	...	405- 0- 0	1,53,945- 1- 4½	5,663- 4- 1	1,59,608- 5- 5½

No. II.—Continued.

Societies, 1915-16.

Disbursements.						
Share Capital with- drawn.	Loans and Deposits repaid to				Loans to	
	Members.	Non-members.	Central and other Socie- ties.	Government	Members.	Central and other Socie- ties.
20	21	22	23	24	25	26
...
...	1,500-15-4	5,632-11-6	22,651-2-6	1,675-0-0	49,340-13-4	...
...	...	...	1,400-0-0	1,913-6-6	3,313-0-0	...
...	24-11-0	25-8-0	12,500-0-0	230-0-0	18,196-2-0	...
...	5-0-0	1,295-0-0	5,300-0-0	100-0-0	15,915-0-0	...
...	583-8-0	3,353-12-0	35,893-14-8	800-0-0	62,386-3-9	..
...	308-4-0	1,142-10-6	3,901-2-0	550-0-0	13,152-4-4	...
...	...	322-7-9	1,000-0-0	250-0-0	3,640-0-0	...
...	4,446-4-0	5,978-10-3	7,147-0-0	300-0-0	50,648-12-0	...
...	...	...	5,525-0-0	200-0-0	12,258-14-1	...
...	6,868-10-4	17,750-12-0	95,318-3-2	6,018-6-6	2,28,851-1-6	...
30	65-0-0	1,965-0-0	18,700-0-0	2,990-0-0	77,196-0-0	...
...	...	...	...	...	4,556-2-0	...
...	...	...	1,470-0-0	100-0-0	25-0-0	...
...	2,071-0-0	355-0-0	5,000-0-0	...	16,648-9-6½	...
...	...	510-0-0	400-0-0	...	..	...
...	...	...	1,000-0-0	...	310-13-3	...
...	...	...	950-0-0	...	1,391-0-0	...
...	...	...	883-9-6	...	296-10-9	...
...	...	...	1,750-0-0	...	619-0-0	...
30	2,136-0-0	2,630-0-0	30,153-9-6	3,090-0-0	1,01,043-3-6½	...

STATEMENT*Disbursements.—Agricultural*

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Disburse			
					Interest paid on loans and deposits.	Dividend and bonus paid.	Stock and goods bought.	Establishment and contingencies.
1	2	3	4	27	28	29	30	
	Class I. Credit :—							
	(a) Limited							
	(b) Unlimited :—							
1	Baroda.	Baroda ...	I	Unlimited.	2,286- 5- 8	...	...	355- 7- 0
		Padra ...	I	"	368- 8- 1	...	...	248- 8- 9
		Sinor ...	I	"	901- 3- 3	...	...	108-15- 6
		Dabhoi ...	I	"	372- 8- 2	...	...	48- 3- 3
		Karjan ...	I	"	2,617-15- 3	...	1,809-5- 0	624-12- 7
		Petlad ...	I	"	801-11-11	...	361- 0- 0	224- 3- 4
		Savli ...	I	"	179-15- 0	...	...	36-13- 9
		Bhadran.	I	"	1,335- 7- 2	...	5- 1- 0	165-10- 6
		Vaghodia.	I	"	413- 6- 5	...	...	97- 0- 8
	Total Baroda District...			..	9,277- 0-11	...	2,175- 6- 0	1,909-11- 4
2	Navsari.	Velachha.	I	Unlimited.	1,896-10- 0	...	...	499- 6- 1
		Vyara ...	I	"	..	...	...	57- 8- 0
		Songhad.	I	"	54- 1- 6	...	...	3- 8- 0
		Kamrej ...	I	"	853- 6- 7	...	1,500- 0- 0	69- 5- 0
		Palsana ...	I	"	26- 0- 6	...	990- 0- 0	5-12- 6
		Navsari ...	I	"	62- 8- 0	...	...	..
		Gandevi .	I	"	105- 6- 8	...	...	12-11-10
		Mahuva...	I	"	87-10- 6	...	...	15- 8- 0
		Vakal ...	I	"	91- 2- 4	...	...	5- 7- 0
	Total Navsari District...			..	3,176-14- 1	—	2,490- 0- 0	669- 2- 5

No. II.—Continued.

Societies, 1915-16.

Surplus balance deposited		Other items.	Carried to reserve.	Total expenditure.	Closing balance.	Grand total expenditure including the Closing balance.	Remarks.
With individuals.	In Central Bank, Agri. Bank, Union or Societies.						
31	32	33	34	35	36	37	38
...	
7,808- 1- 8	2,357- 0- 6	235- 8- 3	...	93,843- 1- 9	5,574-10- 6	99,417-12- 3	
...	174-11- 2	...	...	7,418- 2- 6	663- 3-10	8,081- 6- 4	
...	...	125- 0- 0	...	32,111- 7- 9	539-15- 0	32,651- 6- 9	
...	...	75- 0- 0	...	23,110-11- 5	267-15- 9	23,378-11- 2	
950- 0- 0	150- 0- 0	203- 9- 0	...	1,09,373- 0- 3	2,207-10-10	1,11,580-11- 1	
355- 0- 0	...	20- 0- 0	...	20,816- 4- 1	1,459-12- 3	22,276- 0- 4	
...	...	...	...	5,429- 4- 6	342- 4- 5	5,771- 8-11	
173- 0- 0	...	292- 0- 0	...	70,493-12-11	1,864- 8-10	72,358- 5- 9	
...	...	50- 0- 0	...	18,544- 5- 2	658-12- 5	19,203- 1- 7	
9,288- 1- 8	2,681-11- 8	1,001- 1- 3	...	3,81,140- 2- 4	13,578-13-10	3,94,719- 0- 2	
...	...	1,100- 0- 0	...	1,04,442- 0- 1	3,541- 1- 2	1,07,983- 1- 3	
90- 0- 0	...	...	...	4,703-10- 0	111- 3- 2	4,814-13- 2	
...	142- 1- 3	...	...	1,794-10- 9	1- 7- 1	1,796- 1-10	
7,338- 9- 2	...	283- 6-11	...	34,119- 5-2½	398- 3-11	34,517- 9-1½	
...	...	50- 0- 0	...	1,981-13- 0	457- 7- 0	2,439- 4- 0	
...	...	50- 0- 0	...	1,423- 5- 3	102-13- 2	1,526- 2- 5	
...	...	50- 0- 0	...	2,509- 2- 6	47-11- 6	2,556-14- 0	
...	...	200- 0- 0	...	1,483- 6- 9	18-14- 1	1,502- 4-10	
...	...	...	...	2,463- 9- 4	6- 9- 6	2,472- 2-10	
7,428- 9- 2	142- 1- 3	1,733- 6-11	...	1,54,922-14-10½	4,685- 6- 7	1,59,608- 5-5½	

STATEMENT

Item No.	District.	Taluka.	Class of Society, I, II, III, IV, V or VI.	Type of Society.	Share payment.	Receipts.			
						Loans and Deposits.			
						By Members.	By Non-members.	By Central and other Societies.	By Government.
1	2	3	4	5	6	7	8	9	
3	Kadi.	Mehesana.	I	Unlimited.	...	1,344- 0- 0	100- 0- 0	1,812- 8- 0	1,000-0-0
		Pattan ...	I	"	...	1,436- 0- 0	68- 0- 0	4,500- 0- 0	1,000-0-0
		Harij ..	I	"	...	14- 4- 0	...	...	...
		Visnagar.	I	"	...	500- 8- 8	116- 0- 0	4,900- 0- 0	800-0-0
		Kheraloo.	I	"	...	135- 0- 0	...	...	...
		Sidhpur...	I	"	...	115- 0- 0	...	1,000- 0- 0	2,000-0-0
		Vijapur...	I	"	25	2,130- 0- 0	3,486- 6- 4	...	800-0-0
		Kalol ...	I	"	...	365- 0- 0	1,060- 0- 0	500- 0- 0	...
		Chanasma	I	"	...	170-10- 0	...	...	...
		Kadi ...	I	"	...	777-11-10	200- 0- 0	3,700- 0- 0	...
	Dehgam.	I	"	...	...	...	...	...
	Atarsumba	I	"	...	...	...	...	1,000-0-0	
	Total Kadi District	...	...	...	25	6,988- 2- 6	5,030- 6- 4	16,412- 8- 0	6,600-0-0
4	Amreli.	Amreli ...	I	Unlimited.	...	274- 0- 0	805- 8- 0	1,763- 2- 0	...
		Damnagar	I	"	...	52- 0- 0	...	1,200- 0- 0	...
		Dhari ...	I	"	...	33- 0- 0	380- 0- 0	700- 0- 0	...
		Kodinar...	I	"	...	373- 0- 0	...	5,799- 9- 5	...
		Khamba.	I	"	...	...	...	...	...
		Okhamandal.	I	"	...	...	...	...	...
	Total Amreli District	...	...	...	...	732- 0- 0	1,185- 8- 0	9,462-11- 5	...
	Grand Total Baroda State.								
	Unlimited.								
	Total Class I..	...	...	...	820	30,516-12- 6	39,876- 5- 1	1,75,970-11- 9	10,800-0-0

No. II.—Continued.

Loans repaid by		Interest received.	Sale of goods to Members.	Deposits from surplus balance received back.	
Members.	Central and other Societies.			From individual.	From Central Bank, Union, Agri. Bank, Post Office, or Societies.
10	11	12	13	14	15
11,962- 5- 6	...	1,129- 0- 3	231- 4- 0	...	1,020- 0- 0
4,892- 1- 6	...	1,329- 3- 6	1,224- 5- 9	...	...
126- 0- 0	..	47- 8- 1	...	...	...
10,633- 6- 6	230	1,494-10- 6	997- 0- 6	...	...
350- 0- 0	...	33- 4-10	0-14- 0	...	...
2,317- 7- 6	...	175- 0- 0	...	15- 0- 0	...
8,021-12- 9	1,000	589- 0-10	...	...	...
5,135- 2- 0	...	568- 7- 0	31-13- 0	...	...
1,733- 0- 0	...	336- 0- 6	13-13- 0	...	...
5,440- 4- 5	...	503- 4- 4	350- 0- 0	...	...
...
...
50,611- 8- 2	1,230	6,205- 7-10	2,849- 2- 3	15- 0- 0	1,020- 0- 0
3,993- 7- 6	...	2,620- 3- 0	56- 4- 0	...	...
1,824- 0- 0	...	287- 9- 0	102- 0- 0	...	...
514- 0- 0	...	110- 9-10	225-12- 0	...	...
4,973- 2- 9	...	2,586- 3- 4	0- 8- 0	...	...
...
...
11,304-10-3	...	5,604- 9- 2	384- 8- 0	...	...
3,40,163- 2- 1	1,230	40,833- 5- 8	8,274-14-10½	10,735- 0- 9	3,217- 5- 6

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.			Opening balance.	Grand total including the Opening balance.
					Other income.	Total income of the year.		
1	2	3	4	16	17	18	19	
3	Kadi.	Mehesana.	I	Unlimited.	529- 1- 3	19,128- 3- 0	3,682-12- 5	22,810-15- 5
		Pattan ...	I	"	614-12- 0	15,064- 6- 9	1,456- 6- 1	16,520-12-10
		Harij ...	I	"	...	189-12- 1	281- 4-10	471- 0-11
		Visnagar.	I	"	276-13-10	19,948- 8- 0	505-14- 9	20,454- 6- 9
		Kheraloo.	I	"	12- 4- 0	531- 6-10	183-11-10	715- 2- 8
		Sidhpur ...	I	"	1,029-12- 9	6,652- 4- 3	167- 8- 4	6,819-12- 7
		Vijapur ...	I	"	761- 0- 5	16,813- 4- 4	479- 7-11	17,292-12- 3
		Kalol ...	I	"	65-13- 9	7,726- 3- 9	478- 6- 4	8,204-10- 1
		Chanasma.	I	"	253- 6- 6	2,506-14- 0	51- 2- 8	2,558- 0- 8
		Kadi ...	I	"	89- 3- 0	11,060- 7- 7	366-15-11	11,427- 7- 6
		Dehgam ...	I	"	...	...	..	...
Atarsumba	I	"	42- 0- 0	1,042- 0- 0	...	1,042- 0- 0		
Total Kadi District		...	...	3,676- 3- 6	1,00,663- 6- 7	7,653-11- 1	1,08,317- 1- 8	
4	Amreli.	Amreli ...	I	Unlimited.	77- 4- 6	9,589-13- 0	2,717-15- 6	12,307-12- 6
		Damnagar.	I	"	6- 8- 0	3,472- 1- 0	287- 5- 0	3,759- 6- 0
		Dhari ...	I	"	40- 4- 0	2,003- 9-10	29-15- 1	2,033- 8-11
		Kodinar ...	I	"	81- 0- 2	13,813- 7- 8	1,227- 3- 3	15,040-10-11
		Khamba ...	I	"	...	...	67-15- 0	67-15- 0
		Okhamandal.	I	"	...	...	...	...
Total Amreli District		...	...	205- 0- 8	28,878-15- 6	4,330- 5-10	33,209- 5- 4	
Grand Total Baroda State.								
Unlimited.								
Total Class I...				5,733- 6-11	6,67,971- 1- 1½	27,882-11- 6	6,95,853-12- 7½	

No. II.—Continued.

Disbursements.						
Share Capital with- drawn.	Loans and Deposits repaid to				Loans to	
	Members.	Non-members.	Central and other Socie- ties.	Government.	Members.	Central and other Socie- ties.
20	21	22	23	24	25	26
...	653- 1- 0	210- 0- 0	1,900- 0- 0	850- 0- 0	15,598- 8- 0	...
...	56- 0- 0	1,033- 0- 0	1,400- 0- 0	500- 0- 0	11,044-15- 6	...
...	...	...	...	160- 0- 0	245-12- 0	...
...	744- 0- 0	761 7- -6	1,468-12- 0	650- 0- 0	14,197- 0- 0	...
...	6- 0- 0	...	...	200- 0- 0	346- 0- 0	...
...	5- 0- 0	...	803- 3- 6	300- 0- 0	4,603-15- 0	...
5	2,123- 8- 0	1,468-10- 9	430- 0- 0	300- 0- 0	10,287- 3-10	...
...	...	60- 0- 0	...	100- 0- 0	7,155- 4- 0	...
...	5- 0- 0	...	29- 0- 0	...	1,991- 0- 0	...
...	500- 0- 0	...	1,600- 0- 0	...	7,986- 2- 0	...
...
...	...	...	...	...	828- 0- 0	...
5	4,092- 9- 0	3,533- 2- 3	7,630-15- 6	3,060- 0- 0	74,283-12- 4	...
...	22- 0- 0	805- 8- 0	906- 0- 0	2,580- 0- 0	5,373- 0- 0	...
...	6- 0- 0	...	390- 0- 0	100- 0- 0	2,816- 0- 0	...
...	...	30- 0- 0	580- 0- 0	100- 0- 0	1,061- 0- 0	...
...	15- 0- 0	...	3,885- 3- 6	1,435-15- 8	6,013- 2-10	...
...	...	...	...	...	51- 0- 0	...
...
...	43- 0- 0	835- 8- 0	5,761- 3- 6	4,213-15- 8	15,314- 4-10	...
35	13,140- 3- 4	24,949- 6- 3	1,38,863-15- 8	16,382- 6- 2	4,19,492- 6- 2½	...

STATEMENT

Item.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.	Disburse			
					Interest paid on loans and deposits.	Dividend and bonus paid.	Stock and goods bought.	Establishment and contingencies.
1	2	3	4	27	28	29	30	
3	Kadi.	Mehesana.	I	Unlimited.	576-10-5	..	...	165-7-3
		Pattan ...	I	"	355-0-2	...	1,224-5-9	155-6-7
		Harij ...	I	"	30-5-4	...	...	18-0-0
		Visnagar ...	I	"	400-9-0	...	1,230-3-9	37-9-6
		Kheraloo ...	I	"	39-8-11	...	9-3-3	7-13-9
		Sidhpur ...	I	"	329-12-5	...	...	90-10-0
		Vijapur ...	I	"	211-1-3	...	...	91-5-6
		Kalol ...	I	"	266-9-9	...	33-2-0	104-4-8
		Chanasma.	I	"	175-0-0	...	...	11-11-3
		Kadi ...	I	"	331-0-2	...	...	72-3-8
		Dehgam ...	I	"	...	...	...	...
		Atarsumba	I	"	...	...	...	7-10-0
	Total Kadi District	...	...	...	2,715-9-5	...	2,496-14-9	762-2-2
4	Amreli.	Amreli ...	I	Unlimited.	934-4-10	...	50-11-0	288-3-3
		Damnagar.	I	"	118-8-2	...	120-0-0	28-6-6
		Dhari ...	I	"	39-1-3	...	120-13-6	23-1-0
		Kodinar ...	I	"	1,455-3-3	...	...	343-0-3
		Khamba ...	I	"	...	...	...	0-6-0
		Okhamandal.	I	"	...	...	...	...
	Total Amreli District	...	...	...	2,447-1-6	...	291-8-6	683-10-0
	Grand Total Baroda State Unlimited.							
	Total Class I...	...	...	...	17,616-9-11	...	7,453-13-3	4,029-9-11

No. II.—Continued.

Surplus balance deposited		Other items.	Carried to reserve.	Total expenditure.	Closing balance.	Grand total expenditure including the Closing balance.	Remarks.
With individuals.	In Central Bank, Agri. Bank, Union or Societies.						
31	32	33	34	35	36	37	38
...	1,368-4-3	25-0-0	...	21,346-14-11	1,464-0-6	22,810-15-5	
...	...	50-0-0	...	15,818-12-0	702-0-10	16,520-12-10	
...	...	...	...	454-1-4	16-15-7	471-0-11	
...	5-6-0	50-0-0	...	19,544-15-9	909-7-0	20,454-6-9	
...	2-4-0	...	...	610-13-11	104-4-9	715-2-8	
520-2-6	...	25-0-0	...	6,677-11-5	142-1-2	6,819-12-7	
618-8-5	...	...	...	15,565-5-9	1,757-6-6	17,292-12-3	
...	1-0-0	0-5-0	...	7,720-9-5	484-0-8	8,204-10-1	
184-6-6	...	86-6-5	...	2,482-8-2	75-8-6	2,558-0-8	
...	...	25-0-0	...	10,514-5-10	913-1-8	11,427-7-6	
...	
...	...	...	...	835-10-0	206-6-0	1,042-0-0	
1,323-1-5	1,376-14-3	261-11-5	...	1,01,541-12-6	6,775-5-2	1,08,317-1-8	
171-15-9	...	140-1-0	...	11,171-13-10	1,135-14-8	12,307-12-6	
...	...	30-0-0	...	3,608-14-8	150-7-4	3,759-6-0	
...	...	...	...	1,958-15-9	74-9-2	2,033-8-11	
...	928-4-0	895-9-7	...	14,970-0-1	70-10-10	15,040-10-11	
...	...	...	...	51-6-0	16-9-0	67-15-0	
...	
171-15-9	928-4-0	1,065-10-7	...	31,761-2-4	1,448-3-0	33,209-5-4	
18,211-12-0	5,128-15-2	4,061-14-2	...	6,69,366-0-3	26,487-12-7	6,95,853-12-7	

STATEMENT

Item No.	Districts	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Share payment.	Receipts.			
						Loans and Deposits.			
						By Members.	By Non-members.	By Central and other Societies.	By Government.
1	2	3	4	5	6	7	8	9	
Class II—Purchase and Purchase and sale			...	...	...	...	...	...
Class III.—Production.									
(a) Limited.—									
	Baroda | Baroda |	III	Limited.	120	493- 2- 9	1,794-11- 9	3,112- 8- 0	...	
(b) Unlimited .. ..			...	...	...	...	...	...
Total Class III			..	120	493- 2- 9	1,794-11- 9	3,112- 8- 0	...	
Class IV.—Production and sale.									
(a) Limited:—									
	Baroda | Baroda |	IV	Limited.	277	533-15- 2	...	...	1,500
(b) Unlimited ... ..			...	...	...	...	...	...
Total Class IV			...	277	533-15- 2	...	...	1,500
Grand Total Baroda State Agricultural Societies			...	1,217	31,543-14-5	41,671- 0-10	1,79,083- 3- 9	1,2100	

No. II.—Continued.

Loans repaid by		Interest received.	Sale of goods to Members.	Deposits from surplus balance received back.	
Members.	Central and other Societies.			From individuals.	From Central Bank, Union, Agri. Bank, Post Office, or Societies.
10	11	12	13	14	15
...
...	3,301-14-4	...	2,809-6-6
...
...	3,301-14-4	...	2,809-6-6
1,204-12-6	...	153-0-3	...	...	...
...
1,204-12-6	...	153-0-3	...	...	...
3,41,367-14-7	1,230	40,986-5-11	11,576-13-2½	10,735-0-9	6,026-12-0

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Income.		Opening balance.	Grand total including the Opening balance.
					Other income.	Total income of the year.		
1	2	3	4	16	17	18	19	
Class II.—Purchase and Purchase and sale.			...	...	...	...	...
Class III—Production.								
(a) Limited:—								
	Baroda	Baroda	III	Limited.	...	11,631-11-4	50-7-3	11,682-2-7
(b) Unlimited ... ..			...	...	...	...	...
Total Class III	11,631-11-4	50-7-3	11,682-2-7
Class IV.—Production and sale.								
(a) Limited:—								
	Baroda	Baroda	IV	Limited.	8,263-5-0	11,932-0-11	89-4-6	12,021-5-5
(b) Unlimited ... ..			...	...	...	...	...
Total Class IV	8,263-5-0	11,932-0-11	89-4-6	12,021-5-5
Grand Total Baroda State Agricultural Societies	13,996-11-11	6,91,534-13-4½	28,022-7-3	7,19,557-4-7½

No. II.—Continued.

Disbursements.						
Share Capital with- drawn.	Loans and Deposits repaid to				Loans to	
	Members.	Non-members.	Central and other Socie- ties.	Government,	Members.	Central and other Socie- ties.
20	21	22	23	24	25	26
...
...	2,173- 2- 9	1,744-11- 9	1,612- 8- 0	...	1,618-13- 3	...
...
...	2,173- 2- 9	1,744-11- 9	1,612- 8- 0	...	1,618-13- 3	...
79-4-0	147- 0- 0	...	...	...	2,306-11- 0	...
...
79-4-0	147- 0- 0	...	...	...	2,306-11- 0	...
114-4-0	15,460- 6-	126,694- 2-	01,40,476 -7- 8	16,382- 6- 2	4,23,417-14- 5½	...

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Disburse			
					Interest paid on loans and deposits.	Dividend and bonus paid.	Stock and goods bought.	Establishment and contingencies.
1	2	3	4	27	28	29	30	
Class II.—Purchase and Purchase and sale	
Class III.—Production.								
(a) Limited:—								
Baroda | Baroda | III	Limited.	256-15-10	..	2,531- 9- 3	1,373-15- 9	
(b) Unlimited	
Total Class III	256-15-10	...	2,531- 9- 3	1,373-15- 9	
Class IV.—Production and sale.								
(a) Limited	
Baroda | Baroda | IV	45- 4- 3	1,034-14- 6	
(b) Unlimited	
Total Class IV	45- 4- 3	1,034-14- 6	
Grand Total Baroda State Agricultural Societies	17,873- 9- 9	..	10,030-10- 9	6,438- 8- 2	

No. II.—*Concluded.*

Surplus balance deposited		Other items.	Carried to reserve.	Total expenditure.	Closing balance.	Grand total expenditure including the Closing balance.	Remarks.
With individuals.	In Central Bank, Agri. Bank, Union or Societies.						
31	32	33	34	35	36	37	38
...	
...	...	366- 9- 0	...	11 678- 5- 7	3-13- 0	11,682- 2- 7	
...	
...	...	366- 9- 0	...	11,678- 5- 7	3-13- 0	11,682- 2- 7	
...	300- 0- 0	7,112- 1- 8	...	11,025- 3- 5	996- 2- 0	12 021- 5- 5	
...	
..	300- 0- 0	7,112- 1- 8	...	11,025- 3- 5	996- 2- 0	12,021- 5- 5	
18,211-12- 0	5,428-15- 2	11,540- 8-10	...	6,92,069- 9- ½	27,487-11- 7	7,19,557- 4- 7½	

STATEMENT

Balance Sheet.—

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.	Cash in hand.	Surplus balance deposited with		Value of investments.
						Individuals.	Central Bank, Union, Agri. Bank, Post Office or Society.	
1	2	3	4	5	6	7	8	
	Class I. Credit:—							
	(a) Limited							
	(b) Unlimited.—							
1	Baroda.	Baroda ...	I	Unlimited.	5,574-10-6	3,619-0-5	2,292-0-6	525-0-0
		Padra ...	I	"	663-3-10	...	959-6-11	...
		Sinor ...	I	"	539-15-0	...	...	300-0-0
		Dabhoi ..	I	"	267-15-9	...	...	...
		Karjan ...	I	"	2,207-10-10	700-0-0	100-0-0	700-0-0
		Petlad ...	I	"	1,459-12-3	70-0-0	5-0-0	389-0-0
		Savli ...	I	"	342-4-5	...	...	50-0-0
		Bhadran.	I	"	1,864-8-10	...	...	400-0-0
		Vaghodia.	I	"	658-12-5	...	...	175-0-0
	Total Baroda District...				13,578-13-10	4,389-0-5	3,356-7-5	2,539-0-0
2	Navsari.	Velachha.	I	Unlimited.	3,541-1-2	...	...	2,650-0-0
		Vyara ...	I	"	111-3-2	90-0-0	...	...
		Songad ...	I	"	1-7-1	...	9-1-3	100-0-0
		Kamrej ...	I	"	398-3-11	6,463-9-2	...	550-0-0
		Palsana ...	I	"	457-7-0	...	...	50-0-0
		Navsari ...	I	"	102-13-2	...	...	150-0-0
		Gandevi ...	I	"	47-11-6	...	...	250-0-0
		Mahuva ...	I	"	18-14-1	...	...	550-0-0
		Vakal ...	I	"	6-9-6	...	...	100-0-0
	Total Navsari District...				4,685-6-7	6,553-9-2	9-1-3	4,400-0-0

No. III.

Agricultural Societies, 1915-16.

Assets.							
Loans due by Members.	Of which overdue.	Loans due by Societies.	Of which overdue.	Interest due to Society.	Value of stock and goods in hand.	Other items.	Total.
9	10	11	12	13	14	15	16
...
541,49-15-6	...	...	...	3,522-11-7	42-2-6	127-8-0	69,853-1-0
19,812-2-5	16,982-2-5	1-9-9	...	2,742-15-7	...	125-0-0	24,304-6-6
15,538-11-0	...	...	...	350-15-11	...	...	16,729-9-11
12,073-15-9	3,079-15-9	...	...	212-2-10	...	125-0-0	12,679-2-4
61,110-8-5	7,440-3-5	...	...	2,647-5-0	95-13-9	...	67,561-6-0
26,420-12-8	...	...	...	1,712-5-5	54-8-0	...	30,111-6-4
4,275-6-3	691-6-3	...	...	138-9-5	...	...	4,806-4-1
41,393-0-6	...	...	...	1,519-4-2	109-5-0	0-14-0	45,287-0-6
12,826-11-1	...	...	...	850-0-2	...	...	14,510-7-8
2,47,601-3-7	28,193-11-10	1-9-9	...	13,696-6-1	301-13-3	378-6-0	2,85,842-12-4
79,867-14-10	9,242-14-10	5-5-3	...	2,561-7-10	...	...	88,625-13-1
4,537-11-3	413-2-6	...	...	634-0-7	...	...	5,372-15-0
5,652-13-3	4,627-13-3	3-13-5	...	961-1-3	...	...	6,728-4-3
14,275-0-3½	482-4-11	...	...	334-7-8	...	108-6-11	22,129-11-11½
...	...	...	...	...	114-12-0	...	622-3-0
228-0-0	...	...	...	1-2-3	...	...	481-15-5
2,272-6-7	881-6-7	...	...	220-3-10	...	...	2,790-5-11
1,144-6-10	288-8-10	...	...	49-3-1	...	...	1,762-8-0
152-0-0	...	...	...	9-12-2	...	...	268-5-8
1,06,130-5-½	15,936-2-11	9-2-8	...	4,771-6-8	114-12-0	108-6-11	1,28,782-2-3½

STATEMENT

Balance Sheet

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Loans and Deposits from				Any other source.	Lia
					Non-Members.	Central Bank, Agri. Bank, Union or Societies.	Government.	Members.		
1	2	3	4	17	18	19	20	21		
	Class I. Credit.									
	(a) Limited									
	(b) Unlimited.—									
1	Baroda.	Baroda ...	I	Unlimited.	6,491- 8- 6	25,348-13- 6	17,575- 0- 0	7,813- 4- 0	...	
		Padra ...	I	"	...	1,800- 0- 0	9,602- 9- 6	2,952- 0- 0	...	
		Sinor ...	I	"	29-11- 9	11,600- 0- 0	1,680- 0- 0	1,214- 6- 9	...	
		Dabhoi ...	I	"	2,408- 0- 0	6,950- 0- 0	700- 0- 0	1,174- 0- 0	...	
		Karjan ...	I	"	2,256- 8- 0	42,762- 6- 0	5,600- 0- 0	7,556- 0- 0	...	
		Petlad ...	I	"	2,159-14- 6	12,674- 0- 0	6,500- 0- 0	2,989- 0- 0	...	
		Savli ...	I	"	100- 0- 0	300- 0- 0	1,900- 0- 0	976- 0- 1	...	
		Bhadran.	I	"	12,321- 0- 9	14,509-11- 0	7,700- 0- 0	3,743-12- 9	...	
		Vaghodia.	I	"	...	9,475- 0- 0	2,400- 0- 0	1,090- 0- 0	...	
	Total Baroda District...				25,766-11- 6	125,419-14- 6	53,657- 9- 6	29,468- 7- 7	...	
2	Navsari.	Velachha.	I	Unlimited.	1,500- 0- 0	22,350- 0- 0	15,860- 0- 0	4,604- 9- 0	...	
		Vyara ...	I	"	...	3,800- 0- 0	800- 0- 0	...	...
		Songad ...	I	"	...	2,632-15- 6	1,000- 0- 0	88- 1- 9	...	
		Kamrej ...	I	"	2,485- 0- 0	5,250- 0- 0	...	6,993-12- 0	...	
		Palsana ...	I	"	...	600- 0- 0	...	...	...
		Navsari ..	I	"	...	...	...	165- 0- 0	...
		Gandevi.	I	"	65- 0- 0	1,700- 0- 0	...	375- 0- 0	...	
		Mahuva...	I	"	...	366- 6- 6	...	809- 0- 0	...	
		Vakal ...	I	"	...	...	...	104- 0- 0	...
	Total Navsari District ...				4,050- 0- 0	36,699- 6- 0	17,660- 0- 0	13,139- 6- 9	...	

No. III.

Agricultural Societies, 1915-16.

bilities.							
Share Capital.	Interest and dividend due by Society.	Cost of management due.	Other items.	Reserve fund.	Total.	Profit + and Loss.	Remarks.
22	23	24	25	26	27	28	29
...	
330	935- 2- 9	...	...	8,711- 6- 0	67,205- 2- 9	+2,647-14- 3	
2 030	463- 2- 6	77- 8- 0	0- 0- 9	5,894- 2- 5	22,819- 7- 2	1,484-15- 4	
371	204- 6- 0	...	...	1,222- 1-11	16,321-10- 5	407-15- 6	
...	141-12-10	...	...	735-12-10	12,109- 9- 8	569- 8- 8	
970	1,189- 8- 6	...	44- 6- 6	5,044- 1- 1	65,422-14- 1	2,138- 7-11	
810	1,011- 1- 8	78-12-0	...	2,613-10- 4	28,836- 6- 6	1,274-15-10	
140	22- 7- 1	...	...	1,030- 2- 0	4,468- 9- 2	337-10-11	
2,670	834-13- 2	...	...	2,149- 5- 3	43,923-10-11	1,358- 5- 7	
...	321- 7- 6	...	...	982- 5- 8	14,223-13- 2	281-10- 6	
7,321	5,123-14- 0	156- 4- 0	44- 7- 3	28,382-15- 6	2,75,341- 3-10	+10,501- 8- 6	
17,380	332-11- 2	...	...	21,443- 5-10	83,470-10- 0	+5,155- 3- 1	
...	113- 3-10	...	...	523- 5- 4	5,236- 9- 2	136- 5-10	
1,110	944-15- 9	156- 0- 0	...	590- 3- 0	6,522- 4- 0	206- 0- 3	
5,682	130-12- 8	...	...	1,001-14- 6	21,543- 7- 2	586- 4- 9	
...	14- 1- 0	...	...	...	614- 1- 0	8- 2- 0	
...	5- 6- 6	...	...	281- 4- 8	451-11- 2	30- 4- 3	
...	44-15-11	...	...	440-15- 2	2,625-15- 1	164- 6-10	
200	19- 8- 6	...	...	312- 0- 6	1,706-15- 6	55- 8- 6	
...	3- 4- 1	...	...	91- 5- 0	198- 9- 1	69-12- 7	
24,373	1,608-15- 5	156- 0- 0	...	24 684- 6- 0	1,22,370-2- 2	+6,413- 0- 13	

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.	Cash in hand.	Surplus balance deposited with		Value of investments
						Individuals,	Central Bank, Union, Agri. Bank, Post Office or Society.	
1	2	3	4	5	6	7	8	
3	Kadi.	Mehesana.	I	Unlimited.	1 464- 0- 6	...	348- 4- 3	50- 0- 0
		Pattan ...	I	"	702- 0-10	...	...	50- 0- 0
		Harij ...	I	"	16-15- 7	...	...	25- 0- 0
		Visnagar.	I	"	909-7- 0	...	5- 6- 0	100- 0- 0
		Kheraloo.	I	"	104- 4- 9	...	2- 4- 0	...
		Sidhpur ...	I	"	142- 1- 2	505- 2- 6	...	25- 0- 0
		Vijapur ...	I	"	1,757- 6- 6	618- 8- 5	...	...
		Kalol ...	I	"	484- 0- 8	...	1- 0- 0	50- 0- 0
		Chanasma.	I	"	75- 8- 6	184- 6- 6	...	25- 0- 0
		Kadi ...	I	"	913- 1- 8	...	...	50- 0- 0
		Debgam ...	I	"	...	...	..	...
		Atarsumba	I	"	206- 6- 0	...	...	...
		Total Kadi District		6,775- 5- 2	1,308- 1- 5	356-14- 3	375- 0- 0
4	Amreli.	Amreli ...	I	Unlimited.	1,135-14- 8	171-15- 9	...	397- 8- 0
		Damnagar.	I	"	150- 7- 4	...	...	45- 0- 0
		Dhari' ...	I	"	74- 9- 2	...	...	7- 8- 0
		Kodinar ...	I	"	70-10-10	...	928- 4- 0	4,220- 0- 0
		Khamba ...	I	"	16- 9- 0	...	...	7- 8- 0
		Okhamandal.	I	"	...	...	...	...
Total Amreli District		...	...	1,448- 3- 0	171-15- 9	928- 4- 0	4,677- 8- 0	
Grand Total Baroda State.								
Unlimited.								
Total Class I...		...	...	26,487-12- 7	12,422-10- 9	4,650-10- 11	11,991- 8- 0	

No. III.—Continued.

Assets.							
Loans due by Members.	Of which overdue.	Loans due by Societies.	Of which overdue.	Interest due to Society.	Value of stock and goods in hand.	Other items.	Total.
9	10	11	12	13	14	15	16
23,000- 7- 6	235- 0- 0	...	...	1,687-10- 7	18- 0- 0	...	26,568- 6-10
21,808- 7- 4	...	...	...	1,047-15- 6	...	...	23,608- 7- 8
3,418-14- 8	1,062- 3- 3	...	...	1,483- 0- 2	...	...	4,943-14- 5
16,257-11- 9	...	315- 0- 0	...	890- 1- 3	233- 3- 3	...	18,710-13- 3
2,501- 0- 0	185- 0- 0	...	...	307- 1-11	330-12- 3	...	3,245- 6-11
9,610- 8- 9	...	...	...	1,156-14-11	...	...	11,439-11- 4
15,477- 6- 1	1,598- 2- 0	...	...	1,092-15- 0	...	...	18,946- 4- 0
13,693-12- 0	...	...	...	968-15- 0	66- 5- 0	0- 5- 0	15,264- 5- 8
4,575- 0- 0	25- 0- 0	...	...	174- 0- 7	28-10- 6	...	5,062-10- 1
9,183-10- 0	...	...	...	671- 7- 1	...	...	10,818- 2- 9
...
823- 0- 0	...	...	...	5- 5- 0	...	...	1,039-11- 0
1,20,354-14- 1	3,105- 5- 3	315- 0- 0	...	9,435- 7- 0	676-15- 0	0- 5- 0	1,39,647-13-11
44,679-13-10	39,306-11-10	...	...	14,258- 5- 5	...	20- 4- 0	60,663-13- 8
4,808- 0- 0	1,992- 0- 0	...	...	524-10-11	24- 8- 0	40- 5- 0	5,592-15- 3
2,958- 0- 0	1,897- 0- 0	...	...	288- 3- 1	26-13- 0	23- 3- 0	3,378- 4- 3
23,517-15- 8	17,504-12-10	...	...	4,829- 0- 5	...	46- 1- 5	33,612- 0- 4
284- 0- 0	233- 0- 0	...	...	38- 9-10	...	...	346-10-10
...
76,247-13- 6	60,933- 8- 8	...	...	19,938-13- 8	51- 5- 0	129-13- 5	1,03,593-12- 4
5,52,334- 4- 2½	1,09,168-12- 8	335-12- 5	...	47,892- 1- 5	1,144-13- 3	616-15- 4	6,57,866- 8-10

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Loans and Deposits from					Lia
					Non-Members.	Central Bank, Agri. Bank, Union or Societies.	Government.	Members.	Any other source.	
					17	18	19	20	21	
3	Kadi.	Mehesana.	I	Unlimited.	614- 0- 0	2,412- 8- 0	11,650- 0- 0	5,166- 7- 9...		
		Pattan ...	I	"	339- 8- 0	4,500- 0- 0	7,500- 0- 0	4,112- 0- 0...		
		Harij ..	I	"	...	400- 0- 0	2,100- 0- 0	535- 7- 0...		
		Visnagar.	I	"	25- 0- 0	4,676- 4- 0	7,250- 0- 0	1,690- 4- 8...		
		Kheraloo.	I	"	...	...	1,124- 0- 0	829- 0- 0...	
		Sidhpur...	I	"	...	896-12- 6	7,100- 0- 0	1,075- 0- 0...		
		Vijapur...	I	"	8,026- 0- 1	570- 0- 0	4,500- 0- 0	2,277- 0- 0...		
		Kalol ...	I	"	1,629- 0- 0	1,500- 0- 0	7,100- 0- 0	1,040- 0- 0...		
		Chanasma	I	"	...	1,471- 0- 0	2,000- 0- 0	403-10- 0...		
		Kadi ...	I	"	200- 0- 0	5,200- 0- 0	3,000- 0- 0	1,136-11-10...		
		Debgam.	I	"	...	...	...	...
		Atarsumba	I	"	...	...	1,000- 0- 0	...	
		Total Kadi District	...	...	10,833- 8- 1	21,626- 8- 6	54,324- 0- 0	18,265- 9- 3...	
4	Amreli.	Amreli ...	I	Unlimited.	...	3,331-14-11	32,077- 0- 0	2,233-15- 3...		
		Damnagar	I	"	...	1,335- 0- 0	3,000- 0- 0	230- 0- 0...		
		Dhari ...	I	"	500- 0- 0	1,407- 8- 0	600- 0- 0	149- 0- 0...		
		Kodinar...	I	"	...	17,098- 6- 2	6,424-12- 4	2,426- 0- 0...		
		Khamba.	I	"	...	300- 0- 0	...	...
		Okhaman- dal.	I	"	...	...	...	...
		Total Amreli District	...	...	500- 0- 0	23,472-13- 1	42,101-12- 4	5,038-15- 3...	
		Grand Total Baroda State.								
		Unlimited.								
		Total Class I..	...	...	41,150- 3-	72,07,218-10- 1	1,67,743- 5-10	65,912- 6-10...	

