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on Agriculture in
India - vol. III

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ROYAL COMMISSION
ON
AGRICULTURE IN INDIA

Volume III

EVIDENCE

TAKEN IN THE

Madras Presidency.



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CENTRAL PUBLICATION BRANCH
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INTERIM REPORT

To

THE KING'S MOST EXCELLENT MAJESTY.

May It Please Your Majesty,

We, the Commissioners appointed to examine and report on the present conditions of agricultural and rural economy in British India, and to make recommendations for the improvement of agriculture and to promote the welfare and prosperity of the rural population ; in particular to investigate :—(a) the measures now being taken for the promotion of agricultural and veterinary research experiment, demonstration and education, for the compilation of agricultural statistics, for the introduction of new and better crops and for improvement in agricultural practice, dairy farming and the breeding of stock ; (b) the existing methods of transport and marketing of agricultural produce and stock ; (c) the methods by which agricultural operations are financed and credit afforded to agriculturists ; (d) the main factors affecting rural prosperity and the welfare of the agricultural population ; and to make recommendations ; availing ourselves of Your Majesty's permission to report our proceedings from time to time, desire to submit to Your Majesty the minutes of the evidence which we have taken up to the 25th of November 1926 on the subject of our Inquiry.

All of which we most humbly submit for Your Majesty's most gracious consideration.

(Signed) LINLITHGOW,

Chairman.

(„) H. S. LAWRENCE.

(„) T. H. MIDDLETON.

(„) GANGA RAM.

(„) J. MacKENNA.

(„) H. CALVERT.

(„) GAJAPATI NARAYANA DEO.

(„) N. GANGULEE.

(„) L. K. HYDER.

(„) B. S. KAMAT.

(Signed) J. A. MADAN,

(„) F. W. H. SMITH,

Joint Secretaries.

25th May 1927.

TERMS OF REFERENCE

Generally,

To examine and report on the present conditions of agriculture and rural economy in British India and to make recommendations for the improvement of agriculture and the promotion of the welfare and prosperity of the rural population ;

In particular to investigate—

- (a) the measures now being taken for the promotion of agricultural and veterinary research, experiment, demonstration and education, for the compilation of agricultural statistics, for the introduction of new and better crops and for improvement in agricultural practice, dairy farming and the breeding of stock ;
- (b) the existing methods of transport and marketing of agricultural produce and stock ;
- (c) the methods by which agricultural operations are financed and credit afforded to agriculturists ;
- (d) the main factors affecting rural prosperity and the welfare of the agricultural population ;

and to make recommendations.

It will not be within the scope of the Commission's duties to make recommendations regarding the existing system of landownership and tenancy or of the assessment of land revenue and irrigation charges, or the existing division of functions between the Government of India and the local Governments. But the Commission shall be at liberty to suggest means whereby the activities of the Governments in India may best be co-ordinated and to indicate directions in which the Government of India may usefully supplement the activities of local Governments.

QUESTIONNAIRE

PART I

Question.

1. Research.
2. Agricultural education.
3. Demonstration and propaganda.
4. Administration.
5. Finance.
6. Agricultural indebtedness.
7. Fragmentation of holdings.

PART II

8. Irrigation.
9. Soils.
10. Fertilisers.
11. Crops.
12. Cultivation.
13. Crop protection.
14. Implements.

PART III

15. Veterinary.
16. Animal husbandry.

PART IV

17. Agricultural industries.
18. Agricultural labour.
19. Forests.
20. Marketing.
21. Tariffs and sea freights.
22. Co-operation.
23. General education.
24. Attracting capital.
25. Welfare of rural population.
26. Statistics.

QUESTIONNAIRE

PART I

1. Research.

(a) Have you suggestions to advance for the better organisation, administration and financing of—

(i) All research affecting the welfare of the agriculturist, including research into the scientific value of the indigenous theory and traditional methods of agriculture,

(ii) Veterinary research ?

(b) If in cases known to you progress, is not being made because of the want of skilled workers, or field or laboratory facilities for study or by reason of any other handicaps, please give particulars. [Suggestions of a general kind should be made under (a) ; answers under this heading should relate to specific subjects. The purpose is to secure a list of the problems met with by scientific investigators in the course of their work which are being held over because of lack of resources or deficient organisation.]

(c) Can you suggest any particular subject for research not at present being investigated to which attention might usefully be turned ?

2. Agricultural Education.

With reference to any form of agricultural education of which you may have experience, please state your views on the following :—

(i) Is the supply of teachers and institutions sufficient ?

(ii) Is there an urgent need for extension of teaching facilities in any district or districts known to you personally ?

(iii) Should teachers in rural areas be drawn from the agricultural classes ?

(iv) Are the attendances at existing institutions as numerous as you would expect in present circumstances ; if not, state reasons. Can you suggest measures likely to stimulate the demand for instruction ?

(v) What are the main incentives which induce lads to study agriculture ?

(vi) Are pupils mainly drawn from the agricultural classes ?

(vii) Are there any modifications in existing courses of study which appear to be called for ; if so, what are they ?

(viii) What are your views upon (a) nature study ; (b) school plots ; (c) school farms ?

(ix) What are the careers of the majority of students who have studied agriculture ?

(x) How can agriculture be made attractive to middle class youths ?

(xi) Are there recent movements for improving the technical knowledge of students who have studied agriculture ?

- (xii) How can adult education in rural tracts be popularised ?
 (xiii) In suggesting any scheme for better educational facilities in rural areas, please give your views for (a) its administration and (b) its finance.

3. Demonstration and Propaganda.

- (a) What are the measures which in your view have been successful in influencing and improving the practice of cultivators ?
 (b) Can you make suggestions for increasing the effectiveness of field demonstrations ?
 (c) Can you suggest methods whereby cultivators may be induced to adopt expert advice ?
 (d) If you are aware of any striking instances of the success or the failure of demonstration and propaganda work, please give particulars and indicate the reasons for success or for failure.

4. Administration.

(a) Do you wish to suggest means towards the better co-ordination of the activities of the Governments in India or to indicate directions in which the Government of India may usefully supplement the activities of the local Governments ?

(b) Is it your opinion that the expert scientific knowledge required in the development of agriculture in the different Provinces could be supplied to a greater extent than is the case at present by increasing the scientific staff of the Government of India ? If so, indicate the types of work which would benefit by pooling the services of experts, and suggest how that work should be controlled.

(c) Are you satisfied from the agricultural standpoint with the services afforded by—

- (i) The Agricultural and Veterinary Services,
- (ii) Railways and steamers,
- (iii) Roads,
- (iv) Meteorological Department,
- (v) Posts, and
- (vi) Telegraphs, including wireless ?

If not, please indicate directions in which you think these Services might be improved or extended.

5. Finance.

(a) What are your views as to the steps that should be taken for the better financing of agricultural operations and for the provision of short and long-term credit to cultivators ?

(b) Do you wish to suggest means whereby cultivators may be induced to make fuller use of the Government system of *taccavi* ?

6. Agricultural Indebtedness.

- (a) What in your opinion are :—
 (i) the main causes of borrowing,
 (ii) the sources of credit, and
 (iii) the reasons preventing repayment.

(b) What measures in your opinion are necessary for lightening agriculture's burden of debt? For example, should special measures be taken to deal with rural insolvency, to enforce the application of the Usurious Loans Act, or to facilitate the redemption of mortgages?

(c) Should measures be taken to restrict or control the credit of cultivators such as limiting the right of mortgage and sale? Should non-terminable mortgages be prohibited?

7. Fragmentation of Holdings.

(a) Do you wish to suggest means for reducing the loss in agricultural efficiency attendant upon the excessive subdivision of holdings?

(b) What are the obstacles in the way of consolidation and how can they be overcome?

(c) Do you consider legislation to be necessary to deal with minors widows with life interest, persons legally incapable, alienation and dissentients, and to keep disputes out of the courts?

PART II

8. Irrigation.

(a) Name any district or districts in which you advocate the adoption of new irrigation schemes, or suggest extensions or improvements in the existing systems or methods of irrigation by—

- (i) Perennial and non-perennial canals,
- (ii) Tanks and ponds,
- (iii) Wells.

What are the obstacles in your district or Province to the extension of irrigation by each of the above methods?

(b) Are you satisfied with the existing methods of distributing canal water to cultivators? Describe the methods that have been employed to prevent wastage of water by evaporation and by absorption in the soil. What form of outlet for distribution to cultivators at the tail end do you regard as the most equitable and economical? Have these methods and devices been successful, or do you wish to suggest improvements?

(N.B.—Irrigation charges are *not* within the terms of reference of the Commission, and should not be commented upon.)

9. Soils.

(a) Have you suggestions to make—

- (i) for the improvement of soils, whether by drainage or other means, not dealt with under other headings in this questionnaire.
- (ii) for the reclamation of Alkali (Usar) or other uncultivable land,
- (iii) for the prevention of the erosion of the surface soil by flood water?

(b) Can you give instances of soils known to you which, within your recollection, have—

- (i) undergone marked improvement,
- (ii) suffered marked deterioration?

If so, please give full particulars.

(c) What measures should Government take to encourage the reclamation of areas of cultivable land which have gone out of cultivation ?

10. Fertilisers.

(a) In your opinion, could greater use be profitably made of natural manures or artificial fertilisers ? If so, please indicate the directions in which you think improvement possible.

(b) Can you suggest measures to prevent the fraudulent adulteration of fertilisers ?

(c) What methods would you employ to popularise new and improved fertilisers ?

(d) Mention any localities known to you in which a considerable increase in the use of manures has recently taken place.

(e) Has effect of manuring with phosphates, nitrates, sulphate of ammonia, and potash manures been sufficiently investigated ? If so, what is the result of such investigation ?

(f) What methods would you employ to discourage the practice of using cowdung as fuel ?

11. Crops.

(a) Please give your views on—

- (i) the improvement of existing crops, .
- (ii) the introduction of new crops including fodder crops,
- (iii) the distribution of seeds,
- (iv) the prevention of damage by wild animals.

(b) Can you suggest any heavy yielding food crops in replacement of the present crops ?

(c) Any successful efforts in improving crops or substituting more profitable crops which have come under your own observation should be mentioned.

12. Cultivation.

Can you suggest improvements in—

- (i) the existing system of tillage, or
- (ii) the customary rotations or mixtures of the more important crops ?

13. Crop Protection, Internal and External.

Please give your views on—

- (i) The efficacy and sufficiency of existing measures for protection of crops from external infection, pests and diseases.
- (ii) The desirability of adopting internal measures against infection.

14. Implements.

(a) Have you any suggestion for the improvement of existing, or the introduction of new, agricultural implements and machinery ?

(b) What steps do you think may usefully be taken to hasten the adoption by the cultivator of improved implements ?

(c) Are there any difficulties which manufacturers have to contend with in the production of agricultural implements or their distribution for sale throughout the country? If so, can you suggest means by which these difficulties may be removed?

PART III

15. Veterinary.

(a) Should the Civil Veterinary Department be under the Director of Agriculture or should it be independent?

(b) (i) Are dispensaries under the control of Local (District) Boards? Does this system work well?

(ii) Is the need for expansion being adequately met?

(iii) Would you advocate the transfer of control to Provincial authority?

(c) (i) Do agriculturists make full use of the veterinary dispensaries? If not, can you suggest improvements to remedy this?

(ii) Is full use made of touring dispensaries?

(d) What are the obstacles met with in dealing with contagious diseases? Do you advocate legislation dealing with notification, segregation, disposal of diseased carcasses, compulsory inoculation of contacts and prohibition of the movement of animals exposed to infection? Failing legislation, can you suggest other means of improving existing conditions?

(e) Is there any difficulty in securing sufficient serum to meet the demand?

(f) What are the obstacles in the way of popularising preventive inoculation? Is any fee charged, and, if so, does this act as a deterrent?

(g) Do you consider that the provision of further facilities for research into animal disease is desirable?

If so, do you advocate that such further facilities should take the form of—

(i) an extension of the Muktesar Institute, or

(ii) the setting up, or extension of, Provincial Veterinary Research Institutions?

(h) Do you recommend that special investigations should be conducted by—

(i) officers of the Muktesar Institute, or

(ii) research officers in the Provinces?

(i) Do you recommend the appointment of a Superior Veterinary Officer with the Government of India? What advantages do you expect would result from such an appointment?

16. Animal Husbandry.

(a) Do you wish to make suggestions for—

(i) improving the breeds of livestock,

(ii) the betterment of the dairying industry,

(iii) improving existing practice in animal husbandry?

(b) Comment on the following as causes of injury to cattle in your district—

- (i) Overstocking of common pastures,
 - (ii) Absence of enclosed pastures, such as grass borders in tilled fields,
 - (iii) Insufficiency of dry fodder such as the straw of cereals or the stems and leaves of pulses,
 - (iv) Absence of green fodders in dry seasons,
 - (v) Absence of mineral constituents in fodder and feeding stuffs.
- (c) Please mention the months of the year in which fodder shortage is most marked in your district. For how many weeks does scarcity of fodder usually exist? After this period of scarcity ends how many weeks elapse before young growing cattle begin to thrive?
- (d) Can you suggest any practicable methods of improving or supplementing the fodder supply that would be applicable to your district?
- (e) How can landowners be induced to take a keener practical interest in these matters?

PART IV

17. Agricultural Industries.

- (a) Can you give any estimate of the number of days of work done by an average cultivator on his holding during the year? What does he do in the slack season?
- (b) Can you suggest means for encouraging the adoption of subsidiary industries? Can you suggest any new subsidiary industries to occupy the spare time of the family which could be established with Government aid?
- (c) What are the obstacles in the way of expansion of such industries as beekeeping, poultry rearing, fruit growing, sericulture, pisciculture, lac culture, rope making, basket making, etc.?
- (d) Do you think that Government should do more to establish industries connected with the preparation of agricultural produce for consumption, such as oil pressing, sugar making, cotton ginning, rice hulling, utilisation of wheat straw for card-board, utilisation of cotton seed for felt, fodder, oil and fuel, utilisation of rice straw for paper, etc.?
- (e) Could subsidiary employment be found by encouraging industrial concerns to move to rural areas? Can you suggest methods?
- (f) Do you recommend a more intensive study of each rural industry in its technical, commercial and financial aspects, with a view to, among other things, introduction of improved tools and appliances?
- (g) Can you suggest any other measures which might lead to greater rural employment?
- (h) Can you suggest means whereby the people could be induced to devote their spare time to improving the health conditions of their own environment?

18. Agricultural Labour.

(a) What measures, if any, should be taken to attract agricultural labour from areas in which there is a surplus to—

(i) areas under cultivation in which there is a shortage of such labour ?
and

(ii) areas in which large tracts of cultivable land remain uncultivated ?

Please distinguish between suggestions designed to relieve seasonal unemployment and proposals for the permanent migration of agricultural population.

(b) If there is any shortage of agricultural labour in your Province, what are the causes thereof and how could they be removed ?

(c) Can you suggest measures designed to facilitate the occupation and development, by surplus agricultural labour, of areas not at present under cultivation ?

19. Forests.

(a) Do you consider that forest lands as such are at present being put to their fullest use for agricultural purposes ? For instance, are grazing facilities granted to the extent compatible with the proper preservation of forest areas ? If not, state the changes or developments in current practice which you consider advisable.

(b) Can you suggest means whereby the supply of firewood and fodder in rural areas may be increased ?

(c) Has deterioration of forests led to soil erosion ? What remedies would you suggest for erosion and damage from floods ?

(d) Can you indicate any methods by which supply of moisture in the soil, the rainfall and supply of canal water can be increased and regulated by afforestation or by the increased protection of forests so as to benefit agriculture ? Would the same methods be useful in preventing the destruction by erosion of agricultural land ?

(e) Is there an opening for schemes of afforestation in the neighbourhood of villages ?

(f) Are forests suffering deterioration from excessive grazing ? Is soil erosion being thereby facilitated ? Suggest remedies.

20. Marketing.

(a) Do you consider existing market facilities to be satisfactory ? Please specify and criticise the markets to which you refer, and make suggestions for their improvement.

(b) Are you satisfied with the existing system of marketing and distribution ? If not, please indicate the produce to which you refer and describe and criticise in detail the channels of marketing and distribution from the producer to the consumer in India (or exporter in the case of produce exported overseas). State the services rendered by each intermediary and whether such intermediary acts in the capacity of merchant or commission agent, and comment upon the efficiency of these services and the margins upon which such intermediaries operate. Please describe

the method by which each transaction is financed, or in the case of barter, by which an exchange is effected.

(c) Do you wish to suggest steps whereby the quality, purity, grading or packing of agricultural produce may be improved, distinguishing where possible between produce destined for—

- (i) Indian markets ?
- (ii) Export markets ?

(d) Do you think that more effective steps might be taken to place at the disposal of cultivators, merchants and traders information as to market conditions, whether Indian or overseas ; crop returns ; complaints as to Indian produce from wheresoever originating ; and agricultural and marketing news in general ?

21. Tariffs and Sea Freights.

Do existing (a) customs duties, both import and export, and (b) sea freights adversely affect the prosperity of the Indian cultivator ? If so, have you any recommendations to make ?

22. Co-operation.

(a) What steps do you think should be taken to encourage the growth of the co-operative movement—

- (i) by Government,
 - (ii) by non-official agencies ?
- (b) Have you any observations to make upon—

- (i) Credit societies ;
- (ii) Purchase societies ;
- (iii) Societies formed for the sale of produce or stock ;
- (iv) Societies for effecting improvements—*e.g.*, the digging of wells and the construction of bunds, walls and fences, or the planting of hedges ;
- (v) Societies formed for the aggregation of fragmented holdings and their redistribution in plots of reasonable size ;
- (vi) Societies for the co-operative use of agricultural machinery ;
- (vii) Societies for joint farming ;
- (viii) Cattle breeding societies ;
- (ix) Societies formed for any purpose connected with agriculture or with the betterment of village life, but not specified above ?

(c) Where co-operative schemes for joint improvement, such as co-operative irrigation or co-operative fencing or a co-operative consolidation of holdings scheme, cannot be given effect to owing to the unwillingness of a small minority to join, do you think legislation should be introduced in order to compel such persons to join for the common benefit of all ?

(d) Do you consider that those societies of which you have personal knowledge have, in the main, achieved their object ?

23. General Education.

(a) Do you wish to make observations upon existing systems of education in their bearing upon the agricultural efficiency of the people? If you make suggestions, please distinguish, as far as possible, between—

- (i) Higher or collegiate,
- (ii) Middle school, and
- (iii) Elementary school education.

(b)(i) Can you suggest any methods whereby rural education may improve the ability and culture of agriculturists of all grades while retaining their interest in the land?

(ii) What is your experience of compulsory education in rural areas?

(iii) What is the explanation of the small proportion of boys in rural primary schools who pass through the fourth class?