III.—Continued.

bilities.							Remarks.
Share Capital.	Interest and dividend due by Society.	Cost of management due.	Other items	Reserve fund.	Total.	Profit + and Loss—.	
22	23	24	25	26	27	28	
1,195	393- 8- 5	...	3-11- 0	3,544- 0- 9	24,979- 3-11	+ 1,589- 2-11	
2,680	185- 8-11	8-0-0	...	2,517- 4- 9	21,842- 5- 8	1,766- 2- 0	
...	188- 2-10	...	..	1,427- 4- 7	4,650-14- 5	293- 0- 0	
...	227- 1- 2	6-0-0	...	3,581-15-11	17,456- 9- 9	1,254- 3- 6	
...	34- 0- 8	...	...	1,049-15- 3	3,036-15-11	208- 7- 0	
...	69-10- 0	...	...	1,310-14- 8	10,452- 5- 2	987- 6- 2	
1,645	478- 2-10	...	...	785-12 3	18,281-15- 2	664- 4-10	
590	251-15- 3	...	...	2,392- 0-11	14,503- 0- 2	761- 5- 6	
620	11- 4- 5	3-0-0	...	337- 3- 9	4,846- 2- 2	216- 7-11	
...	208- 8-11	15-0-0	...	807- 0- 7	10,567- 5- 4	250-13- 4	
...	
...	...	...	...	...	1,000- 0- 0	39-11- 0	
6,730	2,047-15- 5	32-0-0	3-11- 0	17,753- 9- 5	1,31,616-13-8	+ 8,031- 0- 3	
...	1,366- 1- 8	54-0-0	...	15,701- 8-11	54,764- 8- 9	+ 5,899- 4-11	
...	147-11- 1	...	...	479- 0-11	5,191-12- 0	401- 3- 3	
...	116-14- 6	...	...	366-12- 5	3,140- 2-11	238- 1- 4	
...	142- 5- 3	...	...	6,146- 3- 3	32,237-11- 0	1,374- 5- 4	
...	27- 5- 7	...	...	9-10- 4	336-15-11	9-10-11	
...	
...	1,800- 6- 1	54-0-0	...	22,703- 3-10	95,671- 2- 7	7,922- 9- 9	
38,423	10,581- 2-11	398-4-0	48- 2- 3	93,524- 2- 9	6,24,999- 6-3	+32,867- 2-7	

STATEMENT

Item No.	District.	Taluka.	Class of Society, I, II, III, IV, V, or VI.	Type of Society.	Cash in hand.	Surplus balance deposited with		Value of investments.
						Individuals.	Central Bank, Union, Agri. Bank, Post Office or Society.	
1	2	3	4	5	6	7	8	
Class III.—Production.								
(a) Limited:—								
	Baroda	...	III	Limited.	3-13- 0	...	...	25- 0- 0
	(b) Unlimited	...	...	...	...	...	...	...
	Total Class III	...	...	...	3-13- 0	...	...	25- 0- 0
Class IV.—Production and sale.								
(a) Limited:—								
	Baroda	...	IV	Limited.	996- 3- 0	...	300- 0- 0	...
	(b) Unlimited	...	...	..	...	...	...	...
	Total Class IV	..	...	...	996- 2- 0	...	300- 0- 0	...
Grand Total Baroda State Agricultural Societies ..					27,487-11- 7	13,422-10- 9	4,950-10-11	12,016- 8- 0

No. III.—*Concluded.*

Assets.							
Loans due by Members.	Of which overdue.	Loans due by Societies.	Of which overdue.	Interest due to Society	Value of stock and goods in hand.	Other items.	Total.
9	10	11	12	13	14	15	16
213- 2- 6	6,282- 2- 3	103-12- 9	6,627-14- 6
..
213- 2- 6	6,282- 2- 3	103-12- 9	6,627-14- 6
1,101-14- 6	81- 9- 9	223- 8- 0	2,705- 2- 3
..
1,101-14- 6	\$1- 9- 9	223- 8- 0	2,705- 2- 3
5,53,649- 5- 2½	1,08,168-12- 8	323-12- 5	..	47,892- 1- 5	7,508- 9- 3	946- 4- 1	6,67,169- 9- 7½

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Liabilities				
					Loans and Deposits from				
					Non-Members	Central Bank, Agri. Bank, Union or Societies.	Government.	Members.	Any other source.
1	2	3	4	17	18	19	20	21	
Class III.—Production.									
(a) Limited:—									
	Baroda	...	III	Limited.	170- 4- 3	3,000- 0- 0	2,000- 0- 0	...	...
(b) Unlimited					...	"	...	...	...
	Total Class III	...	...	...	170- 4- 3	3,000- 0- 0	2,000- 0- 0	...	...
Class IV.—Production and sale.									
(a) Limited:—									
	Baroda	...	IV	Limited.	...	...	1,500- 0- 0	172-13- 0	...
(b) Unlimited					...	...	...	...	...
	Total Class IV	...	...	...	...	...	1,500- 0- 0	172-13- 0	...
	Grand Total Baroda State Agricultural Societies	...	...	...	41,320- 7-10	2,10,218-10- 1	1,71,243- 5-10	66,085- 3-10	...

III.—*Concluded.*

bilities,							Remarks,
Share Capital,	Interest and dividend due by Society,	Cost of management due,	Other items.	Reserve fund,	Total,	Profit + and Loss—,	
22	23	24	25	26	27	28	
1,420	15-5-0	..	...	5-13-3	6,611-6-6	+ 16-8-0	
...	
1,420	15-5-0	...	...	5-13-3	6,611-6-6	+ 16-8-0	
277	...	...	125-13-7	57-9-5	2,133-4-0	+ 571-14-3	
...	
277	...	...	125-13-7	57-9-5	2,133-4-0	+ 571-14-3	
40,120	10,596-7-11	398-4-0	173-15-10	93 687-9-5	6,33 744-0-9	+33,455-8-10½	

STATEMENT*Profit and Loss account.—*

Item No.	District.	Taluka.	Type of Society.	Profit.			Total.
				Interest earned.	Gross Profit on sales of stock.	Other items.	
1	2	3	4	5	6	7	
	Class I. Credit :—						
	(a) Limited ...	...	...	...	...	...	...
	(b) Unlimited :—						
1	Baroda.	Baroda	Unlimited.	5,523- 2- 4	79-10- 3	187- 6- 3	5,790- 2-10
		Padra	"	2,262-11- 6	...	41- 0- 0	2,303-11- 6
		Sinor	"	1,365- 4-11	...	158- 0- 0	1,523- 4-11
		Dabhoi	"	782-11- 4	...	292- 0- 0	1,074-11- 4
		Karjan	"	5,507- 6-11	127-11- 3	413- 0- 0	6,048- 2- 2
		Petlad	"	2,663- 1- 5	28-10- 6	74- 3- 3	2,765-15- 2
		Savli	"	485- 7- 5	...	14- 4- 0	499-11- 5
		Bhadran	"	3,327-13-10	...	84- 8- 6	3,412- 6- 4
		Vaghodia	"	855- 6- 2	...	110- 0- 0	965- 6- 2
	Total Baroda District..			22,773- 1-10	236- 0- 0	1,374- 6- 0	24,383- 7-10
12	Navsari.	Velachha	Unlimited.	7,353- 4-11	...	194- 0- 0	7,547- 4-11
		Vyara	"	178- 1- 8	...	105- 0- 0	283- 1- 8
		Songhad	"	635-14- 4	...	...	635-14- 4
		Kamrej	"	1,455- 5- 3	...	...	1,455- 5- 3
		Palsana	"	...	...	54- 0- 0	54- 0- 0
		Navsari	"	82- 2- 1	...	5- 0- 0	87- 2- 1
		Gandevi	"	261-11- 4	...	...	261-11- 4
		Mahuva	"	146- 7- 8	...	2- 0- 0	148- 7- 8
		Vakal	"	137- 4- 1	...	20- 0- 0	157- 4- 1
	Total Navsari District..			10,250- 3- 4	...	380- 0- 0	10,630- 3- 4

No. V.

Agricultural Societies, 1915-16.

Loss.						Net Profit or Loss.	Remarks.
Interest paid and due.	Establishment and contingent charges paid and due.	Debts written off.	Depreciation of stock.	Other items.	Total.		
8	9	10	11	12	13	14	15
...	
2,666- 5- 4	348- 7- 0	...	...	127- 8- 3	3,142- 4- 7	+ 2,647-14- 3	
520-11- 5	298- 0- 9	...	...	...	818-12- 2	1,484-15- 4	
1,009-13-11	105- 7- 6	...	...	...	1,115- 5- 5	407-15- 6	
456-15- 5	48- 3- 3	..	...	...	505- 2- 8	569- 8- 8	
3,295- 1- 0	614- 9- 3	...	...	...	3,909-10- 3	2,138- 7-11	
1,227- 8- 0	263- 7- 4	...	...	...	1,490-15- 4	1,274-15-10	
130- 2- 9	31-13- 9	...	...	...	162- 0- 6	337-10-11	
1,888- 6- 3	165-10- 6	...	...	...	2,054- 0- 9	1,358- 5- 7	
586-11- 0	97- 0- 8	..	...	...	683-11- 8	281-10- 6	
11,781-11- 1	1,972-12- 0	...	...	127- 8- 3	13,881-15- 4	10,501- 8- 6	
1,908-11- 9	483- 6- 1	...	...	...	2,392- 1-10	+ 5,155- 3- 1	
89- 3-10	57- 8- 0	..	...	..	146-11-10	136- 5-10	
354- 6- 1	75- 8- 0	...	...	...	429-14- 1	206- 0- 3	
767- 6- 4	69- 5- 0	...	32- 5- 1½	...	869- 0- 5½	586- 4- 9½	
40- 1- 6	5-12- 6	...	...	...	45-14- 0	8- 2- 0	
56-13-10	...	...	...	...	56-13-10	30- 4- 3	
88- 8- 0	8-12- 6	...	...	...	97- 4- 6	164- 6-10	
77- 7- 2	13- 8- 0	...	...	...	92-15- 2	55- 8- 6	
82- 0- 6	5- 7- 0	...	...	...	87- 7- 6	69-12- 7	
3,464-11- 0	721- 3- 1	...	32- 5- 1½	...	4,218- 3- 2½	6,412- 0- 1½	

STATEMENT

Item No.	District.	Taluka.	Kind of Society.	Profit.			Total.
				Interest earned.	Gross Profit on sales of stock.	Other items.	
1	2	3	4	5	6	7	
3	Kadi.	Mehesana ...	Unlimited.	2,225- 2-10	...	232- 6- 0	2,477- 8-10
		Pattan ...	"	1,752- 3- 8	...	607- 4- 0	2,359- 7- 8
		Harij... ...	"	423-14- 3	...	2- 0- 0	425-14- 3
		Visnagar ...	"	1,511- 5- 3	...	272- 3- 4	1,783- 8- 7
		Kheraloo ...	"	277- 5- 3	...	10- 0- 0	287- 5- 3
		Sidhpur ...	"	973- 4- 7	...	396- 3- 0	1,369- 7- 7
		Vijapur ...	"	1,117-11- 2	...	142- 8- 0	1,260- 3- 2
		Kalol... ...	"	1,198-11- 6	...	64-13- 9	1,263- 9- 3
		Chanasma ...	"	372- 6- 2	...	9- 0- 0	381- 6- 2
		Kadi ...	"	758- 9- 0	...	89- 3- 0	847-12- 0
		Dehegam ...	"	...	...	...	...
Atarsumba ...	"	5- 5- 0	...	42- 0- 0	47- 5- 3		
Total Kadi District...		...	10,615-14- 8	...	1,887- 9- 1	12,503- 7- 9	
4	Amreli.	Amreli ...	Unlimited.	7,541- 9- 6	5- 9- 0	45-14- 6	7,593- 1- 0
		Damnagar ...	"	613- 9- 8	6- 8- 0	6- 8- 0	626- 9- 8
		Dhari... ...	"	321- 8- 1	21-11- 6	40- 4- 0	383- 7- 7
		Kodinar ...	"	3,198- 6- 9	0- 8- 0	16- 0- 0	3,214-14- 9
		Khamba ...	"	33-14- 6	...	...	33-14- 6
		Okhamandal.	"	...	...	...	...
Total Amreli District...		...	11,709- 0- 6	34- 4- 6	108-10- 6	11,851-15- 6	
Grand Total Baroda State.							
(b) Unlimited.							
Total Class I...		...	55,348- 4- 4	270- 4- 6	3,750- 9- 7	59,369- 2- 5	

No. V.—Continued.

Loss.						Net Profit or Loss.	Remarks.
Interest paid and due.	Establishment and contingent charges paid and due.	Debts written off.	Depreciation of stock.	Other items.	Total.		
8	9	10	11	12	13	14	15
722-14-8	165-7-3	...	...	...	888-5-11	+ 1,589-2-11	
439-15-1	153-6-7	...	...	...	593-5-8	1,766-2-0	
114-14-3	18-0-0	...	...	...	132-14-3	293-0-0	
491-11-7	37-9-6	...	...	...	529-5-1	1,254-3-6	
61-13-3	7-13-9	...	9-3-3	...	78-14-3	208-7-0	
291-7-5	90-10-0	...	...	...	382-1-5	987-6-2	
604-8-10	91-5-8	...	...	...	595-14-4	664-4-10	
397-15-1	104-4-8	...	...	...	502-3-9	761-5-6	
180-3-0	14-11-3	...	...	...	164-14-3	216-7-11	
391-14-7	67-8-0	...	137-8-0	...	596-14-7	250-13-5	
...	
...	7-10-0	...	...	...	7-10-0	39-11-0	
3,567-5-9	758-6-6	...	146-11-3	...	4,472-7-6	+ 8,031-0-3	
1,888-7-10	277-11-3	...	...	27-9-0	1,693-12-1	+ 5,899-4-11	
201-15-11	23-6-6	...	...	...	225-6-5	401-3-3	
129-5-3	16-1-0	...	...	...	145-6-3	238-1-4	
1,490-0-2	348-9-3	...	...	7-0-0	1,840-9-5	1,374-5-4	
23-13-7	0-6-0	...	...	...	24-3-7	9-10-11	
...	
3,233-10-9	609-2-0	...	...	34-9-0	3,929-5-9	7,922-9-9	
22,047-6-7	4,113-7-7	...	179-0-4½	163-1-3	26,501-15-9½	+32,867-2-7½	

STATEMENT

Item No.	District.	Taluka.	Kind of Society.	Profit.			Total.
				Interest earned.	Gross Profit on sales of stock.	Other items.	
1	2	3	4	5	6	7	
Class II.—Purchase and sale ... ..			...	...	...	...
Class III.—Production.							
(a) Limited:—							
	Baroda ... III	Limited.	...	1,541- 5- 1	69- 7- 9	1,610-12-10	
(b) Unlimited ... ..			...	...	...	...
Total Class III ... ..			...	1,541- 5- 1	69- 7- 9	1,610-12-10
Class IV.—Production and sale.							
(a) Limited:—							
	Baroda ... IV	Limited.	153- 0- 0	648- 8- 6	570-14- 6	1,370- 7- 3	
(b) Unlimited ... ..			...	...	...	...
Total Class IV ... ..			...	153- 0- 0	648- 8- 6	1,370- 7- 3
Grand total Baroda State Agricultural Societies	55,501- 4- 7	2,458- 2- 1	4,390-15-10	62,350- 6- 6

No. V.—*Concluded.*

Loss.						Net Profit or Loss.	Remarks.
Interest paid and due.	Establishment and contingent charges paid and due.	Debts written off.	Depreciation of stock.	Other items.	Total.		
8	9	10	11	12	13	14	15
...	
225- 6- 4	1,368-14- 6	...	...	...	1,594- 4-10	+ 16- 8- 0	
...	
225- 6- 4	1,368-14- 6	...	...	...	1,594- 4-10	+ 16- 8- 0	
...	798- 9- 0	...	...	...	798- 9- 0	+ 571-14- 3	
...	
...	798- 9- 0	...	...	...	798- 9- 0	+ 571-14- 3	
22,272-12-11	6,280-15- 1	...	179-0- 4½	162- 1- 3	28,894-13- 7½	+ 33,455- 8-10½	

III.

Non-Agricultural Societies.

STATEMENT*Operations of Non-Agricultural*

	Number of Societies.	Number of Members.	Loans made during the year to		Receipts from Loans & Deposits repaid during the year by	
			Individuals.	Banks and Societies.	Individuals.	Banks and Societies.
1	2	3	4	5	6	7
CLASS I, CREDIT.						
Limited—						
District Baroda	5	683	38,090	...	46,590	14,210
„ Naosari	1	80	1,147	(...)	799	175
„ Kadi	1	26	549	(...)	82	(...)
Total ...	7	789	39,786	(...)	47,471	14,385
Unlimited—						
District Baroda	4	161	3,436	...	3,800	(...)
„ Kadi (....) ...	10	241	6,609	(...)	9,994	(...)
„ Amreli	1	24	842	(...)	662	(...)
Total ...	15	426	10,887	(...)	14,456	(...)
Grand Total Class I (....)	22	1,215	50,673	(...)	61,927	14,385
Total Previous year ...	18	976	52,752	(...)	41,146	(...)
CLASS II, PURCHASE AND SALE.						
Limited—						
Baroda (....)	2	498	...	...	...	...
Kadi (....)	1	16	...	312	...	...
Total ...	3	514	...	312	...	...
Total Previous year ...	...	(...)	(...)	(...)	...	(...)

No. C.—Continued.

Societies for 1915-16.

held at the from		Reserve fund.	Working Capital.	Profit and loss for the year.	Usual Dividend paid on Shares.	Most usual Rate of Interest		Remarks.
Provincial Central Banks.	Government					On borrow- ings.	On lendings.	
21	22	23	24	25	26	27	28	29
1,382	600	832	74,506	+ 1,306	× 4	3½	6½	
...	...	8	957	+ 40	—	4½	6½	
...	—	...	521	5	...	4½	9½	
1,382	600	840	75,984	+ 1,341	...	...	...
1,036	500	455	3,832	222	..	3½	12%	
1,675	7,950	1,494	12,202	481	...	4½	9½	
700	—	30	862	7	...	4½	9½	
3,411	8,450	1,979	16,896	710	..	...	...
4,793	9,050	2,819	92,880	2,051	...	...	...
4,722	10,200	1,463	77,308	2,031	...	...	...
...	...	...	3,972	162	...	...	...
...	—	—	305	11	...	...	...
...	...	...	4,277	173	...	—	...	
...	

STATEMENT*Number and constitution of Societies.—*

District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, VI.	Type of Society.	Number of Societies.	Number of Members	
			Limited or Unlimited.		At the beginning of the year.	At the end of the year
1	2	3	4	5	6	7
CLASS I, CREDIT.						
Baroda.	Baroda ...	I	Limited.	4	534	642
	Petlad ...	I	„	1	...	29
Total Baroda District ...				5	534	671
Kadi.	Mahesana ...	I	Limited.	1	...	26
Navsari.	Navsari..	I	Limited.	1	34	80
Total Limited ..				7	568	777
Baroda.	Baroda...	I	Unlimited.	3	134	150
	Sinor ...	I	„	1	11	11
Total Baroda District ...				4	145	161
Kadi.	Pattan ...	I	Unlimited.	6	167	161
	Chanasma ...	I	„	2	39	38
	Harij ...	I	„	1	15	15
	Visnagar ...	I	„	1	27	27
Total Kadi District ...				10	248	241
Amreli.	Amreli ...	I	Unlimited.	1	15	24
	Total Unlimited ...				15	408	426
Total Class I ...				22	976	1,203
CLASS II, PURCHASE & SALE.						
Baroda.	Baroda ...	II	Limited.	2	...	498
Kadi.	Mahesana ...	II	„	1	...	16
Total Class II ...				3	...	514
Grand Total Non-Agricultural Societies ...				25	976	1,717

No. I.

Non-agricultural Societies, 1915-16.

Working Capital		Most usual dividend paid on shares.	Most usual rate of interest		Remarks.
At the beginning of the year.	At the end of the year.		On Loans issued by Societies.	On Deposits.	
7	8	9	10	11	12
62,921-14- 1	73,130- 7- 2	4%	6½	3¾	
...	1,376- 0- 0	...	6½	3¾	
62,921-14- 1	74,506- 7- 2	...	...	...
...	521- 6- 0	...	6½	4½	
327- 6- 3	957-12- 3	...	6½	4½	
63,249- 4- 4	75,985- 9- 5	...	...	...
1,982- 0- 0	2,121- 4- 7	...	12	3¾	
1,843- 8- 9	1,710- 3- 8	...	...	...
3,825- 8- 9	3,831- 8- 3	...	...	...
10,975- 7- 2	10,865- 6- 9	...	9¾	4½	
1,126- 4- 0	1,074- 9- 6	...	9¾	4½	
200- 0- 0	262- 5- 8	...	9¾	4½	
...	
12,301-11- 2	12,202- 5-11	...	..	...
343- 0- 0	861- 8- 3	...	12½	4½	
16,470- 3-11	16,895- 6- 5	...	..	...
79,719- 8- 3	92,880-15-10	...	...	...
...	3,972- 5- 3	...	...	...
...	305- 0- 0	...	...	...
...	4,277- 5- 3	...	..	...
79,719- 8- 3	97,158- 5- 1	...	...	...

STATEMENT

Receipts.

Item No.	District.	Taluka.	Class of Society, I, II, III, IV, V or VI.	Type of Society.	Receipts.			
					Share payments.	Loans and Deposits.		
						By Members.	By Non-members.	By Central and other Societies.	By Government
1	2	3	4	5	6	7	8	9
CLASS I. Credit Limited.								
Baroda.	Baroda ...	I	Limited.	1,528	41,644	8,102-10-0	1,155- 7- 3	...
	Petlad ...	I	,,	690	500	186-0-0	...	...
Total ...	...	..	...	2,218	42,144	8,288-10-0	1,155- 7- 3	...
Kadi.	Mehsana...	I	,,	115	71-8-0	344-14-0	...	...
Navsari.	Navsari ...	I	,,	301	390-6-0	...	...	...
Total Limited	...	...	...	2,634	42,605-14-0	8,633-8-0	1,155- 7- 3	...
CREDIT UNLIMITED.								
Baroda.	Baroda ...	I	Unlimited.	...	579	...	300	...
	Sinor ...	I	,,	...	...	...	...	...
Total	...	...	...	...	579	...	300	...
Kadi.	Pattan ...	I	,,	...	189	...	500	...
	Chanasma.	I	,,	...	75	...	...	...
	Harij ...	I	,,	...	...	...	150	...
	Visnagar.	I	,,	...	...	...	...	...
Total	...	...	..	...	264	...	650	...
Amreli.	Amreli ...	I	,,	...	89	...	700	...
Total Unlimited	..	...	...	...	932	...	1,650	...
Total Class I	...	...	...	2,634	43,537-14-0	8,633-8-0	2,805- 7- 3	...

No. II.*Non-agricultural Societies, 1915-16.*

Loans repaid by.		Interest received.	Sale of goods to Mem- bers.	Deposits from surplus balance received back		Other income.
Members.	Central and other Societies.			From indivi- duals.	From Central Bank, Union, Agri. Bank, Post Office, or Societies.	
10	11	12	13	14	15	16
32,659-10-4	...	3,909-2-0	...	13,800	14,209-10-8	3,877-0-9
130-0-0	14-8-0
32,789-10-4	...	3,909-2-0	...	13,800	14,209-10-8	3,891-8-9
82-0-0	...	1-13-11	...	...	...	...
798-12-0	...	17-4-4	...	...	175-0-0	...
33,670-6-4	...	3,928-4-3	...	13,800	14,384-10-8	3,891-8-9
2,084-0-0	...	152-10-8	...	...	...	32-2-0
1,495-0-0	...	128-6-3	...	221	...	...
3,579-0-0	...	281-0-11	...	221	...	32-2-0
8,000-4-2	...	581-15-10	1,100-0-0	...	...	344-5-3
1,894-2-3	...	48-9-9	234-9-0	...	...	...
99-14-0	...	14-14-6	...	...	...	...
...
9,994-4-5	...	645-8-1	1,334-9-0	...	...	344-5-3
662-0-0	...	57-1-11	...	...	...	16-10-0
14,235-4-5	...	983-10-11	1,334-9-0	221	...	393-1-3
47,905-10-9	...	4,911-15-2	1,334-9-0	14,021	14,384-10-8	4,284-10-0

STATEMENT*Disbursements.—*

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.	Total income of the year.	Opening balance.	Grand total including the Opening balance.	Share Capital with- drawn.
1	2	3	4		17	18	19	20
CLASS I. CREDIT.								
(a) Limited.								
Baroda.	Baroda ...	I	Limited.		1,20,885- 9- 0	475- 2- 4	1,21,360-11- 4	267- 0- 2
	Petlad ..	I	"		1,520- 8- 0	...	1,520- 8- 0	...
	Total ...	...	...		1,22,406- 1- 0	475- 2- 4	1,22,881- 3- 4	267- 0- 0
Kadi.	Mehsana.	I	Limited.		615- 3-11	...	615- 3-11	...
Navsari.	Navsari ...	I	"		1,682- 6- 4	97- 8- 0	1,779-14- 4	34- 0- 0
	Total Limited	...	...		1,24,703-11- 3	572-10- 4	1,25,276- 5- 7	301- 0- 0
(b) Unlimited.								
Baroda.	Baroda ...	I	Unlimit- ed.		3,147-12- 8	77- 1- 6	3,224-14- 2	...
	Sinor ...	I	"		1,844- 6- 3	14- 8-11	1,858-15- 2	...
	Total	...	...		4,992- 2-11	91-10- 5	5,083-13- 4	...
Kadwa.	Pattan ...	I	Unlimit- ed.		10,715- 9-3	374- 0- 9	11,089-10- 0	...
	Chanasma.	I	"		2,252- 5- 0	35-12- 6	2,288- 1- 6	...
	Harij ...	I	"		264-12- 6	...	264-12- 6	...
	Visnagar.	I	"		...	...	...	...
	Total	...	...		13,232-10- 9	409-13- 3	13,642- 8- 0	...
Amreli.	Amreli ...	I	Unlimit- ed.		1,524-11-11	57- 6- 3	1,582- 2- 2	...
	Total Unlimited	...	...		19,749- 9- 7	558-13-11	20,308- 7- 6	...
	Total Class I	...	...		1,44,453- 4-10	1,131- 8- 3	1,45,584-13- 1	301- 0- 0

No. II.—Continued.

Non-agricultural Societies, 1915-16.

Disbursements.						
Loans and Deposits repaid to				Loans to		Interest paid on loans and deposits.
Members.	Non-members.	Central and other Societies.	Government.	Members.	Central and other Societies.	
21	22	23	24	25	26	27
30,555- 4- 0	8,727-15- 4	516- 0- 6	100- 0- 0	36,774-12- 2	...	2,255-12- 8
...	...	...	...	1,315- 0- 0	...	...
30,555- 4- 0	8,727-15- 4	516- 0- 6	100- 0- 0	38,089-12- 2	...	2,255-12- 8
...	10- 0- 0	...	...	549- 0- 0	..	...
35- 4- 0	...	...	...	1,147- 0- 0	...	...
30,590- 8- 0	8,737-15- 4	516- 0- 6	100- 0- 0	39,785-12- 2	...	2,255-12- 8
120- 0- 0	...	864- 5- 4	...	1,926- 8- 0	...	140- 4-10
...	...	...	200- 0- 0	1,510- 0- 0	..	21- 0- 0
120- 0- 0	...	864- 5- 4	200- 0- 0	3,436- 8- 0	...	161- 4-10
39- 0- 0	...	575- 0- 0	750- 0- 0	4,437-14- 3	...	335- 0- 1
...	...	100- 0- 0	100- 0- 0	2,023- 9- 0	...	46- 8- 0
...	...	100- 0- 0	...	148- 0- 0	...	7- 0- 0
...
38- 6- 0	...	775- 0- 0	850- 0- 0	6,609- 7- 3	..	388- 8- 1
...	...	300- 0- 0	...	842- 0- 0	...	35- 1- 3
159- 0- 0	...	1,939- 5- 4	1,050- 0- 0	10,887-15- 3	...	584-14- 2
30,749- 8- 0	8,737-15- 4	3,455- 5-10	1,150- 0- 0	50,673-11- 5	...	2,840-10-10

STATEMENT*Disbursements.—*

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.	Dividend and bonus paid.	Stock and goods bought.	Establishment and contingencies.	Surplus balance
								With individuals.
1	2	3	4	28	29	30	31	
CLASS I. CREDIT.								
(a) Limited.								
	Baroda.	Baroda ...	I	Limited.	368- 7- 4	124- 0- 0	609-13- 0	16,774- 6- 6
		Petlad ...	I	"	...	...	24- 2- 0	...
	Total	..	...	...	368- 7- 4	124- 0- 0	633-15- 0	16,774- 6- 6
	Kadi.	Mehsana.	I	Limited.	..	...	10-13- 6	...
	Navsari.	Navsari...	I	"	...	...	...	...
	Total Limited	...	...	..	368- 7- 4	124- 0- 0	644-12- 6	16,774- 6- 6
(b) Unlimited.								
	Baroda.	Baroda ...	I	Unlimited.	...	...	102- 3- 6	...
		Sinor ...	I	"	...	...	10-15- 9	64- 6- 0
	Total	...	...	...	...	...	113- 3- 3	64- 6- 0
	Kadi.	Pattan ...	I	Unlimited.	...	3,028-12- 0	55- 7- 8	...
		Chanasma	I	"	...	...	9-15- 0	...
		Harij ...	I	"	...	..	7-12- 6	...
		Visnagar.	I	"	...	...	...	...
	Total	..	...	...	...	3,028-12- 0	73- 3- 2	...
	Amreli.	Anre'l ...	I	Unlimited.	...	...	22-14- 8	...
	Total Unlimited	...	...	...	...	3,028-12- 0	209- 5- 1	64- 6- 0-
	Total Class I	...	...	...	368- 7- 4	3,152-12- 0	854- 1- 7	16,838-12- 6

No. II:—Continued.

Non-agricultural Societies, 1915-16.

deposited.						
In Central Bank, Agri. Bank, Union or Socie- ties.	Other items,	Carried to reserve,	Total expenditure,	Closing balance,	Grand total expenditure in- cluding the closing balance,	Remarks.
32	33	34	35	36	37	38
18,984- 3-11	4,226-12-10	348-14-3	1,20,633- 6- 6	727-4 -10	1,21,360-11- 4	
181- 6- 0	..	..	1,520- 8- 0	..	1,520- 8- 0	
19,165- 9-11	4,226-12-10	348-14-3	1,22,153-14- 6	727-4 -10	1,22,881- 3- 4	
..	..	..	569-13- 6	45- 6- 5	615- 3-11	
550- 0- 0	..	..	1,766- 4-0	13-10- 4	1,779-14- 4	
19,715- 9-11	4,226-12-10	348-14-3	1,24,490- 0- 0	786- 5- 7	1,25,276- 5- 7	
..	25- 0- 0	..	3,178- 5- 8	46- 8- 6	3,224-14-2	
..	..	..	1,806- 5- 9	52- 9- 5	1,858-15- 2	
..	25- 0- 0	..	4,984-11- 5	99- 1-11	5,083-13-4	
0- 4- 0	..	..	9,221- 6- 0	1,868- 4- 0	11,089-10- 0	
..	..	..	2,280- 0- 0	8- 1- 6	2,288- 1- 6	
..	..	..	262-12- 6	2- 0- 0	264-12- 6	
..	
0- 4- 0	..	..	11,764- 2- 6	1,878- 5- 6	13,642- 8- 0	
..	..	..	1,199-15-11	382- 2- 3	1,582- 2- 2	
0- 4- 0	25- 0- 0	..	17,948-13-10	2,359- 9- 8	20,308- 7- 6	
19,715-13-11	4,251-12-10	348-14- 3	1,42,438-13-10	3,145-15- 3	1,45,584-13- 1	

STATEMENT

Item No.	District.	Taluka.	Class of Society, I, II, III, IV, V or VI.	Type of Society.	Share payments.	Receipts.			
						Loans and Deposits.			
						By Members.	By Non-members.	By Central and other Societies.	By Government
1	2	3	4	5	6	7	8	9	
	CLASS II, Purchase and Sale.								
	Baroda.	Baroda ...	II	Limited.	3,970- 0- 0	20- 0- 0	2- 5- 3	..	..
	Kadi.	Mehsana.	II	..	305- 0- 0	..	..	..	..
	Total Class II		..	..	4,275- 0- 0	20- 0- 0	2- 5- 3	..	..
	Grand Total		..	..	6,909- 0- 0	43,557-14- 0	8,635-13 -3	2,805- 7- 3	..

No. II.—Continued.

Loans repaid by.		Interest received.	Sale of goods to Mem- bers.	Deposits from surplus balance received back.		Other income.
Members.	Central and other Societies.			From indivi- duals.	From Central Bank, Union, Agr. Bank, Post Office, or Societies.	
10	11	12	13	14	15	16
...	12,948-14- 6	...	...	4,207- 4- 6
...	7- 8- 0
...	12,948-14- 6	...	...	4,214-12- 6
47,905-10- 9	...	4,911-15- 2	14,283- 7- 6	14,021- 0- 0	14,384-10- 8	8,499- 6- 6

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.	Total income of the year.	Opening balance.	Grand total including the Opening balance.	Share Capital with- drawn.
1	2	3	4		17	18	19	20
	CLASS II. Purchase and Sale.							
	Baroda.	Baroda. ...	II	Limited.	21,148- 8- 3	...	21,148- 8- 3	...
	Kadi.	Mehsana.	II	..	312- 8- 0	...	312- 8- 0	...
	Total Class II		...	...	21,461- 0- 3	...	21,461- 0- 3	...
	Grand Total		...	...	1,65,914- 5- 1	1,131-8- 3	1,67,045-13- 4	301- 0-0

No. II—Continued.

Disbursements.						
Loans and Deposits repaid to				Loans to		Interest paid on loans and deposits.
Members.	Non-members.	Central and other Societies.	Government.	Members.	Central and other Societies.	
21	22	23	24	25	26	27
20- 0- 0	...	...	...	...	..	...
...	...	...	...	...	312- 8- 0	...
20- 0- 0	...	...	...	...	312- 8- 0	...
30,769-8-0	8,737-15-4	2,455- 5-10	1,155- 0- 0	50,673-11- 5	312- 8- 0	2,840-10-10

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.	Dividend and bonus paid.	Stock and goods bought.	Establishment and contingencies.	Surplus balance
								With individuals
1	2	3	4	28	29	30	31	
CLASS II.								
Purchase and Sale.								
	Baroda,	Baroda ...	II	Limited.	...	14,516-12- 6	892- 6- 0	1,259- 4- 9
	Kadi,	Mehsana,	II	"	..	...	...	...
	Total Class II		..	...	...	14,516-12- 6	892- 6- 0	1,259- 4- 9
	Grand Total		...	...	368- 7- 4	17,669- 8- 6	1,746- 7- 7	18,098- 1- 3

No. II.—*Concluded.*

deposited. In Central Bank, Agri. Bank, Union or Socie- ties,	Other items,	Carried to reserve,	Total expenditure,	Closing balance,	Grand total expenditure in- cluding the closing balance,	Remarks.
32	33	34	35	36	37	38
79-15-9	4,111-11-9	..	20,880-2-9	268-5-6	21,148-8-3	
..	..	..	312-8-0	..	312-8-0	
79-15-9	4,111-11-9	...	21,192-10-9	268-5-6	21,461-0-3	
19,795-13-8	8,363-8-7	348-14-3	1,63,631-8-7	3,414-4-9	1,67,045-13-4	

STATEMENT*Balance Sheet.—*

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Cash in hand.	Surplus balance deposited with		Value of investments.	Loans due by Members.
						Individuals.	Central Bank, Union, Agri. Bank, Post Office or Society.		
1	2	3	4	5	6	7	8	9	
CLASS I, CREDIT.									
(a) Limited.									
Baroda.	Baroda ...	I	Limited.	727- 4-10	18,400- 0- 0	22,652- 4- 7	150	34,280-13- 5	
	Petlad ...	I	,,	...	...	181- 6- 0	...	1,185- 0- 0	
	Total ...	...	...	727- 4-10	18,400- 0- 0	22,833-10- 7	150	35,465-13- 5	
Kadi.	Mehsana.	I	Limited.	45- 6- 5	...	...	...	467- 0- 0	
Navsari.	Navsari...	I	,,	13-10- 4	...	375- 0- 0	...	580- 4- 0	
	Total Limited	...	...	786- 5- 7	18,400- 0- 0	23,208-10- 7	150	36,513- 1- 5	
(b) Unlimited.									
Baroda.	Baroda ...	I	Unlimit- ed.	46- 8- 6	...	...	75	1,978- 0- 0	
	Sinor ...	I	,,	52- 9- 5	226- 6- 0	...	...	1,490- 0- 0	
	Total...	...	...	99- 1-11	226- 6- 0	...	75	3,468- 0- 0	
Kadi ...	Pattan ...	I	Unlimit- ed.	1,868- 4- 0	...	0- 4- 0	...	7,334- 0- 7	
	Chanasma.	I	,,	8- 1- 6	...	...	...	1,055- 6- 9	
	Harij ...	I	,,	2- 0- 0	...	...	...	259-12- 0	
	Vasnagar.	I	,,	...	...	...	...	...
	Total...	...	...	1,878- 5- 6	...	0- 4- 0	...	8,649- 3- 4	
Amreli.	Amreli ...	I	Unlimit- ed.	382- 2- 3	...	...	25	480- 0- 0	
	Total Unlimited	...	...	2,359- 9- 8	226- 6- 0	0- 4- 0	100	12,597- 3- 4	
	Total Class I	...	...	3,145-15- 3	18,626- 6- 0	23,208-14- 7	250	49,110- 4- 9	

No. III.*Non-Agricultural Societies, 1915-16.*

Assets,						
Of which overdue,	Loans due by Societies,	Of which overdue,	Interest due to Society,	Value of stock and goods in hand,	Other items.	Total,
10	11	12	13	14	15	16
1,097-11-5	67-3-4	124-0-0	12-13-0	76,414-7-2
...	25-1-4	...	...	1,391-7-4
1,097-11-5	92-4-8	124-0-0	12-13-0	77,805-14-6
...	7-15-7	...	...	520-6-0
53-8-0	35-14-3	...	4-10-9	1,009-7-4
1,151-3-5	136-2-6	124-0-0	17-7-9	79,335-11-10
1,156-0-0	181-13-4	...	...	2,281-5-10
...	27-8-0	...	...	1,798-7-5
1,156-0-0	209-6-4	...	...	4,077-13-3
...	275-8-0	1,928-12-0	3-5-0	11,410-1-7
...	70-9-0	...	...	1,134-1-3
...	27-0-6	...	...	283-12-6
..
...	373-1-6	1,928-12-0	3-5-0	12,832-15-4
...	2-8-0	...	...	889-10-3
1,156-0-0	634-14-10	1,928-12-0	3-5-0	17,800-6-10
2,307-3-5	731-1-4	2,052-12-0	20-12-9	97,136-2-8

STATEMENT

Balance Sheet.—

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V or VI.	Type of Society.	Loans and Deposits from				
					Non-Members.	Central Bank, Agri. Bank, Union or Societies.	Government.	Members.	Any other source.
					17	18	19	20	21
CLASS I, CREDIT.									
(a) Limited.									
Baroda.	Baroda ...	I	Limited.	11,060- 3- 9	1,381-13- 4	600	51,664- 4- 7	...	
	Petlad ...	I	,,	186- 0- 0	...	...	500- 0- 0	...
Total...	...	...	...	11,246- 3- 9	1,381-13- 4	600	52,164- 4- 7	...
Kadi.	Mehsana.	I	Limited.	334-14- 0	...	...	71- 8- 0	...
Navsari.	Navsari...	I	,,	...	...	...	484- 6- 0	...
Total Limited	...	...	...	11,581- 1- 9	1,381-13- 4	600	52,720- 2- 7	...
(b) Unlimited.									
Baroda.	Baroda ...	I	Unlimit- ed.	...	1,035-10- 8	...	841- 0- 0	...	
	Sinor ...	I	,,	...	...	500	...	...
Total ...	...	...	...	...	1,035-10- 8	500	841- 0- 0	...
Kadi ...	Pattan ...	I	Unlimit- ed.	...	925- 0- 0	7,750	789- 0- 0	...	
	Chanasma,	I	,,	...	500- 0- 0	200	219- 0- 0	...	
	Harij ...	I	,,	...	250- 0- 0	...	...	...
	Visnagar.	I	,,	...	...	...	...	...
Total...	...	...	...	...	1,675- 0- 0	7,950	1,008- 0- 0	...
Amreli.	Amreli ...	I	Unlimit- ed.	...	700- 0- 0	...	132- 0- 0	...	
Total Unlimited	...	...	...	..	3,410-10- 8	8,450	1,981- 0- 0	...
Total-Class I	...	...	...	11,581- 1- 9	4,792- 8- 0	9,050	54,701- 2- 7	...

No. III.—Continued.

Non-agricultural Societies, 1915-16.

Liabilities.							Remarks.
Share Capital,	Interest and dividend due by Society.	Cost of management due.	Other items.	Reserve fund.	Total.	Profit + and Loss—	
22	23	24	25	26	27	28	29
7,592	...	...	1,935- 6- 0	832- 1- 6	75,115-13- 2	+1,298-10- 0	
690	7-13- 7	...	...	...	1,383-13- 7	+ 7- 9- 9	
8,282	7-13- 7	...	1,985- 6- 0	832- 1- 6	76,499-10- 9	+1,306- 3- 9	
115	4- 0- 6	...	...	...	525- 6- 6	— 5- 0- 6	
465	11- 5- 0	...	...	8- 6- 3	969- 1- 3	+ 40- 6- 1	
8,862	23- 3- 1	...	1,985- 6- 0	840- 7- 9	77,994- 2- 6	1,341- 9- 4	
...	17- 4-10	7- 0- 0	...	244- 9-11	2,145- 9- 5	+ 135-12- 5	
1,000	...	...	...	210- 3- 8	1,710- 3- 8	+ 86- 3- 9	
1,000	17- 4-10	7- 0- 0	...	454-13- 7	3,855-13- 1	+ 222- 0- 2	
...	107-11- 7	...	7- 8- 6	1,401- 6- 9	10,980-10-10	+ 429- 6- 9	
75	11- 0- 0	...	...	80- 9- 6	1,085- 9- 6	+ 48- 7- 9	
...	23- 1- 4	...	...	12- 5- 8	285- 7- 0	+ 3- 5- 6	
..	
75	141-12-11	...	7- 8- 6	1,494- 5-11	12,351-11- 4	+ 481- 4- 0	
...	21- 3- 0	...	...	29- 8- 3	882-11- 3	+ 6-15- 0	
1,075	180- 4- 9	7- 0- 0	7- 8- 6	1,978-11- 9	17,090- 3- 8	+ 710- 3- 2	
9,937	203- 7-10	7- 0- 0	1,992-14- 6	2,819- 3- 6	95,034- 6- 2	+2,051-12- 6	

STATEMENT

Item No.	District.	Taluka.	Class of Society, i.e., I, II, III, IV, V, or VI.	Type of Society.	Cash in hand.	Surplus balance deposited with		Value of investments.	Loans due by Members.
						Individuals.	Central Bank, Union, Agri. Bank, Post Office or Society.		
1	2	3	4	5	6	7	8	9	
	CLASS II, Purchase and Sale.								
	Baroda.	Baroda ...	II	Limited.	268- 5- 6	1,259- 4- 9	79-15- 9	...	...
	Kadi.	Mehsana.	II	"	...	..	...	..	...
	Total Class II		..	...	268- 5- 6	1,259- 4- 9	79-15- 9	...	...
	Grand Total		...	...	3,414- 4- 9	19,885-10- 9	23,288-14- 4	250	49,110- 4-9

No. III.—Continued.

Assets,						
Of which overdue,	Loans due by Societies,	Of which overdue,	Interest due to Society,	Value of stock and goods in hand,	Other items,	Total,
10	11	12	13	14	15	16
...	...	...	...	2,405-1-9	4,087-6-3	8,100-2-0
...	312-8-0	...	3-10-4	...	...	316-2-4
...	312-8-0	...	3-10-4	2,405-1-9	4,087-6-3	8,416-4-4
2,317-3-5	312-8-0	...	724-11-8	4,457-13-9	4,108-3-0	1,05,552-7-0

STATEMENT

Item No.	District.	Taluka.	Class of Society, I, II, III, IV, V or VI.	Type of Society.	Loans and Deposits from				
					Non-Members.	Central Bank, Agr. Bank, Union or Societies.	Government.	Members.	Any other source.
1	2	3	4	17	18	19	20	21	
	CLASS II, Purchase and Sale.								
	Baroda.	Baroda ..	I	Limited.	2- 5- 3	..	...	..	...
	Kadi.	Mehsana.	I	"	..	..	...	..	...
	Total Class II		..	..	2- 5- 3	..	...	..	...
	Grand Total		..	..	11,583- 7- 0	4,792- 8- 0	9,050	54,701- 2- 7	..

No. III.—*Concluded.*

Liabilities.							
Share Capital,	Interest and dividend due by Society.	Cost of management due.	Other items.	Reserve fund.	Total.	Profit + and Loss—	Remarks.
22	23	24	25	26	27	28	29
3,970	...	..	3,965-14-9	...	7,938-4-0	+ 161-14-0	
305	...	...	..	...	305-0-0	+ 11-2-4	
4,275	..	...	3,965-14-9	...	8,243-4-0	+ 173-0-4	
14,212	203-7-10	7-0-0	5,958-13-3	2,819-3-6	1,03,327-10-2	2 234-12-10	

STATEMENT*Profit and Loss account.—*

Item No.	District.	Taluka.	Kind of Society.	Profit.			
				Interest earned.	Gross Profit on sales of stock.	Other items.	Total.
1	2	3	4	5	6	7	
CLASS I, CREDIT.							
(a) Limited.							
Baroda.	Baroda	...	Limited.	3,929- 5- 4	...	158- 4- 4	4,087- 9- 8
	Petlad	...	"	25- 1- 4	...	14- 8- 0	39- 9- 4
Total...	...	...	...	3,954- 6- 8	...	172-12- 4	4,127- 3- 0
Kadi.	Mehsana.	...	Limited.	9-13- 6	...	...	9-13- 6
Navsari.	Navsari	...	"	49-13- 7	...	...	49-13- 7
Total Limited	...	...	...	4,014- 1- 9	...	172-12- 4	4,186-14- 1
(b) Unlimited.							
Baroda.	Baroda	...	Unlimited.	308- 4- 6	...	32- 2- 0	335- 6- 6
	Sinor	...	"	118- 3- 6	...	...	118- 3- 6
Total...	...	...	...	421- 8- 0	...	32- 2- 0	453-10- 0
Kadi	Pattan	...	Unlimited.	843- 2- 9	...	29- 2- 9	872- 5- 6
	Chanasma	...	"	104- 1- 1	...	...	104- 1- 1
	Harij	...	"	21-14- 0	...	...	21-14- 0
	Visnagar	...	"	...	...	...	...
Total	...	...	...	969- 1-10	...	29- 2- 9	998- 4- 7
Amreli.	Amreli	...	Unlimited.	57-13-11	...	16-10- 0	74- 7-11
Total Unlimited	...	...	...	1,448- 7- 9	...	77-14- 9	1,526- 6- 6
Total Class I	...	...	...	5,462- 9- 6	...	250-11- 1	5,713- 4- 7

No. V.

Non-Agricultural Societies, 1915-16.

Loss,						Net Profit or Loss,	Remarks,
Interest paid and due,	Establishment and contingent charges paid and due,	Debts written off,	Depreciation of stock,	Other items,	Total,		
8	9	10	11	12	13	14	15
2,179- 2- 8	609-13- 0	...	...	...	2,788-15- 8	+ 1,298-10- 0	
7-13- 7	24- 2- 0	...	...	...	31-15- 7	+ 7- 9- 9	
2,187- 0- 3	633-15- 0	...	...	...	2,820-15- 3	+ 1,306- 3- 9	
4- 0- 6	10-13- 6	...	...	...	14-14- 0	- 5- 0- 6	
9- 7- 6	...	...	...	...	9- 7- 6	40- 6- 1	
2,200- 8- 3	644-12- 0	...	...	...	2,845- 4- 9	1,341- 9- 4	
100- 6- 7	99- 3- 6	...	...	...	199-10- 1	135-12- 5	
21- 0- 0	10-15- 9	...	...	...	31-15- 9	86- 3- 9	
121- 6- 7	109- 3- 3	...	...	...	231- 9-10	222- 0- 2	
398- 7- 1	44- 7- 8	...	...	...	442-12- 9	429- 6- 9	
45-10- 4	9-15- 0	...	...	...	55- 9- 4	48- 7- 9	
15-12- 0	2-12- 6	...	...	...	18- 8- 6	3- 5- 6	
...	
459-13- 5	57- 3- 2	...	...	...	517- 0- 7	481- 4- 0	
44-10- 3	25-14- 8	...	...	...	67- 8-11	6-15- 0	
625-14- 3	190- 5- 1	...	...	...	816- 3- 4	710- 3- 2	
2,826- 6- 6	835- 1- 7	...	...	...	3,661- 8- 1	2,051-12- 6	

STATEMENT

Item No.	District.	Taluka,	Kind of Society.	Profit.			Total.
				Interest earned.	Gross Profit on sales of stock.	Other items.	
1	2	3	4	5	6	7	
	CLASS II. Purchase and Sale.						
	Baroda ...	Baroda ...	Limited.	...	1,405- 2- 0	175- 0- 0	1,580- 2- 0
	Kadi ...	Mehsana ...	..	3-10- 4	...	7- 8- 0	11- 2- 4
	Total Class II	...	...	3-10- 4	1,405- 2- 0	182- 8- 0	1,591- 4- 4
	Grand Total	...	...	5,466- 3-10	1,405- 2- 0	433- 3- 1	7,304- 8-11

REMARKS FROM THE JOINT SAR SUBA.

Para 3.

1. Some retired Revenue Officers, School-masters, and other public servants may, if requested, come forward to work as honorary organisers. If the present scale of fees is not attractive, special arrangements may be made for them according to their status.

2. If the present staff for co-operative work is not sufficient and if there is a real necessity for the appointment of a separate officer for the Commerce and Industry's work, Toppans may be submitted with full information about the amount of work, &c.

Para 6.

3. The number of societies has increased from 307 in the preceding year to 323 in the year under report. The increase, though not large, is satisfactory when the special adverse circumstances of the year are taken into consideration along with the fact that more attention has been paid to consolidation rather than expansion. The number of members has increased from 9,268 to 13,620 and the working capital from 8,00,230-4-4 to 9,54,141-10-0. These two items constitute the proper criterion of improvement in the year under report, and I consider it satisfactory.

Para 8.

4. The reserve fund of all societies increased from Rs. 69,585 to Rs. 98,591 in the year under report showing an increase of Rs. 29,006, but the reserve fund is not set apart and invested separately but goes to swell the working capital. This is not as it should be. Such a procedure, though it goes to swell the working capital, does not fulfil the object for which reserve fund is attended.

Para 9.

5. No orders have yet been passed on the proposal for a Debt Redemption Bank. Though slow, the only sure way of redeeming old debts of members will, in my opinion, be the development and growth of Co-operative Societies and Co-operative Banks. Long Term Loans are not possible under the present initial stage of these institutions. But as they develop they will have more funds to spare and probably the only remunerative purpose to which the surpluses can be devoted, will be by the redemption of old debts and recovering the loan by small instalments spread over a number of years.

Para 10.

6. The village accountant and the village school master may be utilised to a greater extent than now as Secretaries of Local Societies. They will be satisfied with a small monthly remuneration which societies can afford to pay.

Para 12.

7. The long expected District Bank at Mehesana has now been a reality. It has been just started and will, it is believed, supply a long felt want.

Para 13.

8. The Baroda Central Co-operative Bank seems to be prosperous and progressive. The working capital has risen from Rs. 1,34,387 to Rs. 1,75,161 and deposits from Rs. 83,977 to Rs. 28,567 which show that public confidence in this new venture is gradually increasing.

Para 15.

9. The Naosari Co-operative Banking Union, though not very progressive, seems to have done fair work. It is hoped, the Suba, who is Ex-Officio President, will do his best to see that the number of affiliated societies increases and the funds available are properly utilised and not locked up.

Para 18.

10. Punctuality in re-payment of Loans is not practised to the extent it should be. The main reasons for this, in my opinion, is the habit of the people of spending without any thought for the future. Until thrift and punctuality in payment are brought about, Co-operative Societies will not have achieved their object. Agricultural Societies are mainly established in villages where difficulty of securing proper leaders for work on the Committee is very great. There is very little of philanthropic spirit. On the contrary, there is a spirit among the leaders to press down the rest so that they may remain sub-serviant and depressed. The Co-operative movement in rural area has, therefore, to combat against this before a society can be successfully planted in a village. Its growth and development must, therefore, necessarily be slow and would require a great deal of propagandist work.

Para 23.

11. In the distribution of societies, Baroda stands first with 122 societies. Then comes Amreli with 66, then Kadi with 60 and Naosari stands last with 47 societies.

Para 27.

12. The Non-Credit Societies are in their infancy and do not seem to have done any remarkable work. The two milk-supply societies in the City of Baroda are Co-operative in name.

Para 29.

13. Co-operative work in the State is mainly confined to Credit. Other forms of co-operation, such as Joint Purchase, Joint Sale, &c., are in their infancy. These require a good deal of propagandist work on the part of the District Auditors, the Assistant Registrar and the other staff.

Para 50.

14. It is gratifying to note that the attitude of the general public is growing favourable towards the co-operative movements. The opposition of the village money-lenders whose interest conflicts with that of the society will, in consequence of this, gradually disappear; and it is hoped that in due course of time most of deposits to the societies will be coming from these

money-lenders, who are sure to realise that it is safer and more remunerative to give loans to societies than to individual agriculturists at a higher rate of interest with the accompanying risk of, having to seek redress in Civil Courts and probably lose both money and interest.

The report is an interesting record of work done in the year and Mr. Manilal deserves the thanks of Government for the able and efficient manner in which he has discharged his onerous duties as Registrar.

29th June 1917.

(Sd). G. H. DESAI,
Joint Sar Suba.

**Review of the Annual Report of the Co-operative Societies
for the year 1915-16.**

The present Report of the working of the Co-operative Societies indicates a steady development of the Co-operative movement in the Baroda State.

Report indicates steady development of Co-operative movement.

2. The number of these societies increased during the year under Review from 307 to 323, and though this number appears smaller than that of the previous year, it can be safely taken as satisfactory, if the adverse circumstances of the year are taken into consideration along with the fact that the Department has paid more attention to consolidation rather than expansion.

Increase in the number of societies.

3. Out of the four Districts, Baroda stands first as usual with 19⁹ Baroda stands first, Agricultural Societies, Amreli second with 66, Kadi third with 60 and Naosari stands last with only 47. This, however, may be due to the peculiar circumstances of the District as the rate of interest is lower in Naosari and the surrounding Districts, than that in Baroda and elsewhere and it is but natural that people who get money at 4 % interest can scarcely be induced to form societies and obtain loans from them at a higher rate of interest ; with a lower rate of interest the expenses of management will not be recouped.

4. Government note with pleasure that the number of members has increased from 9,268 to 10,620, the total working capital has risen from Rs. 8,90,280 to Rs. 9,54,141 and the Reserve Fund of all societies amounts to Rs. 98,591 against 69,585 last year.

Increase in the number of members, the working capital and the Reserve Fund.

5. The proposals submitted by the Department in regard to a Debt Redemption Bank are being considered by a special Committee appointed for the purpose ; little has been done towards the establishment of creameries and Sanitary Dairies suggested in the Review of the previous year and it is hoped that the Registrar of Co-operative Societies will devise some means whereby the object of securing wholesome milk can be realised.

Debt Redemption Bank and the establishment of creameries and Sanitary Dairies.

6. Whatever be the result of the Debt Redemption scheme, the Department must note that unless it is brought home to the people that their own extravagance is responsible for their impoverishment, no Government measure can serve the purpose of relieving their indebtedness. Habits of thrift and prudence can be acquired only by education and actual practice for a number of years. Mere Redemption Banks cannot serve as a panacea for correction of all the ills the agriculturist suffers from.

People should acquire habits of thrift and prudence.

7. It is satisfactory to note that the District Bank at Mehsana has been started and the Central Co-operative Bank at Baroda has its working capital increased from Rs. 1,34,387 to Rs. 1,75,161 and the deposits have gone from Rs. 88,977 to Rs. 1,28,557. This shows good progress and signifies

District Bank at Mehsana and the progress of the Central Co-operative Bank at Baroda.

increased confidence of the people in such concerns. It is hoped the Department will hold up the example of Baroda to people elsewhere and increase their interest in co-operative work.

8. Thanks of His Highness' Government are due to the Registrar for the zeal and enthusiasm displayed by him in the discharge of his duties. Intensive work of consolidation and weeding out weaker societies should now mainly engage his attention.

(Sd.) MANUBHAI N.,
Dewan.

8th September 1917.

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

BARODA STATE

FOR THE YEAR 1921-22.

BARODA

Printed at the "BARODA PRINTING WORKS," BARODA.

1923.

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ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR 1921-22.

The Department continued in charge of Mr. C. V. Sane B.Ag-
Charge and personnel. (Bombay), B.Sc. (Kansas), M.Sc. (Wiscon.)

Mr. B. G. N Acharya was appointed to the post of the Agricultural Engineer, in August 1921, for a period of two years and promises to be a valuable asset, for the Departmental activities, in that direction.

The other important posts in the Department with their incumbents are shown in Appendix (1).

2. The notable changes in the Departmental working are (a) the discontinuance of the Entomological Branch, (b) the re-entry of the Dairy with an extensive programme in the Department and (c) the continuance of the Cotton officer.

Important changes in the Department.

On a persistent demand from the Amreli District, the Government have sanctioned an Agricultural Station being opened in Amreli and steps will be taken to give effect to this order as soon as practicable.

3. During the year under report, several important meetings took place. Of first importance is the meeting of the Board of Agriculture held at Pusa in February 1922. The meeting has a special significance because it is the last Board meeting planned on the old order of things. Now that Agriculture has become a transferred subject in the respective Provinces, the Board can no longer control the agricultural policies followed in different parts. That some co-ordinating control is badly needed to thread the various provincial enterprises so as to have a uniform fabric is recognised by all. Just how that is to be brought about in a manner acceptable to all, is the question. That such an institution was needed, was shown in the discussion on the subjects before this Board, notably in connection with the Cattle Board Scheme. There were eleven subjects before the Board for discussion, out of which eight were referred to Committees. I was appointed to work on two of these. Of the Subjects under discussion, from our point of view, three seemed to have special bearing on our work. These concerned the formation of Cattle Board with special reference to Dairying, Motor-tractor cultivation and Agricultural education. In the deliberations of the Board on these issues, it was brought out that the formation of a Cattle Board to guide the live-stock improvement on a uniform plan was essential, that the power-cultivation question must be approached and pushed on with great caution and that the Agricultural education question can best be dealt with by an Agricultural bias in the rural school curriculum as planned by the Punjab Educational Department.

Important meetings and conferences.

The second important meeting that I had the privilege of attending was the session of the Bombay Provincial Board of Agriculture in July 1921. It was as a result of the discussion at this Board that the new policy of Agricultural propaganda in the Bombay Presidency, as a joint effort of the Agriculture and Co-operative Departments, was framed. We are following this lead in our propaganda work as far as possible, but in a way we may say that we have gone a step further in the fact that our Departmental programme is the result of the association of leading Agriculturists of the Advisory Board and has to be approved by the Board. It may be necessary for us to go still further in the matter of enlisting the active co-operation of Agriculturists in moulding our activities.

The third event of importance in this category was a conference week in June 1922, when a meeting of the Agricultural staff of the Department was arranged, for discussion of the year's work and framing of the next season's programme. A two days' sitting of this was followed by the joint session of the Agricultural and Co-operative Departments for the joint programme of the District work. It was decided to approach the agriculturists through the medium of Co-operative Societies which can be depended upon for organized effort, and intelligent appreciation of agricultural improvements. The centres through which the agricultural programme is to be carried out were fixed by the District Officers of both the Departments and finally approved. It is decidedly a more hopeful medium for work and its results will be watched with interest. These conferences were followed by the six monthly meeting of the Agricultural Committee of the Advisory Board. The progress of the various questions in its sphere of influence was reported and the work done and planned placed before it for approval.

4. The series of tractor demonstrations, in co-operation with the firms handling this kind of machinery, easily formed the outstanding event of the year. These were arranged to take place at representative centres in each District, in the month of March and starting at Kosamba in the Navsari District, it was proposed to run through Baroda, Petlad, Mehsana and Amreli. Out of the several firms dealing in tractors, only Austin, Electrac, and Titan tractors came forward to join hands with us. The demonstration proved to be of great practical value, while its educative character is beyond doubt. The firms taking part in the demonstrations decided, however, to close their circuit at Mehsana resulting in acute disappointment of the Amreli farmers. It was, however, partly recompensed by sending the Departmental Fordson tractor there in early April and giving a successful two days' demonstration.

The second event of importance is the formation of an active cotton policy in collaboration with the Bombay Department of Agriculture. The line to follow was considerably facilitated by a joint discussion between Dr. Mann, the Director of Agriculture, Bombay Presidency, Mr. Bhimbhai Desai, Deputy Director of Agriculture, Gujarat, and H. E. the Amatya Sahab, when Dr. Mann and Mr. Desai paid a visit to Baroda by request at the time of their tour for gauging the scope of Agricultural improvements in Gujrat. As a result, we opened two cotton seed depots at Vyara and Chalthan in addition to existing facilities extended to us by the Bombay Department;

we have also a first hand pure seed area of about five hundred bighas for provision of our own seed for distribution and a special Cotton Officer to organize joint cotton sales and attend to general propoganda work with regard to cotton.

The third important event is the laying down of a definite policy in live-stock work. The earnestness of the feeling of Government in this matter is amply evidenced by the liberal support they have given the measure for making the present Dairy as an object lesson for such work even in a period of great financial stress. When the new Dairy with its modern stalls, Dairy plant and an attached farm will be completed, it will indeed be a show place of great educational value at the same time that the herd-building and business side as far as possible will be kept up in the fore-ground.

5. There are several other points requiring note during the year under report. The visit of Dr. Mann, the Director of Agriculture, Bombay Presidency, Mr. Bhimbhai Desai, Deputy Director of Agriculture, Gujrat, has been already alluded to. A number of our working staff were given facilities to study special subjects and deserves mention. Thus Mr. Gulabbhai Desai was deputed to Mysore for a special study of power-crushing and multiple-furnace Gul manufacture. Mr. Induvadani Desai had an extensive tour upto Dharwar in the South and Nagpur in the East for studying the cotton sales organizations and marketing methods. Mr. Acharya was permitted to visit the Dhrangadhra Tractor Farm as well as the tractor demonstration at Chharodi Cattle Farm.

Another matter deserving record concerns the Kotar lands that were given away at the instance of this Department with special concessions some years ago. There has been considerable confusion regarding the interpretation of these concessions until it became necessary to over-haul the whole question. A committee to consider these was appointed for making necessary recommendations and obtaining orders thereon. I was appointed to this Committee and worked as its senior member. The committee have submitted a unanimous report and a proposal embodying their recommendations for Government orders has been submitted recently. It is hoped this will set at rest the uneasy minds of the enterprising agriculturists who first put their hand in re-claiming these Kotar lands.

6. Out of Rs. 30,000 sanctioned for tractor advances, without interest, only Rs. 10,000 were effectively advanced, it being necessary to exercise considerable caution in making these allotments. Last year's advance resulted in the purchase of three tractors, one of these tractor owners found this help of great assistance and he is quite pleased with his machine. The other two have not found tractor farming so easy a matter, their principal difficulty being a competent tractor operator.

For installation of Oil Engine and pumps and other improved machinery a sum of Rs. 70,000 was sanctioned. Over 68,000 rupees out of these were granted, eleven applicants in the Baroda District being advanced Rs. 57,500. An advance of Rs. 6,000, without interest, was made in the Amreli District, so as to make it a popular measure by proving its undertaking and management a successful enterprise. The details of the advances are given in Appendix II.

7. The total expenditure for the Departmental activities for the year comes to Rs. 96,831-7-2, as against Rs. 1,03,450-3-6 during the previous year. The income figure for the same period are Rs. 23,791-12-11 and Rs. 20,927-6-7 respectively. The figure for the Dairy is only for the period, for which budget allotments are made from this Department, i. e. from 1st February to July 31st. The following table shows the figure for each section separately. Details will be found in Appendix III.

No.	Item.	Expenditure.	Receipts or contributions.	Remarks.
		Rs. a. p.	Rs. a. p.	
1	Administration including Agricultural Engineering.	25,302- 7- 4	1,331- 8- 7	
2	Farms	17,980- 9- 6	9,929-14- 7	
3	Dairy... ..	8,900- 8- 3	5,501- 8- 0	
4	Propaganda	6,889-11- 2	...	
5	Boring	12,087- 8- 5	1,250- 2- 2	
6	Veterinary Dispensaries	25,660-10- 6	5,778-11- 7	
	Total ..	96,831- 7- 2	23,791-12-11	

The figures for the Dairy for the whole year are Rs. 16,393-9-8 expenditure and Rs. 9,271-0-0 as income.

8. The monsoon started after a most anxious waiting on the eve of preparations for a year of draught. Having started, however, it kept at it in right earnest until its sudden and abrupt disappearance in the middle of September. It was in force—thus for a period of about two months. Having started late and disappeared suddenly after two months, the season may be said to have been partly dry in effect and this feature would have been more dominant but for the fact that for the time the monsoon was in force, its intensity was very great, giving a rain-fall in many cases over fifty per cent in excess of the average of the decade. This feature was perhaps more pronounced in the Navsari District, and to a less extent in Baroda; Kadi and Amreli Districts show no striking general deviation from the average. Owing to the concentration of the precipitation period, it showed everywhere the characteristics of a wet season even when the total rain-fall did not exceed the average. The season, on the whole, was quite satisfactory for crop production; good rice crops have been harvested after quite a long while, although the lateness did interfere in the area somewhat; kharif and rabi crops were good everywhere. Rain-fall statement for the Mahals will be found in Appendix (IV).

No serious pest or disease was reported except the appearance of Katras in parts of Kadi District where the pulse crops were specially damaged. Cotton out-turns and prices were both good and helped to keep up the farmers' spirits. There was some loss by rust to wheat but no damage from frost. Altogether the season may be classed as quite satisfactory for crop production.

9. The working of the Department may be divided into the following main sections :—
Working of the Department.

- (A) Agricultural.
- (B) Agricultural Engineering.
- (C) Veterinary.

(A) AGRICULTURAL.

10. In the Agricultural section are included the following activities :—

- (a) Farms.
- (b) Dairy.
- (c) Propaganda.

(A) FARMS.

11. There are two farms for the present with the Department, one at Baroda and the other at Jagudan in the Kadi District. A third one for Amreli District at Amreli has been sanctioned but it is to be seen when it will be actually opened, for work.

(1) *Baroda Model Farm.*

12. This farm is located in the suburb of Baroda, about a mile from the Baroda Railway Station, on the Alembic Road. It represents more or less the goradu soil section of the Baroda District, but is of little use for cotton work as the bulk of the cotton crop of the District is grown on black soils. The gross area is about 84 acres, about 66 being under cultivation. The principal crops under cultivation are Bajri, cotton and cotton mixtures, groundnut, tobacco, castor, gawar, lucerne and other fodder crops. Details will be found in Appendix V.

13. The monsoon held off till almost the middle of July, although about half an inch was recorded in the third week of June. The current though late was strong in intensity and gave a total precipitation of over 44 inches in as many falls against an average rain-fall of 30 inches. This means an increase of about fifty per cent. over the average rain-fall figure.

As might be expected, such a late season means hurried sowing, often interrupted and interfered by the incessant wet weather, a luxuriant growth of weeds and increase in cost of production. Bajri perhaps did receive some set back but soon recovered. The cotton was perhaps the last to recover from the depressing wet weather, it being difficult to secure a proper stand in many cases, notably in mixtures. When it did recover, however, it did respond to the favourable moisture conditions yielding good crops.

With regard to crop-pests and diseases, there was the usual toll by white ants and Boll-worm in cotton. Katras had made their appearance but did not develop into a pest. Mites on chillies, wilt in cotton, ground-nut and tobacco, are other diseases, coming into special prominence. There was smut in Bajri but not of a serious nature. Arrangements were made for meeting the disease in collaboration with the Pusa institution next season.

14. The principal crop work is in connection with the spacing of cotton and Bajri. This year's results in cotton spacing point to wider spacing of cotton as the better practice. Last year, the five feet spacing gave the best outturn. This year's figures give an average of 1,110 for four feet spacing and 1,042 for five feet spacing, a considerable advance over closer planting. The best yield was from a four feet spacing plot yielding 1,228 to the acre, *i.e.*, over a Bhar per acre.

With regard to Bajri spacing, the results point in favour of closer drilling, as was the case last year. This year's outturn figures give the lowest yield from a two feet spacing. Those between 1' and 1½' ft. spacing are rather close, being on an average 1,316 lbs. and 1,444 lbs. respectively of grain to the acre. The maximum yield per acre is 1,596 *i.e.*, only 4 lbs. less for a forty maund return per acre.

In the manurial experiments with chillies the results were of the same order as last year, but the out-turn had considerably diminished owing to mite-attack. The increased yield due to artificial manures is not in proportion to the expense involved. Details will be found in Appendices VI to VIII.

15. Other important results were in connection with the irrigation of cotton. A cotton plot was started with irrigation in the month of May, and yielded 885 lbs. to the acre. Other noticeable results of the year's work. The crop had gone to considerable vegetative growth which accounts for the comparatively low return; but the main point in the test is early picking and this was noticed even in a wet year like the one under report. The cost of waterings until the monsoon set in, came to Rs. 13.

The possibility of a dry crop of lucerne is often temptingly pictured. An attempt was made in the year previous to one under report to grow it so, but owing to comparative dryness, the crop had to be irrigated. Then it was decided to continue it as a dry crop during the year under report by widening the space between rows and giving it a thorough intertillage. The crop gave a couple of cuttings, but lacked the vigorous growth associated with the lucerne crop and rapidly went to seed. The crop, therefore, appears to be too uncertain to be taken as dry crop in lieu of our other dependable staple crops.

Another result deserving mention here is in connection with the use of sodium Nitrate for onions. It was found that by the use of 285 lbs. of Sodim Nitrate and 120 lbs. Superphosphate per acre, the out-turn of onions, was increased by 7,779 lbs. per acre at a cost of Rs. 76 for the manures.

In the implement section no new implements were tried during the year. The three implements, Spring-tooth-harrow, Horse-hoe, and Discharrow continued to give satisfactory service.

16. The silo on the farm was filled as a trial. About 27,000 lbs. of chaffed material from maize, Sundhia and ground-nut creepers and lucerne were put in early October. The total cost of the silo-filling including material, labour, and other services comes to Rs. 242-5-8. The silo was opened in February and the percentage of useful silage came to about fifty per cent. All the farmstock were found to like and even relish. That they did not suffer in condition in the hot weather is largely due to this cooling succulent ration.

17. The following statement shows some of the out-turn figures of principal crops.
Some out-turn figures.

No.	Name of crop.	Area in acres.	Average yield per acre.	Maximum for this year.
1	Bajri...	A.G. 6-5	Mds. Lbs. 24-17	Mds. Lbs. 39-36
2	Cotton ...	7-5	19-17	30-28
3	Castors ...	1-3	25- 4	35-38

18. The total expenditure of the farm including establishment and capital investment came to Rs. 13,639-7-0 against an income of Rs. 7,427-9-4. The actual expense on cultivation is calculated at Rs. 10,446-5-4, which includes permanent investment of Rs. 2,264-7-4. The depreciation of live and dead stock and land assessment totals upto Rs. 952-8-8, which is not included in cost of cultivation.

(2) Jagudan Farm.

19. This farm is located near the Jagudan Railway Station about 7 miles from Mehsana in the Kadi District and represents the light sandy section of that part. The area of the Farm is about 25 bighas.

20. As in the rest of the State, the monsoon set in very late reaching almost the third week of July. The season was characterized by heavy down pours, that recorded on 29th July, being specially note-worthy when nearly 8 inches were measured. The total rain recorded was more than 41 inches in 48 days, giving an increase of more than fifty per cent. over the average. What is more remarkable is the fact that out of the 41 inches, more than half was recorded in the month of July since 19th of that month.

The concentration and continuance of the wet weather interfered with the Bajri crop from normal growth, but the Jawar crop was reported as extremely satisfactory everywhere. Among the insect pests the Katras were reported to have seriously damaged pulse crops and among diseases wheat rust drew particular notice.

21. The principal work on the farm concerns acclimatization trials of Pusa wheat and the best double cropping method. With regard to the latter, Bajri followed by wheat is the most economical practice for the farmer. This series, therefore, now discontinued, Bajri and wheat being adopted as the most suitable practice.

Summary of work done on the Farm.

With regard to Pusa wheat trials, this year's results bear out last year's indication that the Pusa and local type are perhaps on par regarding yield; at any rate there is not a striking advance in this respect for Pusa wheat. It is the uniformity and quality of the Pusa wheat that gives it the superiority which brings for the present from three to four annas per maund more. The average yield per bigha of Wajia local wheat works out at 885 lbs. against an average of lbs. 1,052 of Pusa. The maximum yield of Pusa came to lbs. 1,176 per bigha as against 1,080 of local. This obvious superiority of this type has created a demand for its trial and over a thousand pounds are expected to be issued for trial in farmers' fields next season.

After having given a good commercial crop to the previous year, the orange plantation seems to have received a set back. There is abundant fruiting, but few reach maturity as dropping off is considerable. The farm soil is not suited to cotton cultivation but the effect of watering even in a wet year was clearly noticed, yielding a crop of lbs. 736 per bigha, realizing at the current rate Rs. 156-6-0 at a cost of Rs. 64 for cultivation and watering. Both Tur and castor did well as they should after such a wet season.

22. The total expense of the farm including establishment and farm contingencies came to Rs. 4,341-2-6 against an income of Rs. 2,502-5-3. Expenditure on farm contingencies alone came to Rs. 3,267-7-3.

Expenditure.

(B) DAIRY.

23. The Dairy was again transferred to the control of this Department during the latter six months of the year under report, after having been placed in the Khangi in the earlier part.

Control.

24. The outlook of the present activities in this direction as contemplated are considerably broader, the effort being to combine in the institution herd building, sanitary handling and general education in this phase of the live-stock industry. The project when completed is estimated to cost quite a large outlay.

Object.

25. The total strength of the herd at the beginning of the year was 85, including young stock. At the end of the year it stood at 110, 54 being in the cow class and the rest in buffaloes. The strength of the milch stock at the end of the year stood at 23 cows and 30 buffaloes.

Strength of the herd and health of stock.

The increase was mostly by purchase on the occasion of the visit of H. R. H. the Prince of Wales when the Dairy was called upon to cater for the Royal Guest.

26. The Gir-cows had been the feature of the cow class in the Dairy for some time now. The new policy of building up Kathiawar breeds of cows and buffaloes does not make much change in the former class except the securing of foundation animals and weeding out the undesirable ones. With regard to the buffaloes we have to begin work right from the beginning. The Delhi buffaloes has long formed the main stay of the Palace Dairy herd and only last year a pedigree buffalo bull to head the herd was secured from Punjab for Rs. 450. It is now decided to concentrate attention on the Kathiawar breed, necessitating the dispersal of the former herd and securing typical animals of the Jafferabadi types. It will be understood that building of a pedigree herds is a matter of years but there is little doubt that sustained effort and intelligent weeding of the undesirable will show up in the end.

The total amount of milk produced during the year came to 87,142 pounds, 31,933 being from cows and 35,209 from buffaloes. The cost of production per pound of milk, including supervision charges, comes to just a little over 3 annas per lb.

27. The Dairy has been included in this Department from 1st February 1922. The change in the outlook and policy necessitated considerable alterations in the management, involving additional staff, additional stock, and, of course, additional expenditure. The expense for the six months the institution has spent from the Departmental budget is reported at Rs. 8,900-8-3 including supervision. The income for the same period is given at 5,501-8-0. For the first part of the year the Dairy was under the management of Khangī. The total expenditure and receipts during the year are placed at Rs. 16,393-9-8 and Rs. 9,271-0-0 respectively.

(C) PROPAGANDA.

28. The propaganda work is carried on by three agencies: (1) Work by District staff, (2) Demonstration and Shows, (3) Publications.

(1) Work by District Staff.

29. In this division the work by the special Cotton Officer must be accorded the first place on account of the definite nature and importance of the question. Reference has already been made to the special facilities accorded to the Officer so that he may be in a better position to deal with the problem.

30. We have been depending so long entirely on the British Seed Depots for supply of improved cotton seed to our farmers. Last year about 7,500 acres were sown with this source of seed supply. It was thought possible, therefore, that if this Department has its own stores at convenient centres, the facility will be availed of by a larger number of cultivators. Two stores were opened with this idea at Chalthan and Vyara. Their experience will be watched with interest. We have also made a move in another direction in the matter of seed supply so as to secure our own stock. A concentrated area of about 300 acres has been supplied with first hand cotton seed from the British Department, the seed from the produce of which will be reserved

for distribution amongst our farmers. Such a compact block grown from first hand seed affords opportunities for organizing joint auction sale and efforts will be made to do so under the auspices of the Surat Cotton Committee. The area under improved cotton this year from all bonafide sources is expected to be about 15,000 acres, nearly double of what was in the previous year. In this connection one fact which is both encouraging and disconcerting at the same time, must be noted. Thus in the season of 1920-21, against an area of 12,850 bighas under bonafide improved seed there was even a larger area, 17,625 bighas under the so called farm seed.

The seed was sold as such by many dealers in cotton and with the dependence of the cultivators on the cotton dealers for disposal of their crop, it will be readily conceived what a latent delevelling force this might prove to be in building up this area to the really improved type.

31. Some effort has been made to meet the situation of cotton deterioration in South Gujarat. There is, however, an equally great out-cry for good seed for the Kahnab tract. The problem in this section is, however, even more difficult to meet than in the part south of the Nerbudda. The people are long accustomed to the cultivation of high ginning, short staple types and the climate is drier than further south. No definite type has been fixed for successful propaganda in this section, but the demand is so keen that it was thought necessary to make some move in the matter. About 60 lbs. of cotton seed was, therefore, obtained from the Broach Farm, which is expected eventually to replace the present admixture and was tried in the farmer's fields at Sarar through the enterprising members of the Co-operative Society there and the able organizer for that part. The result, however, as far as the experience of the growers goes, is discouraging. The produce was quoted in the market even at some discount over the prevailing rate for local growth. This can be accounted for, but what was unexpected is the impression that the crop was not equal in yield to local type. In order to obtain more definite information on the subject, it has been decided to secure a suitable area near Miyagam and test the results under more controlled conditions.

Difficulties in the way of successful introduction in Kahnab and further North.

Information was received of a private enterprise in the cultivation of the better stapled cotton in the tract North of Nerbudda. The experience of most of these has not been of an encouraging nature, the effort in Savli in this direction needing special mention as quite a large area was put under this type. Opinions regarding the produce per bigha are divided but the fact that the cotton was quoted at 10 to 15 rupees less per bhar by the local dealers has definitely put a stop to further ventures of that kind. When the matter was brought to the notice of the Department, every effort was made to find a suitable outlet, but the farmers had disposed off their produce before the matter came to a head.

With regard to the cotton situation in the Kadi District, we are merely maintaining a watchful interest pending definite work by the Bombay Department. The problem in Amreli appears to be more crystallized and it is hoped that the new farm sanctioned for that district will afford necessary opportunities for work in that connection.

32. There is an Agricultural Graduate attached to each District for help and advice and keeping up the propaganda work in their respective charge.

Work of the Agricultural Inspectors.