24. Attracting Capital.

(a) What steps are necessary in order to induce a larger number of men of capital and enterprise to take to agriculture?

(b) What are the factors tending to discourage owners of agricultural land from carrying out improvements?

25. Welfare of Rural Population.

(a) Outside the subjects enumerated above, have you any suggestions to offer for improving hygiene in rural areas and for the promotion of the general well-being and prosperity of the rural population?

(b) Are you, for instance, in favour of Government conducting economic surveys in typical villages with a view to ascertaining the economic position of the cultivators? If so, what, in your opinion, should be the scope and methods of such enquiries?

(c) If you have carried out anything in the nature of such intensive enquiry, please state the broad conclusions which you reached.

26 Statistics.

(a) Do you wish to make suggestions for the extension or improvement of the existing methods of—

- (i) ascertaining areas under cultivation and crops;
- (ii) estimating the yield of agricultural produce;
- (iii) enumerating livestock and implements;
- (iv) collecting information on land tenure, the incidence of land revenue and the size of the agricultural population;
- (v) arranging and publishing agricultural statistics?

(b) Have you any other suggestions to make under this heading?

APPENDIX I.

Number of societies in proportion to the population.

The following statements show the number of societies—credit societies—in proportion to population, etc.:—

1. Total population	42,800,000
Primary credit societies	10,900
Proportion—One society to 4,000 of population.	

2. *Urban* (in towns over 10,000 population. Generally there are no urban societies in smaller townships).

Township.	Population.	Houses.	Societies.	Members.	Proportion of col. 5 to col. 3.
1	2	3	4	5	6
163	4,200,000	780,000	845	151,000	1 to 5

This is only approximately accurate as it has been assumed that credit limited liability societies—non-agricultural—are all in urban areas of over 10,000 population. A very few are in smaller places and there are a few unlimited liability societies in urban areas.

3. *Rural* (in all places under 10,000).

Villages.	Houses.	Population.	Societies.	Members.	Proportion of	
					Column 4 to 1.	Column 5 to 2.
1	2	3	4	5	6	7
52,862	7,718,000	38,590,000	10,000	543,000	1:5:3	1:14

4. *Agricultural.*

	Non-cultivating landholders.	Cultivating landholders.	Tenants.	Labourers.
Population	2,622,500	11,960,000	7,329,000	8,251,000
Houses	524,500	2,392,000	1,445,800	1,650,200
Members	38,800	280,000	55,000	33,500
Proportion— Members to houses	1 to 13.5	1 to 8	1 to 26	1 to 49

Tenants include tenants holding under ryots in ryotwari tracts and also under zamindari areas. There are in general fewer societies in zamindari areas than in ryotwari areas.

Mr. H. M. Hood and R. S. K. Deivasikhamani Mudaliyar.

APPENDIX II.

Statement showing amounts of loans given by agricultural societies for productive purposes and paying off prior debts.

Year.	Cultiva- tion.	Purchase of cattle.	Payment of kist.	Improvement of land.	Purchase of raw materials for industries.	Trade.	Edu- cation.	House building.	Manufac- ture and purchase of country carts.	Purchase of land.	Food and neces- saries of life.	Total.	Paying off prior debts.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1904-05	225	665	510	65	160	508	...	50	1,340	3,503	250
1905-06	7,765	5,877	13,998	655	445	6,011	...	2,400	...	400	3,115	40,666	7,636
1906-07	28,721	23,597	32,820	11,680	1,478	22,760	...	10,386	...	3,034	6,134	1,40,610	53,317
1907-08	44,606	36,994	35,466	19,534	1,800	43,998	...	11,286	...	3,402	12,012	2,09,098	1,04,500
1908-09	78,766	73,614	47,381	38,294	1,805	1,04,347	...	25,183	...	23,457	33,173	4,26,020	2,57,919
1909-10	1,11,262	1,72,340	60,527	60,795	6,566	1,34,208	...	52,818	...	49,375	59,041	7,06,932	5,18,221
1910-11	1,07,616	2,22,910	77,453	54,555	7,248	1,55,165	...	51,874	...	59,072	74,596	8,40,489	7,27,417
1911-12	1,58,393	2,94,958	72,337	50,805	20,552	2,12,592	..	1,05,049	..	97,209	1,19,616	11,61,511	10,88,903
1912-13	1,86,921	3,02,797	73,528	78,267	11,435	2,74,823	1,629	1,07,346	13,946	1,12,343	1,28,568	12,91,603	9,51,128
1913-14	1,66,081	3,03,389	86,503	91,949	16,100	3,58,850	4,773	1,30,638	11,287	1,16,879	1,21,499	14,07,948	11,56,712
1914-15	1,91,908	2,72,361	1,06,086	1,00,806	9,025	4,25,952		1,33,232		1,17,248	1,45,767	15,04,385	10,74,480

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Statement showing amounts of loans given by agricultural societies for productive purposes and paying off prior debts.—contd.

Year.	Cultiva- tion.	Purchase of cattle.	Payment of kist.	Improve- ment of land.	Purchase of raw materials for industries.	Trade.	Edu- cation.	House building.	Manufac- ture and purchase of country carts.	Purchase of land.	Food and neces- saries of life.	Total.	Paying off prior debts.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1915-16	2,84,113	2,77,307	1,90,749	1,13,402	46,758	5,09,940		1,74,106		1,65,799	1,46,700	19,07,974	13,93,511
1916-17	4,33,317	3,08,207	4,06,241	1,50,059	17,307	6,94,891		2,20,358		1,87,751	1,81,697	25,99,828	18,55,178
1917-18	5,47,784	3,47,213	4,11,418	1,66,891	26,964	8,09,834		2,43,447		1,77,971	2,45,510	29,77,032	18,86,777
1918-19	8,20,392	4,94,513	5,81,667	2,57,981	42,253	8,51,325		3,08,744		2,40,597	5,12,761	41,10,233	24,36,301
1919-20	12,63,962	8,09,265	6,89,512	3,11,559	59,518	12,68,828		3,64,487		3,22,575	8,44,995	59,34,701	27,59,263
1920-21	16,21,149	8,26,297	6,94,452	2,53,220	66,880	11,42,910		4,05,319		2,91,137	16,21,171	63,22,535	23,15,841
1921-22	18,07,665	11,96,072	6,65,234	4,77,355	82,826	14,60,647		5,31,421		4,70,828	11,04,007	77,96,955	36,79,523
1922-23	22,74,321	10,83,819	7,99,484	4,90,626	99,346	16,14,610	28,006	4,93,485	66,528	4,20,776	11,84,755	85,65,756	37,76,327
1923-24	26,13,708	12,56,601	9,75,564	6,64,620	1,07,900	18,59,908	36,220	6,54,726	50,376	5,47,360	13,16,135	1,00,83,198	44,56,894
1924-25	29,19,380	11,90,655	12,12,172	7,59,594	98,448	17,32,273	26,471	6,63,219	46,743	6,30,794	16,31,631	1,09,11,383	40,59,691
TOTAL	1,56,70,055	94,99,451	72,23,102	41,82,712	7,21,874	1,37,90,579		49,08,434		40,36,027	88,95,123	6,89,42,357	3,51,59,989

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**The Madras Provincial Co-operative Union,—Represented by the
Hon'ble Mr. V. RAMDAS and Mr. K. G. SIVASWAMI.**

Replies to the Questionnaire.

QUESTION 6.—INDEBTEDNESS.—The causes of indebtedness vary according to the nature of the tract and the economic status of the ryots. But, generally, it is the uneconomic nature of the holding coupled with want of supplementary occupations that is the main cause of debt. Purchase of lands at uneconomic rates of interest and extravagant expenses on marriages and ceremonies are mentioned as the causes for debt in many of the Resettlement Reports. But these operate mostly in wet-land tracts and among the richer class of *mirasidars*. The high incidence of land revenue in the deltaic areas of the Tanjore district also operates as a cause for the increase of indebtedness. In the dry areas the conditions are entirely different. Here, the purchase of land and the conversion of dry into garden lands by sinking wells are *bonâ fide* enterprises taken up by the better class of landlords tempted, as they are, by the high prices they receive in certain years for commercial crops. Years of insufficiency of rainfall follow consecutively or the prices of commercial crops fall down suddenly or both happen simultaneously, and the result is the ryot becomes unable to repay his debts, incurred at a 12 per cent. rate of interest. During these years the position of the average small-holder becomes miserable and he incurs debts for the purchase of provisions for his family and fodder for cattle. Sometimes he is forced to sell the cattle. The better class landholder maintains his farm servants and cattle without any work for them. When better years dawn, the average small-holder purchases cattle at rates of interest running up to 25 per cent. Even in normal years, he borrows for cultivation and family expenses at rates of interest ranging from 12 to 18 per cent. The growing of commercial crops to the detriment of food crops has made him dependent on the bazarman and the *shandy* for his provisions. Add to these also the fact that he is under the thumb of the middleman trader for the sale of his produce, one can understand the reason for the increasing indebtedness in the dry tracts. It is not maintained that the economic condition of the small-holder is bad everywhere. Certain intelligent ryots have improved their position in a few areas by growing sugarcane, plantains and turmeric. But the extent of their cultivation is small; and the gains that accrue to them are little, when compared to those that are derived by the creditor and middleman trader. It may be, that a few agriculturists take to vegetable gardening, dairying and the cultivation of lease lands and thus improve their position. It may also be, that in a few areas where there is a demand for labour from the Public Works Department and Railways, the labourers are enabled to improve their position. But their number is small. During years of insufficient rainfall, and fall in the prices of commercial produce, rates of interest rise up to 36 per cent., land values fall, auction sales are common, the small-holder becomes easily converted to the position of a tenant under the money-lender and the labourers flock to the hills. Generally speaking, in both the wet and the dry tracts, the small holding compels the ryot to incur debts for family expenses. In the dry tracts he borrows for sinking wells, expenses in the cultivation of garden lands, purchase of cattle and fodder, leather tubs for lifting water and provisions for the family till the time of harvest, at rates of interest ranging between 12 to 18 per cent. In years of want of rainfall, or fall in the prices of commercial produce, his position becomes worse. The figures given in some of the Resettlement Reports roughly indicate that about 2/3 of the *pattadars* in dry tracts and 1/2 in wet-land tracts, are indebted; and their mortgage debts alone amount to about half the value of all the lands held by them. The recent Census Report also raises a suggestive doubt whether the increase in the number of absentee landlords and tenants is an indication of the passing of the land

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from the hands of cultivating owners to non-agriculturist moneylenders. We have given at the end a few statements to substantiate the position we have taken as regards the causes of the indebtedness of the ryot.