33. In Navsari District in addition to the cotton work already noted, the grafting of bor, plantation of agave and the use of artificials for irrigated crops may be specially mentioned. The use of ammonium sulphate for sugarcane in Vyara has now become an established practice, about 15,000 lbs. being purchased by the farmers at full market rates. Any help the sugarcane growers may need in this purchase will be readily given and a manure-purchase Society, if necessary, will be formed to meet the capital demand.

Navsari.

34. In Baroda, the chief activity pertains to the manuring of tobacco. The difficulty the tobacco growers have been experiencing in the sufficiency of the supply of this article is of long standing. A substitute for the deficiency as an economical practice can not be so readily fixed. Concentrated manures is the logical remedy to relieve the pressure and a beginning was made in this direction in the pre-war year. Since then the artificial manures themselves have been so high in price that no test to try them as substitutes was feasible. The sudden changes in tobacco prices contribute not a little to the indefiniteness of such tests as the same increase in outturn at a high rate of tobacco may result in a handsome net profit and with low prices ruling may actually dwindle into a deficit. The uncertainty of prices of artificial manures confuses the issue in the same manner. At a given price of fertilizers, the increase may bring in an additional income which may be turned into a loss, if the cost of fertilizers goes beyond a certain limit. These two varying factors make the work in this crop somewhat fitful.

Baroda.

The tests during the year under report were undertaken at Bhadrans, Dharmaj, Mehlay and Changa. In each of these places the area fixed for each trial was half a bigha and there were six of such plots at each place. The results in Dharmaj have been most encouraging, where the manure added had given increased production in every case, the highest increase over the adjacent check plot being 62%. The fertilizer used was 100 and 125 lbs. of Sodium Nitrate as a top-dressing per bigha, applied before first watering. The average increase per bigha for the six plots under test came to 380 lbs. at an average cost of Rs. 25. The cost of increase per maund of 40 lbs. works out at Rs. 2-10-0 and any price of tobacco over this becomes a net profit if the cost of manure remains the same. Taking even a very low rate of tobacco at Rs. 4 a maund, the use of the fertilizer as a top-dressing leaves a net profit of Rs. 19 per bigha or over Rs. 30 per acre.

The results in Changa and Mehlay do show an increase, but it is not so striking as in Dharmaj. The crop is harvested in this part comparatively early, necessitating an adjustment for the top-dressing sufficiently early to make full use of the application. The applications will, therefore, be suitably modified for this part in the next season. Details of results are given in Appendix IX.

35. Recently there has been a feeling that the waters of some well-known Charotar wells for their manurial ingredients have somewhat gone down in this respect. Samples of well-waters considered best for such purposes were sent

Quality of manurial wells.

for analysis. It is interesting to compare these figures with those reported by Dr. Leather more than a generation ago in 1895. Detail analyses are given in Appendix X.

Name of village.	Parts per 1,00,000 calculated as Potassium Nitrate.	
	1895.	1922.
Dharma j 	363.7	250.80
Petlad 	157.1	115.8
Mehlav 	28.6	23.2

36. In the Kadi District the Inspector is also in charge of the Jøgudan Farm. The work during the year constituted chiefly of propaganda work for better farming. Lucerne seed was distributed so as to introduce it in the suitable section. His main work consisted in arranging for an extensive trial in farmers' fields of the Pusa wheat, which has given so promising results on the farm. He has succeeded in securing demand for about 1,000 lbs. in Visnagar, Mehsana and Sidhpur Talukas.

37. In the Amreli District propaganda work largely consisted of cotton trials and Pusa wheat tests. The B. T. plough is an accepted implement, only its cost is prohibitive in more extensive use. Similar types of Kirloskar ploughs will be tried next year. The trial of staple cotton at different places has not been of an encouraging character. The crop grows quite well to all appearance but the bolls begin to exude gum instead of forming normal growth. Trial of Wagad seed did not fare any better and the present situation is that people will have to grow mathio, no matter how much they like to replace it by a staple variety. It appears that few private tests of cotton will be undertaken now and the problem must await Departmental facilities for such work. Pusa wheat under irrigation had given promising out-turn and will be further distributed during the next season. The tractor demonstration in April was very well attended and there appears to be genuine demand for such a tackle in that part.

(2) *Demonstration.*

38. No agricultural demonstration or show was held during the year. A demonstration was arranged on the Baroda Farm for interested members of the Panchayat Conference and Advisory Board.

A cattle show was organized by the British Department at the Chharod cattle Farm along with a tractor exhibit. Workers in the Department in these directions were permitted to visit the show and the institution.

(3) *Publication.*

39. The annual Agricultural Calendar—Khedut Panchang—was published as usual and all the four thousand and odd copies were disposed off in a short time. The Calendar offered an opportune place for recording the results of the Census and more particularly those of the live-stock. The condition of live-stock was discussed at some length by me in a contribution in this issue and I find that it has been translated and published as an Appendix of the Census Report.

The Vernacular Quarterly—Kheti and Sakharya—was published as usual. The new scheme for this publication has not yet been decided upon pending readjustment of the working staff.

Reprints of useful leaflets of the Bombay Department were procured for distribution amongst cultivators.

(B) AGRICULTURAL ENGINEERING.

40. Mr. B. G. N. Acharya was appointed to the post of the Agricultural Engineer in August 1921 and took charge on 20th of that month. He has been in entire charge of the tractor work in the Department, advice and inspection of oil-engine installations and supervision of boring operations in general, the Boring Overseer being in direct charge of the last item of work.

41. The Departmental tractor was sent for work in the Pattan, Petlad and Amreli Talukas and ploughed altogether 185 bighas and disced 43. The actual working cost for an acre of ploughing came to Rs. 7. As much more would have been to be added for operating services, depreciation and interest. No account has been taken in these calculations of accidents and consequent repairs and resulting enforced idleness. The business possibilities are thus yet hard to be definitely determined.

42. The working cost of disc-harrowing with the tractor including labour and depreciation, but not interest and repairs came to Rs 2-13-0 per acre, an acre being disced in about 41 minutes on an average. The time taken for ploughing is about three hours. Details are given in Appendix XI.

The tractor trials at various places in the State in co-operation with the firms have been already referred to. The experience we received in these tests, has made it necessary for us to push cautiously this interesting method of cultivation.

42. A brief survey has been undertaken during the year of the various installations of oil-engine and pump, noting the size and popular type, difficulties in operation and any general deductions that could be drawn from such a survey. The results it is intended, to be published in a bulletin form as soon as information is complete and the facts analysed.

Boring.

43. As is usually the case in a wet season, the number of applications for boring show considerable diminution. The number of wells dealt with

during the year was 45, out of which two were Panchayat wells in Mehsana Taluka. 34 out of these were successful, giving the percentage of successful wells as 75. The total addition of kos waters was nearly 80, the figure for the District being 2.7, 1.7, and 1 kos for Baroda, Kadi and Amreli respectively. Details will be found in Appendix XII and XIII.

44. Altogether 11 machines were in requisition 4 in Baroda and 3 in Kadi of the Cawnpore type, two Musto Patent and two Calyx-drills.

45. There was a demand for Rock Bore trials in Amreli and Navsari. Government sanctioned a couple of tests to be made at State expense for this purpose. The work in Navsari, owing to the machine being engaged elsewhere, could not be taken up. Out of three wells taken up at Amreli in the Amreli District, two gave an increase of one kos each, the third is yet incomplete.

46. We are experiencing considerable difficulty in securing competent workmen at reasonable salaries. We may have to train up our own men in bond or face the alternative of paying high wages.

Veterinary.

47. There were 13 Veterinary dispensaries with the Department by the close of the year. Five of these are entirely State financed and are located at Baroda, Navsari, Mehsana, Pattan and Amreli. The others are on a part contribution from the Local Boards : these are at Vyara, Kathor and Karchelia in Navsari District ; Dabhoi, Bhadran, Petlad and Sankheda in the Baroda District and at Vijapur in the Kadi District. Out of these Karchelia contributes a lump sum of Rs. 1,000, Sankheda and Vijapur pay $\frac{2}{3}$ of the expenditure and the rest $\frac{1}{3}$. Owing to difficulty of securing charge Officers, Sankheda and Vijapur dispensaries have been open only for a few days.

48. The total number of cases treated during the year under report was 11,278 ; this works out at an average of 1,000 admissions during the year for the eleven dispensaries that were fully open. The number of admissions during the previous year were 8,990 giving an increase of over 2,200 cases or 200 per dispensary.

49. The classes of patients comprised of 6,965 cattle and 2,044 horses, 297 dogs and 1,472 miscellaneous types including Sheep, Goats, Camels, etc. The percentage of specially agricultural to non-agricultural stock works out at 60 to 40. Number of cases that were charged admission fee as coming from non-agriculturists was 4,189 or 37 per cent. of the total admission, leaving 63 % of the cases as coming from the agriculturists. The number of mofussil cases was 4,281 or 38 % of the total. The daily average attendance works out at 193, i. e. on an average a patient takes about 7 turns at the dispensary. In very few cases are in-door patients kept for facilities for doing so exist at very few places the number is thus almost negligible. The total number of operations total up to 1,415; 538 of which are of a major character.

50. Altogether 18 outbreaks were reported from the Districts, eight of foot and mouth diseases, eight of rinderpest and two of hemorrhagic septicæmia. None were of a virulent character and timely measures soon put them down. Inoculation of cattle

against rinderpest is not freely resorted to but it is encouraging that 120 at least were brought forward for inoculation.

51. The Veterinary Inspector's post had to be abolished owing to retrenchment but orders have since been received to revive it. In capable hands, the post will provide opportunities for considerable improvement in the working of the Dispensaries.

52. The stallion at Pattan is continuing to give good service. It is maintained by a contribution from the District Local Board. The service of the stallion is free of any charge. Little, however, is known regarding the progeny and to obviate this a deposit fee of Rs. 5 has been introduced, which is refunded, on the off-spring being brought to the dispensary for taking necessary note. 41 mares were served during the year, 27 out of which came from Pattan Taluka, 6 from Sidhpur Taluka, 4 from Chanasma Taluka and 4 from Harij Mahal.

53. The total expenditure for the Dispensaries came at Rs. 25,660-10-6. This works at about Rs. 2-4-0 per case for fresh admission during the year as against Rs. 2-12-6 during the previous one. The figure of Panchayat contribution came to Rs. 4,806, excluding that of Sankheda and Vijapur which, are still under Settlement.

BARODA,

C. V. SANE,

Dated 16th November 1923.

Director of Agriculture,

Baroda State.

APPENDIX NO 1.
Important Posts in the Department of Agriculture,
in the year 1921-22.

—————
HEAD OFFICE.

Mr. C. U. Patel ... Deputy Director of Agriculture.
 Mr. R. G. Patel, B.Ag. ... Senior Inspector.

FARMS, SUPERINTENDENTS AND INSPECTORS.

Mr. P. P. Patel, B.Ag. ... Amreli District Agricultural Inspector.
 Mr. G. K. Desai, B.Ag. ... Navsari District Agricultural Inspector.
 Mr. H. N. Shukla, B.Ag. ... Kadi District Agricultural Inspector
 and Jagudan Model Farm Superintendent.
 Mr. V. M. Kathavate, B.Ag. ... Baroda Model Farm Superintendent.
 Mr. D. S. Medadkar, B.Ag. ... Baroda District Agricultural Inspector.
 Mr. I. D. Desai, B.Ag. ... Cotton Officer.

AGRICULTURAL ENGINEERING.

Mr. H. C. Gandhi ... Boring Overseer.

VETERINARY BRANCH.

Mr. S. M. Vasavada, G.B.V.C. ... Baroda Veterinary Surgeon.
 Mr. D. B. Pandya, G.B.V.C. ... Amreli Do,
 Mr. H. V. Save, G.B.V.C. ... Pattan Do.
 Mr. C. V. Mankodi ... Navsari Do.

DAIRY.

Mr. Shashikant K. Desai ... Superintendent for Cattle Breeding
 and Dairy.

APPENDIX NO. 41.

The Statement showing Tagavi advances made to the cultivators from a sum of Rs. 1,00,000 allotted to this Department in 1921-22 as referred to in para No. 6 of the Annual Report.

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For installation of Oil Engines and Pumps from Rs. 70,000.

BARODA DISTRICT.

	Rs.
1. Perbudhas Trikambhai Patel of Sevasi ...	6,000
2. Becharbhai Ranchedbhai Patel of Sarar ...	5,500
3. Haribhai Karabhai of Alindra ...	6,000
4. Thakore Kikabhai Gagabhai, Bamnoli ...	3,000
5. Wajjibhai Tulshibhai Sanjaya ...	5,000
6. Tulshibhai Lakhabhai, Changa ...	7,000
7. Narshibhai Nathabhai, Padgam ...	5,000
8. Becharbhai Muljibhai, Jalsan ...	5,000
9. Trikambhai Kashibhai, Jalsan ...	5,000
10. Jethalal Gangadas, Jahaj... ..	5,000
11. Nathabhai Narotam, Diver ...	5,000

AMBALI DISTRICT.

12. Mohan Bhagvan, Jalia, without interest ...	6,000
13. Madhavrao Jenardan, Motifafdi ...	3,131-1-1
14. Khanderao Govind Gotikar, Dinod ...	1,500

For Tractor from Rs. 30,000.

Without interest.

1. Khanderao Govind Gotikar, Dinod ...	6,500
2. Chhotabhai Bhailabhai of Dharmaj ...	10,000
	16,500

Steps are being taken to recover this amount.

APPENDIX NO. III.

The statement showing Expenditure and Receipts of the Department of Agriculture as referred to in para 7th
of the Annual Report for the year 1921-22.

Serial No.	Branch.	Pay.	Travelling allowance.	Experiments and Demonstrations.	Other charges.	Total Expenditure.	Receipts.	For the year 1920-21.		Remarks.
								Expenditure.	Receipts.	
1	2	3	4	5	6	7	8	9	10	11
1	Head Office including Agri. Engineering	18,547- 5- 6	3,542- 3-11	2,441- 0- 7	771-13- 4	25,302- 7- 4	1,331- 8- 7	31,773- 8- 1	453- 4- 0	
2	Baroda Farm ...	3,193- 1- 8	107- 1-10	...	10,339- 3- 6	13,639- 7- 0	7,427- 9- 4	10,750- 9-11	7,224- 9- 3	
3	Jagudan Farm ...	1,013-11- 3	99-12- 0	...	3,227-11- 3	4,341- 2- 6	2,502- 5- 3	5,196- 7- 6	2,409- 1- 0	
4	Dairy ...	2,321-15- 4	...	...	6,578- 8-11	8,900- 8- 3	5,501- 8- 0	12,734-10-6	4,298- 3- 3	
5	Inspectors ...	4,770- 9- 4	1,329-12- 9	477- 7- 9	311-13- 4	6,889-11- 2	...	5,815- 0-10	...	
6	Boring ...	4,739-11-11	1,311-11- 3	...	6,046- 1- 3	12,097- 8- 5	1,250- 2- 2	13,847- 8- 1	1,739-15-10	
7	Veterinary Dispensary ...	15,394-14- 3	502- 2-11	...	9,763- 9- 4	25,660-10- 6	5,778-11- 7	23,332- 6- 7	4,802- 5- 5	
	Total ...	49,981- 5- 3	6,892-12- 8	2,918- 8- 4	37,038-12-11	96,831- 7- 2	23,791-12-11	1,03,450- 3- 6	20,927- 6- 9	

APPENDIX NO. IV.

Statement showing Rainfall in different Talukas of the State
in the year 1921-22.

District.	Taluka.	Rain-fall of 1921-22.	Normal of last ten years.	District.	Taluka.	Rain-fall of 1921- 22.	Normal of last ten years.	Remarks.
1	2	3	4	5	6	7	8	9
Baroda.	Baroda City.	45.14	35.94	Kadi.	Kadi.	39.09	28.99	
	Baroda.	44.59	31.99		Kalol.	34.89	27.72	
	Padra.	36.32	46.60		Dehgam.	46.85	29.24	
	Karjan.	54.98	40.20		Attarsumba.	43.78	31.06	
	Dabhoi.	50.03	42.24		Visnagar.	29.96	26.32	
	Sankheda.	58.01	40.71		Mehsana.	36.43	25.74	
	Tilakwada.	48.85	40.26		Kheralu.	32.72	23.70	
	Sinor.	47.36	26.47		Sidhpur.	23.62	23.76	
	Chandod.	32.37	32.80		Pattan.	27.64	21.42	
	Petlad.	35.31	32.56		Harij.	33.08	23.47	
	Bhadran.	37.35	32.72		Vijapur.	37.41	28.31	
	Savli.	44.13	39.38		Chanasma.	31.33	23.14	
	Vaghodia.	64.37						
	Navsari.	Navsari.	72.80		52.83	Amreli.	Amreli.	22.41	23.00
Gandevi.		87.17	59.09	Bhimkatta.	43.82		24.80	
Palsana.		64.81	52.35	Dhari.	21.53		20.85	
Mangrol.		47.12	38.92	Khambha.	14.33		19.58	
Kamrej.		51.32	43.13	Damnagar.	19.20		20.85	
Vyara.		71.22	56.62	Ratanpur.	24.39		23.13	
Songadh.		72.46	56.61	Kodinar.	26.34		29.06	
Mahuwa.		69.23	49.17	Okhamandal.	13.38		14.06	
				Beyt.	19.63		13.13	

APPENDIX NO. V.

The statement showing the value and cost of production of the crop grown on the Baroda Model Farm as referred to in para 12th of the Annual Report for the year 1921-22.

Serial No.	Name of Crop.	Area.		Yield.		Value of the Produce.	Remarks.
		A.	G.	Grain.	Fodder.		
1	2	3	4	5	6	7	8
				Mds. lbs.	Mds. lbs.	Rs. as. ps.	
1	Bajri ...	6	5	174-12	2,678-0	723-4-1	
2	Bajri Mix. ...	3	30	69-33	380-43	380-4-3	
	Gawar ...			1-0			
	Mag ...			9-34			
	Math ...			5-3			
	Tur ...			0-4			
3	Cotton ...	6	5	124-37	...	968-8-4	
4	Cotton Mix. ...	5	20	41-33	...	426-12-3	
	Til ...			20-13			
	Tur ...			1-10			
5	Sundhia ...	16	7	...*	...	1,500-14-0	
6	Ground-nut ...	2	...	28-19	75-30	122-9-6	
7	Kodra mix. ...	3	...	97-8	120-20	238-4-6	
	Til ...			3-24			
	Gawar ...			1-35			
	Tur ...			28-35			
8	Tobacco ...	1	20	...*	...	87-0-0	
9	Chillies ...	1	5	90-6	...	112-5-0	
10	Lucerne ...	1	30	3-25	649-23	565-3-11	
11	Castor ...	2	28	38-4	...	119-14-4	
12	Bavto ...	3	30	31-12	46-0	76-7-8	
	Castor ...			7-17			
13	Safflower ...	1	...	8-38	...	27-1-8	
14	Maize ...	2	24	269-15	...	74-3-8	
15	Vegetables ...	3	...	...*	...	414-5-4	
16	Guavas ...	3	20	...*	...	830-10-9	
17	Oranges ...	...	20	...*	...	1-14-0	
18	Miscellaneous ...	1	10	...*	...	35-0-3	

* These crops have been sold standing.

APPENDICES NO. VI, VII, VIII.

BARODA FARM.

SPACING TRIALS.

Cotton.

Plot No.	For the year 1921-22.		Plot No.	For the year 1920-21.		Remarks.	
	Spacing.	Yield per Acre. lbs.		Spacing.	Yield per Acre in lbs.		
1	2	3	4	5	6	7	
47	2 ft.	960	55	2 ft.	580	} These cottons were irrigated.	
48	3 ft.	928	56	3 ft.	492		
49	4 ft.	1,052	57	4 ft.	484		
50	5 ft.	1,192	58	5 ft.	632		
51	4 ft.	1,052	59	4 ft.	..		
52	4 ft.	1,228	60	4 ft.	..		
53	5 ft.	1,044	61	5 ft.	..		
54	5 ft.	891	62	5 ft.	..		
							This plot is low lying and so waterlogged.

Bajri.

55	1 ft.	1,276	47	1 ft.	1,036
56	1½ ft.	1,352	48	1½ ft.	960
57	2 ft.	1,236	49	2 ft.	864
58	1 ft.	1,586	50	1 ft.	824
59	1 ft.	1,496	51	1 ft.	961
60	1½ ft.	1,536	52	1½ ft.	824
61	2 ft.	1,384	53	2 ft.	620
62	1 ft.	896	54	1 ft.	672

Irrigated Cotton.

Plot No.	Yield per Acre.	Value of Produce.	Cost of Production	Profit.	Remarks.
9-10	Lbs. 885	Rs. as. p. 174-5-0	Rs. as. p. 83-13-7	Rs. as. p. 90-7-5	The cost of five irrigations in May-June was Rs. 13-1-3.

APPENDIX NO. IX.

Statement showing the result of manurial experiments on Tobacco in Dharmaj in the year 1921-22.

Serial No.	Name of the person.	Area number			Treat-ment actually given to the plot.	Out-turn.				Remarks.
		Field Survey number.	of com-parison.	of plants.		Treated.	Untreat-ed.	Excess.	Percen-tage.	
1	2	3	4	5	6	7	8	9	10	11
1	Desaibhai Dayabhai.	2,405	½	3,420	62½	689	425	264	62	The rate of manure per maund of 40 lbs. was Rs. 8, while the prevailing rate of Tobacco at Dharmaj and Changa was Rs. 10 and 8 per maund respectively during the year.
2	Mathurbhai Dadabhai.	46	½	3,264	62½	687	541	236	52	
3	Vaghjibhai Bhajibhai.	113	½	3,584	62½	472	357	115	32	
4	Govindbhai Dayabhai.	2,405	½	3,375	50	687	425	262	61	
5	Pagibhai Amtha.	113	½	3,584	50	479	446	33	7	
6	Shankar Jesang.	47	½	3,280	50	687	451	236	52	

Statement showing the results of manurial experiments on Tobacco in Changa in the year 1921-22.

Serial No.	Name of the person,	Field survey number.	Area of comparison.	Number of plants.	Treatment, actually given to the plot.	Out-turn.				Remarks.
						Treated.	Untreated.	Increase.	Percentage.	
1	2	3	4	5	6	7	8	9	10	11
1	Tulshibhai Lakhabhai.	2,116	$\frac{1}{2}$	3,960	50	480	400	80	20	The rate of manuré per maund of 40 lbs was Rs. 8, while the prevailing rate of Tobacco at Dharmaj and Changa was Rs. 10 and 8 per maund respectively during the year.
2	Maganbhai Motibhai.	2,117	$\frac{1}{2}$	4,005	50	290	260	30	„	
3	Nathabhai Somabhai.	2,130	$\frac{1}{2}$	3,960	50	250	230	20	8	
4	Chunibhai Hathibhai.	2,116	$\frac{1}{2}$	3,900	$37\frac{1}{2}$	430	370	60	16	
5	Nathabhai Mathurbhai.	2,125-1	$\frac{1}{2}$	3,960	$37\frac{1}{2}$	330	310	20	6	
6	Nathabhai Mathurbhai Bhaijeebhai.	2,112	$\frac{1}{2}$	3,822	$37\frac{1}{2}$	250	230	20	8	

APPENDIX NO. X-A.

Analysis of well-waters well-known for tobacco crop in Petlad Taluka in the year 1922.

Name of the village.	1st class manurial value.			Samples of medium value.				Waters ordinary used.			Unfit for irrigation.
	Dharmaj.	Mehlav.	Petlad.	Dharmaj.	Mehlav.	Mehlav.	Petlad.	Dharmaj.	Mehlav.	Petlad.	Bhadran.
Name of the well.	Kharo.	Gotoroo.	Mira.	Ghoga-tia.	Dholo-kuvo.	Parotwa-lo.	Joshino.	Nagar-das.	Bhatwa-lo.	Fathepu-rano.	Chopa-dio.
Total Salts containing ...	1010 00	98 00	284 00	466 00	80 00	110 00	74 00	100 00	156 00	68 00	222 00
Calcium Carbonate ..	20 00	18 00	38 07	12 00	14 00	4 00	20 00	8 00	16 00	20 00	16 00
„ Sulphate ...	...	...	7 82	...	...	...	...	...	...	...	...
Magnesium Carbonate ...	69 01	25 29	...	49 73	27 39	13 70	15 16	13 60	31 32	13 28	30 40
„ Sulphate ...	6 69	5 12	34 12	...	...	...	...	...	11 27	...	...
„ Chloride ...	...	...	30 10	...	...	...	...	...	...	...	...
Sodium Carbonate...	...	...	...	8 48	...	...	...	1 06	...	...	...
„ Bicarbonate ...	...	...	...	12 68	2 94	50 20	1 73	28 50	...	...	77 28
„ Sulphate ...	137 78	...	...	71 98	6 10	6 10	3 66	4 88	...	7 32	4 88
„ Chloride ...	577 50	23 10	69 30	247 17	20 79	18 48	19 47	34 65	73 92	13 86	27 72
Potassium Nitrate ..	28 35	7 09	21 26	9 59	5 82	...	...	...	4 98	...	...
Sodium Nitrate ...	147 38	1 39	78 84	43 75	14 54	...	...	...	12 12	...	...

7 D. A.

APPENDIX NO. X-B.

Analysis of well-waters well-known for tobacco in Petlad Taluka in the year 1895 (This is taken from Agricultural Ledger 1895 No. 14, P. 2).

So many parts per 1,00,000.

Description.	Lime Ca. O.	Magne- sio Mg. O.	Potash K ₂ O.	Soda Na ₂ O.	Sulphuric Acid S ₂ O	Chlorine Cl.	Nitric Acid N ₂ O ₅ .	Magne- sium Sulphate Mg. S. O ₄	Sodium Chloride Na Cl	Pota- sium Nitrate K. N O.	Remarks.
148											
95 140	Mehelav	2.1	15.6	29.0	22.7	7.5	17.3	15.3	11.2	28.5	28.5
95 151	Sunav	3.1	13.2	43.2	54.8	13.4	32.2	24.7	20.1	53.0	46.2
95 152	Petlad "Salty"	30.7	35.7	Nil	110.4	37.1	93.0	84.1	55.6	153.0	157.1
95 153	Petlad "Sweet"	9.2	7.2	—7.4—	10	3.7	1.1	1.5	6.1	2.1	
95 164	Darmaj S ₁	9.2	42.4	Nil.	626.4	66.3	499.7	194.8	99.4	822.1	363.7
95 156	Darmaj S ₂	3.6	20.4	Nil.	246.3	30.2	161.2	48.1	45.3	265.2	89.9
95 157	Ditto	4.7	11.4	33.8	32.0	7.5	29.7	9.4	11.2	48.9	17.6
95 161	Bhadran	2.2	5.6	—26.8—		7	4.9	2.5	1.0	8.1	4.6
95 164	Baroda	7.6	8.0	—17.0—		Nil	4.9	.9	Nil.	8.2	1.7
95 165	Miyagam "Salty"	21.9	20.9	109.8	49.5	33.9	24.3	27.6	50.9	133.7	51.6
95	Miyagam "Sweet"	9.6	16.4	—5.0—		3.1	3.7	1.5	4.6	6.1	2.0

APPENDIX NO. XI.

(A).

Tractor test on the 8th, 9th and the 10th November 1921.

No. of hours worked ...	...	...	...	...	8.
Area ploughed in acres	...	...	...	...	2.6.
Kerosine consumed, in gallons	...	...	...	...	14.25
Petrol ...	...	...	...	...	5
Lubricants "B" oil, Gallons	...	...	...	...	5

Time taken to plough one acre ...	...	...	...	...	3 hours.
Kerosine consumption per acre ...	...	...	...	...	5.5 gallons.

Cost per acre of land ploughed.

Kerosine ...	...	...	...	...	Rs. a. p. 5- 2- 6.
Petrol ...	...	...	...	...	0- 8- 0.
Lubricants...	...	...	...	...	1- 4- 0.
Total...					6-14- 6.

(B).

One Acre Test.

Baroda Model Farm 13-11-1921.

No. of hours worked ...	...	...	...	...	3.
Area ploughed, in acres	...	...	...	...	1.
Kerosine consumed, in Gallons	...	...	...	...	4.5
Petrol ...	...	...	...	...	0.125.
"B" Oil ...	...	...	...	...	0.25.

Time taken to plough one acre ....	...	...	...	...	3 hours.
Kerosine consumption, per acre ...	...	...	...	...	4.5 Gallons.

Kerosine ...	...	...	...	...	Rs. a. p. 4- 8- 0.
Petrol ...	...	...	...	...	0- 6- 0.
Lubricants	...	...	...	...	1- 4- 0.
Total =					6- 2- 0.

APPENDIX No. XI.—*Concl'd.**Tractor Disc harrowing.*

Area in acres disc harrowed	..	..	..	..	24-38 acres.
Time taken ..	..	..	..	..	16-35 hours.
Kerosine consumption	..	..	..	..	23·96 Gallons.
<hr/>					
Time per acre ..	..	..	..	..	41 minutes.
<i>Cost per acre.</i>					
					Rs. a. p.
Kerosine	..	..	..	..	1-10- 0.
Petrol	..	..	..	..	0- 2- 0.
Lubricants	..	..	..	..	0- 6- 0.
Labour	..	..	..	..	0- 3- 0.
Depreciation @ 1-8-0 per hour	..	..	..	..	1- 8- 0.
					<hr/>
Total..					2-13- 0.

This comes to Rs. 2-13-0 excluding wages of the operator and the charges of the spare parts.

APPENDIX NO. XII.

*Statement showing the number of wells Bored in details
in the year 1921-22.*

S D. A.

Statement showing the number of wells Bored in details in the year 1921-22.

Serial No.	Name of well owner.	Village.	Taluka.	Diameter of Bore.	Depth of Boring.	Water before Boring.		Number of working days	Dept. charges.	Labour charges.	Total cost of of Bore hole.	Cost per foot.	Results.	Remarks.
						Water before Boring.	Water after Boring.							
BARODA DISTRICT.														
<i>With Musto Patent Set.</i>														
1	Jethabhai Raijibhai.	Mehelav.	Petlad.	4"	121'	6	10	32	Rs. 436-14-1 p.	Rs. 200-0-0 p.	Rs. 636-14-1 p.	Rs. 5-4-3 p.	Successful.	
2	Tulsibhai Lakhabhai.	Changa.	Do.	4"	96'	8	2	14	36-5-3	50-0-0	86-5-3	...	Do.	* Cleaned the hole and took pipe 4 ft. ahead.
3	Do.	Do.	Do.	4"	112'	10	4	31	408-8-0	250-0-0	658-8-0	5-14-1	Do.	
<i>With Calyx Drills.</i>														
4	Fulabhai Dajibhai ...	Ranoli.	Savli.	2½"	136'	...	...	86	76-8-0	109-8-0	186-0-0	...	Unsuccessful.	Hole could not be cleaned,
5	Chhotabhai Bhailal-bhai ...	Baroda.	Baroda.	4"	84'	1	2	20	384-8-0	110-8-0	495-0-0	5-14-3	Successful.	
6	Ambalal Vishwanath.	Dumad.	Do.	3"	69½'	½	1	27	182-11-5	125-0-0	307-11-5	4-6-10	Do,	
7	Nagjibhai Perbhudas.	Dabhoi.	Dabhoi.	3"	146'	½	...	23	161-0-0	450-8-0	611-8-0	4-3-0	Unsuccessful.	
8	Ambalal Vishanath.	Dumad.	Baroda.	3"	66'	...	...	18	71-14-5	95-0-0	166-14-5	...	Do.	

9	Madhavbhai Manorbhai	Virod.	Baroda.	3"	53'	1	4	27	138-14-5	101-0-0	239-14-5	4-8-3	Successful.
10	Do.	Do.	Do.	3"	53'	5	4	8	124-10-5	25-0-0	149-10-5	2-13-0	Do.
	<i>With Cawnpure Sets.</i>												
11	Shankerbhai Govindjee	Petlad.	Petlad.	2½"	150'	1	...	36	102-8-0	180-0-0	282-8-0	...	Unsuccessful.
12	Parasaram Balwant.	Baroda.	Baroda.	2½"	23'	1	2	20	21-2-0	50-0-0	71-2-0	3-1-6	Successful.
13	Bhikhabhai Rambhai	Sojitra.	Petlad.	2½"	60'	2	5	18	119-12-10	75-0-0	194-12-10	3-3-11	Do.
14	Shivabhai Haribhai	Gada.	Do.	2½"	111'	½	3	27	204-0-0	60-8-0	264-8-0	2-6-0	Do.
15	Ranchodbhai Gokalbhai	Tajpura.	Padra.	2½"	7'	½	2½	13	17-12-0	24-8-0	42-4-0	6-0-7	Do.
16	Ramdas Jeejeebhai.	Malataj.	Petlad.	2½"	33'	½	2	9	75-4-7	32-0-0	107-4-7	3-4-0	Do.
17	Ranchoddas Gokalbhai... ..	Tajpura.	Padra.	2½"	8'	3	2½	3	10-4-0	9-0-0	19-4-0	2-6-6	Do.
18	Haribhai Kala	Do.	Do.	2½"	21'	½	3	15	21-14-10	35-8-0	60-6-10	2-14-0	Do.
19	Shivabhai Ramdas...	Malataj.	Petlad.	2½"	29'	½	3	5	60-4-10	25-8-0	85-12-10	2-9-10	Do.
20	Lallubhai Dhoribhai.	Do.	Do.	2½"	15'	½	1	26	55-14-10	50-8-0	106-6-10	7-1-6	Do.
21	Devising Bhagawanji	Deva.	Petlad.	3"	80½'	½	2	32	201-3-5	78-0-0	279-3-5	3-7-6	Do.
22	Bhailal Dajibhai	Jalsan.	Bhadran	3"	18'	...	...	37	...	...	...	...	Unsuccessful (abandoned).

APPENDIX No. XII.—Continued.

Serial No.	Name of well and owners.	Village.	Taluka.	Diameter of Bore.	Depth of Boring.	Water before Boring.		Water after Boring.	Number of working days.	Dept. charges.	Labour charges.	Total cost of Bore hole.	Cost per foot.	Results.	Remarks.
23	Bhavsanjeo Sadubhai	Deva.	Petlad.	3"	32'	1	2	31	Rs. as. p.	Rs. as. p.	Rs. as. p.	Rs. as. p.	5-14-8	Successful.	
24	Mayaram Keshavram	Karkhadi.	Padra.	2½"	126'	1	...	14	14-4-0	106-0-0	120-4-0	...	...	Unsuccessful (abandoned).	
25	Bhailal Mohanlal ...	Padra.	Do.	2½"	31½'	1	3	9	81-3-4	50-8-0	131-13-4	4-3-5	5	Successful.	
26	Devising Bhagvanji	Deva.	Petlad.	3"	36'	2½	1	5	94-2-5	30-0-0	224-2-5	3-7-2	2	Do.	
27	Yeshavantrao Balvantrao	Padra.	Padra	2½"	41'	½	1	25	94-2-10	75-8-0	169-10-10	4-2-3	3	Do.	
28	Shri Raghoprasad R.	Sherki.	Baroda.	2½"	51½'	½	1	9	124-7-4	16-0-0	140-7-4	2-3-6	6	Do.	
29	Narayan Shridhar ... <i>Kadi District with Cawnpore Sels</i>	Karali.	Do.	2½"	18'	½	1½	9	44-12-10	30-8-0	75-4-10	4-2-11	11	Do.	
30	Amthabhai Jorabhai	Kanpur.	Attarsumba.	2½"	33½'	¼	2	27	92-4-4	53-12-0	146-0-4	4-5-3	3	Do.	
31	Pilodra Public Well	Pilodra.	Mehsana	2½"	93½'	¼	1	45	341-13-9	508-12-0	850-9-9	9-2-0	0	Do.	

32	Bechar Hedu	Dela.	Mehsana.	2½"	96'	½	1	42	201- 8-10	196- 6- 0	397-14-10	4- 2- 3	Successful.
33	Dala Jiva	Savala.	Visnagar	2½"	63'-7"	½	2	22	131- 6- 0	94- 0- 0	225- 6- 0	3- 9- 0	Do.
34	Bechar Baji... ..	Kamana.	Do.	2½"	71'-9"	½	2	31	152- 8- 4	97- 2- 0	249-10- 4	3- 8- 0	Do.
35	Pirkhan Savaikhan	Savala.	Do.	2½"	60'-5"	½	...	21	125- 5- 8	114- 0- 0	239- 5- 8	4- 0- 0	Do.
36	Jorabhai Venibhai...	Satusana	Do.	2½"	88'	½	...	33	28-14- 0	141-14- 0	170-12- 0	1-14- 3	Unsuccess- ful.
37	Raichand Javer ...	Kansa	Do.	2½"	82'	½	...	25	15-10- 0	123- 6- 0	159- 0- 0	1-11- 1	Do.
38	Amichand Ganesh ...	Kamana	Do.	2½"	88'-8"	½	1	24	173-14- 2	118- 8- 0	292- 6- 2	3- 4-10	Successful.
39	Jivankhan Mohabat- khan	Savala.	Do.	2½"	77'	½	1	23	154- 0-10	94- 0- 0	248- 0-10	3- 3- 7	Do.
40	Moti Meghraj ...	Hirvani.	Kheralu.	2½"	133'	½	...	61	45-12- 0	278- 4- 0	324- 0- 0	2- 7- 0	Unsuccess- ful.
41	Dela Public Well ...	Dela.	Mehsana	2½"	88'	½	2	36	205- 4-10	421-12- 0	627- 0-10	7- 2- 0	Successful.
	<i>Amreli District with Musto Patent Set.</i>												
42	Virjibhai Shivdas ...	Amreli.	Amreli.	4"	32'-3"	2	1	27	79-12- 7	69- 3- 0	148-15- 7	4-10- 0	Successful.
43	Valabbhai Govindji.	Do.	Do.	4"	43'-6"	½	...	48	136-15- 2	85- 0- 0	221-15- 2	5- 2- 3	Unsuccess- ful
44	Naranbhai Gordhan- bhai	Do.	Do.	4"	32'	1	1	14	42-11- 6	39- 0- 0	81-11- 6	2- 8- 6	Successful.
	<i>Navsari District with Musto Patent Set.</i>												
45	Manaji Kuverji ...	Borkhadi	Vyara.	4"	...	...	...	...	...	...	...	...	Incomplete

Particulars in details for the year 1921-22.

Serial No.	Item.	Baroda District Size of Bore hole.			Kadi District. Size of Bore hole.	Amreli Dis- trict, Size of Bore hole.	Navsari Dis- trict, Size of Bore hole.	Total		
		4"	3"	2½"	2½"	4"	4"	4"	3"	2½"
1	2	3	4	5	6	7	8	9	10	11
1	Bore Made	5	9	15	12	3	1	9	9	27
2	Successful Bores... ..	4	6	13	9	2	...	6	6	22
3	Failures	1	...	1	...	...	...	1	...	1
4	Incomplete including on hand ... ..	...	...	...	...	...	1	1	...	...
5	Abandoned at well owner's request, mishap of tools or owing to salt water ..	...	3	1	3	1	...	1	3	4
6	Total Depth Bored ...	321'-0	554'-0'	724'-9"	975'-5"	107'-9"	...	428-9	554	1,700-2
7	Total cost of successful Bores, only in Rs. ...	1,790-6-1	1,290-8-0	1,472-14-3	3,276-6-9	226-11-1	...	2,017-1-2	1,290-8-0	4,749-5-0
	Percentage of success ...	...	79-3	...	75	66-6	...	...	...	...

8	Average No. of working days for each bore ...	27	22	14	30	21	...	...	...	...
10	No. of accidents took place in the year ...	...	1	...	4	...	...	...	5	...
11	No. accidents removed ...	...	1	...	4	...	...	...	5	...
12	Average No. of feet bored by each machine in 8 months ...	321	277	242	325	*107	...	...	...	...

* Worked for 3 months only.

APPENDIX

The Statement showing number of Wells

Names of Mahals.	1911-12.					1912-13.					1913-		
	Successful.	Water.	Un-successful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
BARODA DISTRICT.													
Baroda ...	5	74	3	...	8	16	32	3	1	20	1	1	...
Padra ...	16		3	...	19	39	118	3	1	43	3	15	...
Waghodia ...	1		3	...	4	...	...	...	...	...	...	...	...
Petlad ...	22	223	5	...	27	25	92	1	1	27	10	39	1
Bhadran ...	30		1	...	31	43	234	...	1	44	12	42	4
Shinor ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Karjan ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Savli ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dabhoi ...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total ...	74	297	15	...	89	123	476	7	4	134	26	97	5
KADI DISTRICT.													
Mehsana ...	2	58	...	1	3	...	...	...	...	...	2	5	...
Visnagar ...	7		...	1	8	4	8	1	...	5	3	7	1
Kheralu ...	1		2	...	3	...	...	1	...	1	...	...	...
Sidhpur ...	...		1	...	1	...	...	...	...	...	4	11	1
Chanasma ...	...		2	...	2	...	...	...	...	...	...	...	1
Kalol ...	...		...	...	...	...	...	...	...	...	...	...	...
Dehgam ...	9		3	...	12	16	14	1	...	11	7	11	1
Vijapur ...	...		...	...	...	...	...	...	...	...	1	1	1
Attarsumba ...	1	...	...	1	4	5	...	...	4	...	...	1	

XIII.

bored in different Talukas till the year 1921-22.

14.		1914-15.					1915-16.					1916-17.				
Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...
...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...
...	11	34	126	...	...	34	25	72½	...	...	25	5	10	2	1	8
1	17	3	5	...	...	3	13	47	...	1	14	3	12	...	...	3
1	1	4	9	...	...	4	...	...	...	...	...	...	...	...	...	...
...	...	1	5	...	...	1	...	...	...	...	...	...	...	...	...	...
...
...
3	34	42	145	1	...	43	38	119½	...	1	39	8	22	2	1	11
...	2	...	...	1	...	1	8	15	...	2	10	...	...	...	...	...
1	5	5	13	1	2	8	19	38½	5	...	24	7	13	...	...	7
...	...	...	...	...	...	...	...	...	2	...	2	...	...	...	...	...
1	6	3	6	...	...	3	...	...	...	...	...	...	...	...	...	...
...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	10	16	...	...	10	1	2	1	...	2
1	9	4	8	2	...	6	16	40	4	1	21	4	7	1	1	6
...	2	4	14	...	...	4	14	31½	...	...	14	...	...	...	...	...
...	1.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX

The Statement showing number of Wells

Names of Mahals.	1917-18.					1918-19.				
	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.
1	32	33	34	35	36	37	38	39	40	41
BARODA DISTRICT.										
Baroda ...	...	...	...	...	...	12	22	2	...	14
Padra ...	...	...	...	...	...	3	4½	1	...	4
Waghodia ...	...	...	...	...	...	9	11	...	2	11
Petlad ...	1	1	...	...	1	21	60	2	1	24
Bhadran ...	...	...	...	...	...	...	...	...	...	...
Sinor ...	...	...	...	...	...	...	...	...	...	...
Karjan ...	3	10	1	...	4	...	...	...	...	...
Savli ...	2	7	...	...	2	1	1½	3	...	4
Dabhoi ...	...	...	...	...	...	1	1	2	...	3
Total ...	6	18	1	...	7	47	100	10	3	60
KADI DISTRICT.										
Mehsana ...	...	...	...	...	...	2	4	2	1	5
Visnagar ...	5	6½	1	...	6	23	40	7	5	35
Kheralu ...	...	...	...	...	...	...	...	...	...	...
Sidhpur ...	1	1	...	...	1	...	...	...	...	...
Chanasma ...	...	...	...	...	...	3	3	...	...	3
Kalol ...	...	...	...	...	...	...	...	...	...	...
Dehgam ...	...	...	...	...	...	18	29	2	2	22
Vijapur ...	1	1	...	...	1	...	...	...	...	...
Attarsumba...	...	...	...	...	...	2	2	...	...	2

XIII.

bored in different Talukas till the year 1921-22.

1919-20.					1920-21.					1921-22.					Total No. of successful wells since 1911.
Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	
42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
...	...	...	1	1	8	19	2	...	10	7	15½	1	...	8	49
...	...	...	...	...	4	5½	1	...	5	5	12	1	...	6	70
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10
10	27	2	1	13	26	83	4	1	31	11	35	1	...	12	190
...	...	...	...	...	2	9	5	...	7	...	...	1	...	1	106
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
1	4	...	...	1	3	3½	...	...	3	...	...	...	...	...	8
6	8½	1	...	7	1	1	3	1	5	...	...	1	...	1	10
...	...	1	...	1	...	...	...	...	...	...	...	1	...	1	1
17	39½	4	2	23	44	121	15	2	61	23	62½	6	...	29	448
1	1	...	...	1	8	15½	1	1	10	3	4	...	...	3	26
9	12½	3	1	13	5	6	5	...	10	5	9	2	...	7	92
...	...	2	...	2	...	...	...	...	...	...	...	1	...	1	1
...	...	...	...	...	...	...	2	...	2	...	...	...	...	...	8
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
4	15	1	1	6	16	28½	3	...	19	...	...	...	...	...	88
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	20
...	...	...	...	...	...	...	...	...	...	1	2	...	...	1	8

APPENDIX

Names of Mahale.	1911-12.					1912-13.					1913-		
	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Kadi	5	7	2	...	8	...	...	...
Pattan	1	1	...	...	1	...	...	...
Total	20	58	8	2	30	24	35	6	...	30	17	35	6
NAVSARI DISTRICT.													
Vyara
Navsari	36	52	1	1	38	1	1	1
Kamrej	2	2	...	...	2	4	4 $\frac{1}{2}$	1
Gandevi	20	40 $\frac{1}{2}$	2
Mahuva	1
Palsana	1	1	...
Total	38	54	1	1	40	26	47 $\frac{1}{2}$	5
AMRELI DISTRICT.													
Okhamandal.
Kodnar
Beyt
Amreli
Total
Grand Total...	94	355	23	2	119	185	565	14	5	204	69	179 $\frac{1}{2}$	16

XIII.—Continued.

14.		1914-15.					1915-16.					1916-17.				
Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	2
...
3	26	16	41	4	2	22	67	141	11	3	81	12	22	3	2	17
...
...	2	13	14	1	...	14	...	...	...	...	...	...	...	...	...	...
...	5	3	3	1	...	4	...	...	...	...	...	...	...	...	...	...
...	22	2	2	1	...	3	...	...	...	...	...	...	...	...	...	...
...	1	3	3	...	...	3	...	...	...	...	...	...	...	...	...	...
...	1	1	1	...	...	1	...	...	...	...	...	...	...	...	...	...
...	31	22	23	3	...	25	...	...	...	...	...	...	...	...	...	...
...
...
...
...
...
6	91	80	209	8	2	90	105	260	11	4	120	20	44	5	3	28

APPENDIX

Names of Mahals.	1917-18.					1918-19.				
	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.
1	32	33	34	35	36	37	38	39	40	41
Kadi	...	...	...	...	...	...	...	...	...	...
Pattan	...	...	...	...	...	...	...	...	...	...
Total	7	8½	1	...	8	48	78	11	8	67
NAVSARI DISTRICT.										
Vyara	...	...	...	...	...	...	...	...	...	...
Navsari	...	...	...	...	...	...	...	...	...	...
Kamrej	...	...	...	...	...	...	...	...	...	...
Gandevi	...	...	...	...	...	...	...	...	...	...
Mahuva	...	...	...	...	...	...	...	...	...	...
Palsana	...	...	...	...	...	...	...	...	...	...
Total	...	...	...	...	...	...	...	...	...	...
AMBALI DISTRICT.										
Okhamandal.	1	...	...	...	1	7	4	3	...	10
Kodinar	...	...	...	...	...	...	...	...	...	...
Beyt	...	...	...	...	...	2	1	...	...	2
Amreli	...	...	...	...	...	1	5	...	...	1
Total	1	1	...	...	1	10	10	3	...	13
Grand Total	14	27½	2	...	16	105	188	24	11	140

XIII.—*Concluded.*

1919-20.					1920-21.					1921-22.					Total No. of successful wells since 1911.
Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	Successful.	Water.	Unsuccessful.	Incomplete.	Total.	
42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
14	28½	6	2	22	29	50	11	1	41	9	15	3	...	12	263
...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	50
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9
...	...	...	...	...	3	2½	...	...	3	...	...	...	...	...	25
2	4	...	...	2	...	...	...	...	...	...	...	...	...	...	5
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
2	4	...	...	2	3	2½	...	...	3	...	...	...	1	1	91
5	4½	3	...	8	...	...	...	...	...	...	...	...	...	...	12
2	...	...	...	2	...	...	...	...	...	...	...	...	...	...	3
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
...	...	...	...	...	...	...	...	...	...	2	3	...	1	3	4
7	4½	3	...	10	...	...	...	...	...	2	3	...	1	3	20
40	77	13	4	57	76	173½	26	3	105	34	80½	9	2	45	822

APPENDIX

Statement showing classification of animals treated at Dispensaries

Para 48 of the Annual Report

1	Baroda.					Navsari.					Pattan.		
	At Dispensary.			In District.	Total.	At Dispensary.			In District.	Total.	At Dispensary.		
	Last year's cases on hand.	Fresh cases.	Total.			Last year's cases on hand.	Fresh cases.	Total.			Last year's cases on hand.	Fresh cases.	Total.
	2	3	4	5	6	7	8	9	10	11	12	13	14
Horses	44	808	852	...	852	2	118	120	...	120	...	274	274
Cattle	50	826	876	...	876	19	617	636	86	722	...	697	697
Dogs	39	539	578	...	578	1	59	60	...	60	...	25	25
Others	11	308	319	...	319	2	41	43	...	43	...	111	111
Total	144	2481	2625	...	2625	24	835	859	86	945	...	1107	1107
Out of which number of cases.													
Cured ... ..	...	...	1793	...	1793	...	...	741	22	763	...	775	...
Relieved ... ..	...	...	698	...	698	...	...	34	64	98	...	93	...
Died ... ..	...	...	22	...	22	...	...	8	...	8	...	17	...
Discontinued Treatment ... ..	...	...	...	...	...	...	...	51	...	51	...	173	...
On hand on 31st July 1922 ... ..	...	...	112	...	112	...	...	25	...	25	...	49	...

NO. XIV.

and in the District by the Veterinary Surgeons as referred to in
for the year 1921-22.

In District.	Mehsana.						Amreli.						Petlad.					
	Total.	At Dispensary.			In District.	Total.	Total.	At Dispensary.			In District.	Total.	At Dispensary.			In District.	Total.	
		Last year's cases on hand.	Fresh cases.	Total.				Last year's cases on hand.	Fresh cases.	Total.			Last year's cases on hand.	Fresh cases.	Total.			
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
...	274	3	88	91	...	91	3	89	92	...	92	5	129	134	...	134		
...	697	3	356	359	43	402	27	865	892	...	892	21	664	685	...	685		
...	25	1	50	51	...	51	...	4	4	...	4	...	44	44	...	44		
...	111	...	63	63	...	63	...	55	55	...	55	8	264	272	...	272		
...	1107	7	557	564	43	607	30	1013	1043	...	1043	34	1101	1135	...	1135		
...	775	...	...	488	43	531	...	...	1015	...	1015	...	...	995	...	995
...	93	..	...	16	...	16	...	...	3	...	3	...	...	101	...	101
...	17	...	...	23	...	23	...	...	1	...	1	...	...	10	...	10
...	173	...	...	32	...	32	...	...	...	...	...	...	...	17	...	17
...	49	...	...	5	...	5	...	...	24	...	24	...	...	22	...	22

APPENDIX

Statement showing classification of animals treated at Dispensaries

Para 48 of the Annual Report

1	Bhadran.					Dabhoi.					Vyara.		
	At Dispensary.			In District.	Total.	At Dispensary.			In District.	Total.	At Dispensary.		
	Last year's cases on hand.	Fresh cases.	Total.			Last year's cases on hand.	Fresh cases.	Total.			Last year's cases on hand.	Fresh cases.	Total.
	32	33	34	35	36	37	38	39	40	41	42	43	44
Horses ...	2	82	84	...	84	...	109	109	...	109	4	99	103
Cattle ...	8	531	539	...	539	13	644	657	...	657	8	275	283
Dogs ...	...	11	11	...	11	1	39	40	...	40	...	6	6
Others ...	...	43	43	...	43	1	162	163	...	163	...	14	14
Total ...	10	667	677	...	677	15	954	969	...	969	12	394	406
Out of which number of cases.													
Cured ...	...	...	601	...	601	...	...	818	...	818	...	...	357
Relieved ...	...	...	2	...	2	..	...	120	...	120	...	...	22
Died ...	...	...	5	...	5	...	...	16	...	16	...	...	5
Discontinued Treatment ...	...	...	51	...	51	...	...	11	...	11	...	...	12
On hand on 31st July 1922 ...	...	...	18	...	18	...	...	4	...	4	...	...	10

NO. XIV.

and in the District by the Veterinary Surgeons as referred to in
for the year 1921-22.

		Kathor.					Karchalia.					Total.				
In District.	Total.	At Dispensary.			In District.	Total.	At Dispensary.			In District.	Total.	At Dispensary.			In District.	Total.
		Last year's cases on hand.	Fresh cases.	Total.			Last year's cases on hand.	Fresh cases.	Total.			Last year's cases on hand.	Fresh cases.	Total.		
		47	48	49			50	51	52			53	54	55			56	57	58	59	60	61
...	103	6	179	185	...	185	1	72	73	...	73	70	2047	2117	...	2117
93	376	18	498	516	53	569	15	989	1004	17	1021	182	6962	7144	292	7436
...	6	...	15	15	...	15	...	5	5	...	5	42	797	839	...	839
...	14	8	155	163	...	163	1	256	257	...	257	31	1472	1503	...	1503
93	499	32	847	879	53	932	17	1322	1339	17	1356	325	11278	11603	292	11895
52	409	...	...	828	19	847	...	...	1122	11	1133	...	...	9523	147	9670
...	22	...	...	10	15	25	...	...	4	...	4	...	...	1003	79	1182
41	46	...	...	7	19	26	...	...	9	6	15	...	...	123	66	189
...	12	...	...	...	...	...	...	...	162	...	162	...	...	509	...	509
...	10	...	...	34	...	34	...	...	42	...	42	...	...	345	...	345

APPENDIX NO. XV.

The statement showing the classification of Diseases of animals in the year 1921-22.

Serial No.	Name of the Disease.	Baroda.	Navsari.	Pattan.	Mehsana.	Amreli.	Petalad.	Bhadran.	Vyara.	Kathor.	Dabhoi	Karchalia.	Total.	Remarks.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Specific ...	53	7	176	64	26	20	7	12	41	4	108	518	
2	Nervous ...	20	6	4	19	41	25	2	3	8	12	5	145	
3	Circulatory ...	17	20	...	1	62	8	37	13	26	13	1	198	
4	Skeleton ...	142	38	32	2	96	113	44	28	80	127	20	722	
5	Eye and ear ...	125	70	37	30	101	64	19	22	96	41	44	649	
6	Skin ...	247	82	17	15	60	128	13	103	70	299	23	1,057	
7	Lymphatic ...	8	9	...	...	63	4	...	9	9	...	1	103	
8	Digestive ...	817	147	120	111	160	178	134	56	81	321	106	2,231	
9	Respiratory ...	98	24	32	15	117	34	2	14	32	...	28	394	
10	Urinary ...	52	12	28	19	99	37	1	19	28	40	9	345	
11	Genital ...	95	36	6	8	32	78	28	4	29	...	7	323	

12	Miscellaneous ...	800	384	655	273	156	415	380	111	347	97	970	4,588
	Total ...	2,481	835	1,107	557	1,013	1,101	667	394	847	954	1,322	11,278

REMARKS.

1	Out-door Patients.	2,473	835	1,060	546	985		667	392	847	954	1,319	11,179
2	In-door Patients.	8	...	47	11	28	...	...	2	...	...	3	99
3	Daily average attendance of Out-door Patients ...	28	25.80	22.2	15.9	32.7	17.7	11.92	10.6	21	16	12	19.3
4	Daily average attendance of In-door Patients ...	14	...	2	1	44	...	...	33	...	...	1	14
5	Post-mortem ...	..	..	..	..	..	..	..	..	..	..	..	..
6	Major operations ..	55	20	107	57	77	31	22	37	49	72	11	538
7	Minor Operations.	26	228	37	51	136	56	19	54	178	45	49	877
8	Mofussil cases ..	403	437	457	264	541	535	232	126	419	412	455	4,281
9	Fees charged, ...	128.10	32.13	37.0	12.14	17.14	...	...	9.15	22.11	...	...	261.13

NO. XVI.
 number of animals treated on tour and the number of animals
 in the year 1921-22.

Date	Pehlad.		No. of animals treated.	Bhadran.		No. of animals treated.	Dabhoi.		No. of animals treated.	Vyara.		No. of animals treated.	Kathor.		No. of animals treated.	Kachhali.		No. of animals treated.	Total.		Remarks.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Attended.	No. of out-breaks reported.		Attended.	No. of out-breaks reported.		Attended.	No. of out-breaks reported.		Attended.	No. of out-breaks reported.		Attended.	No. of out-breaks reported.		Attended.	No. of out-breaks reported.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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APPENDIX NO. XVII.

The statement showing the receipts and expenditure of the Veterinary Dispensaries in details in the year 1921-22.

No.	Baroda.	Pattan.	Navsari.	Mehsana.	Amreli.	Petlad.	Bhadran.	Dabhoi.	Vyara.	Kathor.	Karchalia.	Total.	Remarks.
Receipts ...	128-10-0	652- 1-1	91-15-0	30-10- 0	17-14- 0	...	...	...	23-14- 6	22-11-0	...	..	972-11-7 + 4,806- 0-0 B, Contribution, <hr/> 5,778-11-7
Budget Expenditure,													
1 Pay ...	7474-14- 4	1476-12- 4	1423- 0-1	1203- 0- 9	1687- 4- 7	1297- 3- 6	1266- 3- 0	955-14- 6	1089-11-11	1887- 0-0	1191-14-3	15,394-14- 3	
2 Travelling allowance.	...	127-10-6	13- 2-6	84- 5- 6	54- 7- 0	83-13-3	6-13-2	6- 6- 9	68- 7- 6	23- 8-0	28- 8-9	502- 2-11	
3 House rent, etc. ...	...	49- 4-0	...	19- 8- 0	75- 0- 0	180- 0-0	180- 0-0	180- 0- 0	180- 0- 0	180- 0-0	144- 0-0	1,187-12- 0	
C. Medicines.	442- 7- 6	178- 9-9	255-14-0	47-12- 6	221- 9- 0	296- 5-3	151- 0-0	221- 0- 0	149- 2- 3	200- 0-0	150-13-3	2,294- 0- 9	
E. Medicines.	1236-10- 0	441- 7-6	536-12-8	334- 7- 2	610-14-11	637-13-2	202- 3-5	288- 8- 8	266- 8- 6	556-13-3	418- 3-0	5,560- 6- 3	
Instruments and Dead-stock...	...	...	...	...	20- 0- 0	38-10-0	5- 0-0	20-11- 0	20-11- 0	19-10-0	...	207- 3- 6	
Contingency.	36- 0- 0	50- 0-0	56- 0-4	80- 0- 0	40- 8- 9	61- 0-0	53-10-9	45-15- 0	36- 0- 0	60- 0-0	45- 6-0	514- 2-10	
Total ...	4151-15-10	2412- 8-1	2802- 6-1	1719- 1-11	2689-12- 3	2594-13-2	1870-14-4	1697-12-11	1810- 9- 2	2431-15-6	1978-13-3	25,660-10- 6	

1. Forwarded with compliments to H. E. the Amatya Saheb for favour of review. The report is interesting.

2. It is an oft-repeated complaint that the cultivators take very little interest in the working of the Model Farms. The reason is not far to seek. Unless the results of the Farm workings are demonstrated to the cultivators to be more paying, no amount of work in this direction would appeal to them, for they are calculating people and, as such, care more for economic than for laboratory success. The Department would, therefore, do well to remember this mentality of the Agriculturists whenever it proposes to undertake new experiments or demonstrations.

3. I very much doubt the utility of the propaganda work which is at present being done by the Agricultural Inspectors of the four Districts. The question is how many useful implements like the Chaff-cutters, the B. T. Plough, etc., have been introduced by them among the agriculturists. It is no good going from place to place without leaving behind some marks of practical gain to the agriculturists. This the Agricultural Inspectors can easily do by taking such implements with them from village to village and demonstrating their usefulness and economic advantage in their own presence to groups of cultivators. I think there are great possibilities in the near future for the Chaff-Cutter. Large quantities of fodder are at present wasted as the stalks are too hard for the cattle to eat and chew ; so what is at present thrown away as refuse can be turned to advantage by cutting the hard stalks into small pieces with the Chaff-Cutter. It is certain that the cattle will relish the thin-cut pieces which are more palatable and at the same time more strength-giving. The price of the Chaff-Cutter is within easy reach of many cultivators and they are sure to take to it if they are made to observe its economic use. I am inclined to think that at least a portion of the area of land which is at present devoted to grass growing can be spared by the popularisation of the Chaff-Cutter and can be brought under cultivation for better crops. Similar is the case with the B. T. plough. The report does not say how many such useful implements were introduced by virtue of the efforts of the Department, during the year.

BARODA,

(Sd.) G. R. NIMBALKAR,

5th December 1922,

Pragati Adhikari,

(Sd.) M. K. NADKARNI.

Baroda State.

REVIEW
OF THE
Annual Report of the Department of Agriculture
for the year 1921-22.

—:0:—

Government note with pleasure that the report is, this year, much more punctual than last year.
The report is punctual.

2. The Sar Suba's remarks should be communicated to the Director of Agriculture, and his attention invited specially to para 2 of the recommendations made by Mr. Nimbalkar as to the popularisation of the chaff-cutter. There is no doubt that this instrument should be taken up by the cultivators, and that very great economy of fodder would result from its employment. It may also be noted that at Mehsana there are a number of implements placed in a museum. It would be very much better if these implements were demonstrated on the Jagudan farm. No conceivable object can be served by keeping things which are only useful if actively employed in a museum. People do not want to see what they look like, so much as how they work.

Re: the chaff-cutter and other implements.

3. The Director's remarks on tractors and tractor demonstration are noted. Probably the best field for their use is at Amreli where the survey numbers are large and not so split up into sub-divisions.

The tractors may be used at Amreli where there are large survey numbers.

4. The Director has already been asked to make some attempts to demonstrate the profits of irrigation on areas below our new irrigation tanks. No mention of anything done in this direction has been made. The Director's attention is again drawn to this matter. At many places there is much reluctance on the part of the people to use water which has been provided at great expense by Government. This reluctance is partly due to the ignorance of the profits derivable from skilled irrigation. And this ignorance it is the business of the Agricultural Department to remove. Complaint is often made that the Department is not in touch with the people. Here is a sphere of action, activity and energy in which would certainly result in increased appreciation of the Department's work by the cultivators.

The department should make attempts to show the profits of irrigation on areas below our new irrigation tanks.

5. One sub-head of the report is "Dairy". One might suppose from its heading that the Department's main concern was the immediate production of milk and milk-products. As a matter of fact, however, what we are trying to do is to establish first class herds of superior animals by selective breeding. The immediate production of milk is only a secondary object. There is a persistent demand in this country (chiefly owing to religious ideas) for facilities for the breeding of a larger number of cattle. This demand, whatever may be said of its religious significance, is based on a totally wrong conception of

The chief object of the Govt. is to establish first class herds of superior animals by selective breeding. The production of milk is only a secondary object.

Government of His Highness the Maharaja of Mysore.

GENERAL AND REVENUE DEPARTMENTS.

G. O. No. L. 2468-89—Sany. 63-22-3, dated 29th September 1923.

Report on the working of Sanitation in Mysore during the Calendar year 1922.

Reviews the —.

READ—

Report on the working of Sanitation in Mysore for the year 1922, received from the Sanitary Commissioner in Mysore with letter No. P. 49, dated the 15—16th June 1923.

ORDER NO. L. 2468-89—SANY. 63-22-3, DATED 29TH SEPTEMBER 1923.

Recorded,

2. Mr. A. K. Pani, D.F.H., held the appointment of the Sanitary Commissioner and *Ex-officio* Director of the Public Health Institute till the 11th July 1922, when the consequent on the retrenchments ordered in the Sanitary Department, he handed over charge of the office to Mr. H. B. Mylvaganam, F.R.C.S. (Eng.) Senior Surgeon, who became *Ex-officio* Sanitary Commissioner. Though the appointments of District Sanitary Officers were ordered to be abolished, the retrenchment came into effect only after the close of the year under review.

3. *Vital Statistics.*—The total number of births registered in the State during the year was 104,948 or 17·91 per mille of the population as against 96,428 or 16·45 per mille during 1921. The highest birth-rate for the year, *viz.*, 21·53 was recorded in the Kolar District and the lowest, *viz.*, 14·40 in the Mysore District. The total number of deaths during the year was 85,090 or 14·52 per mille of the population as against 83,343 or 14·22 per mille in the preceding year. The highest death-rate for the year, *viz.*, 19·44 was recorded in the Bangalore District and the lowest *viz.*, 10·38 for the Chitaldrug District. The Sanitary Commissioner states that the registration of vital statistics in villages is not satisfactory for the following reasons:—

- I. Reports from several villages are not sent in time or not at all sent to the Taluk Office.
- II. Patels submit the village monthly returns through the respective Sheikdars instead of direct to the Taluk Office.
- III. The Sanitary Inspectors are not entrusted with the work of scrutinising and compiling Vital Statistics;
- IV. Full time Sub-Registrars of Births and Deaths are not employed in many of the Municipalities; and
- V. Sufficient number of printed forms of registers of births and deaths was not issued from the Government Press.

Accurate registration of births and deaths is of paramount importance in order that the exact state of public health may be ascertained and efforts should be made to improve the work of registration, both in urban and rural areas, by the Municipal Councils and the Local Boards concerned. The Superintendent of the Government Stationery is requested to arrange for the immediate supply of the forms required in consultation with the Deputy Commissioners and the Presidents of the Local Boards, who should send up the necessary indents without further loss of time.

4. The ratio of deaths per thousand of the population continued as usual to be the highest among children under one year of age. Attention of the Local Board is drawn to the high rate of infantile mortality and they are requested to take suitable steps to reduce it as far as possible.

5. *Diseases.*—The total number of deaths from cholera during the year was 46 against 29 in 1921, the largest number of deaths, *viz.*, 37 having been in Molakalmuru Taluk of the Chitaldrug District, all the cases being imported from the bordering British Taluk, Rayadurg. The total number of deaths from small-pox was 1,149 against 1,560 in 1921. The total number of vaccinations performed during the year was 117,356 as compared with 124,593 in 1921. The total number of attacks and deaths from plague was higher than that of the previous two years being 12,110 and 8,945 as against 11,516 and 8,244 respectively, in 1921 and 10,793 and 7,670 respectively in 1920. The largest number of deaths, *viz.*, 2,814 occurred in the

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Bangalore District. The total number of inoculations performed was 8,416 as against 75,714 in 1921, the largest number of inoculations aggregating 35,698 having been done in the Kolar District.

Influenza accounted for 108 deaths during the year, the mortality reported on this account in the Bangalore and Mysore Cities and the Kolar Gold Fields being 6, 2 and 26 respectively.

The number of deaths from fevers was 40,859 against 40,091 in 1921, 34,286 in 1920 and 32,771 in 1919.

Two thousand four hundred and thirty-seven attacks of relapsing fever with 812 deaths were reported and 807 intravenous injections were given during the year. Government note that everything possible is being done by the local bodies and the Medical profession towards the treatment of patients and the prevention of the spread of the disease.

The number of deaths from dysentery and diarrhoea was 3,083 against 2,667 in 1921 and that under respiratory diseases was 2,197 against 2,209 in 1921. The number of deaths from injuries was 1,090 against 1,313, while under all other causes, it was 27,721 against 27,230 in 1921.

6. *Central Sanitary Board.*—The separation of the Public Health Institute from the administrative control of the Sanitary Commissioner and the abolition of the post of the Senior Assistant Director of the Institute rendered the place of the Secretary of the Board vacant. The Sanitary Commissioner is requested to submit suitable proposals for the appointment of a Secretary to the Board. The Board advised on the schemes relating to the drainage of Davangere and Hassan Towns, and the scheme relating to improvements of Seringapatam was under their consideration. The functions of the Board were purely advisory and no allotment was placed at the disposal of the Board for direct expenditure on Sanitary works.

7. *Village Sanitation.*—The provisions of the Village Sanitation Regulation were newly introduced into 349 villages, the total number of such villages in which the rules were in force being 12,967 at the end of 1922. Separate places for storing manure were newly set apart in 736 villages. Eighteen villages were newly brought under the Scheme of Village Improvement Committees. Extensions were formed in 37 villages and 13 villages were shifted to healthier sites.

8. *Improvement of the Malnad.*—On account of financial stingency, no new works were undertaken for improvement of the Malnad, but necessary funds were placed at the disposal of the District Boards to complete the incomplete works. Quinine continued to be distributed, as usual, and special vaccinators employed under the Malnad Improvement Scheme were retained and they performed 8,428 vaccinations, of which 7,571 were successful.

9. *Medical Inspection of School children.*—Three hundred and sixty-four schools, in places where dispensaries are located, were inspected and 33,841 children were advised to go in for treatment, of whom 29,708 were cured.

10. *Inspections.*—The Sanitary Commissioner and the District Sanitary Officers did a fair amount of inspection work.

11. *Miscellaneous.*—The report discloses that many of the Municipalities have not been surveyed and that only a few of them have any fixed programme of works for improvement of drainage, general sanitary condition and for removal of congestion and that bye-laws have not been framed in a very large number of Municipalities to improve sanitation and regulate house construction. The local bodies concerned should take immediate steps to remove these defects.

T. E. JEYARAMA AIYAR,
Secy. to Govt., Rev. Dept.

To—The Sanitary Commissioner in Mysore.
The Director of Public Health Institute.
The Presidents of the City Municipal Councils of Bangalore and Mysore.
The President, Sanitary Board, Kolar Gold Fields.
The Deputy Commissioners of Districts.
The Presidents of District Boards.
The Superintendent, Government Stationery.

PRESS TABLE.

Exd.—A. M. K.

REPORT ON SANITATION IN MYSORE FOR THE CALENDAR YEAR 1922.

The following is a summary, as furnished by the Meteorological Reporter to Government, of the chief meteorological features that prevailed in Mysore during 1922.

1. April was the hottest month; the monthly mean maximum temperature having been nearly 1° in excess of the normal. March was also warmer than usual. The annual mean was normal at Bangalore and Hassan, while the same was half a degree in defect at Mysore and Chitaldrug. The coldest part of the year was December in which the mean monthly defect was about 2° for Bangalore and Mysore and nearly 1° for Chitaldrug and Hassan. The yearly mean was in slight defect at Mysore and Bangalore and in slight excess at Hassan and Chitaldrug.

The monthly mean dry temperature did not differ much from the normal, the greatest excess being 0·9° in March and the greatest defect being 1·4° in December. The annual mean was about normal. The highest temperature, *viz.*, 100·3° was recorded at Chitaldrug and on the 2nd and the 5th April, while Hassan as usual recorded the lowest temperature for the year, *viz.*, 51·4° on the 6th December.

Humidity both absolute and relative was in great defect in February and December, while the same was in marked excess during November throughout the State.

The annual total rainfall for the State was during the year 34·22 inches against a normal of 36·10 falling short of the average by 5 per cent.

Comparison of actual with that of average.

District	Actual for 1922	Variation in inches	Variation in percentage
Bangalore	31·06	+ 0·21	+ 1
Kolar	26·95	- 1·03	- 4
Tumkur	26·69	+ 0·63	+ 3
Mysore	28·78	+ 0·72	+ 3
Hassan	36·73	- 1·84	- 5
Shimoga	47·34	-10·21	-18
Kadur	69·58	- 5·08	- 7
Chitaldrug	20·11	- 1·24	- 6
State	34·22	- 1·88	- 5

From the above table it will be seen that so far as the annual totals are concerned there was not much variation from the normal except in the Shimoga district, where the deficiency was nearly 20 per cent. The monthly rainfall for 1922 for the State was as follows:—

Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.
0·57	0·06	0·01	1·38	4·28	9·61	6·24	4·15	1·88	6·53	5·36	0·07

PRICES OF FOOD GRAINS.

2. Rice was sold at 4·62 seers per rupee, ragi at 9·18 and cholam at 9·25 on an average against 4·70, 9·23 and 7·70 seers respectively in the previous year. Thus there was no appreciable rise or fall in the prices of any of these articles of food grains, as compared with the prices of the previous year.

GENERAL CENSUS FIGURES.

3. The population of the State as per census of 1921 is 5,859,952 exclusive of the Civil and Military Station, Bangalore. The ratios throughout this report are based on this figure.

GENERAL BIRTH REGISTRATION.

4. The total number of births registered during the year 1922 was 53,934 males and 51,014 females, making a total of 1,04,948 as against 49,580, 46,848 and 96,428 respectively in 1921. The ratio per 1,000 of population was 17·91 or 4·56 higher than that of the preceding year and '92 than the quinquennial mean.

The male births, as usual, preponderated, the proportion of males born to every 100 females born averaging 105·72 as against 105·83 in 1921.

Compared with 1921, all the districts recorded higher rates, the largest difference (3·25) being for Kolar and the lowest (·2) for Mysore.

The highest rate for the year under report was returned by Kolar (21·53) and the lowest by Mysore (14·40). The rates for other districts ranged between 16·30 (Kadur) and 19·86 (Chitaldrug).

Births exceeded deaths in all the districts, except Bangalore, the difference averaging 3·38 per mille as against 2·23 in 1921. More deaths than births were returned for the urban circles in Bangalore, Hassan and Shimoga districts and the rural circles of the Bangalore district, the difference averaging about '95 per mille.

BIRTH REGISTRATION IN URBAN AREAS.

5. The total number of births registered in town circles during the year 1922 was 21,571, giving a ratio of 28·01 per mille of population as compared with 21,319 and 27·69 respectively in the preceding year. The corresponding figures for rural circles were 83,377 and 18·38 respectively. As in previous year there was an excess of births over deaths, averaging 5·20 per mille for town circles and 3·12 per mille for rural circles. Births exceeded deaths in 73 towns, the difference being marked in Nonavinakere (135·31). Forty-three of these towns were taluk headquarters. Among district headquarter towns, Chitaldrug returned larger number of births than deaths equivalent to 14·20 per mille.

The highest birth rates were recorded in Nonavinakere (282·86), Holavanahalli (151·17), Hulyurdurga (143·84) and Honnavalli (125·57) as in the previous year. As usual, the recorded death rates for these towns were also proportionately high due to the ratios being based on relatively small populations. Four other towns returned rates varying between 45·94 in Goribidnur and 94·31 in Bellavi. The marginally noted towns recorded very low rates. It is evident that the registration of vital statistics in these areas was neglected.

1. Tumkur	10·74
2. Closepet	10·63
3. Periyapatna	10·61
4. Talkad	10·20
5. Chiknayakanhalli	10·10
6. Kyathasandra	9·83
7. Bhadravati	9·76
8. Turuvanur	9·63
9. Yedatore	7·59
10. T. Narsipur	6·71
11. Melkote	3·49
12. Maddagiri	2·92

The following is a statement of births recorded in areas where a special staff for the registration of births and deaths was maintained:—

Place	Number of births	Ratio permille of population	Still births
Bangalore City	3,444	29·05	184
Mysore City	2,336	27·63	64
Kolar Gold Fields	3,659	41·73	98

GENERAL DEATH REGISTRATION.

6. The total number of deaths recorded in 1922 was 85,090 as compared with 83,343 in the previous year. The death-rate was 14·52 as against 14·22 in 1921. According to districts, the highest rate (19·44) was returned for Bangalore and the lowest (10·38) for Chitaldrug. The death-rates for the other districts ranged between 10·68 (Mysore) and 18·32 (Kolar).

7. From the point of view of mortality, the month of May was the most healthy and the months of September, October, November and December the most unhealthy. There was a slight fall in the death-rate in the month of February as compared with that of January followed by a rise again in March. From

July, there was a continuous rise in the mortality rate until the close of the year, except during the month of November which returned a slightly lowered mortality than the preceding month. Considered by quarters, the quarter ending December returned the largest deaths and the quarter ending June the fewest.

8. The highest number of deaths was recorded at the age period of 60 and above (17,039) and 20-30 (10,353) as compared with 60 and above (17,246) in the preceding year. The ratio of deaths per 1,000 of population at the respective age periods was, as usual, highest among children under one year of age and the next highest at the age period of 60 and upwards.

9. The deaths among infants under one year of age numbered 9,020 as compared with 8,640 in 1921 and 9,240 in 1920, the ratios per 1,000 of recorded births being 89.94, 89.6 and 95.9 respectively. The highest rates were returned for Kadur (111.80), Kolar (100.42), and Shimoga (98.88) and the lowest rate (51.50) for Mysore.

The infantile mortality recorded in the Bangalore and Mysore Cities and on the Kolar Gold Fields was as under:—

Place	No. of deaths of infants	Ratios per mille of recorded births
Bangalore City	728	214.7
Mysore City	337	144.8
Kolar Gold Fields	750	204.9

The principal causes of deaths among infants in the Mysore City were debility, convulsions and premature birth. On the Kolar Gold Fields, bowel complaints and lung troubles, chiefly resulting from neglect in feeding and clothing are reported to have been responsible for a large proportion of deaths. Over seventy per cent of deaths from dysentery and diarrhoea were among children under five years of age. The rate was, however, lower than the quinquennial average (255.4), which is a satisfactory feature. This improvement is attributed to the fact that during the year 73 per cent of the recorded births were conducted under skilled maternity aid.

In their Order No. G. 8479-90—San. 19-20-4, dated the 26th October 1920, Government were pleased to commend for the consideration of the larger Municipal Councils the suggestion of the Sanitary Commissioner in regard to the opening of Municipal Depots for the supply of pure milk as a measure calculated to reduce infantile mortality and the appointment of Indian Lady Health Visitors to educate women in the nursing and the bringing up of infants. So far, the suggestion materialised only in the case of the Bangalore City where under the sanction of Government conveyed in their Proceedings No. L. 51-4—Ml. 118-20-8, dated the 6th July 1921, a Lady Health Visitor has been entertained. In the initial stage, the City Municipal Council decided to confine themselves to the programme relating to the improvement of midwifery aid all over the City. For this purpose, the eight municipal midwives were placed under the immediate supervision of the Lady Health Visitor who scrutinises the cases conducted by them and refers difficult cases to the Maternity. On reports furnished by the midwives, the Lady Health Visitor visits expectant mothers and gives them practical advice regarding ante-natal and post-natal hygiene. But, perhaps, the most important feature of the work is the impressment of the crude barbar midwives or Dais into service and the holding of regular classes under the supervision of the Lady Health Visitor to teach them the essential principles of conducting labour cases in an aseptic way. The assistance of these dais is taken to canvas cases for the trained Midwives. In this and other ways, endeavour is made to effectively link up old practices with the new and to bring about the much-needed reformation in midwifery methods. The appointment of a Lady Health Visitor has opened up kindred avenues of social activity, viz., the establishment of three clinic centres in different parts of the City for the examination of children and giving them necessary medical advice and help. In one of the centres,—Ganigarpet—arrangement is also made for the free distribution of good milk for the infants of poor parents. The City Municipal Council have recently resolved to subsidise this laudable scheme by a

monthly contribution of Rs. 30. It is most desirable that an arrangement such as the above should form part of the municipal organisation in at least the bigger municipalities in the State. The need is insistent in the case of the Mysore City, which affords wide scope for useful work in this direction.

10. The general death-rate among males averaged 14.78 per mille of population as compared with 14.25 among females. In the Kadur district, however, the female death-rate slightly preponderated, the difference being .5555 per mille of population. In the town circles more women than men died in proportion to population of each sex, the difference averaging .37 per mille. The proportion of the male deaths in the State to the female deaths was 107.73 to 100 as against 106.31 in the preceding year. The proportion was highest for Shimoga district (113.21) and lowest for Mysore district (104.71).

In the town circles 107.72 deaths occurred among males for every 100 deaths among females. In 32 towns, however, there was a preponderance of female deaths, the percentage ranging between 99.66 and 48.83. Of these, two were district head quarter towns, Hassan (91.56) and Kolar (66.92).