QUESTION 5.—FINANCE.—Long Term Loans.—Unless measures are taken to release the ryot from his indebtedness, the depressing atmosphere that at present exists in the rural areas will continue: and so long as it lasts, there is no hope of entrusting the average ryot with ideas of better methods of agriculture. The co-operative movement cannot achieve much in the provision of short-term credit for agriculture, while the ryot is under subjection to the moneylender and repays his prior debts from the harvested income. A heavily indebted ryot has no interest in his land as he is not sure whether the land will stay with him. The small nature of the holdings and the heaviness of the debt prevent the easy redemption of the ryot from his prior debts except by providing him with loans for periods extending at least to 40 years if not more and at a rate of interest not exceeding 7 per cent. Land mortgage banks cannot give these facilities to the ryot without State aid and the State is bound to help him as it makes a major part of its revenue from the land. We therefore suggest the following forms of State aid for the successful working of mortgage banks:—

- (1) The Trust Act should be amended permitting the investment of Trust Funds in debentures.
- (2) The State should also invest in the mortgage banks monies lying in deposit with it at little or no interest.
- (3) The interest on the debentures should be guaranteed by the State till they become popular in the market.
- (4) The State should contribute to the cost of an Inspector for inspecting and valuating lands and assessing the credit of borrowers.
- (5) The right of summary recovery should be given to the mortgage bank.

In this connection we would point out that the existing mortgage banks have failed to utilise the loan of two lakhs allotted by the Government for such banks. Any scheme to be successful should provide for a central organisation to issue the debentures, and primary banks at the bottom to issue the loans. We consider that the existing Central and Provincial Banks are eminently fitted to undertake mortgage banking as they already command sufficient influence and confidence among the public.

In addition to loans given for removal of prior indebtedness, the mortgage banks should also lend for productive improvements as sinking wells, and for the purchase of new lands for converting uneconomic into economic holding. The issue of *taccavi* loans through the Government agency has not been a success and the allotment under the same may be handed over to co-operative banks.

We do not consider that any special and far-reaching legislation is necessary to totally prohibit the mortgage or sale of land. But the object of a co-operative society to redeem a ryot from his indebtedness will be frustrated if a member is free to re-mortgage the land, which has been first mortgaged to the society. Legislation may help in restricting such re-mortgaging of land.

QUESTIONS 2 AND 23.—EDUCATION; AGRICULTURAL AND GENERAL.—Alongside with the development of mortgage banking, provision should be made for the general and technical education of the ryot. Excepting the co-operative officer none others have the aid of voluntary agencies to assist them in their work. The field staff of the Agricultural, Irrigation, Revenue, Forest, Labour, Local Self-Government and Education Departments have no local organisation through which they can propagate sound ideas of economic and social welfare. No department can really hope to educate the ryot without the aid of voluntary agencies. In a country like India where the ryot is generally illiterate, and ignorant of new ideas and methods of agricultural improvement, the temptation is naturally to administer institutions of rural life for him.

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An attempt should earnestly be made to build up national life through the self-exertions of the communities themselves. Further the education of the adult has a psychological method of its own quite different from that followed in practice for youths. Adults cannot be forced to learn and consequently any system of education for them should have its origin in awakening their desire to improve themselves. And this awakening has to come through non-official propaganda. It should also be borne in mind that certain types of work do not lend themselves to being undertaken by a State staff, at public expense. For, the greater the number of organisations, the larger too will be the administrative and supervising staff, so much so that the whole of the tax-payers' money and even more will be required to pay their salaries and allowances. Whenever propaganda of any new idea, organisation of men for joint effort, assistance for the administrative work of local institutions and supervision over them have to be undertaken, the non-official agency is the best suited for the work. The State departments may appoint experts to advise and generally supervise the work of the several organisations, the Universities may supply trained men, and the State and the local bodies may give grants-in-aid, according to the nature and quality of the work, thus encouraging voluntary non-official effort.

We would divide the work in each rural area under two heads:—(a) Promotion of the economic interests of agriculturists and small industrialists and (b) Promotion of the physical, educational and social welfare of the rural population and the supervision over those rural institutions as panchayats and village courts which cannot be organised on a voluntary basis but require certain legal powers for their administration. A taluk should be the area of jurisdiction of these bodies though there is nothing to prevent a smaller jurisdiction where human material is available. For instance, a rural high school or a rural college may form the nucleus for organising a non-official agency for rural welfare work. Adult educational work and rural library service might form the functions of these bodies. Membership should be thrown open to all on a subscription basis, and teachers, lecturers, and representatives of co-operative unions and societies and village panchayats might be given representation in the executive. The officers and their subordinates of the Education, Health, Labour and Local Self-Government Departments might also be ex-officio members.

Any scheme of adult education should take note of the deficiencies in the character of the rural ryot and his unpreparedness for the present age of international commerce. Whatever lessons will impart to the rural mind the spirit of enterprise and the desire for joint effort, will arouse its consciousness and self-respect and put it in possession of the necessary knowledge required under modern conditions of political and economic life, should have a due place in the curriculum of studies. The University should draw up a rough outline syllabus with the above-mentioned purposes in view. It should maintain an Extension Section whose functions shall be to train teachers from among the staff of high schools and colleges and honorary workers, for undertaking the education of adults in rural areas. The State should make a capital grant to the University for the establishment of the Extension Section and also an annual recurring grant of 1/3 of the total expenses incurred in running adult educational centres. Another 1/3 should be contributed by the Local Boards and the balance raised through local subscriptions from individuals, co-operative societies and village panchayats. As visual instruction is of the essence of adult education in an illiterate country, the State should make a contribution at the start towards magic lantern and cinema accessories. Grants should also be made for rural libraries, the contribution being 1/3 each, from the State, the Local Boards and the local associations. We do not want to foresee what developments these associations will take in the course of time. They will no doubt be of great help to educate the village panchayat and village courts. They will attend to the physical, social and educational interests of the rural people. They may develop an atmosphere for the growth of folk schools for the education of the ryots in a liberal culture and a wide outlook. We are confident that when once these grants are given by the State and local bodies, non-official effort will amply

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come forth to organise adult educational work. When a sufficient number of these associations is formed, we can hope to co-ordinate their activities through district and provincial associations which will do their work conjointly with the University Extension Section.

While the establishment of a closer connection between high schools and colleges and the ryots will no doubt react on the school and enrich the local knowledge and experience of the staff, the curriculum in the high schools can be so modelled as to create an agricultural outlook in the students and attract their parents to imbibe new ideas of agricultural improvements. Lessons on civics, geography and history can be so taught in the higher classes as to instruct the student in the economic wealth of his area and methods of developing it. Demonstration plots may be introduced with a view to train the students in practical agriculture, and through them to stimulate their parents to adopt better methods of agriculture. But all these reforms mean the training of teachers from the point of view of rural reconstruction, and contributions by the State for the administration of demonstration plots and the maintenance of a teacher in agriculture.

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—The second organisation necessary for promoting the economic interests of the people of an area is the Taluk Development Association. Its objects should be those mentioned in the bye-laws of such associations in the Bombay Presidency. There is no need so far as this Presidency is concerned (and no use too) to multiply agencies for this kind of work, and the existing Local or Supervising Unions may perform all the functions of a Development Association. These unions should not be constituted for small areas solely with the view of exercising a mere supervision of the accounts of a few good, bad, and indifferent co-operative societies. With all the good intentions of the Development Minister to bring together the Co-operative and Agricultural Departments and utilise co-operative societies for the spread of agricultural improvements, the achievement has been negligibly small owing to two causes. The one is the inherent weakness of Local Unions, and the second is the absence of any defined relationship of these bodies to agricultural officers. We propose therefore two remedies, *viz.*, (1) that the constitution of Local Unions should be so broadened as to permit the inclusion of individuals interested in agricultural development and (2) that there should be a single officer who combines in himself both the duties of furthering co-operation and introducing improved agricultural methods. We will deal later with item 2. The Local Union so constituted will consider schemes or organising societies for financing agriculture, increasing the production and marketing the produce. It will organise labour societies for undertaking bund and roads works. It will maintain a Demonstrator and a field man. It will open demonstration plots for propagating improved methods. It will arrange for agricultural excursions for interchange of ideas among agriculturists of different tracts. It will maintain a Supervisor for the primary audit of accounts of co-operative societies. The Demonstrators should be those trained in rural economics, co-operation and banking. They will be the paid propagandists of the Local Union for organising the ryots on the co-operative basis for all pursuits connected with agriculture. The funds of the Local Union will be derived from the contributions from co-operative societies, grants made by the State and local bodies for propaganda through shows, fairs, exhibitions, conferences and excursions, and for the maintenance of demonstrators and fieldmen, and subscriptions raised from individuals.