The following are the principal among the 9 towns that returned a high proportion of male to female deaths. Gudibanda (525.0), Gundlupet (257.14), Talkad (200.00), Bhadravati (204.55) and Challakere (218.18). The female death-rate preponderated at the age periods of 10 and under 15, 15 and under 20, 20 and under 30 and 30 and under 40, the difference being most noticeable at the age period 15 and under 20.

11. According to classes, the death rate among Mahomedans was 19.43, among Hindus 13.50, and among other classes 45.24, corresponding rates for 1921 being respectively 25.98, 12.90 and 40.69.

DEATHS IN URBAN AREAS.

12. The deaths registered in towns during the year under report numbered 17,563 against 20,096 in 1921, representing annual ratios of 22.81 and 26.10 per mille respectively. The highest total mortality rates were returned for Nonavinkere (147.55), Alur (99.80) and Hulyurdurga (91.04). In ten other towns the rates ranged between 40.38 (Hoskote) and 80.16 (Holavanahalli). Of these, taluk head quarter towns were Hoskote, Devanahalli, Sidlaghatta Hunsur and Channarayana.

In seventeen towns, the recorded deaths were below 10 per mille, the taluk headquarter towns among these being Mulbagal (7.93), Maddagiri (1.55), Gundlupet (5.44), Nagamangala (8.64), T.-Narsipur (2.10), Arsikere (8.47), Saklespur (8.81) and Holalkere (7.22). The registration of vital statistics in these towns calls for closer attention than appears to be at present given to it.

The following is a statement of mortality recorded in areas where a special staff for the registration of vital occurrences was employed.

Place	No of deaths	Ratios	Quinquennial mean
Bangalore City	3,806	32.10	43.37
Mysore City	1,796	21.39	36.11
Kolar Gold Fields	2,277	25.98	41.35

It will be seen that better health conditions prevailed in these areas. The comparison is most favourable in regard to Mysore City.

13. In the course of his tours during the year the Sanitary Commissioner had occasion to examine the births and deaths registers of the towns and villages he visited. It was noticed that the larger the administrative area, the greater the inaccuracies in the recorded figures and the less their reliability. As an instance, Yesalurpet with a population of about 1,130 recorded 39 births and 29 deaths for a period of 11 months, commencing from January 1922, yielding an annual ratio of 37.2 per mille for births and 28.3 per mille for deaths, which are fairly accurate. As against this, the registers in Chikmagalur, which is a district headquarter town, showed several omissions. The thirteen births recorded for February 1922 were short of the actuals by at least seven births. The omissions came to notice

long after the consolidation and submission of the monthly return from which they were therefore excluded. Similarly, entries relating to deaths among children under 7 years of age were conspicuous by their absence, as the burials in these cases take place anywhere outside the town and no information reaches the Octroi Manegar, who is the registrar of births and deaths. Yet, in the Chikmagalur town the notification of births and deaths is compulsory.

The most fruitful source of error lies in the compilation of the taluk statistics. Several village returns either do not reach the taluk office in time or are not sent in at all. In Sorab, against a standing list of 312 villages for the taluk, Returns of only 58 villages were incorporated into the consolidated monthly statement for September 1922, the returns of two hobbles not having been received at all. Similarly, in Tirthahalli taluk 47 out of 247 villages were omitted. The practice of patels submitting the village monthly returns through the respective shekdars, instead of direct to the taluk office is partly responsible for such omissions. Further, in the majority of cases the Taluk Sanitary Inspectors are not entrusted with the work of scrutinising and compiling vital statistics.

In regard to urban areas, very few of the Municipalities maintain full-time sub-registrars of births and deaths although the rules prescribe the employment of one sub-registrar for every five thousand of population in the Municipality.

The full supply of the printed revised forms of registers of births and deaths not having been issued from the Government Press, several villages continue to use loose sheets of paper for recording vital occurrences.

GENERAL HISTORY OF CHIEF DISEASES.

14. The following statement shows at a glance the death rates per mille from the chief causes of mortality in 1922 as compared with those in 1921.

Causes	Death-rates in 1922			Death-rates in 1921		
	Urban	Rural	Com- bined	Urban	Rural	Com- bined
Cholera	0'00	0'00	0'00	0'00	0'00	0'00
Small-pox	0'24	0'19	0'19	0'27	0'26	0'27
Plague	2'53	1'37	1'53	3'88	1'03	1'40
Fevers	6'08	7'11	6'97	7'78	6'70	6'84
Dysentery and Diarrhoea	1'34	0'40	0'52	1'16	0'35	0'45
Respiratory diseases	1'66	0'18	0'37	1'67	0'18	0'38
Injuries	0'33	0'16	0'18	0'48	0'18	0'22
All other causes	10'61	3'84	4'73	10'85	3'70	4'65
All causes	22'81	13'26	14'52	26'10	12'42	14'22

There was a decreased mortality under all heads except "plague" and "fevers", under each of which slightly higher rates were returned the difference being 0'13 per mille of population.

CHOLERA.

15. A total of 46 deaths from cholera was recorded against 29 in 1921. Out of the total deaths, 37 occurred in the Molakalmuru taluk, all the cases being imported from the bordering British taluk, Rayadroog. The remaining 6 deaths were returned from the Mysore and Hassan districts, but later investigations by the District Medical and Sanitary Officers concerned showed that the cases were probably not genuine cholera.

SMALL-POX.

16. Small-pox accounted for 1,149 deaths against 1,560 in 1921, representing annual ratios of '19 and '27 per mille respectively. The mean death-rate of the previous 5 years was '97. The year opened with 74 deaths in January. The highest number of deaths (120) was returned in the month April. June was the month of the least prevalence of the disease.

17. According to districts, the largest number of deaths (344) was returned for Mysore. The districts of Hassan and Kolar returned the lowest mortality from this cause, amounting to 22 and 6 respectively. The deaths returned for the other districts ranged between 79 in Shimoga and 257 in Bangalore.

18. Thirty-two towns returned a total of 189 deaths from small-pox as against 212 from 36 towns in 1921. The towns most affected were Sarjapur (757) and Haliyundurga (436). The other towns returned a rate of between .13 in Tarikere and 4.33 in Yelandur.

19. The total number of vaccinations performed during the year was 1,17,356 as compared with 1,24,593 in 1921.

The Compulsory Vaccination Regulation was introduced newly into 7 towns making a total of 68 towns at the end of the year. The question of introducing the Regulation throughout the State and modifying the existing rules so as to render them applicable to rural as well as to urban areas, was under the consideration of Government.

PLAGUE.

20. At the close of the year 1921, plague was prevalent in all the districts, the number of deaths registered in the month of December of the year having been 793. In January 1922, the number of deaths recorded was 677 followed by a steady fall to 141 deaths in May. From June onwards there was a rise in the mortality the highest figure being returned for November (1,280).

A total of 12,110 attacks with 8,945 deaths was reported for the year as compared with 11,516 attacks with 8,244 deaths in 1921. The death-rate was 1.53 as against 1.47 in the previous year and the ratio per cent of deaths to attacks was 73.86 against 71.59. The largest number of deaths (2,814) occurred in the Bangalore district. In proportion to population also, Bangalore district returned the highest rate (3.57). The next higher rate (2.14) was returned for the Kolar district. Death-rates lower than 1.00 per mille of population were returned for Tumkur and Chitaldrug districts.

21. Fifty-six towns reported a total of 1,951 deaths as against 2,986 from 65 towns in 1921. The highest death-rates were returned for Sidlaghatta (49.23), Hunsur (40.55), Subbele (35.76) and Channarayapatna (33.81). Seven other taluk headquarter towns returned a rate of between 12.27 in Chikballapur and 20.15 in Shikarpur.

22. As usual, the measures adopted for combating the disease were evacuation, disinfection and inoculation.

23. No systematic rat-destruction operations were undertaken by any of the local bodies except in the mining area on the Kolar Gold Fields. As an emergency measure, a limited number of rat-traps were distributed in Mysore City for use in houses in the affected localities. Very few Municipalities have yet framed and adopted suitable bye-laws for enforcing rat-proof conditions in houses, shops, godowns and grain-markets. One other matter that requires more adequate attention on the part of the local bodies is the stocking or the timely replenishing of disinfectants, in conformity with the rules issued under Government Order No. G. 21371-402-San. 101-17-12, dated the 25th March 1919.

24. The inoculations performed totalled 80,416 as against 75,714 in the preceding year. The largest number of inoculations, aggregating to 35,698, was done in the Kolar district. Out of this, the Assistant Surgeon of Chikballapur inoculated as many as 14,759 persons. No untoward results among the inoculated were reported.

25. The admissions for plague into the epidemic diseases hospitals and the results of treatment were as follows.—

Place	Admissions	Recoveries	Percentage of recoveries to admissions
Bangalore City	186	91	48.92
Mysore City	36	7	19.75
Kolar Gold Fields .. .. .	..	..	..

INFLUENZA.

26. As in the preceding year, the prevalence of influenza was reported from all the districts, the out-breaks, however, being sporadic in character and occurring in scattered localities at different periods. The disease was of a mild type and attended with no complications. The total number of deaths reported under this head during the year was 103. The Bangalore and Mysore Cities and the Kolar Gold Fields area respectively returned 5, 2 and 25 deaths.

27. The usual medical and other relief measures were reported to have been adopted in the affected localities.

FEVERS.

28. The number of deaths registered from fevers was 49,859 as against 40,091 in 1921, the death-rates being 6.97 and 6.84 respectively. The mean ratio for the preceding five years was 8.62. The largest number of deaths (11,826) was recorded during the quarter ending December and the fewest (8,602) during the quarter ending June. The death-rate was lower than the quinquennial mean in all the districts. The highest rate for the year (10.18) was returned for Hassan district and the lowest for Mysore district (4.45).

29. The towns returned 4,632 deaths from fevers, as against 5,991 in 1921, the mortality rates being 6.08 and 7.78 per mille respectively. The highest rates were returned for Alur (86.19), Nonavinkere (76.05) and Holavanahalli (54.51). Six other towns returned a rate exceeding 20 per mille. The lowest rates were returned for Mugur (2.8), Maddagiri (5.8) and T. Narsipur (1.26). Seven other towns returned a rate lower than 2.00 per mille. The deaths from fevers in proportion to population returned for district headquarter towns are shown below arranged in the order of the greatest prevalence of fevers as indicated by the recorded rates:—Hassan (12.23), Kolar (8.60), Chikmagalur (6.56), Chitaldrug (5.52), Bangalore (4.16), Shimoga (3.84), Kolar Gold Fields (2.20), Mysore (1.70) and Tumkur (1.54).

30. As usual the oiling of pools, filling in of disused wells and such other measures continued to receive some amount of attention. In the Mysore City the filling up of Purniah's Nalla behind the Railway Station and of Col. Purchase's Nalla behind the Karohatti was under progress. Besides this, several disused wells were covered over.

A special Malarial Inspector was entertained in the Bangalore City during the year for anti-malarial and anti-mosquito operations. The experiments begun in 1921 to test the larvicidal powers of various kinds of fish were continued. Out of 98 wells into which live fish were introduced, 59 or 60 per cent showed no larvæ after a few days. Endeavour will be made to employ on an extended scale, during the coming years, live fish as a means of restricting mosquito infection in the worst affected localities in the City. Portions of the III A and B, VII and VIII divisions including Seshadripuram Extension, Lal-Bagh Road, Sampige tank bed and its surrounding gardens and a portion of Chamarajpet were during the year surveyed for breeding places of mosquitoes and the results noted down for taking further suitable action.

RELAPSING FEVER.

31. Relapsing fever prevailed in a sporadic form in every district, the infection being confined to a few villages at a time. The out-breaks occurred almost exclusively among the Panchama community. With a view to ensure the adoption of proper precautionary measures, circular instructions were issued in regard to the necessity (i) for the exercise of special vigilance in detecting first cases (ii) for adopting measures aiming at delousing person and effects and securing the general sanitation of the affected locality and (iii) for the administration of the specific treatment, viz., intravenous injection with neo-salvarsan.

The reports received during the year gave a total of 2,437 attacks with 812 deaths from relapsing fever. The intravenous injections given numbered 807.

DYSENTERY AND DIARRHŒA

32. The number of deaths registered under dysentery and diarrhœa was 3,083 as compared with 2,667 in 1921, the annual ratios being 0.52 and 0.45 respectively.

The quinquennial mean was 0·68. The largest number of deaths from these causes occurred during the month of December. The highest death-rate was returned from Tumkur district (0·65).

33. Sixty-eight towns returned a total of 1,036 deaths from dysentery and diarrhoea as against 893 deaths from seventy-four towns in 1921. The diseases were largely prevalent in Nonavinkere (15·46) and Honnavalli (6·26.) The cities of Bangalore and Mysore returned 195 and 193 deaths from dysentery and diarrhoea with ratios of 1·65 and 2·36 respectively per mille of population.

34. The scheme for the systematic examination—chemical as well as bacteriological—of the rural water-supplies continued to be in force. Only 85 samples, however, are reported to have been received at the Public Health Institute for analyses of which 29 were pronounced fit for potable purposes.

RESPIRATORY DISEASES.

35. Under respiratory diseases, 2,197 deaths were registered with a mortality rate of 0·37 as compared with 2,209 and 0·38 per mille respectively in 1921. Of the recorded deaths, 1,279 occurred in 43 towns. The highest death-rates were returned for Bangalore and Mysore Cities, the ratios being 5·26 and 4·23 respectively.

36. There were 151 deaths from consumption in the Mysore City with a mortality-rate of 1·8 per 1,000 of population as against 148 during 1921, and against the average of 165·8 during the past quinquennium. On the Kolar Gold Fields among 244 deaths returned under respiratory diseases 90 were due to consumption. The deaths in the Bangalore City numbered 301 equivalent to a ratio of 2·5 per mille of population, or the incidence was nearly one-and-a-half times that in the Mysore City. It is significant that out of the total number, 207 or 68·7 per cent occurred among females. One hundred and thirty-eight or 66·6 per cent of the deaths among females were returned for the age period 15-30. Steps should be taken to minimise the enormous loss of life that takes place annually from this cause in the city.

37. Of the 111 patients that sought admission as in-patients in the Princess Krishnajammanni Sanatorium during the year, 7 were reported to have been cured, 10 died and the rest were discharged.

INJURIES.

38. The deaths returned under this cause aggregated to 1,090 against 1,313 in 1921, the death-rate being 0·18 against 0·22 in the preceding year. Of the recorded deaths under this head 208 were cases of suicide, 709 were the results of accidents and 173 were returned as due to snake bite, etc., as against 306, 841 and 166 respectively in the preceding year. The mortality for towns was 254 representing a ratio of 0·33 as against 0·48 in 1921. The number of deaths from this cause returned for Kolar Gold Fields was 81 as against 90 in the preceding year, of which 71 are reported to have been due to mining accidents as against 65 in 1921.

ALL OTHER CAUSES.

39. Under this head 27,721 deaths were recorded against 27,230 in 1921 yielding annual ratios of 4·73 and 4·65 per mille respectively.

40. In towns the deaths from "all other causes" amounted to 8,170 corresponding to an annual ratio of 10·61 per mille of population as compared with 8,353 or 10·85 per mille in the preceding year. The highest rate was as usual recorded for Nonavinkere (54·12). Five other towns also recorded a death-rate exceeding 20 per mille.

CENTRAL SANITARY BOARD.

41. The constitution of the Board remained the same as in the preceding year except that the place of Secretary fell vacant from the 11th July 1923 on account of the separation of the Public Health Institute from the administrative control of the Sanitary Commissioner and the abolition of the post of the Senior Assistant Director of the Institute who was the Secretary to the Board.

During the year the Board considered and passed resolutions on two schemes estimated to cost Rs. 88,601. The schemes related to the improvement of drainage

in the Davangere and Hassan towns. A third scheme relating to the drainage and other improvements in Seringapatam town estimated to cost Rs. 49,800 was under the consideration of the Board.

42. The expenditure incurred during the year by the Improvement Trust Board, Mysore City, aggregated to Rs. 61,188. The work consisted of laying pipe sewers in II, III, IV, V, Nazarbad and Ittigegud drainage areas, laying out new extensions, improvement of roads and storm] water drains and filling up insanitary ditches etc.

43. The City Improvement Trust Board, Bangalore, incurred an expenditure of Rs. 96,068 over works relating to the construction of new drains, repairs of drains, improvement to buildings, construction of New Market and other works of a sanitary nature.

44. The total outlay in the Public Works Department during the year on works of a sanitary nature was Rs. 2,62,233.

45. An aggregate expenditure of Rs. 59,602 was incurred by Municipalities chiefly on improvement of drainage, removal of congestion, filling up insanitary pits and construction of public latrines.

VILLAGE SANITATION.

46. The provisions of the Village Sanitation Regulation were introduced during the year into 349 villages, making a total of 12,967 villages up to the end of 1922. Separate places for storing manure were set apart in 736 villages, the total up to the end of 1922 being 12,010.

47. Eighteen villages were newly brought under Village Improvement Committees during the year, making a total of 15,989 villages under the operation of the Village Improvement Scheme at the close of the year 1922. The works undertaken were estimated to cost Rs. 1,65,877-9-5 including grants-in-aid by Government, contribution by raiyats and free labour supplied. The main item of sanitary work was, as usual, the construction or improvement of wells, the number newly sunk during the year being 183 and those improved 154 making a total of 337 wells. Village extensions were formed in 37 of the villages. The villages shifted to healthier sites numbered 13. Minor improvements such as clearing of lantana and prickly-pear, filling up hollows and ditches and the general tidying up in other ways of villages are reported to have received some attention.

IMPROVEMENT OF THE MALNAD.

48. For want of budget grants, no works of a sanitary nature were newly undertaken under the Malnad Improvement Scheme during the year. The distribution of quinine was however continued. The special temporary staff of Vaccinators performed 8,428 vaccinations of which 7,571 were successful.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

49. Three hundred and sixty four schools were inspected in the various places where dispensaries are stationed and 33,841 children were directed for treatment of whom 29,708 are reported as cured. The most common ailments noticed were chronic conjunctivitis, skin diseases, enlargement of spleen and nose and throat affections.

FAIRS AND FESTIVALS.

50. During the latter part of the year, Government were pleased to pass orders approving the rules proposed by this department for regulating sanitary arrangements on the occasion of jattras and car festivals. In conformity with the rules, arrangements have been made for the maintenance of standing lists showing the major and minor jattras in each district, date of commencement, duration, the number of persons and cattle likely to congregate and the essential sanitary arrangements required.

The usual sanitary arrangements, such as the entertainment of temporary conservancy staffs, erection of temporary latrines and the adoption of precautions to prevent the fouling of drinking water-supplies are reported to have been adopted

on occasions of the jattras and car-festivals that took place during the year. The fairs and festivals of considerable importance were those held at Melkote, Nanjan-gud, Nandi, Chunchunkatte and Thirthahalli.

ROUTINE SANITARY WORK IN THE MUNICIPAL AND RURAL AREAS.

51. The total number of house-to-house inspections carried out by the sanitary staff in the Bangalore City was 9,112 against 6,102 in the preceding year. In 3,116 premises remediable sanitary defects were found. Of 2,092 notices issued under different sections of the Municipal Regulation the terms of 1,863 were complied with. In 1,067 cases prosecutions were instituted against 316 in the preceding year, the amount of fines realised therefrom being Rs. 857 against Rs. 384-8-0 in 1921.

In the Mysore City, 6,500 houses were visited by the Health Officer and the Sanitary Inspectors for inspections for internal sanitation. For 1,410 cases where defects were found notices were issued in 666 and the terms complied with in 457 cases. Thirty-three prosecutions were instituted of which one ended in conviction. The amount of fines realised was Rs. 10.

On the Kolar Gold Fields, 245 notices were served for offences under the Sanitary Board bye-laws. Out of these, in 121 cases prosecutions were launched resulting in conviction in respect of 65 offences. Twenty-two were acquitted and 18 were pending at the close of the year. The amount of fines realised was Rs. 244-12-0.

52. The adoption of a similar routine procedure in all other Municipal towns as well as in the villages was being urged upon the attention of local bodies from time to time with appreciable result. Monthly statements of the progress made in this direction were obtained and systematically scrutinised in this office. The statements show that the town and taluk Sanitary Inspectors together issued a total of 7,637 notices which were also backed by repeated personal persuasion. The terms of most of the notices were complied with only a few cases having to be put up for prosecution. Over 90 per cent of the prosecutions resulted in acquittal, the parties being granted time by the Magistrates and having complied with the terms of the notices in the interval.

SANITARY POLICY IN MUNICIPALITIES.

53. In the course of the Sanitary Commissioner's tour in the districts of Tumkur, Kolar, Mysore, Hassan, Shimoga and Kadur during the year, it was observed that so far as public health is concerned there is urgent need for the local bodies formulating and steadily pursuing a definite policy and line of action. Very few of the Municipalities had any programme of works aiming at the improvement of drainage, and removal of congestion or the furtherance otherwise of the general sanitary conditions in the local area.

The introduction of the daily conservancy system which is long overdue has not been attempted in any Municipality, perhaps partly owing to the initial difficulties involved in grappling the allied matters concerning the imposition of a sanitary cess or tax, the provision of conservancy lanes, etc. Essential bye-laws have been framed in very few of the Municipalities. House construction both in existing towns and extensions is not properly regulated by means of suitable bye-laws, prescribing conditions as to the structure of walls, foundation and roof, open space to be provided in front, at rear and at the sides of new domestic buildings, suitability and strength of floor to resist rains, adequacy of ventilation arrangements and the construction of privies, ash pits, drains and cattle sheds.

From information obtained it is found that only 41 towns have been surveyed, and that out of these, plans have been furnished to the Municipalities concerned in only 19 cases. Unless each Municipality is in possession of such plans, it will hardly be in a position to carry out through its own agency such annual improvements as it ought to undertake without waiting for a grant or subsidy from Government. The question of requiring every Municipality which does not possess block maps to arrange to have a town survey carried out deserves very early consideration.

GENERAL REMARKS.

54. Mr. A. K. Pani, D.P.H., etc., held the appointment of Sanitary Commissioner and Ex-Officio Director of Public Health Institute till the 11th July 1922 when, consequent on the retrenchments ordered in the Sanitary Department and the abolition of the post of full-time Sanitary Commissioner, he handed over charge of the office to Dr. H. B. Mylvaganam, F.R.G.S., (Engl.), Senior Surgeon. The former visited and inspected the Sanitation and Vaccination in 11 towns and 4 villages and the latter in 55 towns and 57 villages making a total of 66 towns and 61 villages for the year. As usual detailed notes of inspection embodying practical recommendations were furnished for the consideration of and action by the local bodies.

55. In their order No. L. 7567-82—San. 55-21-1, dated the 26th June 1922 Government passed final orders on the proposals of the Special Finance Committee in regard to the retrenchments proposed in the Public Health Department. The items retrenched were the appointment of full-time Sanitary Commissioner, the posts of District Health Officers and Deputy Inspectors of Vaccination. A new cadre of Chief Sanitary Inspectors on Rs. 100-10-150 for districts was created to take the place of District Sanitary Officers and to work directly under the orders of the Presidents of District Boards. The net savings secured under these retrenchments amounted to Rs. 49,256 per annum. Proposals for the appointment of Chief Sanitary Inspectors for districts, selected from among the Senior Sub-Assistant Surgeons and Senior Deputy Inspectors of Vaccination, were under consideration during the year.

56. The District Health Officers did, as usual, a fair amount of inspection work, visiting a total of 577 towns and villages during the year.

57. A noteworthy and auspicious event of the year was the visit to the State of His Royal Highness the Prince of Wales in January 1922. The Sanitary Commissioner assisted by the Health Officers concerned personally supervised the sanitary arrangements in the Royal Camps.

OFFICE OF THE SANITARY
COMMISSIONER, IN MYSORE,
Dated Bangalore, 13th June 1923.

B. MAHOMED USMON,
Offg. Sanitary Commissioner,
Mysore Government.

APPENDICES.

ANNUAL FORM No. I.

Births registered in the districts of the Mysore State during the year 1922.

SAN. B.

1	2	3			4			5			6	7	8	9			10
		Population according to Census of 1921			Number of births registered			Ratio of births per 1,000 of population						Mean ratio of births per 1,000 during previous five years			
No.	District	Males	Females	Total	Males	Females	Total	Males	Females	Total	Number of males born to every 100 female born	Excess of births over deaths per 1,000 of population	Excess of deaths over births per 1,000 of population	Males	Females	Total	Ratio of births per 1,000 of the population for the past year
1	Bangalore ..	4,63,763	4,43,152	9,96,935	8,673	8,092	16,765	18'70	18'26	18'48	107'18	...	0'96	18'28	18'46	18'37	16'46
2	Kolar ...	4,04,961	3,87,378	7,92,339	8,688	3,370	17,058	21'45	21'61	21'53	108'80	3'21	..	19'78	19'53	19'66	18'28
3	Tumkur ..	3,94,827	3,78,225	7,73,122	7,711	7,572	15,283	19'53	20'02	19'77	101'84	7'03	..	20'62	20'58	20'61	18'92
4	Mysore ..	7,02,931	7,00,388	14,03,319	10,575	9,639	20,214	15'04	13'76	14'40	109'71	3'72	..	14'65	13'39	14'02	14'18
5	Hassan ..	2,92,249	2,91,711	5,83,960	4,857	4,698	9,555	16'62	16'10	16'36	103'38	1'51	...	14'34	13'31	14'07	14'69
6	Shimoga ..	2,57,150	2,35,410	4,92,560	4,722	4,511	9,233	18'36	19'16	18'74	104'67	3'98	...	17'21	17'63	17'41	17'92
7	Kadur ..	1,74,615	1,58,923	3,33,538	2,789	2,648	5,437	15'97	16'66	16'30	105'32	0'98	..	14'63	15'04	14'83	14'38
8	Chitaldrug ..	2,94,955	2,79,224	5,74,179	5,919	5,484	11,403	20'06	19'64	19'86	107'93	94'83	..	17'91	17'18	17'53	17'83
4	Total for the province ..	29,85,541	28,74,411	58,59,952	53,934	51,014	1,04,948	18'06	17'75	17'91	105'72	3'38	..	17'25	16'74	16'99	16'45

ANNUAL FORM

Statement of births and deaths registered in each town and Rural circle of the
together with the principal Sanitary defects of each circle

Serial No.	District and Town or Rural Circle	Population (Census 1921)			Births		Number of deaths registered			Number of deaths of males to every 100 deaths of females	Deaths per 1,000		
		Males	Females	Total	Total numbers	Birth ratio per 1,000 of population	Male	Female	Total		Cholera	Small-pox	Plague
1	2	3			4		5			6			
BANGALORE.													
1	Bangalore T. C.	68,911	54,646	118,556	3,444	29 06	1,221	1,685	3,906	101.91	...	14	1 91
2	Channarayana do	6,054	6,799	11,853	817	26 76	67	68	135	106 85	...	68	4 84
3	Dodballapur do	3,855	2,783	7,538	173	22 64	64	42	106	128 57	...	...	26
4	Devanahalli do	2,712	2,475	5,187	101	18 76	52	185	237	67 66	...	...	18 00
5	Closetpet do	2,857	2,496	5,353	58	10 63	40	35	75	114 23	...	...	...
6	Kankanhalli do	2,397	2,822	5,219	106	18 40	21	49	70	48 84	...	...	...
7	Anekal do	3,188	3,148	6,336	144	22 76	68	67	135	110 63	...	96	1 26
8	Tyasmogondlu do	1,765	1,626	3,391	101	29 79	85	23	108	162 17	...	...	...
9	Nelamangala do	1,736	1,618	3,354	147	43 88	42	35	77	120 00	...	...	80
10	Vadgenhalli do	1,898	1,437	3,335	39	28 69	61	33	94	104 21	...	...	6 09
11	Masadi do	2,536	2,506	5,042	71	13 83	28	27	55	93 30	...	...	...
12	Hoskote do	2,325	2,207	4,532	95	20 98	85	183	268	115 80	...	...	15 89
13	Saryapur do	1,370	1,269	2,639	79	29 92	60	62	122	96 77	...	7 67	3 88
14	Yelfbanks do	1,297	1,261	2,558	78	30 49	10	14	24	114 29	...	...	3 89
15	Subbele do	870	664	1,534	62	29 99	47	104	151	114 89	...	...	86 76
16	Bangalore District R. C.	364,492	354,359	718,851	11,793	16 23	6,684	5,315	12,099	120 72	...	28	8 52
	Total of District	468,788	443,192	906,980	16,765	18 49	9,227	8,407	17,634	119 75	...	28	8 52
KOLAR.													
17	Kolar Gold Fields T. C.	47,487	40,195	87,682	3,659	41 73	1,277	1,000	2,277	127 70	...	10	0 8
18	Kolar do	6,818	6,650	13,468	338	25 28	130	217	347	45 92	...	...	0 7
19	Sidlaghatta do	1,888	1,520	3,408	94	25 43	118	139	257	84 96	...	...	49 83
20	Mulbagal do	2,860	2,311	5,171	88	14 64	26	19	45	186 84	...	...	...
21	Chikkaballapur do	5,285	5,196	10,481	192	18 41	126	160	286	84 00	...	...	12 27
22	Malur do	1,908	1,871	3,779	130	34 92	66	96	162	58 95	...	68	18 00
23	Srinivasapur do	1,674	1,545	3,219	...	...	...	...	...	...	...	...	...
24	Bowringpet do	3,147	3,746	6,893	164	24 13	60	81	141	71 99	...	...	...
25	Gornbidnur do	373	370	743	...	...	...	...	...	...	...	...	...
26	Chintamani do	8,114	8,047	16,161	139	22 40	71	68	139	104 41	...	48	3 92
27	Gudlunda do	1,207	1,249	2,456	43	17 65	21	4	25	626 00	...	...	...
28	Bagepalli do	668	668	1,336	118	68 73	21	15	36	140 00	...	...	...
29	Kolar District R. C.	327,888	318,542	646,430	12,015	18 58	5,626	5,333	10,959	105 50	...	...	...
	Total of District	404,961	387,878	792,839	17,668	21 53	7,507	7,009	14,516	107 10	...	17	1 91
TUMKUR.													
30	Tumkur T. C.	7,599	6,547	14,146	158	10 74	94	65	159	144 68	...	...	9 82
31	Chikkanayakanahalli do	3,275	3,187	6,462	65	10 10	38	44	82	66 86	...	16	...
32	Gubbi do	2,708	2,590	5,298	95	16 11	61	81	142	120 00	...	...	...
33	Maddur do	2,600	2,549	5,149	15	6 92	5	6	11	166 67	...	...	19
34	Sars do	2,624	2,772	5,396	188	28 77	92	27	119	116 82	...	16	...
35	Tiptur do	2,244	2,067	4,311	96	22 64	89	81	170	125 61	...	...	...
36	Pavagada do	1,276	1,263	2,539	29	26 06	22	28	50	98 66	...	40	...
37	Koratagere do	1,448	1,448	2,896	49	16 18	17	17	34	100 00	...	...	...
38	Turuvekere do	998	948	1,946	34	16 19	19	16	35	118 75	...	...	...
39	Honnavalli do	1,195	1,922	3,117	800	135 97	64	63	127	188 88	...	...	...
40	Kysandra do	1,022	1,013	2,035	90	9 88	5	6	11	88 88	...	...	...
41	Kunigal do	1,561	1,488	3,049	46	14 78	17	24	41	70 88	...	4 86	2 90
42	Hunur do	1,013	1,053	2,066	296	24 84	92	96	188	96 68	...	46	9 2
43	Holavanahalli do	1,109	1,074	2,183	330	161 17	104	78	176	138 72	...	...	...
44	Bellary do	938	965	1,903	179	94 31	41	48	89	85 42	...	...	...
45	Nonyankere do	777	775	1,552	439	262 66	180	99	279	131 21	...	64	...
46	Kadala do	798	828	1,626	...	...	...	...	...	...	...	...	...
47	Huliyar do	1,017	968	1,985	171	86 15	60	62	122	115 98	...	17	5 0
48	Tumkur District R. C.	360,888	34,645	705,533	12,768	18 11	4,303	4,000	8,303	167 85	...	...	...
	Total of District	394,397	378,225	772,622	15,283	19 77	5,180	4,718	9,898	108 78	...	17	1 8
MYSORE.													
49	Mysore T. C.	48,788	40,189	88,977	3,336	27 83	929	667	1,596	119 87	...	94	4 4
50	Serangapatam do	8,614	8,303	16,917	174	24 11	67	67	134	100 00	...	...	14
51	Malavalli do	3,776	3,624	7,400	173	24 15	64	48	112	117 89	...	121	1 8
52	Hunsur do	2,312	2,151	4,463	99	21 98	194	141	335	95 64	...	33	40 65
53	Nanjangund do	3,756	3,537	7,293	173	22 68	41	41	82	100 00	...	...	9 85
54	Channarayana do	3,501	3,438	6,939	312	45 00	51	60	111	86 00	...	14	...
55	Bannur do	2,266	2,223	4,489	65	14 59	18	15	33	86 67	...	...	...
56	Mandya do	2,496	2,391	4,887	96	18 64	47	57	104	89 46	...	...	7 16
57	Gunsulpet do	2,351	2,243	4,594	96	19 59	95	95	190	116 60	...	...	1 99
58	Perrysapatna do	1,534	1,574	3,108	83	10 81	29	19	48	116 60	...	...	...
59	Talcaid do	2,698	2,077	4,775	43	10 20	10	5	15	900 00	...	...	...
60	Yelastur do	1,822	1,871	3,693	17	19 79	85	91	176	166 67	...	4 88	...
61	Nagamangala do	1,785	1,789	3,574	65	16 48	19	11	30	178 78	...	...	...
62	Melkote do	3,145	3,163	6,308	29	8 43	21	23	44	79 41	...	...	8 01
63	Salagrama do	1,968	1,921	3,889	...	...	...	...	...	...	...	...	...
64	Yedotore do	1,119	986	2,105	16	7 59	18	17	35	76 67	...	...	9 89
65	Maddur do	1,468	1,383	2,851	59	20 95	30	19	49	166 67	...	...	...
66	Mugur do	1,891	1,789	3,680	63	14 97	10	18	28	76 99	...	...	...
67	T Narasipur do	2,405	2,363	4,768	29	6 71	6	4	10	150 00	...	...	...
68	Krishnarajpete do	1,593	1,636	3,229	78	25 68	31	30	61	105 00	...	...	...
69	Fronph Rocks do	3,287	1,120	4,407	73	39 40	38	32	70	111 76	...	...	16 69
70	Heggadevanahalli do	892	610	1,502	31	94 98	19	17	36	108 97	...	94	1 84
71	Mysore District R. C.	612,504	614,748	1,227,252	16,147	18 15	6,078	5,441	11,519	108 97	...	94	1 84
	Total of District	702,981	700,388	1,403,369	20,214	24 40	7,666	7,223	14,889	104 70	...	95	1 40

No. 11.

State of Mysore and the receipts and expenditure in each circle from, under conservancy and the measures taken to remedy them during the year 1922.

of population from							Mean ratio of deaths per 1,000 during previous five years			Net receipts of each circle from conservancy	Net expenditure on each circle on conservancy	Principal sanitary defects of circle			Measures taken for sanitary improvements of circle
Fever	Dysentery and Diarrhoea	Hemiparty diseases	Injuries	All other causes	Males	Females	Total	Males	Females			Total	In drainage	In water-supply		In domestic cleaning and conservancy
7							8			9	10	11			12
4.16	1.65	8.98	.07	18.92	.80.66	84.60	82.10	41.82	45.69	43.97	...	...	...	...
3.95	.76	51	.84	1.02	11.06	10.87	10.87	38.28	38.91	36.10	...	...	...	...
9.96	.18	...	...	9.77	14.01	11.25	12.65	31.89	32.65	32.05	...	...	...	...
15.78	1.67	74	...	11.14	88.98	50.84	42.89	32.98	31.26	39.10	...	...	...	...
10.81	.86	86	...	1.86	14.00	12.98	19.61	36.41	39.62	37.97	...	...	...	...
6.95	.85	2.85	.17	1.87	7.15	15.28	11.31	22.75	32.84	28.55	...	...	...	...
9.96	1.11	16	...	5.87	19.79	18.13	16.87	29.59	29.68	29.69	...	...	...	...
11.60	.80	80	...	5.01	19.68	14.14	17.11	37.29	31.42	34.87	...	...	...	...
8.95	.89	1.49	...	11.98	21.19	21.63	22.96	58.21	08.87	63.86	...	...	...	...
12.60	.19	.68	...	5.63	26.94	20.69	28.66	34.98	36.08	35.22	...	...	...	...
5.48	.19	...	...	3.70	10.29	10.35	10.38	50.44	49.34	49.85	...	...	...	...
17.65	.22	.65	1.10	4.85	49.15	33.61	40.88	27.72	32.87	28.78	...	...	...	...
18.94	.38	7.08	.88	15.58	48.50	48.82	46.21	26.47	30.56	26.49	...	...	...	...
8.91	...	.78	...	6.64	12.94	11.11	11.73	31.03	36.55	38.55	...	...	...	...
19.03	...	...	...	5.19	65.63	54.40	60.00	22.54	27.49	24.97	...	...	...	...
8.65	.43	.44	.90	9.85	18.06	16.41	17.25	22.18	22.62	22.41	...	...	...	...
5.65	.58	1.09	.18	5.89	18.89	18.37	19.44	24.67	25.25	24.99	...	...	...	...
2.20	2.98	1.67	.82	18.18	24.88	24.88	25.98	40.78	42.14	41.85	...	...	...	...
8.60	1.49	1.34	.75	3.74	12.76	19.86	16.38	27.68	28.95	28.95	...	...	...	...
14.05	...	...	.64	6.63	62.50	75.79	69.68	38.23	42.06	40.22	...	...	...	...
7.05	...	...	.18	.70	9.09	8.76	7.93	47.18	41.98	44.22	...	...	...	...
5.87	.29	...	.19	8.34	24.07	29.00	26.46	43.28	44.73	43.95	...	...	...	...
13.49	...	.27	.740	29.25	50.60	...	39.95	28.88	24.68	24.28	...	...	...	...
10.89	.27	...	...	9.68	15.69	11.99	18.74	84.27	85.69	81.54	...	...	...	...
22.80	...	...	2.17	3.80	28.81	28.78	24.77	47.75	49.98	48.37	...	...	...	...
12.84	...	...	.32	6.49	22.80	22.81	22.65	45.51	44.84	64.92	...	...	...	...
6.71	...	.82	...	8.67	17.40	3.28	10.20	44.18	44.70	44.40	...	...	...	...
8.16	...	...	.58	12.23	24.33	17.58	20.98	29.33	30.37	29.80	...	...	...	...
...	...	...	...	17.18	16.78	...	16.95	23.13	28.60	28.40	...	...	...	...
8.74	.59	.41	.83	6.16	18.54	18.09	18.38	25.84	25.80	25.68	...	...	...	...
1.54	8.85	.07	...	8.89	19.87	9.78	11.76	41.54	45.67	48.62	...	...	...	...
6.84	1.24	...	...	4.35	11.60	18.94	13.75	28.71	29.54	28.65	...	...	...	...
9.03	...	.19	...	9.50	11.47	13.11	11.76	44.95	44.91	44.89	...	...	...	...
.68	...	...	.78	1.94	1.19	...	1.55	80.85	84.89	88.76	...	...	...	...
6.97	.35	...	.18	9.85	11.88	9.74	10.54	28.73	29.16	29.03	...	...	...	...
8.19	.46	...	...	7.66	17.88	15.00	15.24	71.67	86.94	79.20	...	...	...	...
5.14	3.00	.40	...	9.85	17.94	18.35	17.78	86.90	86.15	86.51	...	...	...	...
4.95	...	...	...	9.97	10.78	11.74	11.28	41.69	44.06	43.81	...	...	...	...
8.89	2.07	...	1.04	6.23	19.18	16.97	16.08	34.98	36.88	36.89	...	...	...	...
27.12	6.26	...	2.09	35.86	70.98	52.41	61.88	50.98	51.98	51.44	...	...	...	...
1.47	...	...	...	3.93	4.69	5.92	5.40	47.60	51.51	49.50	...	...	...	...
8.17	.82	.83	...	5.25	10.90	16.18	18.47	128.04	184.44	181.20	...	...	...	...
50.96	4.86	...	...	3.89	25.66	30.83	31.95	51.77	47.48	49.55	...	...	...	...
54.61	1.89	...	...	32.45	31.89	67.97	60.78	70.20	67.00	73.31	...	...	...	...
17.91	...	...	.63	39.45	43.94	49.74	46.90	76.17	71.69	73.64	...	...	...	...
78.01	15.46	...	1.99	64.18	167.81	137.74	147.55	74.54	84.08	79.28	...	...	...	...
...	
48.83	.50	...	.60	11.08	89.00	58.79	56.43	47.97	45.78	46.89	...	...	...	...
6.89	.62	.04	.16	4.39	11.84	11.53	11.76	26.04	27.68	26.55	...	...	...	...
6.80	.66	.04	.17	4.76	19.99	19.47	19.74	27.41	29.08	28.24	...	...	...	...
1.70	2.96	4.29	.15	12.22	81.45	91.88	91.89	66.89	85.98	92.11	...	...	...	...
5.27	.41	...	.12	12.75	16.54	18.59	18.57	91.58	81.88	91.71	...	...	...	...
8.00	1.76	.18	.54	6.76	14.80	19.69	18.51	17.94	16.48	16.18	...	...	...	...
15.94	.90	...	.49	4.79	67.98	45.68	41.69	86.16	82.18	85.27	...	...	...	...
3.16	1.07	.14	.35	4.68	10.92	11.09	11.00	22.92	26.04	28.68	...	...	...	...
7.93	.14	...	.53	7.91	14.21	17.45	16.00	64.18	58.88	59.35	...	...	...	...
8.29	.87	...	.33	1.80	6.76	6.81	6.29	30.36	30.36	29.86	...	...	...	...
6.55	1.23	.90	...	6.14	18.88	28.65	31.88	19.75	24.26	18.51	...	...	...	...
1.26	1.63	.65	...	.22	7.66	8.19	5.44	29.69	26.88	28.25	...	...	...	...
7.40	.32	...	.32	8.87	14.84	18.07	18.19	20.69	21.86	21.08	...	...	...	...
.24	...	...	.24	3.15	8.21	3.47	8.64	32.05	16.70	16.81	...	...	...	...
1.68	...	1.02	...	.27	7.65	19.31	15.16	22.45	24.61	26.52	...	...	...	...
6.91	.39	.39	.39	1.15	30.95	4.82	8.64	15.73	22.04	18.97	...	...	...	...
2.25	.16	.16	...	1.74	6.68	9.17	7.93	18.70	19.67	19.19	...	...	...	...
...	
5.70	...	...	.47	4.75	11.80	17.28	14.25	85.66	86.65	86.06	...	...	...	...
4.59	...	.71	...	5.59	13.49	20.00	11.86	47.75	43.05	45.01	...	...	...	...
...	...	.28	...	6.98	6.56	7.47	6.43	5.77	6.90	6.53	...	...	...	...
1.95	...	...	.84	9.49	1.69	1.69	9.10	15.79	17.26	16.53	...	...	...	...
2.45	...	...	.63	9.61	18.18	19.66	19.71	28.30	28.97	23.05	...	...	...	...
5.89	2.91	2.49	.42	11.22	85.64	19.64	20.85	85.64	40.08	37.74	...	...	...	...
6.44	.31	...	.51	7.35	30.06	37.87	29.00	47.93	56.59	52.27	...	...	...	...
4.87	.80	.15	...	9.26	9.31	9.69	9.71	13.81	18.27	19.08	...	...	...	...
4.46	.44	.40	.15	6.87	10.90	10.45	10.68	20.91	19.69	20.29	...	...	...	...

There is no definite system. In most towns drains have been constructed without proper level, without arrangements for a proper outfall and for effective disposal of sewage.

Drinking water wells are necessary both in town and rural areas. Those that exist should be properly protected.

Absence of conservancy system, together with growth of cattle, horses, buildings ill-ventilated or otherwise insanitary are common in all places.

Sanitary improvements of municipalities etc being considered as funds permit. Effort is also being made to secure sanitary improvements by systematically enforcing the sanitary legislation and rules in force in the local areas.

Serial No.	District and Town or Rural Circle	Population (Census, 1921)			Births		Number of deaths registered			Number of deaths of males to every 100 deaths of females	Deaths per 1,000		
		Males	Females	Total	Total numbers	Birth ratio per 1,000 of population	Males	Females	Total		Cholera	Small-pox	Plague
1	2	3			4		5			6			
HASSAN.													
73	Hassan T. C.	4,268	8,828	8,096	876	46.44	152	166	818	91.56	...	25	7.53
74	Hole-Narsapur do ..	3,447	8,229	6,679	198	29.55	127	182	959	96.91	...	...	5.89
75	Arkaigud do ..	2,321	2,187	4,508	...	...	...	...	...	...	...	...	...
76	Belur do ..	1,422	1,487	2,899	98	34.27	40	39	79	102.67	...	25	8.5
77	Arakere do ..	2,829	1,891	4,720	96	20.33	20	20	40	100.00	...	...	...
78	Channarayana do ..	1,564	1,542	3,106	68	21.25	108	108	216	104.86	...	32	33.81
79	Banaswara do ..	1,456	1,268	2,724	45	31.37	10	10	20	100.00	...	...	...
80	Konapur do ..	1,242	1,141	2,383	85	35.67	55	54	109	101.55	...	...	18.47
81	Saklespur do ..	1,247	1,023	2,270	28	12.38	12	8	20	150.00	...	...	...
82	Haruhalli do ..	1,154	1,017	2,171	80	13.82	14	13	27	107.69	...	...	...
83	Grama do ..	944	954	1,898	...	...	...	...	...	...	...	...	...
84	Srazenabagola do ..	852	871	1,723	31	16.12	24	27	51	88.69	...	...	5.72
85	Elachadu do ..	632	598	1,230	...	...	...	...	...	...	...	...	...
86	Alur do ..	1,009	975	1,984	60	30.24	95	103	198	92.23	...	...	2.02
86	Hassan District R. C.	267,700	269,766	687,466	8,441	15.71	4,205	3,930	8,135	107.00	...	08	9.8
	Total of District ..	292,249	291,711	683,960	9,555	16.96	4,862	4,605	9,467	115.68	...	04	1.85
SHIMOGA.													
87	Shimoga T. C. ..	7,995	7,095	16,090	238	15.77	143	136	279	105.14	...	...	3.71
88	Shikarpur do ..	2,205	2,161	4,366	83	19.01	69	46	115	150.00	...	...	20.15
89	Channagiri do ..	2,011	1,985	3,996	89	22.25	42	59	81	107.69	...	...	2.25
90	Honnah do ..	2,025	1,834	3,859	120	31.09	26	31	57	88.87	...	...	1.81
91	Nyanah do ..	1,547	1,562	3,109	84	26.17	24	27	51	85.88	...	...	6.23
92	Sager do ..	2,693	2,269	4,962	103	21.64	78	67	145	116.42	...	...	3.61
93	Bhadrawathi do ..	2,055	1,723	3,778	37	9.76	45	22	67	204.55	...	26	6.86
94	Tirthahalli do ..	1,852	1,454	3,306	65	19.48	92	84	176	94.12	...	2.40	...
95	Siralkoppa do ..	1,155	1,075	2,230	47	21.07	29	19	48	152.63	...	...	3.14
96	Kamsi do ..	1,039	1,039	2,078	49	23.00	20	23	43	95.96	...	...	5.63
97	Sorah do ..	755	737	1,492	23	14.84	23	13	36	175.92	...	67	...
98	Kallurkotte do ..	554	457	1,011	49	48.51	12	12	24	100.00	...	...	...
99	Shimoga District R. C.	231,147	211,929	443,076	8,242	18.60	3,476	3,081	6,557	112.23	...	15	1.54
	Total of District ..	257,150	235,410	492,560	9,233	18.74	4,019	3,560	7,579	119.21	...	16	1.87
KADUR.													
100	Tarikere T. C. ..	4,292	3,576	7,868	258	32.82	203	181	383	111.60	...	13	15.92
101	Chikmagalur do ..	5,483	4,719	10,202	258	25.27	109	92	201	118.48	...	...	1.18
102	Birur do ..	2,068	2,144	4,212	55	13.07	15	6	21	157.50	...	...	...
103	Kadur do ..	1,542	1,513	3,055	71	22.50	28	21	47	128.81	...	...	1.58
104	Sringari do ..	958	921	1,879	64	33.86	28	27	55	103.70	...	...	...
105	Narasimharajapura do ..	1,071	926	1,997	56	28.00	35	23	59	155.52	...	50	...
106	Ajjampur do ..	1,223	1,129	2,352	47	19.98	12	10	22	120.00	...	...	...
107	Sivani do ..	1,018	1,001	2,019	44	21.78	15	11	26	196.36	...	...	...
108	Mudgere do ..	702	576	1,278	52	40.69	16	10	26	150.00	...	...	...
109	Koppa do ..	519	399	918	15	18.65	9	8	14	180.00	...	...	...
110	Kadur District R. C.	155,639	142,079	297,718	4,518	15.17	2,162	2,092	4,254	103.94	...	01	7.1
	Total of District ..	174,615	158,923	333,538	5,437	16.30	2,630	2,480	5,110	106.06	...	02	1.08
CHITALDRUG													
111	Davangere T. C. ..	8,978	7,993	16,971	690	40.66	165	153	318	104.43	...	1.53	1.2
112	Chitaldrug do ..	4,415	4,105	8,520	297	34.86	92	84	176	109.52	...	...	3.5
113	Harbar do ..	3,995	2,908	6,903	121	30.60	43	32	75	134.37	...	34	2.4
114	Turavatur do ..	3,270	3,166	6,436	83	9.63	15	24	40	66.87	...	15	...
115	Holalkere do ..	1,548	1,536	3,084	81	25.44	11	19	30	91.67	...	...	...
116	Jogalur do ..	1,370	1,233	2,603	63	23.61	16	11	27	145.45	...	...	...
117	Molakalmuru do ..	1,716	1,643	3,359	135	40.18	28	27	55	103.70	...	5.68	...
118	Nayakanhatti do ..	1,401	1,303	2,704	45	16.64	18	18	36	100.00	...	...	...
119	Hiriyur do ..	1,304	1,312	2,616	57	21.79	29	17	46	170.59	...	1.58	...
120	Hosurga do ..	1,374	1,229	2,603	99	38.16	19	26	45	79.95	...	...	...
121	Malsbennur do ..	1,123	1,054	2,177	63	31.24	10	16	26	82.50	...	...	9.2
122	Davasmudra do ..	603	607	1,210	30	24.69	24	20	44	120.00	...	...	...
123	Challakere do ..	1,323	1,201	2,524	61	24.12	24	11	35	213.18	...	...	...
124	Chitaldrug District R. C.	263,424	249,878	513,302	9,694	18.69	2,592	2,415	5,007	107.33	...	07	2.47
	Total of District ..	294,955	279,224	574,179	11,403	19.86	3,027	2,871	5,898	107.52	...	07	2.9
	Total of all Town Circles	402,364	367,545	769,909	21,571	28.01	9,108	8,455	17,563	107.73	...	24	2.53
	Total of all rural Circles	2,583,177	2,506,866	5,090,043	88,377	16.88	35,090	32,507	67,597	107.73	...	19	1.37
	Grand Total for the Province	2,985,541	2,874,411	5,859,952	104,948	17.91	44,123	40,962	85,085	107.73	...	19	1.53

No. II—concl'd.

of population from				All causes			Mean ratio of deaths per 1,000 during previous 5 years			Net receipt of each circle from conservancy	Net expenditure in each circle of conservancy	Principal Sanitary defects of circle		Measure taken for sanitary improvement of circle
Fever	Dysentery and Diarrhoea	Respiratory diseases	Injuries	Males	Females	Total	Males	Females	Total			In drainage	In water-supply	
7	8	9	10	11	12	13	14	15	16	17	18	19		
12-93	12	74	99	17-42	85-61	42-16	39-28	81-94	88-85	82-88	...	5,249		
25-05	1-80	1-86	...	4-90	36-84	40-84	38-77	28-17	25-56	24-06	...	...
12-94	4-20	1-05	...	8-74	28-18	27-14	27-62	81-09	87-86	85-40	...	2,000		
4-66	21	64	...	2-64	7-05	10-58	8-47	28-43	88-80	80-62	...	2,657		
19-64	82	...	...	18-84	69-05	66-80	67-93	40-11	42-78	41-27	...	1,888	
5-53	...	...	...	14-80	8-87	8-28	7-51	83-30	61-24	80-19	...	...
12-17	92	...	...	14-88	44-28	47-37	45-74	22-73	31-36	23-87	...	...
8-08	1-78	...	...	8-38	9-62	7-62	8-81	79-61	90-18	88-90	...	...
6-45	2-80	46	...	8-23	19-18	12-78	12-44	46-82	46-06	46-18	...	...
15-60	1-04	...	...	4-16	25-21	27-80	26-62	88-69	88-49	88-59	...	...
86-19	...	80	...	11-09	94-51	105-64	99-80	108-27	131-08	114-84	...	2,206		
9-87	44	08	08	8-64	15-70	14-87	15-14	92-55	91-86	92-21	...	...
10-18	47	11	08	8-86	16-64	15-78	16-25	28-48	22-80	28-11	...	...
8-84	46	07	88	10-07	17-88	19-17	18-49	18-21	18-74	18-83	...	750		
4-81	...	...	...	1-87	31-29	21-28	26-34	24-82	24-73	24-78	...	1,688	
4-75	50	8-80	...	9-25	20-50	18-65	20-26	28-21	22-84	25-84	...	...
4-60	...	...	...	10-36	12-69	15-30	14-77	35-24	111-06	102-63	...	...
1-56	84	...	...	7-17	14-57	17-29	15-88	30-65	31-87	31-17	...	...
10-92	1-60	60	60	19-42	28-91	29-27	19-06	40-60	41-82	40-94	...	...
2-11	...	26	8-18	27-78	12-77	17-68	58-09	60-11	68-08	...	...	...
7-79	80	1-80	80	7-20	17-28	22-91	19-78	26-39	28-00	27-09	...	...
18-45	90	1-86	...	2-70	25-11	17-87	21-08	41-29	43-82	42-00	...	...
4-38	94	1-41	...	8-00	19-25	21-19	20-19	25-73	33-35	38-23	...	...
15-64	87	87	...	8-40	30-46	17-88	34-32	38-36	32-78	38-03	...	...
10-89	99	...	99	10-69	21-66	28-96	23-76	34-76	41-98	37-94	...	188		
7-88	64	82	14	4-62	15-04	14-54	14-60	29-44	30-36	27-87	...	...
7-69	64	87	15	5-00	15-68	15-08	15-86	28-61	30-45	30-02	...	...
9-29	51	...	18	21-75	47-17	50-61	48-73	83-13	86-69	84-79	...	...
8-56	8-04	...	...	8-92	19-66	19-50	19-69	37-87	43-00	40-84	...	...
8-50	...	...	...	1-65	7-27	8-73	5-47	20-80	20-97	20-50	...	...
7-29	...	...	...	5-40	15-88	18-88	14-90	21-42	20-86	20-92	...	...
17-99	...	...	...	11-11	28-92	35-82	29-10	25-91	24-08	24-96	...	...
18-00	1-00	...	...	15-00	38-61	24-84	29-60	30-76	34-11	32-97	...	...
5-58	...	...	...	8-83	9-81	8-86	9-36	7-51	6-45	7-00	...	...
7-49	...	...	99	4-46	14-78	11-00	13-87	29-83	34-11	31-87	...	...
10-94	...	...	...	9-87	22-79	17-86	20-81	29-83	34-11	31-87	...	...
9-88	...	...	...	13-99	17-84	14-75	16-82	26-63	33-30	29-15	...	...
8-89	82	08	04	4-68	18-89	14-72	14-29	23-51	25-20	24-48	...	...
8-85	40	08	05	5-49	15-06	16-61	15-82	24-26	25-78	24-99	...	...
8-01	1-47	...	85	19-55	18-98	19-77	19-03	40-28	51-90	45-69	...	8,731		
5-52	11	...	8-29	11-88	20-84	20-46	20-66	28-99	26-59	27-22	...	6,093		
1-88	85	86	87	8-29	14-55	11-00	13-70	62-14	71-51	67-13	...	194		
8-26	...	47	9-33	4-89	7-53	6-21	20-19	18-41	19-30	...	...	...
9-61	...	68	4-08	6-67	7-81	7-22	49-38	40-96	41-69	...	...	1,188	
8-25	...	...	1-87	11-68	8-47	10-13	34-17	36-00	35-05	...	...	1,187	
9-28	...	...	4-46	16-32	16-43	16-87	32-60	33-29	32-93	...	...	1,060	
7-02	...	74	5-55	13-86	18-81	18-21	36-35	33-11	34-26	...	...	8	
10-70	...	...	8-85	22-84	19-96	17-68	34-86	46-56	40-40	...	...	787	
17-85	...	...	...	18-88	21-81	17-35	26-82	32-80	24-69	...	...	419	
4-69	...	99	5-51	8-90	16-18	11-94	127-50	148-68	137-86	...	...	...
18-98	...	...	16-46	19-47	22-95	26-21	45-18	43-33	44-56	...	...	...
4-74	...	1-19	7-90	18-07	9-17	18-83	40-66	41-40	41-01	...	...	1,187	
6-07	40	06	25	8-17	9-84	9-66	9-75	37-83	37-95	27-64	...	...
4-99	41	07	80	8-68	10-46	10-98	10-38	28-66	29-56	29-11	...	...
6-06	1-84	1-66	83	10-61	22-63	28-00	29-81	35-44	36-87	36-20	...	...
7-11	40	16	16	8-84	18-55	19-96	19-26	29-60	28-61	28-61		
6-97	52	37	16	4-73	14-78	14-25	14-62	25-03	25-16	25-09		

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Absence of conservancy system, tethering of cattle inside houses, overgrowth of rank vegetation, buildings ill-ventilated or otherwise insanitary are common in all places.

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ANNUAL FORM No. III.

Deaths registered in the districts of Mysore State during each month of the year 1922.

Serial No.	District	January	February	March	April	May	June	July	August	September	October	November	December	Total deaths registered during the year	Serial No	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
2	angalore	1,285	1,337	1,337	1,197	1,005	1,272	1,555	1,615	1,786	1,798	1,782	1,780	17,684	..	
2	Kolar	997	1,276	1,198	1,068	880	965	1,161	1,467	1,512	1,303	1,261	1,338	14,516	..	
	Tumkur	1,012	673	719	671	660	676	797	876	829	924	959	1,052	9,846	..	
4	Mysore	1,409	1,055	1,148	1,140	1,185	1,188	1,292	1,242	1,188	1,404	1,249	1,548	14,958	..	
5	Hasan	671	665	600	544	497	529	791	991	1,036	1,041	1,105	1,096	9,467	..	
6	Shimoga	558	526	580	448	459	507	727	772	657	747	715	868	7,569	..	
7	Kadur	372	272	350	329	315	345	398	440	538	630	473	638	5,110	..	
8	Chitaldurg	489	392	428	408	458	420	466	519	567	636	575	605	5,968	..	
	Total ...	6,708	6,196	6,405	5,815	5,404	5,942	7,187	7,922	8,058	8,408	8,180	8,925	85,090	..	
	Ratio of deaths per 1,000 in each month ...	1.14	1.06	1.09	.99	.92	1.01	1.28	1.35	1.37	1.48	1.37	1.52	14.52	..	
	Similar ratio for past year ...	1.81	1.14	1.36	1.80	1.06	.91	.97	1.09	1.18	1.27	1.28	1.34	14.22	..	

ANNUAL FORM No. IV.

Deaths registered according to age in the districts of Mysore State during the year 1922.

Districts	1		2		3		4		5		6		7		8		9		10		11	
	Under 1 year		1 year and under 5		5 and under 10		10 and under 15		15 and under 20		20 and under 30		30 and under 40		40 and under 50		50 and under 60		60 and upwards			
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Bangalore	886	768	784	696	610	685	610	585	546	566	1,001	1,078	942	915	870	768	687	785	2,122	1,744		
Kolar	911	802	717	676	592	571	559	581	597	447	584	590	523	556	676	620	762	552	1,514	1,304		
Tumkur	787	655	550	491	395	274	202	204	253	309	480	563	454	478	456	418	544	441	1,163	886		
Mysore	894	448	732	712	480	498	404	399	455	520	811	998	751	793	846	707	833	639	1,750	1,628		
Hasan	458	428	442	486	226	258	274	225	261	285	564	708	589	595	600	455	517	435	918	808		
Shimoga	506	407	381	348	263	224	211	187	278	298	504	549	508	454	440	284	351	269	677	457		
Kadur	889	269	266	287	171	179	108	98	142	180	315	464	350	312	343	284	322	220	281	267		
Chitaldrug	494	393	315	302	168	150	159	173	240	311	351	355	277	290	307	321	336	202	550	465		
Total for the province	4,865	4,155	4,127	3,898	2,696	2,629	2,820	2,201	2,672	2,911	4,642	5,710	4,671	4,453	4,538	3,738	4,512	3,523	9,194	7,839		
Population	77,962	80,696	2,67,884	2,67,969	4,06,512	4,16,311	3,67,949	3,37,174	2,49,571	2,26,446	1,96,378	5,26,078	4,37,965	3,74,208	2,91,532	2,68,381	1,99,449	1,87,066	1,89,639	1,80,567		
Ratio for 1,000 living	62.40	51.49	15.40	14.55	6.88	6.31	6.30	6.53	10.90	12.95	23.58	10.87	10.66	11.90	15.57	14.41	22.62	13.88	48.48	43.41		

ANNUAL FORM No. V.

Deaths registered according to classes in the districts of Mysore State during the year 1922.

No.	Districts	Population according to Census of 1921				Number of deaths registered				Ratio of deaths per 1,000 of population			
		Muhammadans	Hindus	Other classes	Total	Muhammadans	Hindus	Other classes	Total	Muhammadans	Hindus	Other classes	Total
		1	Bangalore	64,165	8,20,386	22,484	9,06,995	1,636	15,724	274	17,634	25.50	19.17	12.31	19.44
2	Kolar	56,175	7,15,054	21,110	7,92,339	1,310	11,127	2,079	14,516	23.32	15.55	38.48	18.92
3	Tumkur	37,904	7,24,665	10,559	7,73,128	535	8,852	461	9,848	14.11	12.21	43.68	12.72
4	Mysore	68,464	13,37,844	12,011	14,08,319	859	13,433	656	14,988	16.63	10.04	55.45	10.68
5	Hasan	19,371	5,59,530	12,209	5,83,850	339	3,351	747	4,437	17.77	15.16	61.18	16.21
6	Shimoga	85,918	4,85,169	21,478	4,93,565	622	4,348	627	7,597	17.51	14.51	29.20	16.87
7	Kadur	17,367	3,00,510	15,061	3,33,938	313	4,246	551	5,110	17.82	14.18	35.59	15.32
8	Chitaldrug	30,723	5,29,378	14,078	5,74,179	478	5,059	428	5,968	15.58	9.54	30.40	10.38
	Total for the province	3,15,867	54,15,636	1,28,999	58,60,959	6,122	78,128	5,883	85,090	19.49	13.50	45.24	14.52
	Total for the previous year	...	...	...	...	6,128	63,904	5,246	63,348	25.96	12.90	40.69	14.22

ANNUAL FORM No. VI.

Deaths registered from different causes in the districts and towns of the Mysore State during the year 1922.

1	2	3	4	5	6	7	8	9	10					11	12	13																		
									Districts and towns	Population according to Census of 1921	Cholera	Small-pox	Plague			Fever	Dysentery and diarrhoea	Respiratory diseases	Injuries					Total deaths from all causes	Ratio of deaths per 1,000 of population									
																			Suicide		Wounds or accidents	Snake-bite or killed by wild beasts	Total		Cholera	Small-pox	Plague	Fever	Dysentery and diarrhoea	Respiratory diseases	Injuries	All other causes	From all causes	
																			Males	Females													For the year	Mean of previous five years
A. DISTRICTS																																		
1	Bangalore	7,18,851	..	205	2,524	6,145	299	914	10	15	78	90	143	2,769	12,399	..	28	8.62	6.55	.42	.44	.20	8.85	17.25	32.41									
2	Kolar	6,46,680	..	122	1,109	6,218	198	163	82	24	78	21	165	3,004	10,969	..	17	1.71	9.61	.29	.25	.94	4.64	16.95	23.40									
3	Tumkur	7,05,668	..	122	59	4,512	369	26	9	7	66	29	111	3,103	8,803	..	17	0.8	6.39	.52	.04	.16	4.89	11.76	26.95									
4	Mysore	12,27,252	3	293	1,640	5,726	664	189	9	14	127	80	179	6,520	11,914	..	24	1.84	4.87	.80	.15	2.66	9.71	19.03										
5	Hassan	5,37,456	8	18	629	5,305	238	42	7	3	19	15	44	1,956	6,135	..	08	9.8	9.87	.44	.08	.08	16.14	33.21										
6	Shimoga	4,43,076	..	69	643	3,269	286	141	11	6	27	19	63	2,046	6,587	..	15	1.54	7.38	.64	.32	.14	4.63	14.80	33.66									
7	Kadur	2,37,713	..	4	211	2,467	97	10	1	..	12	13	18	1,452	4,254	..	01	71	8.99	8.9	.04	..	..	14.23	26.8							
8	Chitaldrug	5,13,302	188	127	233	2,540	201	38	16	22	72	13	122	1,701	5,007	.07	0.26	.47	5.07	.40	.06	2.5	3.17	9.75	27.64									
Total of Districts		50,90,043	44	960	6,394	36,177	2,047	918	94	91	499	152	686	19,551	67,527	0.00	1.19	7.11	.40	.18	.16	8.84	18.26	23.61										
B. TOWNS.																																		
BANGALORE DISTRICT																																		
1	Bangalore	1,16,556	..	17	227	498	195	528	..	8	8	2	6	2,243	3,506	..	14	1.91	4.16	1.65	5.26	.07	18.92	32.10	43.97									
2	Channarayana	11,844	..	..	85	85	9	6	..	..	..	..	4	18	130	..	68	4.64	2.95	.76	.51	.84	1.09	10.97	36.10			
3	Dodballapur	7,888	..	..	2	71	1	..	..	..	..	..	1	21	96	..	..	9.96	.18	..	..	13	1.77	12.65	32.05
4	Devanahalli	5,887	..	..	70	85	9	4	..	..	..	..	60	228	..	..	13.00	15.78	1.67	.74	..	11.14	42.32	33.10		
5	Clostep	5,552	..	..	..	60	2	..	..	..	..	..	11	75	..	..	..	10.81	8.6	..	..	1.98	13.51	37.97	
6	Kankanhalli	6,769	..	..	..	36	2	17	..	..	..	..	6	64	..	..	..	8.25	3.5	2.95	.17	1.89	11.11	23.85	
7	Ankal	6,826	..	..	8	63	7	1	..	1	..	..	1	94	130	..	95	9.96	1.11	1.5	1.6	6.87	16.97	33.60						
8	Tyranagondlu	3,331	..	..	..	33	1	1	..	..	..	..	17	53	..	..	..	11.60	.80	..	..	5.01	17.11	34.37	
9	Nelamangala	3,854	..	..	..	28	8	5	..	..	..	..	40	77	..	..	..	8.85	.89	1.49	..	11.98	23.96	43.95	
10	Vadigenahalli	3,730	..	..	19	47	..	9	..	..	..	..	21	89	..	..	..	5.09	12.60	..	..	5.68	23.86	35.32	
11	Magadi	5,132	..	..	..	88	1	8	..	..	..	..	19	83	..	..	..	6.48	.19	..	..	2.70	10.83	49.83	
12	Hoskote	4,392	..	..	72	80	1	8	..	..	4	1	5	22	129	..	..	15.89	17.85	.92	.83	1.10	4.85	40.39	26.78			
13	Sarjapur	2,639	..	..	20	50	1	..	..	..	1	..	41	122	..	..	..	18.94	3.8	6.03	.88	15.63	46.21	28.49		
14	Yalshanka	2,658	..	..	1	10	..	2	..	..	..	..	17	30	..	..	..	9.91	..	..	..	6.64	11.73	33.65	
15	Saibale	1,734	..	..	62	38	..	..	..	..	..	..	..	9	104	..	..	35.76	19.03	..	..	5.19	60.00	24.97	
KOLAR DISTRICT																																		
16	Kolar Gold Fields	87,682	..	9	7	193	255	138	2	..	76	3	81	1,694	2,377	..	10	0.9	9.90	9.96	1.87	9.2	18.18	65.96	41.85									
17	Kolar	33,368	..	..	3	115	20	18	1	..	8	..	10	50	217	..	..	9.9	8.60	1.49	1.84	.75	3.74	76.98	26.88					
18	Sidlaghatta	3,697	..	..	182	52	..	..	1	..	1	..	2	21	257	..	07	49.23	14.06	..	..	5.4	6.68	69.63	40.22			
19	Mulbagal	5,671	..	..	40	..	..	..	..	..	..	..	1	4	46	..	..	7.05	..	..	..	1.6	7.93	44.42	
20	Chikballapur	10,431	..	..	128	66	3	..	..	..	1	1	2	87	276	..	..	12.27	5.87	0.9	..	1.19	8.84	26.46	48.95		
21	Malur	3,773	..	2	68	51	..	1	..	..	1	..	1	28	161	..	..	16.00	18.49	..	..	2.7	7.46	89.95	24.28			
22	Ernavasapur	3,113	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	Bownringpet	5,893	..	..	..	63	11	..	..	..	..	..	17	81	..	..	..	10.69	.17	..	..	3.88	18.74	34.94	
24	Gorbidnur	1,942	..	..	42	..	..	..	2	..	2	..	4	7	63	..	..	22.02	..	..	..	2.17	3.80	68.77	45.87
25	Chintamani	6,161	..	3	18	76	..	..	..	1	1	..	2	40	189	..	48	2.93	12.84	..	..	8.49	22.56	64.92					
26	Gudbanda	2,450	..	..	..	14	..	2	..	..	..	..	9	25	..	..	..	5.71	..	..	..	6.67	10.30	44.40	
27	Bagepalli	1,716	..	..	..	14	..	..	..	..	1	..	1	21	86	..	..	8.15	..	..	..	6.68	12.93	60.98	39.30

SAN. R.

TUMKUR DISTRICT.																									
82	Tumkur	14,248	...	...	38	21	62	1	...	...	...	51	169	...	2 32	1 54	3 65	...	07	...	8 60	11 16	49 62		
83	Chiknayakanhalli	5,432	...	1	...	44	8	...	...	...	1	28	88	...	16	6 84	1 24	...	16	...	4 35	19 75	28 58		
84	Gubbi	5,268	...	...	...	11	...	...	...	...	1	50	62	...	...	2 09	...	...	19	...	9 50	11 78	44 59		
85	Maddur	5,148	...	1	...	8	...	...	...	...	1	4	8	...	18	6 97	...	...	18	...	7 8	1 55	82 76		
86	Sira	5,596	...	1	...	89	2	...	...	...	1	16	59	...	...	8 12	46	...	...	...	2 86	10 54	23 35		
87	Tippar	4,811	...	...	...	35	...	1	...	...	...	25	45	...	40	5 14	2 00	...	40	...	9 86	17 79	36 51		
88	Pavagada	3,529	...	1	...	18	10	...	...	...	...	9	84	...	...	4 95	3 80	...	...	...	2 97	11 23	42 61		
89	Kornagere	1,925	...	...	...	17	4	...	...	2	...	12	35	...	...	8 88	2 07	...	1 04	...	6 23	16 17	36 39		
90	Turavakere	2,897	...	...	...	65	15	...	...	5	...	62	147	...	...	27 12	6 26	...	2 09	...	25 63	61 33	61 54		
91	Honnavalli	2,085	...	...	...	20	1	...	...	...	...	8	11	...	...	1 47	...	...	...	...	3 93	8 40	49 53		
92	Kyatesandra	2,044	...	...	...	9	6	1	...	...	...	19	41	...	...	6 67	...	33	...	...	6 25	18 47	131 20		
93	Kunigal	2,065	...	9	...	104	9	...	...	5	2	69	188	...	4 86	2 90	50 96	4 86	...	3 39	26 66	91 04	49 56		
94	Hullyurdurga	2,188	...	1	2	119	3	...	...	1	...	49	175	...	46	23	54 51	1 89	...	46	82 45	60 16	78 21		
95	Holavanahalli	1,898	...	...	...	84	...	...	...	1	...	54	89	...	...	17 91	...	...	...	53	28 45	46 90	78 64		
96	Bollavi	1,552	...	1	...	118	24	...	...	1	1	84	229	...	64	...	75 03	15 46	...	1 29	54 12	147 55	79 28		
97	Nonsivkere	1,621	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
98	Kadaba	1,868	...	1	...	87	1	...	...	1	...	22	112	...	...	59	48 83	50	...	60	11 08	56 42	46 89		
99	Huliyur	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
MYSORE DISTRICT.																									
46	Mysore	89,951	...	24	87	148	198	855	1	...	12	...	18	1,028	1,796	...	84	44	1 70	2 86	4 23	9 00	12 52	21 85	83 11
47	Serangapatam	7,217	...	1	...	38	3	...	...	...	...	...	...	92	184	...	14	5 27	41	...	12 75	18 57	21 71	...	...
48	Malavalli	7,433	...	9	...	28	13	1	...	3	1	4	...	50	100	...	1 21	18	3 00	1 76	...	5 4	18 51	18 18	...
49	Hansur	4,468	...	1	181	68	4	...	...	...	...	21	275	...	22	40 55	15 24	...	...	...	4 70	61 62	85 27	...	...
50	Nanjangud	7,458	...	...	21	16	8	1	...	2	...	84	83	...	...	2 82	2 15	1 07	14	26	4 58	11 00	25 58	...	...
51	Channarayana	6,994	...	1	...	55	1	...	...	4	...	50	111	...	14	7 85	1 12	...	...	...	8 28	18 00	33 28	...	...
52	Bannur	4,468	...	...	...	16	8	...	...	1	...	8	...	80	104	...	7 16	6 55	1 28	20	6 14	21 28	18 51	...	...
53	Mandy	4,387	...	...	55	9	7	...	...	...	...	1	26	...	...	1 09	1 59	1 52	...	...	...	...	...	...	...
54	Gundlupet	4,594	...	...	...	9	7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55	Periyapatna	8,108	...	...	...	29	1	...	...	1	...	12	41	...	...	1 29	7 40	...	...	...	...	...	...	...	...
56	Taluk	4,115	...	...	...	5	...	...	...	1	...	18	15	...	...	...	...	...	...	...	...	...	...	...	...
57	Yalodur	3,593	...	16	...	4	...	4	...	1	...	29	56	...	4 89	...	1 52	...	1 08	...	...	...	...	...	...
58	Nagamangala	3,474	...	...	...	24	1	...	...	1	...	11	50	...	...	...	...	...	...	...	...	...	...	...	...
59	Malkote	6,307	...	...	...	13	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
60	Beligama	3,938	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
61	Yadavere	2,105	...	7	...	12	...	...	...	1	...	10	80	...	...	...	...	...	...	...	...	...	...	...	...
62	Maddur	2,816	...	...	...	14	...	2	...	...	...	16	32	...	...	...	...	...	...	...	...	...	...	...	...
63	Mngur	3,540	...	...	...	1	...	...	...	...	...	21	32	...	...	...	...	...	...	...	...	...	...	...	...
64	T. Narapur	4,768	...	...	...	1	...	...	...	...	...	4	10	...	...	...	...	...	...	...	...	...	...	...	...
65	Krishnarajpete	3,225	...	...	...	8	...	...	...	...	...	31	41	...	...	...	...	...	...	...	...	...	...	...	...
66	French Bazar	2,407	...	...	...	14	7	6	...	1	...	27	55	...	...	...	...	...	...	...	...	...	...	...	...
67	Haggadevankote	1,942	...	...	...	8	1	...	...	1	...	9	88	...	...	...	...	...	...	...	...	...	...	...	...
HASSAN DISTRICT.																									
68	Hassan	6,096	...	2	61	99	1	6	1	...	8	1	5	141	313	...	25	7 5	12 23	1 19	7 7	17 42	89 28	39 58	...
69	Hole-Narapur	6,679	...	...	86	164	12	9	...	...	...	...	...	48	269	...	5 39	23 05	1 00	1 35	...	7 20	88 77	26 56	...
70	Arkalgud	4,458	...	...	...	...	...	...	...	...	...	...	...	25	79	...	...	...	...	...	...	...	...	...	...
71	Belur	2,359	...	1	1	37	12	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
72	Arakere	4,723	...	...	...	23	1	8	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
73	Channarayana	3,106	...	1	105	61	1	...	...	...	...	43	311	...	32	33 31	19 54	...	...	...	19 84	67 98	41 37	...	
74	Banavara	2,663	...	...	...	15	...	...	...	1	...	4	20	...	...	...	...	...	...	...	...	...	...	...	...
75	Konnur	4,888	...	44	...	29	1	...	...	...	...	85	109	...	...	...	...	...	...	...	...	...	...	...	...
76	Beklespur	2,970	...	...	...	7	4	...	...	...	...	9	20	...	...	...	...	...	...	...	...	...	...	...	...
77	Harnahalli	3,171	...	...	...	14	5	1	...	...	...	7	27	...	...	...	...	...	...	...	...	...	...	...	...
78	Grama	1,538	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
79	Brahanabelgola	1,329	...	...	11	80	2	...	...	...	...	8	51	...	...	...	...	...	...	...	...	...	...	...	...
80	Alur	1,384	...	...	4	171	...	1	...	...	...	32	198	...	...	...	...	...	...	...	...	...	...	...	...

ANNUAL FORM No. VI—concl'd.

Deaths registered from different causes in the districts and towns of the Mysore State during the year 1922.

No.	Districts and towns	Population according to Census of 1921	Deaths										Total deaths from all causes	Ratio of deaths per 1,000 of population											
			Cholera	Small-pox	Plague	Fever	Dysentery and diarrhoea	Respiratory disease	Injuries			Wounds or acc. deaths		Snake-bite or killed by wild beasts	Total	Cholera	Small-pox	Plague	Fever	Dysentery and diarrhoea	Respiratory diseases	Injuries	From a		
									Suicide		Total												For the year	Mean of previous five years	
									Males	Females															
SHIMOGA DISTRICT.																									
81	Shimoga	15,090			56	68	7	1																	
82	Shikarpur	4,366			88	21		1			4			162	973			8.71	3.84						
83	Channarayana	3,996			1	19	2		23					87	116			20.15	4.81						
84	Honnali	3,880			7	10								40	57			1.81	2.60		50	5.60			
85	Nyamasati	3,209			90	15								23	61			6.93	1.66						
86	Sagar	4,397			5	8								23	61			6.93	1.66						
87	Bhadravati	3,789			91	8			8		1			62	145			3.61	10.22		1.60	60	60		
88	Tirthahalli	3,396			8	26	1		6		1			31	87			6.86	2.11						
89	Suralkoppa	2,230			7	30	2		3		1			24	66			2.40	7.79		30	1.80	30		
90	Konasa	2,128			12	9			3					17	48			9.14	13.45		80	1.36			
91	Sorab	1,462			12	9			3					17	48			6.93	4.23						
92	Kallurkatte	1,011			1	12			1		1			6	36			6.7	15.54		67	67			
KADUR DISTRICT.																									
93	Tankere	7,869			1	138			4					1	171			1.18	16.92		51				
94	Chikmagalur	10,207			1	12			91					1	171			1.18	16.92		51				
95	Birur	4,207				16								91	201			6.56	3.04						
96	Kadur	8,155				5			95					23	23			3.80							
97	Sringere	1,889				5			84					17	47			1.53	7.92						
98	Narasimharajapura	1,997				1			26					21	55			17.99							
99	Ajjampur	2,852				1			18					30	59			13.00	1.00						
100	Sivana	2,019				15			13					9	22			5.63							
101	Mudgere	1,378				14			14					9	26			7.43							
102	Koppa	868				2			2					12	28			10.94							
CHITALDRUG DISTRICT.																									
103	Davanagere	16,971			26	2			51	25				6	913			1.53	12	3.01	1.47				
104	Chitaldrug	8,520				3			47	1				6	323			35	5.52	11					
105	Hannur	5,904			2	2			8	5				28	97			84	1.35	85					
106	Turuvaanur	6,486							31					49	76			84	1.35	85					
107	Holkere	5,184							8					15	40			15	3.25	85					
108	Jagalur	2,668							8					9	18			2.61							
109	Molakalmuru	3,869							92					6	27			9.95							
110	Nayakanbatti	2,704							31					15	55			2.68							
111	Biryur	2,616							19					15	86			7.02							
112	Hosdurga	2,694							31					14	46			1.63							
113	Malebenur	2,177							19					12	45			5.63							
114	Devasanandra	1,315							10					12	26			9.2							
115	Challakere	2,629							23					20	44			18.93							
Total for all towns		7,69,909	2	189	1,951	4,682	1,036	1,279	19	11	210	21	254	8,170	17,568			2.53	6.08	1.94	1.66	93	10.61	22.81	36.20
Total for the State		58,69,962	46	1,149	6,945	40,369	8,093	9,197	106	102	709	178	1,090	27,721	85,090			1.19	1.58	6.97	5.62	87	18.18	4.73	24.09

ANNUAL FORM No. VII.