We would also propose that those sections of the Agricultural and Industries Departments which have to popularise a knowledge of improvements and organise the ryots for agriculture and small industries should be amalgamated with the Co-operative Department. We recognise that the research and educational sections of the Agricultural Department should be under an Agricultural Director. But the work of popularising improved methods in ryotwari areas cannot be divorced from that of the Co-operative Department. We recognise that the research and educational sections and the promotion of large industrial concerns should be under the Industries De-

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Department. But the organisation and revival of small rural industries cannot be divorced from the work of the Co-operative Department. We would therefore propose that the Registrar should have two experts under him, one an Agricultural Organiser and the other an Industrial Organiser. The Deputy Registrars should be University men in Rural Economics, trained in the College of Agriculture. They should be assisted in each district by a higher grade staff, one each recruited from the Agricultural and Industrial Departments. The Demonstrators appointed in the Local Unions will work under the supervision of the agricultural staff. Where Local Unions cannot command sufficient human resources for the spread of agricultural improvements, the Demonstrators will of course work under the agricultural higher grade officer in the district. A scheme like the proposed one alone will facilitate the introduction of improved methods of agriculture through the co-operative agency and harmonise the work of the three Departments of Co-operation, Agriculture and Industries. The scheme also recognises the place of the voluntary agency and the expert in agricultural propaganda. We would like to add that the re-organised department should also be charged with the duty of furthering co-operative marketing.

QUESTION 8.—IRRIGATION.—With the starting of Irrigation Panchayats under the present Irrigation Bill, the regulation of the distribution of water in channel tracts will no doubt be facilitated for the benefit of the ryot. The recent condition of channels and *bunds* in the Tanjore and Trichinopoly districts after 1924 floods has clearly demonstrated the utter futility of expecting their repairs and renewals solely with the aid of a departmental staff. Even in normal times there is much delay in the repair of Major Irrigation Works. We would prefer the handing over of contract works regarding *bunds*, channels and major tanks to Co-operative Labour Unions composed of *mirasidars* and labourers. It has been proved beyond doubt by the Co-operative Reclamation Societies formed recently for the clearance of silt that earthworks can be executed economically through the co-operative organisation. We take leave to mention here that unless there is a uniform policy followed by the Co-operative and Irrigation Departments, the promotion of Labour Unions is next to impossible. Co-operators have also been complaining about the bad condition of Minor Irrigation tanks. The North Arcot District Conference has been annually passing a resolution urging on the Government to undertake repair of tanks. It has been found by experience that the execution of contracts for minor tanks might be handed over to village panchayats. This policy, if steadily pursued, will to some extent, relieve the irrigation difficulties of the ryots. The promotion of Labour Unions and the handing over of contracts to them will quicken the restoration of tanks and make it possible to maintain them in good order.

The third proposal we would make for the improvement of irrigation in dry tracts is the sinking of wells and the supply of power facilities for the irrigation of crops from the wells. It is not fair to throw on the ryot the responsibility of finding out suitable places for the digging of wells. The Government should do the boring work free of cost, and wells, being protective works in areas subject to scarcity of water, there is nothing wrong in the extra expenditure being incurred by the State. Wherever possible, irrigation societies for digging wells should be promoted and the *taccavi* loans distributed through them with a view to have the works carried out promptly and cheaply. The insurance of crops has been suggested as a method of helping the ryot to tide over lean years but the uneconomic character of the holdings and the large risks of failure of crops will hardly attract any institution to undertake the work. Finally we would suggest that a large irrigation policy in relation to agricultural development rests entirely in the transference of irrigation as a reserved subject to the portfolio of the Development Minister.

QUESTION 22.—CO-OPERATION.—At the outset we would state that in the present condition of the country we ought not to expect rural co-operative societies to conduct banking and trade unaided by central institutions. If the idea of working from the bottom is taken to mean that small institutions should serve the agriculturist to obtain credit, to purchase jointly,

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to convert raw produce into finished produce and market them profitably, the co-operative movement will only miserably fail. Capital has to be raised through Central Banks. Joint purchase and sale have to be developed by Central Unions. Neither will it be possible to expect the central societies to work as exclusively federated institutions, for they will require influential individuals to give the necessary direction and leadership. What is far more important than the policy of working from the bottom is the right attitude of mind to educate the rural people to run their co-operative banks and trading concerns. The Trading Unions have failed in this Presidency for want of necessary stimulus from the centre to purchase economically and to push the sales quickly. The Triplicane Stores is a success in the Madras City, because it works from the centre through a system of branches, without, on the other hand, forming divisional independent stores which might not be able to beat down competition by themselves. The Bombay Provincial Co-operative Bank does successful business through the shops attached to its branches in oil-cakes and chemical manures and in the produce of members which it would not have been able to achieve if the work had been left in the hands of local societies. *The second point* we would urge on the Commission for the promotion of joint purchase and sale is the due recognition by the State of the place of voluntary agencies in conducting propaganda. Intense propaganda is very necessary, particularly in an illiterate country where the ryots are not enlightened enough to understand their needs and combine for their satisfaction. The State can help this propaganda better by the grant of subsidy than by directly undertaking it. Where a production and sale society is formed for making manures, converting groundnut or sugarcane into finished produce and selling these things, intense propaganda have to be undertaken not merely by a Local Union, but by a district co-operative agency. *Thirdly*, the central societies engaged in banking, production or sale, require expert management. We would therefore propose that the University should institute two special applied courses in crop-finance and trade. The existing College of Commerce should institute an advanced course in Co-operative Banking and accounts for the students who pass in the applied courses. *Fourthly*, the State should grant loans at low rates of interest for the purchase of plant and machinery and the building of godown. *Lastly*, it should discourage as well the export of bone and fish manures and oil-cakes in the interest of promoting a forward manorial policy in the presidency.

QUESTIONS 18 AND 22.—IMPROVEMENT OF RURAL LABOUR.—*Labour Societies*.—It is one of those anomalies of the present administration that Labour should be a Reserved subject, while Agriculture, Co-operation and Industries are Transferred subjects. The District Labour Officer is not under the control of the Co-operative Department, while he is in charge of a large number of Co-operative Societies. The problems of rural labour are so closely connected with those of the agriculturists that a separation of these two subjects under two independent departments will result in a failure to look at agricultural questions as a whole. Is it the object of the Government to put all labourers belonging to the backward classes under one department, and caste labourers under another? How can it be that Labour Unions should be under the supervision of the co-operative department, while lease societies are under that of Labour? We consider that it will be conducive to best results if the Labour Officers in the districts were transferred to the new proposed Development Department. In this connection we would point out that a large number of societies for the backward classes is supervised by Local Unions composed of agricultural credit societies. These require intense supervision of a special type, as they consist of illiterate members. The MacLagan Committee recommended to Government that they should make a special contribution for the clerical work of these societies. But the Government is not making any grant to a majority of unions for undertaking this work except in a few areas of the Madras City. Such grants are absolutely necessary in the interest of improving the condition of the backward classes. We would also point out that it is not wise to start independent credit societies for field labourers. Of course there may be

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exceptions in places where the people are so caste-ridden as to exclude this class from membership. As has been mentioned already, any work of organising adults for purposes of social welfare or the conduct of business, will be successful only when promoted through voluntary agencies. The Labour Department feels the need as much for honorary workers as the Co-operative Department. We would suggest that the work of organising field labourers for their economic betterment and educating them in habits of thrifts and a higher standard of life, should be handed over to non-official agencies such as Social Service Leagues, the Y. M. C. A., the Servants of India Society, and Local Co-operative Unions.

In addition to the permanent reforms required in the department and a change in its outlook for enlisting the co-operation of voluntary agencies for wide propaganda work, certain other facilities are also required from the State for the improvement of labour conditions. Co-operative societies which obtain leases of lands from landlords and sublet them to labourers to improve their economic status. But if a lease society is to help labour in all ways for introducing agricultural improvements, bettering housing conditions, supplying work to them round the year, training them in habits of thrift, and in raising the level of their education and culture, it should have an expert paid Secretary, who takes a good deal of interest in the work. Colonisation of cultivable areas has also been undertaken by the Labour Department and this is a little more difficult to tackle. The right type of colonists has to be selected and the State has to give loans for long periods extending to 30 or 40 years at an economic rate of interest for reclaiming lands, digging wells, and building farm houses. More than all these facilities, the colony should have the fortune of getting the services of an efficient paid secretary as in the case of lease societies. The problem of finding workers can be settled satisfactorily, only when the University institutes special courses in problems of rural labour, along with rural economics. Such men should be selected and given a short training in the spread of improved methods of agriculture.

QUESTION 22.—CO-OPERATION.—General.—We have answered all the questions adverted to already in the belief that co-operation is the one and only method for the development of the agricultural industry. Raising of credit, joint purchase of agricultural and domestic requirements, joint sale of agricultural produce, after converting them into finished ones wherever necessary, and the utilisation of the produce for other industries, all these can be economically and efficiently performed by the co-operative method in ryotwari areas. Even other efforts for increasing agricultural production as suggested in the Questionnaire should be undertaken on the co-operative basis. When writing on this subject we would like to refer to the possibilities of an economic supply of firewood in rural and urban areas, through the co-operative agency. Wood-cutters' societies can be formed for undertaking fuel contracts from the Forest Department. The policy of promoting such societies will of course be possible only with the hearty co-operation of the Forest Department. (*Vide* question 19-b).

(b) (i) Excessive fragmentation is undoubtedly a source of making them uneconomic. Any attempt to prevent such fragmentation through legislation by altering the Law of Succession or Partition will be seriously resented and is impracticable. A voluntary scheme of consolidation on the lines adopted by Mr. Calvert in the Punjab may be tried in Madras also.

(c) We do not consider that any activity should be furthered through co-operative organisations with the aid of legal power for coercing the unwilling. When such a stage is reached, the concerned work should be rather handed over to administrative bodies as Local Boards and panchayats which are invested with legal powers in the interest of civic rural welfare. The voluntary basis of co-operation should never be lost sight of.

QUESTION 25.—WELFARE OF RURAL POPULATION.—(a) Finally we would add that the problem of rural welfare is closely bound up with that of prohibiting drink in rural areas. Certain agricultural communities as the Kallars,

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Padayachis, and Goundars, and mainly the field labourers are addicted to the drink habit and we can hardly expect one part of Government to preach against drink while another part is interested in maintaining a sufficient excise revenue. Unless the State adopts a forward policy in this matter, any schemes of social and economic welfare have seldom got any chances of success.

We summarise below the reforms suggested by us for improving the economic and social conditions of the rural population:—

- (i) The re-organisation of the departments connected with agriculture and labour.
- (ii) Grants to voluntary agencies from the State and local bodies for organisation, education and propaganda.
- (iii) Scope for the educated classes to come into the co-operative movement and work for the masses, by a broadening of the constitution of Central Co-operative Societies.
- (iv) Training of candidates in the University, the agricultural college and college of commerce for employment in co-operative banking, trading and labour societies.
- (v) The stimulation of co-operative business, credit and non-credit, through central agencies as Central Banks.
- (vi) State aid for mortgage banks and industrial and marketing concerns; Prevention of export of manures by the State.
- (vii) Legislation to restrict re-mortgaging of lands already mortgaged to co-operative societies.
- (viii) A scheme of adult education and promotion of rural welfare through non-official agencies assisted by the University and the Local Boards. Giving a rural bias to the curriculum of studies in rural high schools, and
- (ix) Handing over of minor-irrigation works to village panchayats and promotion of Labour Unions and Irrigation Societies for undertaking *bund* and road works, channel and tank repairs, and the sinking of wells.

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Oral Evidence.

16490. *The Chairman.* Mr. Ramdas, you are President and Mr. Sivaswami, you are Secretary, of the Madras Provincial Co-operative Union?—Yes.

16491. Mr. Ramdas, perhaps you will answer the questions and of course it is for the Secretary whose name is on our report as one of the witnesses, if he does not agree with anything that you say, to let me know so that the matter may be recorded. Would you at the outset care to make any statement of a general character or shall I ask you one or two questions? We have your note of evidence before us?—I would prefer to answer questions.

16492. Perhaps you will tell us, just to clear the ground, the constitution of your Union?—Our Union consists of representatives of local unions in the Presidency and also of urban banks and a few individuals who are taken as honorary members. We have what are called local unions in this Presidency; there are about 300 of them. We have got our general body consisting mostly of the representatives of the unions.

16493. Supervising Unions?—Yes.

16494. Have you representatives of the District Federations?—They are very recently formed and we have not made provision for them yet, though seven or eight of them have applied for affiliation.

16495. Have you got representatives of all the Supervising Unions?—About half of them; about 150 or 160 out of 300.

16496. The others are not represented?—No; the reason is one part of the country consisting of 13 districts has another Federation, I mean, the Telugu districts have their own Provincial Union. It is really not a Provincial Union because it is not for the whole Province.

16497. You are a sectional union in the sense that you only speak for the remainder?—No; that is not so, because we have got affiliation of some unions and Central Banks in that part of the country also. The bye-laws permit our operating over the whole Province. Our idea is to have sectional Unions for different language areas, Tamil, Telugu and so on, but the Madras Union should be the real Provincial Union.

16498. You are super-imposed above them?—Yes, we call them Divisional Unions.

16499. You will not have achieved your full ambition until you have representatives from all Supervising Unions?—Well, not fully.

16500. You wish to have representatives from those other Supervising Unions?—Yes, and we are rapidly getting them.

16501. That is the constitution of your body. How many members does that provide you with?—One hundred and fifty unions with one representative each, 70 urban banks, 20 honorary members, and 22 Central Banks.

16502. That is 262?—The honorary members are not members with full rights; they have no right to vote at the meetings of the general body; they can be represented on the governing body and vote at meetings of the governing body.

16503. That is a large gathering?—Yes. We have an annual meeting at which most of them are present.

16504. How do you elect the committee?—President, Vice-President and Secretaries are elected by the general body, and there is also an Advisory Board of 22 elected by the general body who elect the rest of the members.

16505. That is the Advisory Board?—Yes.

16506. Have they the power to nominate other members outside the union?—No. They elect four representatives, and they and the Secretaries, President and Vice-President form the committee.

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16507. Would you describe the status and function of your Union? Are you an official body?—No. We are an incorporated body.

16508. You are not an official body; you are a corporation?—Yes.

16509. What is your function?—Propaganda, co-operative education, supervision.

16510. Supervision over what?—Over all the co-operative organisations in the Province, the local unions specially of which we consist, and District Federations.

16511. What about the banks?—We have not much supervision over the banks. They are represented on our body, we take advice from them and we see how the financing is going on and how the societies get the money.

16512. Would the banks welcome your advice?—Sometimes they do.

16513. But you do not offer it?—No.

16514. Do you pay great attention to the working of these banks?—We do pay attention.

16515. What do you think of the services rendered to the movement, first, by the nine central banks?—We have nearly 32 central banks now.

16516. What do you think of the services rendered by those 32 banks?—They are rendering good services; the total capital of all the banks is about 5½ crores.

16517. Do you think they are providing you with capital at as low a rate of interest as is compatible with good management?—I should think so.

16518. Do you speak from conviction born of close personal investigation or from general impression?—Not from a general impression; I am also President of the Provincial Bank and I know the working of the banks very closely.

16519. You are the President of the Provincial Bank?—Yes, the Provincial Co-operative Bank.

16520. I do not know what bank it is?—It is called the Madras Urban Central Bank Ltd.

16521. So you can tell all about that bank?—Yes.

16522. At what rate are you borrowing from that bank?—We were borrowing at 6½ per cent.; we have now reduced it to 4 to 4½ per cent.

16523. You were borrowing at 6½ per cent. Can you get new money at 4 and 4½ per cent.?—Yes, and even that we are refusing.

16524. When you were paying 6½, at what rate were you lending?—We were lending at 7½ per cent. It has now been reduced to 7 per cent.

16525. You are now paying 2 to 2½ per cent. less in interest for the money you borrow. At what rate are you lending?—7 per cent.

16526. Presumably, if you were solvent when you were borrowing at 6½ per cent. and lending at 7½ per cent., you are now making a considerable profit.—No, we are not, for the reason that all our money is not absorbed; a very large portion of it is invested at a very low rate of interest.

16527. The movement is over-capitalised?—We have an effective investment of only 50 lakhs in the movement.

16528. Where is the balance?—Invested in other banks, Government paper and so on.

16529. What is the average rate of interest you are getting from your investments outside for such money as is lent to cultivators through primary societies?—Some of it we have lent at even so low a rate as 2½ per cent.; but it goes up to 5 per cent.; it does not go above 5 per cent.

16530. Some at short call?—Yes. Recently we have arranged with the Calcutta Provincial Bank to lend at 6 per cent. for 3 years.

16531. We have not the accounts of your bank or any of the other banks before us at the moment, but I should like your opinion as to whether you can provide money to the primary societies at a lower rate of interest than

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7 per cent., consistent of course with sound finance?—It depends upon the volume of our transactions. If at a lower rate we get a larger volume of transactions, of course it would be more profitable than a smaller volume of transactions at a higher rate of interest. At present business is very slack, and I do not know whether it would pay to lower the rate of interest.

16532. You have raised your margin, on your own showing, from 1 per cent. to 3 per cent.?—Yes, but more than half is not invested effectively. I would add one word. The lending at a lower rate of interest will not by itself lead to the absorption of our capital, for the reason that the individual borrowing power of individuals and societies is very small. I do not think the difference in the rate of interest will make any difference as to inducing people to borrow largely unless the individual borrowing limit is raised considerably, as I suggest it should be. The low rate of interest will not induce people to borrow.

16533. Do you think if you and I walked into a typical village and you offered your money at 7 per cent. interest and I at 6 per cent. that they would take your money in preference to mine?—Yes, they do, unless we are working on the same principles of co-operation, because our conditions are more favourable with regard to recovery and other matters.

16534. Let me put it in another way; Is it really your view that the rate of interest at which you offer to lend money through the co-operative societies has very little effect upon the amount of loans taken up by cultivators?—Not much effect so long as the borrowing limit is very low, such as Rs. 200 or Rs. 300. It will make a difference if the borrowing limit is very high.

16535. Have you anything to tell the Commission about the working of the land mortgage banks?—Yes. At present we have five banks in the Presidency. They are primary societies started by individuals living within a radius of 7 miles.