Deaths registered from cholera in the districts of the Mysore State during each month of the year 1922.

No.	Districts	Circles of registration		Towns		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of death per 1,000 of population			Mean rate per 1,000 of persons five years.
		Number in each district	Numbers from which deaths from cholera were reported	Number in each district	Numbers from which deaths from cholera were reported													Males	Females	Total	Males	Females	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	Bangalore	16	...	16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.19
2	Kolar	18	...	19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.61
3	Tumkur	19	...	16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.82
4	Mysore	28	1	22	...	...	1	...	1	...	...	...	1	...	...	...	...	...	1	8	0.00	0.00	0.01	
5	Hassan	15	1	13	...	...	...	...	...	...	...	...	...	8	...	...	...	...	...	...	...	...	...	0.18
6	Shimoga	18	...	13	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.08
7	Kadur	11	...	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.08
8	Chitaldrug	14	8	18	2	...	1	...	...	...	...	...	9	...	18	5	7	...	24	16	40	08	06	0.67
	Total for the State	124	5	115	2	...	2	...	1	...	...	...	10	8	18	5	7	...	29	17	46	009	006	0.46

ANNUAL FORM No. VIII.

Deaths registered from small-pox in the districts of the Mysore State during each month of the year 1922.

No.	Districts	Circles of registration		Towns		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of death per 1,000 of population			Mean rate per 1,000 of persons five years.
		Number in each district	Numbers from which deaths from small-pox were reported	Number in each district	Numbers from which deaths from small-pox were reported													Males	Females	Total	Males	Females	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	Bangalore	16	6	15	5	9	19	22	24	20	26	22	15	17	50	48	9	123	184	257	26	30	28	44
2	Kolar	19	5	12	4	12	15	6	5	5	3	13	17	5	14	21	15	66	71	137	15	15	17	76
3	Tumkur	19	7	18	6	21	14	17	14	15	10	17	4	7	1	3	15	67	69	136	17	13	17	136
4	Mysore	28	6	22	5	16	20	23	46	46	18	17	23	22	26	18	59	161	188	344	23	26	26	1.15
5	Hassan	15	4	13	3	8	2	2	8	5	1	1	1	2	2	2	2	11	11	22	0.04	0.04	0.04	1.07
6	Shimoga	18	4	12	2	11	10	14	10	5	...	21	4	2	2	...	...	42	87	79	15	16	16	87
7	Kadur	11	8	10	2	...	1	1	1	...	...	...	...	...	...	...	...	4	2	6	02	01	02	1.14
8	Chitaldrug	14	5	18	4	2	8	18	16	16	10	27	2	29	19	13	10	77	91	168	26	35	29	1.26
	Total	124	40	115	33	74	99	98	190	113	65	119	61	88	88	100	109	551	598	1,149	18	20	19	97

ANNUAL FORM No. IX.

Deaths registered from fever in the districts of the Mysore State during each month of the year 1922.

Districts	Circles of registration		Towns		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of death per 1,000 of population			Mean ratio per 1,000 of previous five years
	Number in each district	Numbers from which deaths from Fever were reported	Number in each district	Numbers from which deaths from Fever were reported													Males	Females	Total	Males	Females	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Bangalore ...	16	16	15	15	602	598	629	550	408	493	714	671	692	659	562	700	3,898	3,410	7,808	8.41	7.70	8.06	10.57
2. Kolar ...	13	12	12	11	534	710	698	641	513	446	550	655	657	570	472	543	3,575	3,854	6,929	8.89	8.66	8.74	10.22
3. Tumkur ...	19	18	18	17	481	342	404	359	314	338	433	514	473	491	488	624	2,761	2,590	5,261	6.99	6.61	6.80	8.92
4. Mysore ...	23	22	22	21	526	371	539	568	531	490	513	477	497	605	501	642	3,231	3,029	6,260	4.59	4.32	4.46	5.99
5. Hassan ...	15	12	13	11	304	423	400	332	301	318	490	599	680	681	725	691	3,062	2,882	5,944	10.43	9.88	10.18	15.74
6. Shimoga ...	13	13	12	12	292	242	292	225	228	250	295	230	304	360	368	404	1,926	1,614	3,540	7.49	6.66	7.19	8.28
7. Kadur ...	11	11	10	10	190	174	199	205	197	202	259	235	258	291	226	316	1,444	1,308	2,752	8.27	8.22	8.25	9.28
8. Chitaldrug ...	14	14	13	13	216	155	224	213	229	211	214	228	268	322	325	260	1,506	1,359	2,865	5.10	4.97	4.99	7.06
Total ...	124	118	115	110	3,145	3,005	3,325	3,133	2,721	2,748	3,468	3,659	3,829	3,979	3,667	4,180	21,403	19,456	40,859	7.17	6.77	6.97	8.82

ANNUAL FORM No. X.

Deaths registered from dysentery and diarrhoea in the districts of the Mysore State during each month of the year 1922.

Districts	Circles of registration		Towns		January	February	March	April	May	June	July	August	September	October	November	December	Total			Ratio of death per 1,000 of population			Mean ratio per 1,000 of previous five years
	Number in each district	Numbers from which deaths from Bowel-complaints were reported	Number in each district	Numbers from which deaths from Bowel-complaints were reported													Males	Females	Total	Males	Females	Total	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1. Bangalore ...	16	13	15	12	65	51	45	34	25	50	60	54	58	21	24	59	300	231	531	.65	.52	.58	.66
2. Kolar ...	13	5	12	4	23	35	37	27	23	58	63	55	38	31	30	52	266	206	472	.66	.53	.59	.59
3. Tumkur ...	19	14	18	13	44	26	34	27	50	20	32	37	30	39	68	98	257	248	505	.65	.65	.65	.57
4. Mysore ...	23	16	22	15	46	42	35	20	47	60	68	60	67	63	49	62	319	300	619	.45	.43	.44	.69
5. Hassan ...	15	10	13	9	15	9	17	19	20	19	20	25	23	24	20	61	165	112	277	.56	.38	.47	.49
6. Shimoga ...	13	10	12	9	20	14	20	15	16	19	42	35	32	38	30	32	171	142	313	.66	.60	.63	.68
7. Kadur ...	11	4	10	3	8	3	2	12	10	19	11	14	15	10	15	15	64	70	134	.53	.44	.48	.66
8. Chitaldrug ...	14	4	13	3	24	18	15	26	12	24	12	25	17	16	12	36	128	109	237	.43	.39	.41	.51
Total ...	124	76	115	68	295	193	205	180	203	269	308	305	280	242	248	415	1,665	1,418	3,083	.65	.49	.52	.68

ANNUAL FORM No. XI.

Deaths registered from Plague in the districts of the Mysore State during each month of the year 1922.

SAN. R.

Districts	January		February		March		April		May		June		July	
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bangalore City	5	4	35	33	10	10	...	...	...	...	...	...	1	1
Bangalore District	120	90	194	127	105	86	50	35	52	85	200	181	245	210
Mysore City	12	10	8	7	...	...	...	...	...	...	...	...	2	1
Mysore District	312	263	175	115	120	93	85	70	87	70	168	136	206	175
Kolar	122	84	184	139	100	76	22	12	...	...	21	15	85	57
Tumkur	100	40	80	24	...	...	...	...	...	...	...	...	...	...
Hassan	145	95	82	45	28	16	36	22	16	10	20	14	72	58
Shimoga	60	35	115	68	56	35	6	2	36	24	52	37	132	130
Kadur	25	13	5	2	16	11	4	2	...	...	18	5	16	9
Chitaldrug	64	43	42	30	25	14	...	...	4	2	7	4	58	39
Kolar Gold Fields	8	6
Total	965	677	920	570	468	348	203	143	195	141	481	392	867	680

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Districts	August		September		October		November		December		Total		Ratio per cent of deaths to total attacks	Ratio of deaths per 1,000 of population
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths		
	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Bangalore City	28	26	38	34	42	38	50	45	40	36	249	227	91.16	1.91
Bangalore District	418	355	516	430	520	403	656	529	450	333	3,526	2,614	79.80	3.57
Mysore City	...	...	4	4	5	5	3	...	10	10	44	37	84.09	.44
Mysore District	295	259	210	174	254	206	228	196	216	174	2,356	1,981	81.96	1.46
Kolar	320	217	331	237	235	207	340	242	230	192	2,140	1,508	70.47	2.14
Tumkur	...	...	60	21	...	...	24	9	21	9	235	102	35.79	.13
Hassan	168	104	156	95	140	86	194	135	158	111	1,215	791	65.10	1.65
Shimoga	300	219	105	70	136	85	105	66	203	148	1,346	919	68.28	1.67
Kadur	45	26	136	73	136	135	75	57	40	26	560	361	64.46	1.08
Chitaldrug	80	52	45	29	52	34	3	1	...	...	330	243	65.26	.48
Kolar Gold Fields	...	...	...	...	...	...	...	...	1	1	9	7	77.78	.08
Total	1,654	1,258	1,650	1,217	1,610	1,199	1,678	1,280	1,419	1,040	12,110	8,945	73.86	1.53

7

Government of His Highness the Maharaja of Mysore.

GENERAL AND REVENUE DEPARTMENTS.

G. O. No. D. 4848-907—C. V. 46-27-6, dated 9th November 1927

Civil Veterinary Department.

Reviews the Report on the working of the — for the year 1926-27.

READ—

Letter No. Per. 20-27-28; dated 20th October 1927, from the Director of Agriculture, submitting the Annual Report on the working of the Civil Veterinary Department for the year ending 30th June 1927.

ORDER No. D, 4848-907—C. V. 46-27-6, DATED 9TH NOVEMBER 1927.

Recorded.

2. Mr. K. Krishna Iyengar, Assistant Superintendent, was appointed to act as Superintendent, Civil Veterinary Department, and he took charge on 3rd July 1926, on the appointment of Lt. A. A. Monteiro as Superintendent, Amrut Mahal Department. He remained in charge till 27th November 1926, when Major R. W. Simpson returned from leave and resumed charge of the Office of the Superintendent, Civil Veterinary Department.

3. *Contagious Diseases*—(a) *Rinderpest*.—There were 308 outbreaks of rinderpest to be attended to on 1st July 1926 and 919 more were reported during the year making a total of 1,227. Departmental Officers attended to 1,066 of them. As preventive inoculation against rinderpest was greatly impeded owing to the levy of a fee, the fee was reduced from Re. 1 to annas 8 per head of cattle inoculated and in special cases, Veterinary Inspectors were authorised to conduct inoculation free of charge. During the year, 24,555 animals were protected against rinderpest by active immunisation and 24,498 by passive immunisation.

(b) *Anthrax*.—There were 25 outbreaks of anthrax to be attended to on 1st July 1926 and 2,228 fresh outbreaks were reported during the year making a total of 2,253. The staff was able to deal with only 354 of the outbreaks as the campaign against rinderpest kept it fully occupied. Anti-anthrax spore vaccine was obtained from the Biological Institute of Australia and was tried with great success, especially on the Rayankere Dairy Farm. Arrangements are being made to undertake this method of protection on a much larger scale.

(c) *Black-quarter*.—Three hundred and forty-one outbreaks of Black-quarter were pending on 1st July 1926, and as 2,884 fresh outbreaks were reported, there were altogether 3,225 outbreaks to be attended to by the staff during the year. Two thousand four hundred and five of these received attention. The number of animals protected was 50,521 or rather more than twice the number protected in the previous year.

(d) *Hæmorrhagic-Septicæmia*.—This disease is common in the Malnad. Five hundred and eighteen outbreaks were reported, the number last year being 395; but only 157 could be attended to owing to the engrossing nature of the combative measures against rinderpest.

Sheep-pox and parasitic diarrhoea also accounted for a heavy mortality among livestock.

No. D. 4848-907—C. V. 46-27-6, DATED 9TH NOVEMBER 1927.

4. *Hospitals and Dispensaries.*—There are 38 of these in the State, including the six that were opened during the year at Yedatore, Kankanhalli, Magadi, Sira, Jagalur and the Kolar Gold Fields. In Government Order No. D. 5457-66—C. V. 54-26-2, dated 15th January 1927, Government have laid down a programme according to which four new dispensaries will be opened each year. Government recognise the importance of increasing the number and improving the equipment of these institutions, but financial conditions impose obvious limitations on the rapidity of development.

Progress depends also on the extent of co-operation forthcoming from local bodies and private philanthropy in providing suitable buildings. During this year, the District Board of Mysore has contributed towards the cost of the better equipment of two important dispensaries and the following gentlemen have generously come forward to erect Dispensary Buildings at the Stations specified against their names:—

Names.	Stations.
1. Rao Sahib K. Ramaswamaiya, Bombay	.. Hole-Narsipur.
2. Mr. Venkategowda, Patel, Sravanabelagola	.. Channarayapatna.
3. „ Devoji Rao, Yedatore	.. Yedatore.
4. „ Yele Krishnappa, Devanhalli	.. Devanhalli.
5. „ Agumbe Rama Rao, Tirthahalli	.. Tirthahalli.
6. „ Devappagowda, Patel, Hettagowdanhalli	.. Arkalgud.
7. „ Sivananjappa, Tiptur	.. Tiptur.

While Government have great pleasure in recording their appreciation of this valuable assistance, they trust it will be forthcoming in even more generous measure in future years. Altogether 67,137 cases were treated in Veterinary Hospitals and Dispensaries which is an appreciable improvement over 56,115 of last year; but the number is still too small when regard is had to the total number of cattle in the State.

5. *Staff.*—The reorganisation of the staff is engaging the active consideration of Government. All the Veterinary Officers working in other departments were brought into the cadre of the Civil Veterinary Department under the Superintendent, Civil Veterinary Department.

6. *General.*—Six candidates were selected as stipendiary students to undergo a course of study in the Punjab Veterinary College, Lahore. A scholarship was also given for study in the Bombay Veterinary College. There were altogether 19 students at the Punjab College and one in the Bombay College during the year. There are also two Veterinary Inspectors at Muktesar undergoing training at the Imperial Institute of Veterinary Research.

7. Dr. P. Parthasarathy of the Public Health Department and Mr. S. D. Achar, Veterinary Inspector, were deputed to study the preparation of sera and vaccine at Muktesar.

N. RAMA RAO,
*Secretary to Government,
Development Departments,*

To—The Director of Agriculture in Mysore.
The Revenue Commissioner in Mysore.
The Heads of Departments.
The Deputy Commissioners of Districts,
The Presidents of District Boards.

Exd.—P. S. R. N.

THE ANNUAL REPORT OF THE MYSORE CIVIL VETERINARY
DEPARTMENT FOR THE YEAR 1926-27.

ADMINISTRATIVE STAFF.

Mr. K. Krishnaiengar, Assistant Superintendent, who was acting Live-stock Officer, was appointed to act as Superintendent and took over charge on 3rd July 1926 from Lieut. A. A. Monteiro, who was appointed to act as Superintendent, Amrut Mahal Department. Mr. K. Krishnaiengar remained in charge till the 27th November 1926, when the Superintendent, Major R. W. Simpson, returned from leave. Mr. K. Krishnaiengar then reverted to Assistant Superintendent, Eastern Division, and Mr. B. V. Venkatachar, who was acting for him, reverted to Veterinary Officer, Bangalore Veterinary Hospital. Mr. K. N. Srinivasan, Assistant Superintendent *sub pro tem*, continued in charge of the Western Division, except for 19 days, 5th to 23rd February 1927, during which period he availed himself of leave, Mr. B. V. Venkatachar, Veterinary Officer, Bangalore, acting for him.

SEASONAL CONDITIONS.

The seasonal conditions during the year were good in the Districts of Hassan, Kadir, Shimoga and Chitaldrug, but were less favourable in the other four districts in the State, where rinderpest, blackquarter and anthrax accounted for a heavy mortality among the live-stock. In the Kolar District there was also scarcity of fodder and water.

CONTAGIOUS DISEASES.

The year opened with 308 outbreaks of rinderpest, 25 of anthrax, 35 of hæmorrhagic septicæmia, 341 of blackquarter, and 262 of other contagious diseases. During the year 919 fresh outbreaks of rinderpest, 2,228 of anthrax, 513 of hæmorrhagic septicæmia, 2,384 of blackquarter, and 2,582 of other contagious diseases were registered. The staff were only able to personally attend to 1,066 outbreaks of rinderpest, 354 of anthrax, 518 of hæmorrhagic septicæmia, 2,405 of blackquarter, and 917 of other contagious diseases. In 1,857 outbreaks of anthrax, 347 of hæmorrhagic septicæmia and 1,520 of other contagious diseases, written instructions were sent to the Patels of villages instructing them what precautions to take and to report progress of disease.

Preventive inoculation against rinderpest was greatly impeded owing to the levying of a fee, raiyats in many instances allowing their cattle to die rather than pay the fee, although they were fully aware of the advantages of inoculation. In September 1926 the fee was reduced from Re. 1 to 8 As. but in many villages even this fee was objected to, so Government very generously modified the order, and allowed Veterinary Inspectors in special cases, as where a raiyat is too poor to pay the fee, or where cattle sought to be saved belongs to a person of the depressed classes, to conduct inoculation free of charge. This to a great extent helped to further inoculation, but unfortunately just as the disease was being got under control, the work had to be suspended for want of funds, with the result that the disease got out of control again and spread to fresh areas. During the first half of the year both active and passive immunisation were undertaken. Active immunisation was only undertaken on payment of a fee, but as it was found that passive immunisation was practically without legislation to control the movement of cattle, this method of inoculation was discontinued in the second half of the year.

Active immunisation has become very popular in parts where the raiyats have seen its advantages, notwithstanding that there have occasionally been a few deaths following it. A certain number of deaths after inoculation are to be expected in villages already infected, as it is impossible to take the temperature of every

single animal before inoculation or to always single out animals in the incubative stage. So long as the staff warn the raiyats that a few of the inoculated animals may develop the disease, they do not get scared when this does occasionally happen.

From the above it is not to be concluded that deaths follow active immunisation alone, as it has been observed that more attacks and deaths immediately follow passive immunisation. During the year 24,555 animals were protected against rinderpest by active immunisation and 24,498 by passive immunisation.

Anthrax.—It is to be deplored that more attention could not be paid to protecting animals against this disease. As already stated only 354 outbreaks out of a total of 2,253 could be personally attended to by the staff, as they were fully occupied in dealing with rinderpest which disease is always given the preference. Besides, the districts where anthrax annually occurs, are very poorly staffed.

Anti-anthrax spore vaccine was obtained from the Biological Institute of Australia, and tried with great success, especially on the Rayankeri Dairy Farm, where deaths from anthrax had been occurring at frequent intervals. Since the stock were protected, there have been no deaths. This vaccine was also tried in several localities where there had been constant deaths from anthrax, and results so far have been very encouraging. Arrangements are being made to undertake this method of protection on a much larger scale.

The mortality among sheep after vaccination is about 7 per cent but as it apparently confers immunity on the rest of the sheep in localities where the death rate has always been high from anthrax, this small percentage of deaths is not of much consequence. The people have evidently realised the value of this method of vaccination, as several complaints were received when the staff, either from shortage of vaccine or of special syringes required, were unable to undertake the work.

Blackquarter.—Protection against blackquarter has become very popular, especially in those parts of the State where formerly there was great opposition to it. Fifty thousand five hundred and twenty one animals were protected against 24,556 of the previous year. Complaints were being constantly received from the staff in the districts, and complaints and telegrams were received from the people as well, imploring for adequate supplies of aggression to protect the cattle.

The high mortality from blackquarter and anthrax is not only a loss to the owners of the cattle, but also to the State, as only the better cared for and more valuable animals appear to contract these diseases. This is the class of animal that is purchased by people from outside Mysore, and so every animal thus lost, means so much less money coming into the State.

Hæmorrhagic Septicæmia.—As already stated 518 outbreaks of hæmorrhagic septicæmia were registered against 395 of the previous year, but measures for the protection of cattle had to be limited by the financial resources available. The losses from diseases pressed hardest on the people in the Malnad where the mortality among cattle from epidemic diseases is usually heavy and where severe losses had been suffered during the past five years from rinderpest and anthrax.

Other Contagious Diseases.—Sheep-pox and parasitic diarrhœa also accounted for a heavy mortality among the live-stock, but very little could be done, as the staff were fully occupied dealing with rinderpest.

Unless every taluk has a dispensary with a Veterinary Inspector, and unless adequate funds are provided, it is impossible to deal with the numerous diseases in the State.

HOSPITALS AND DISPENSARIES.

Six Dispensaries were opened during the year at Yedatore, Kankanhalli, Magadi, Sira, Jagalur and on the Kolar Gold Fields. There are now 39 of these institutions in the State.

The older Veterinary Institutions still remain very poorly equipped, and the stock of instruments are mostly damaged or worn and badly need renewing. Unless the necessary funds are provided to replace these and to purchase other necessary equipment, the staff will be seriously handicapped. As it is, complaints are continually being received from both the staff and the public, that the staff have not been able to treat cases for want of instruments, and occasionally, medicines

also. The Mysore District Board have generously sanctioned Rs. 500 for the better equipment of the two oldest dispensaries in the district.

A few more charitably disposed citizens, Rao Sahib K. Ramaswainia of Bombay, Mr. Venkate Gowda, Patel of Sravanbelagola, Mr. Devoji Rao of Yedatore, Mr. Yele Krishnappa of Deyanhalli, Mr. Agumbe Rama Rao of Tirthahalli and Mr. Devappa Gowda, Patel of Hettagowdanahalli have very generously come forward to erect suitable buildings for dispensaries at Hole-Narsipur, Channarayapatna, Yedatore, Devanhalli, Tirthahalli and Arkalgud respectively.

Mr. H. Niranjanraj Urs, Amildar of Jagalur, has taken great interest in the work and has gone to a great deal of trouble in raising subscriptions to erect a building for the dispensary at Jagalur, and with help from the local bodies it is hoped to have the building ready shortly.

Mr. M. Sivananjappa has nearly completed the building for the dispensary at Tiptur.

Some of the institutions are located in buildings that are not at all suitable, and a few of these are very dilapidated.

Sixty-seven thousand, one hundred and thirty-seven cases were treated in Veterinary Hospitals and Dispensaries against 56,115 of the previous year, yet these institutions are not being made as much use of by the people as they should be, the reason being that those who have to bring their animals from a distance can never be sure of finding the Veterinary Inspector at his institution, as he is more often away than at headquarters, dealing with the numerous outbreaks in the extensive area allotted to him. It would be of great advantage if the Salustries and Compounders could be given a year's systematic training and a permanent school could be established for the purpose.

A class for training Compounders was opened in April for four months, and seven Compounders were selected to be trained. One had to be excused, as he had urgent private affairs to attend to, and one died. The latter's place was filled by a recruit. Two Sowars selected from the Mysore Lancers, also attended the class. The course was too short, especially for men who are expected to be competent to carry on the work in an institution during the absence of the Veterinary Inspector on tour. A year's training at least is very necessary to make an efficient Salustry.

WORK DONE ON TOUR.

The Veterinary Inspectors again this year have had very little time for systematic touring owing to the large number of outbreaks, but they nevertheless took full advantage of their stay while in villages attending to outbreaks, to do as much as possible for the raiyats by operating on and treating such animals that required attention. Twenty four thousand, six hundred and fifty-eight animals were castrated against 17,126 of the previous year; 17,190 cases were treated on tour against 14,362 of the previous year; and 608 operations were performed.

PERSONNEL.

The staff have as a whole done splendid work, notwithstanding the fact that at least 50 per cent have had their constitutions undermined while working in the unhealthy tracts of the Malnad. It was not an uncommon occurrence to find men at work though with high fever on them in order to complete the work in the village before returning to headquarters. The staff still continue to do good work. But early reorganisation of the department is very necessary as an incentive to continued good work since, as has been pointed out, they are the most poorly paid Veterinary staff in India. The fact that there have been 33 resignations in the past two years seems to indicate that the pay and prospects in the department are not very attractive.

During the year 11 Veterinary Inspectors resigned, and 6 graduates of the Madras Veterinary College were entertained.

A very important and necessary order was passed by Government during the year amalgamating the several veterinary services in the State and placing all the Veterinary Officers on one cadre under the Superintendent, Civil Veterinary Department. This will allow an interchange of Veterinary Officers from one branch to another, which is very necessary.

Six candidates were selected as stipendiary students to undergo a course of study in the Punjab Veterinary College, Lahore. Two scholarships became available through two of the first year students of the Punjab Veterinary College failing to continue their studies. One of these scholarships was given to a second year student in the Bombay Veterinary College. During the year 19 students were at the Punjab Veterinary College and one at the Bombay College.

The two Veterinary Inspectors deputed for a three years' training at Muktesar, were still at the Imperial Institute of Veterinary Research doing their final year.

Dr. P. Parthasarathy of the Public Health Department and Mr. S. D. Achar, Veterinary Inspector, the latter had completed a Post Graduate Course at the Punjab Veterinary College, were deputed to study the preparation of the different sera and vaccines at Muktesar.

CATTLE FAIRS.

Seventy-five out of 77 cattle fairs held in the State, were attended by the staff, and in those places where accommodation was provided, a temporary dispensary was opened. Several of the local bodies responsible for the management of these fairs, did all they could to assist the staff in their work and to minimise the breaking out of disease among the cattle, but unfortunately a few individuals rather resented the presence of the Veterinary staff and placed obstacles in their way. Rules and Regulations are very necessary for the guidance of those responsible for the management of these cattle fairs, especially for private people who organise and run a few of these, if such fairs are not to be a source of spreading disease as has been the case in recent years.

CATTLE BREEDING.

Beyond maintaining 19 bulls in Veterinary Institutions and granting a few subventions to private owners of breeding bulls in the State, nothing substantial has been done to supply the existing want of really good bulls, which are becoming more scarce every day.

BANGALORE,
Dated 13th October 1927.

R. W. SIMPSON, MAJOR,
Superintendent, Civil Veterinary Department.

Statement showing the work done in the Civil Veterinary Department
during the year 1926-27.

Sl. No.	Particulars	Number
1	Number of fresh cases admitted to the institution	67,137
2	Total daily attendance for the year	1,53,265
3	Number of castrations performed in the institutions	3,454
4	Number of other operations performed in the institutions	5,332
5	Number of cases treated on tour	17,190
6	Number of castrations performed on tour	24,658
7	Number of other operations performed on tour	608
8	Number of outbreaks of rinderpest pending on 1st July 1926	308
9	Number of outbreaks of rinderpest registered during 1926-27	919
10	Number of outbreaks of rinderpest attended to during 1926-27	1,066
11	Number of outbreaks of rinderpest where inoculation was totally refused	95
12	Number of outbreaks of anthrax pending on 1st July 1926	25
13	Do do registered during 1926-27	2,228
14	Do do attended during 1926-27	354
	{ Personally	1,857
	{ By written instructions	
15	Number of outbreaks of H. S. pending on 1st July 1926	35
16	Do do registered during 1926-27	518
17	Do do attended to during 1926-27	157
18	Number of outbreaks of black quarter pending on 1st July 1926	341
19	Do do registered during 1926-27	2,884
20	Do do attended to during 1926-27	2,405
21	Number of outbreaks of all other contagious diseases pending on 1st July 1926...	262
22	Do do registered during the year 1926-27	2,582
23	Do do attended to during 1926-27	917
	{ Personally	1,520
	{ By written instruction.	446
24	Total number of outbreaks that were detected	4,303
	{ Personally on tour	2,243
	{ By checking C. M. R. in	
	Taluk Offices	2,142
25	Total number of outbreaks that were reported through	2,142
	C. V. D. 10 B	
	C. V. D. 10 C	24,555
26	Number of inoculations performed against rinderpest	24,498
	S. S. Method	
27	Number of inoculations performed against anthrax	5,952
	S. A. Method	
28	Do do Haem. Sept.	2,238
29	Do do blackquarter	50,521
30	Do Vaccination against sheep-pox	854
31	Number of cattle fairs held	77
32	Do do attended by the Veterinary Inspectors	75
33	Do Taluk Conferences held	57
34	Do do attended	52

Statement showing the number of outbreaks of Epidemic Cattle Diseases attended to in the State during the year 1926-27.

Area	Rinder-pest	Anthrax	Haem. Sept.	Black-quarter	Other contagious diseases	Total for 1926-27	Total for 1925-26
Bangalore	15	54	1	40	37	147	124
Dodballapur	9	204	22	116	171	522	548
Anekal	...	49	4	33	34	120	76
Channapatna	3	3	3	141	4	164	370
Kankanhalli	3	15	3	67	17	105	...
Magadi	...	24	3	64	25	116	...
Mysore	39	168	57	63	72	399	455
Hunsur	16	75	18	54	132	295	427
Nagamangala	13	42	16	147	108	328	216
Yadatore	16	8	7	20	76	127	..
Chamrajnagar	28	105	26	63	36	258	74
Malvalli	19	103	25	67	105	319	177
Tumkur	1	136	19	216	96	468	458
Tiptur	2	25	4	219	78	328	113
Sira	...	13	9	28	18	65	..
Maddur	...	98	23	198	126	445	184
Kolar	1	250	18	133	107	509	296
Chikballapur	..	42	26	86	51	205	131
Chintamani	4	94	17	98	53	266	209
Kolar Gold Fields	...	1	...	3	3	7	...
Shimoga	16	104	1	14	96	231	291
Sagar	79	103	26	6	57	301	255
Shikarpur	102	51	7	3	44	115	56
Channagiri	96	97	4	25	78	200	232
Tirthahalli	11	5	29	1	23	69	37
Chitaldrug	18	80	9	48	40	195	272
Davangere	19	42	2	18	30	111	165
Jagalur	7	8	1	12	21	49	..
Challakere	9	17	3	54	25	108	51
Hosdurga	67	83	8	42	39	239	91
Chikmagalur	139	40	12	28	105	324	203
Tankere	20	17	9	16	48	110	119
Mudigere	31	3	9	3	23	69	97
Hassan	87	8	33	51	135	314	348
Saklespur	256	13	19	26	137	451	230
Arsikere	10	8	16	66	14	114	183
Arkalgud	30	8	5	44	73	160	193
Hole-Narsipur	26	5	8	95	70	204	19
Total	1,100	2,211	504	2,405	2,437	8,657	...
Total for 1925-26	1,369	1,951	395	896	2,059	...	6,700

Statement showing the work done in each Veterinary Institution
in the State, for the year 1926-27.

Area	Fresh cases admitted	Total attended	Castrations	Operations
Bangalore	5,688	13,530	176	658
Dodballapur	1,926	3,247	99	150
Anekal	1,370	3,482	131	107
Channaspatna	2,337	5,432	144	228
Kankanhalli	565	1,868	40	61
Magadi	460	1,051	33	26
Mysore	3,152	8,818	70	303
Hunsur	1,365	3,323	123	56
Nagamangala	1,152	2,214	69	106
Yedatore	535	1,763	37	32
Chamrajnagar	2,119	4,288	46	201
Malvalli	1,128	2,914	79	143
Tumkur	3,653	8,999	437	322
Tiptur	1,574	3,852	103	55
Sira	628	1,602	8	63
Maddagiri	1,854	3,919	169	346
Kolar	1,367	3,309	61	146
Chikballapur	1,731	4,041	73	241
Chintamani	2,005	4,671	87	221
Kolar Gold Fields	410	12	5	17
Shimoga	3,846	7,021	83	239
Sagar	1,574	3,424	18	51
Shikarapur	2,070	3,865	71	123
Channagiri	1,803	4,106	38	94
Tirthahalli	1,577	3,503	16	61
Chitaldrug	1,144	2,865	78	161
Davangere	1,306	3,769	34	60
Hosdurga	1,560	4,627	64	151
Jagalur	545	1,294	6	27
Challakere	2,120	3,223	165	83
Chikmagalur	2,746	5,350	93	127
Tarikere	1,830	4,151	61	34
Mudgere	1,016	3,186	63	44
Hassan	3,183	6,298	312	158
Saklespur	1,374	3,357	22	45
Araikere	1,495	4,089	153	137
Arkalgud	1,314	2,927	79	83
Hole-Narsipur	1,615	3,335	88	141
Total	67,137	1,53,265	3,454	5,311
Total for 1925-26	56,115	1,26,909	2,573	4,109

Statement showing the number of Inoculations done against
Epidemic Diseases in the State during the year 1926-27.

Area	Rinderpest		Black- quarter	Haem. Sept	Anthrax	Total 1926-27	Total 1925-26
	S. A.	S. S.					
Bangalore	621	806	819	...	238	2,484	3,828
Dodballapur	1,863	180	1,809	...	359	4,211	8,572
Anekal	6	...	1,607	...	702	2,117	1,643
Channapatna	515	38	3,908	...	66	4,527	3,503
Kankanhalli	...	425	1,968	...	...	2,393	...
Magadi	...	...	1,034	...	...	1,034	...
Mysore	3,104	2,909	2,477	...	433	8,923	5,766
Hunsur	3,356	1,081	812	...	...	5,249	20,771
Nagamangala	672	242	3,990	...	...	4,904	6,000
Yedatore	812	574	...	...	...	1,386	...
Chamrajnagar	651	2,898	3,355	...	62	6,966	512
Malvalli	310	333	1,504	116	735	2,998	2,417
Tumkur	190	...	3,269	...	...	3,459	11,883
Tiptur	436	...	1,788	...	...	2,224	1,836
Sira	...	...	948	...	...	948	...
Maddagiri	...	...	3,012	...	...	3,012	2,313
Kolar	...	...	2,193	...	836	3,029	236
Chikballapur	...	...	2,498	...	90	2,588	1,364
Chintamani	...	623	2,492	...	902	4,217	1,485
Kolar Gold Fields	...	...	141	...	140	281	...
Shimoga	...	...	263	...	...	263	3,132
Shikarpur	249	45	...	323	...	617	303
Sagar	145	1,040	...	...	...	1,185	1,361
Tirthahalli	206	146	...	709	290	1,351	378
Channagiri	979	453	43	...	58	1,533	3,559
Chitaldrug	585	419	1,348	...	283	2,635	8,910
Davanigere	527	662	130	...	...	1,319	8,261
Jagalur	...	316	236	...	400	951	...
Ohallakere	179	642	2,205	...	158	3,184	794
Hosdurga	426	991	398	...	...	1,815	814
Chikmagalur	139	4,000	19	...	80	4,238	2,639
Tarikere	886	33	45	...	...	964	2,130
Mudgere	108	343	...	81	...	532	1,161
Hassan	2,521	1,881	354	551	120	5,427	6,798
Saklespur	1,113	2,275	511	...	...	3,899	8,919
Arsikere	823	265	1,290	...	...	2,378	5,850
Arkalgud	2,597	542	1,153	...	...	4,292	9,067
Hole-Narasipur	477	398	2,903	458	...	4,231	413
Total for 1926-27 ...	24,498	24,555	50,521	2,238	5,952	1,07,764	...
Total for 1925-26...	39,912	66,630	24,556	1,617	3,898	...	1,36,153

854 Sheep-pox.

369 Mallein.

Statement showing details of Breeding Bulls stationed in different parts of the State for the year 1926-27.

Serial number	Head quarters	Number of current bull	Number of miles travel- led during the year	Number of stationary bulls	Number of halting places		Number of days spent on tour	Number of Fresh cows covered		Number of repeated coverings	Highest number of coverings during any one day	Daily average coverings	No of cowslays which could not be covered on account of excessive numbers	Total No of fresh cover- ings by each bull	Remarks
					During the year	On each round		At head- quarter	On tour						
1	Bangalore...	..	..	No 16	..	..	..	898	..	75	5	..	..	898	
2	Do ..	..	..	No 21	..	..	..	178	..	65	4	..	..	178	
3	Do ..	..	..	No 6	..	..	..	4	..	4	1	..	..	4	The bull died on 10th July 1926.
4	Pooballapur..	..	..	No. 1	..	..	..	81	..	7	3	..	..	81	
5	Kolar ..	..	..	No. 2	..	..	..	59	..	9	2	..	..	59	
6	Do ..	..	..	No. 9	..	..	..	51	..	7	1	..	..	51	Sold on 16th June 1927.
7	Tumkur ..	..	..	Sivaganga	..	..	..	59	..	19	2	..	..	59	
8	Do ..	..	..	Stranghat	..	..	..	86	..	12	2	..	..	36	Castrated on 26th April 1927
9	Maddagiri ..	..	..	No 14	..	..	..	70	..	23	2	..	..	70	
10	Tumkur ..	..	..	Buffalo	..	..	..	173	..	23	4	..	..	161	
11	Kolar ..	..	..	Do	..	..	..	27	..	2	2	..	..	57	
12	Shimoga ..	..	..	..	..	..	..	9	86	2	1	..	..	45	
13	Do ..	Farm bull	88	No. 19	..	..	..	89	..	3	1	..	..	89	This was auctioned on 31st June 1927
14	Chitaldrug..	..	..	Small bull	..	..	..	107	..	99	3	..	..	107	
15	Do ..	..	..	Big bull	..	..	..	90	..	19	2	..	..	90	
16	Hassan ..	..	..	No 1	..	..	..	145	..	80	4	..	..	145	
17	Do ..	..	..	Buffalo bull	..	..	..	..	..	..	..	..	..	..
18	Do ..	..	..	No. 10	..	..	..	84	..	82	3	..	..	84	
19	Chikmagalur	..	..	Municipal bull.	..	..	..	..	..	..	..	..	..	..	Auctioned on 18th April 1927
19	Chikmagalur	..	..	No. 11	..	..	..	37	..	..	1	..	..	37	

Statement showing the percentage of Cattle Mortality Returns received from the Patels during the year 1926-27.

Serial No.	Name of District	Average percentage of cattle mortality returns received from Patels	Remarks
1	Bangalore	69.1	
2	Mysore	66.5	
3	Tumkur	77.2	
4	Kolar	79	
5	Shimoga	70.6	
6	Kadur	78.3	
7	Hassan	59.2	
8	Chitaldrug	72.5	
			Average percentage of returns received for the whole State is 71.6 for 1926-27, 72.3 for 1925-26.

Statement showing the Cattle Mortality in the State from Contagious Diseases during the year 1926-27.

District	Rinderpest	Hemorrhagic Septicemia	Anthrax	Blackquarter	Foot and Mouth	Surra	Red-water	Parasitic diarr- rhea	Other conta- gious diseases	Total
Bangalore	248	100	1,021	2,152	115	..	15	284	477	4,412
Mysore	2,131	199	708	1,812	61	..	9	533	547	5,600
Tumkur	50	93	602	2,864	118	..	2	192	1,354	5,275
Kolar	173	83	1,146	1,670	135	2	..	85	1,965	5,359
Shimoga	1,268	167	621	118	76	6	2	109	357	2,724
Hassan	3,212	203	78	761	68	1	73	539	200	5,135
Kadur	3,515	49	79	87	71	1	..	106	67	3,975
Chitaldrug	1,734	61	432	678	34	1	21	34	351	3,336
Grand Total ..	12,321	955	4,687	10,142	678	11	122	1,882	5,118	35,916
Grand Total for 1925-26.	34,228	771	3,308	3,972	556	14	29	1,788	4,105	43,776