16536. They are territorial banks?—Yes. Two or three only are functioning; the others are not.

16537. The others are sleeping?—Yes, I think so. Government allotted two lakhs in the Budget last year, and I do not think any of it was taken. The allotment had to be reintroduced in the next budget. The difficulty with these banks is they are not able to command confidence in the market and they will not be able to issue debentures unless they do so. The Registrar of the Co-operative Societies has prohibited us from lending money upon the debentures issued by these banks, his own opinion being that it is not quite safe to lend upon these debentures. It is, therefore, hardly to be expected that the outside public will have any confidence in them. The second point is that the share capital that an individual should take is fixed at one-eighth of the loan to be taken by him. Such a high percentage as 12½ prevents individuals from joining. The third point is that the highest borrowing limit is only Rs. 1,000; that is hardly attractive.

16538. We were told by another witness that that limit is only to be imposed so long as the movement is in the experimental stage. Is that also your view?—Yes, but even to begin with it ought to be something higher than that.

16539. At what rate are these land mortgage banks borrowing their money?—They are borrowing at 7 per cent. from outsiders and 6½ per cent. from the Government.

16540. And they are lending at what rate?—9 per cent.

16541. Is it your view that they could not obtain their money more cheaply than 6½ per cent.—Not if the primary banks raise the debentures; but if a central agency like our bank raised the debentures we should certainly be able to raise money at 6½ per cent. or 6 per cent.

16542. The primary banks have not the same hold on the public?—No.

16543. What is it that makes such an apparently attractive offer as 6½ and 7 per cent. on mortgage unattractive in practice?—Because the money-lenders can lend at 8 or 9 per cent. in the villages on mortgages.

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16544. We sometimes see a phrase "adapting the indigenous system of banking to modern requirements". Does that mean screwing up the rate of interest of modern banks a couple of points or what does it mean exactly?—I do not know what is at the back of it.

16545. Do you know what those words mean at all?—I do not.

16546. "Adapting the indigenous system of banking to present day requirements"; what is the indigenous system of banking?—The indigenous system of banking here is ordinary moneylending; or differs very little from it.

16547. I take it your hope would be, if the co-operative movement spread sufficiently, that you would so reduce the rates of interest enjoyed by the ordinary commercial moneylender that his credit and cash resources would be available for business through the land mortgage banks?—Yes, I do expect that.

16548. That is what the ultimate effect of your movement will be if it succeeds?—Yes; and I am told that in some places it has already had that effect.

16549. So that to that extent, you are adapting the indigenous system of banking to modern requirements?—Yes, in a sense.

16550. But I do not get very much enlightenment from you as to what these people mean when they use that phrase 'the indigenous system'?—Moneylending by the *sowcar* is the only indigenous system; there is really no scientific method of banking at all.

16551. It is just possible that some people who use the words do not themselves understand them?—May not, I cannot speak for them.

16552. I do not know whether you heard the evidence given before the Commission this morning?—No, I came after lunch.

16553. Is it your view, as representing the Union, that more might be done in the way of using the co-operative organisation throughout the country for the purpose of propaganda and demonstration, and the distribution of seeds of better varieties, and so on?—Yes, a great deal can be done.

16554. A great deal more than is being done?—Yes.

16555. Is there that sympathetic and active touch between the Agricultural Department and the Co-operative Department that there ought to be?—No, that is one of my points in the memorandum.

16556. Is it your idea that your own body might take a more active part in extending the usefulness of the co-operative movement?—We are anxious to do it, but we are handicapped for want of resources.

16557. That brings me to the question of funds; Would you tell the Commission exactly what the funds at your disposal are?—So far as State aid is concerned we get nothing at all, except a grant of Rs. 1,200 for a training class in the city; that is the only help we get. It is earmarked for the purpose, and we spend it for that purpose. The only other source of income is the contributions of these unions and central banks, and the sale of our bulletins. We have an annual income of about Rs. 10,000.

16558. That is not enough for your purpose?—Not at all. We are making our Union live more by selling our publications at a higher cost and making something out of it.

16559. You are trying to eke out a difficult existence by selling your literature at higher rates than you would wish to do if you had the funds?—Yes.

16560. To what source do you look for an increase in your revenue?—We have a claim on the State, in the first instance, probably for a larger grant as in the case of Bombay. Secondly, when all the unions are affiliated to us, we expect a larger income from them, because each union will contribute its share; so that with the increase in the affiliation fees, we are bound to get a little more income.

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16561. Has any suggestion ever been put forward for grouping the Unions in various Presidencies and Provinces as an All-India organisation, for the purpose of interchange of information?—Yes, it has been put forward.

16562. Have you an All-India organisation?—No.

16563. Do you think it would be a good thing to have it?—Yes. The Bombay Institute asked our opinion about it, and we have supported the scheme for an All-India Institute.

16564. On page 680, you summarise the reforms you suggest for improving the economic and social conditions of the rural population; Your first suggestion is "The re-organisation of the departments connected with agriculture and labour?"—And also Co-operation.

16565. That would be by way of having a greater degree of co-ordination between those departments?—Yes. We want not merely co-ordination but also amalgamation as regards the propaganda work. On page 676, we have put our ideas in a short compass. I shall read out from there. "We would also propose that those sections of the Agricultural and Industries Departments which have to popularise a knowledge of improvements and organise the ryots for agriculture and small industries should be amalgamated with the Co-operative Department. We recognise that the research and educational sections of the Agricultural Department should be under an Agricultural Director. But the work of popularising improved methods in ryotwari areas cannot be divorced from that of the Co-operative Department. We recognise that the research and educational sections and the promotion of large industrial concerns should be under the Industries Department. But the organisation and revival of small rural industries cannot be divorced from the work of the Co-operative Department. We would therefore propose that the Registrar should have two experts under him, one an Agricultural Organiser and the other an Industrial Organiser. The Deputy Registrars should be University men in Rural Economics, trained in the College of Agriculture." That is the gist of it.

16566. That would be an organisation super-imposed upon the normal departmental work; you would not suggest any amalgamation of the financial functions of these several departments?—Our idea is this: while the research and technical knowledge may be left to the departmental heads, the man who popularises these ideas must combine in himself all the functions; he must be the organiser, and the developing and organising must be in his own hands.

16567. On page 680, under sub-heading (iii), you say.—"Scope for the educated classes to come into the co-operative movement and work for the masses, by a broadening of the constitution of Central Co-operative Societies". Is it really your view that the educated classes will come forward if they are given this opportunity?—Yes, they will. Some of them are already there; but I can say that if we take the constitution of the co-operative movement, there is not much provision for the educated classes to come in. Of course, it is a perfectly logical idea; if you take the local union, the local union consists purely of the representatives of societies, but if you want effective propaganda or effective supervision you do require the co-operation of the educated classes in the urban localities in that area, but they cannot come in because the union is purely of a federal type. If you take the next institution above it, the District Federation, there also the individual has no place; in fact, the by-law has been so framed that the individual cannot have a large place in it. If you take the Provincial Union, the same is the constitution, and unless these constitutions are broadened, giving a large place to the educated classes, it is not possible to expect effective propaganda and effective supervision in this country.

16568. If we assume a typical rural credit society, situated within reasonable and convenient distance of a large urban centre, how would you suggest fitting in your educated three or four or half a dozen men into that society? What place would you give them in the primary society? That is where their assistance is needed?—Yes, and in the Supervising Unions also.

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16569. In the primary society, would you bring them in as ordinary members?—Yes, as honorary members. In some way or other they must be allowed to come in.

16570. I take it they would take a few shares and come in?—Yes. But the difficulty will be the territorial qualification. Supposing a man belonging to a particular village is a school-master or lawyer, living outside the area, he cannot be admitted as a member under the rules.

16571. How about the villagers' opinion on this point? Because, after all, that is the most important matter of all. Would they welcome the presence of the two or three or half a dozen educated persons from the towns?—I should think so; they want guidance and assistance, and they would welcome them.

16572. You do not think they would be inclined to regard such invasion with some suspicion?—No. After all, so far as the men who conduct the primary societies are concerned, we cannot say that in every village it is the ryot who does it; it is done by the village school-master or the agent of some landlord, and they have no community of interest with the agriculturists at all.

16573. These gentlemen would stand to the agriculturists in the village very much as the urban well-wisher who would be inclined to give his services, the only difference being that they are known personally to the ryots in the first case, but in the second case they are not so well-known?—Yes, but the latter would be more useful having generally a wider civic outlook.

16574. I observe that you suggest that State aid for mortgage banks should take the form both of guaranteeing the interest on mortgages and of an advance of capital?—Yes.

16575. Do you think that the guaranteeing by the State of the interest would overcome the public reluctance to lend money to the mortgage banks?—To some extent it would; in fact, I find a passage in the Maclagan Committee's Report to this effect.

16576. I suppose most of these land mortgage banks are situated in more or less populous neighbourhoods, usually in country towns?—4 of them are in rural areas and 1 is in Mangalore.

16577. Let us take the one in Mangalore for the moment; it is offering its debentures to the public at 7 per cent.?—Yes.

16578. Take the ordinary shopkeeper, who is making something out of his business; I suppose he puts most of his surplus profits back into his business?—Yes.

16579. That type of person does not lend money?—Not ordinarily.

16580. Is there much liquid capital in urban communities of that sort available for investment?—No, excepting the professional moneylenders; the merchants do not lend.

16581. Do the merchants hoard currency to any great extent?—Not many of them; very few.

16582. They reinvest their profits in their own business?—Yes.

16583. So that in the ordinary Indian town, there really is very little money available for investment in this class of security from sources other than the ordinary moneylenders?—I should think so, unless these debentures which are floated by some of these banks are negotiable in the market as freely as other securities so that they can get back the money whenever they want it.

16584. That is why you suggest that they should be made trust securities?—Yes, I am asking trust moneys to be invested also.

16585. *Sir Ganga Ram*: When you talk of lending and borrowing, does it carry simple interest or compound interest?—Simple interest, so far as the Central Bank is concerned.

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16586. Without any limit? Supposing you lend me a lakh of rupees at 3 per cent., how would you recover the amount?—We have got the instalment system.

16587. And supposing one instalment is not paid, will you not charge compound interest?—We do levy a penalty.

16588. What is your limit of compound interest, six-monthly or yearly?—Six-monthly penalty.

16589. You know that the Government rate of 5 per cent. implies compound interest after six months?—Yes.

16590. *The Chairman*: I should like to clear up just one point. In the event of a particular borrower on mortgage failing in part or in whole to pay his instalment, does it mean that the lender on that particular mortgage suffers to that extent?—No.

16591. The absolute guarantee for the capital is on that particular mortgage?—Yes.

16592. There is no collective security on a series of mortgage, but the bank pays the 7 per cent. and the capital is secured by the mortgage?—Yes.

16593. So there is no question of any reduction in the amount of interest paid, consequent upon the bank being in temporary difficulty, or anything of that sort?—No; we are only lending to the extent of 50 per cent. of the value of the property, and it is fully secured.

16594. *Sir Thomas Middleton*: Does the Provincial Co-operative Union do a large amount of propagandist work?—Yes, a fairly large amount.

16595. And advisory work?—Yes.

16596. Which of these two classes of work do you give most attention to?—Propaganda.

16597. You say that your income is partly derived from affiliation fees?—Yes.

16598. How is the affiliation fee settled?—Is it per head of membership of the affiliated society or on the turnover of the affiliated society?—It is Rs. 5 for each of the local unions every year, and for each Central Bank it depends on the working capital, not exceeding a maximum of Rs. 25.

16599. It is a variable arrangement for different institutions?—Yes.

16600. Have you much trouble in collecting the affiliation fees?—No.

16601. Do they pay quite regularly?—Yes.

16602. You have no cases of unions coming in for a few years and then dropping out?—No, it is very rare. We had such cases; now we realise the fees by the V.P.P. system, we send them one of our publications and realise the full amount.

A very useful expedient.

16603. *Dr. Hyder*: On page 673 you say, "The high incidence of land revenue in the deltaic areas of the Tanjore district also operates as a cause for the increase of indebtedness." Are you thinking of the incidence per acre?—Yes.

16604. What is the incidence per acre?—I have got a table here which gives the details; the Resettlement Report for the Tanjore district for the year 1922 gives the rates, the Government *kists* for every year and the margin left to the ryot.

16605. What is the rate per acre?—For the first *taram* the Government rent is Rs. 16-10-0, and the margin left to the ryot is Rs. 31. For the second *taram* the Government rent is Rs. 14, and the margin left is Rs. 26. So it is one-half practically. The Government rent comes to about 50 per cent. of the net income of the ryot.

16606. Are you thinking of the incidence per acre? I have a report before me which shows the incidence per acre for wet and dry lands. The incidence per acre is Rs. 5 in Tanjore district; it gives the figures for a number of years. The incidence in the year 1909 was Rs. 5 per acre?—But the incidence is not that; it is Rs. 16-10-0 for first quality land.

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16607. You are thinking of the first quality, and you have picked out Tanjore, where the incidence happens to be very high as compared with the other districts, the Tanjore district is a very rich district, but the incidence in regard to others is Rs. 5. Do you think that that amount is very high?—Yes.

16608. What is the gross yield per acre?—May I point out that in the memorandum we say “the incidence of land revenue in deltaic areas of Tanjore district.” We have confined ourselves to that, and we have not referred to all the districts. We know it is particularly high in Tanjore. That is why we have put it like that.

16609. But my point is that that deltaic area of Tanjore is also very rich?—Yes.

16610. If one were to compare land revenue to the total yield per acre, one would get an idea?—Yes, and hence we say it is high.

16611. Proceeding, you say a little below that here there is insufficient rainfall. Then you say that the prices of the commercial crops fell suddenly, etc. That might operate as a cause?—Yes.

16612. But how does this happen? Do both of them happen simultaneously?—Sometimes they happen simultaneously and sometimes not.

16613. How? If there is a failure of the rain, there will not be so much produce and consequently the farmer in Tanjore would not be in the expectation of getting plenty. The prices would naturally rise?—The conditions of the market do not depend merely upon the local produce.

16614. The local markets, central markets and the world market are all linked up together, are they not, nowadays?—Yes.

16615. I do not understand, if there is a failure of the local harvest, how the price of the local crops goes down?—I will take a concrete example. In parts of the Coimbatore district, for the past two or three years there have been no rains. As a result, the ryots have been suffering. At the same time, the fall in the price of turmeric, cotton, etc., has also affected the ryot.

16616. On page 674 of your evidence, you say “The State should also invest in the Mortgage Banks monies lying in deposit with it at little or no interest.” What monies are you referring to?—I am thinking of monies like the deposits with insurance companies. A lot of money is available like that and there are also other sources. In the Maclagan Committee report they refer to the security money tendered by Government servants, etc.

16617. You are not thinking of the savings banks money, etc.?—No.

16618. In item (4) you say that the Government should contribute to the cost of an Inspector for inspecting and valuing lands and assessing the credit of borrowers. Does this happen in other parts of the world, that the State pays the charges of such an Inspector?—In fact it is now paying by taking debentures of the existing primary mortgage banks in this Presidency at half per cent. less. It is a contribution to the cost of inspection. It seems to exist, because I have read that in many countries the cost of inspection is contributed to by the State.

16619. I think you are invoking the principle of State aid; the principle of State aid is observed on the continent of Europe?—Yes.

I am not sure but so far as I remember the whole of this is paid by the banks themselves.

16620. Now I ask you to turn to page 680 where you say you would like the educated classes to come into the co-operative movement; in answering the Chairman you said that you would like to broaden the local franchise of primary societies?—Not of societies. Those societies are business institutions. We mean the supervisory and propaganda bodies.

16621. You are not referring to primary societies?—No, they can come into the societies by taking shares.

16622. Are these supervising societies affiliated to your union?—Certainly.

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16623. What number of societies would you fix for supervising?—At present it is something between 20 and 30. It depends upon so many factors. For instance, I would have said about 15 societies two years ago when we had no motor cars; but the interior is now opened up by motor cars; everything depends upon proper communications and good roads.

16624. In regard to the average number of societies allotted to a Supervising Union, you say North Arcot 24, South Arcot 25, etc. Is not that too large a number?—No, I do not think 30 is too large a number.

16625. You do not think 25 would be a safer number?—Anything between 20 and 30 will do.

16626. *The Raja of Parlakimedi*: Your work consists of propaganda and advice?—Yes.

16627. May I know whether you approach the villager direct?—Sometimes we go to societies themselves, and sometimes the unions may hold meetings of the general body.

16628. Are villagers invited to those meetings?—Generally what we do is, we go and attend the general body meetings of the banks or unions where they all gather.

16629. Practically everybody is interested in attending such meetings?—Such of them as take interest do attend.

16630. Do you carry on your work in the vernacular?—Yes.

16631. As regards advice, what subjects do you deal with? Do you deal with the general prosperity of agriculture or simply confine yourself to banking?—Mostly co-operation.

16632. Do you not extend co-operation to improvement of cultivation and marketing?—Certainly, sometimes we do, but very much with regard to the way in which the working of the society should be run, how to take loans, etc., and with regard to the management of the society itself.

16633. You do not take up the general subject of prosperity?—We do, but not to such a large extent as to deserve any mention.

16634. Taking such opportunities, do you also talk to them about sanitation and education?—Yes. I have been to the south recently, and I spoke about co-operative education, sanitation, etc.

16635. *Sir James MacKenna*: You are Chairman of the Madras Central Urban Bank Ltd.?—Yes.

16636. What is the administration of that bank? How are its affairs managed?—By a general body and by their representatives. There is an executive committee consisting of the President, Vice-President and seven other members elected by the board of management. The Board of Directors consists of representatives of each of these banks and five individual shareholders.

16637. A big board?—Yes, of about 36.

16638. *The Chairman*: Is any salary attached to the directorship?—We get a sitting fee of Rs. 10 per sitting and our travelling allowance.

16639. *Sir James MacKenna*: The Board of Directors is 36 in number? Are they responsible for the whole management of the bank?—Yes.

16640. Where does the Registrar of Co-operative Societies come in?—He does not come in anywhere, except for tendering advice.

16641. Does he tender advice of his own accord or on your asking for it?—Sometimes this and sometimes that.

16642. Otherwise, you are perfectly autonomous?—Yes.

16643. You are in such a good position that you can borrow from the public at 4½ per cent?—4 per cent now.

16644. What dividend do you pay?—Fixed statutorily at 9 per cent.

16645. Limited to 9 per cent?—Yes.

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16646. Could you let us have a balance sheet for last year?—Yes, we will send you one.

16647. That balance sheet is not audited by the chartered accountants?—Yes, it is.

16648. That is done by qualified auditors?—Yes.

16649. You are in the happy position of having too much money, *i.e.*, you do not know what to do with it?—Yes.

16650. Have you considered the possibility of a Central Co-operative Clearing Bank for the whole of India? As many instances of difference in the supply and demand of money occur according to seasons, it may happen that while Madras rejoices in an excess of riches, the other Provinces will be glad to have the advantage of some of your surplus money?—I was told the subject was discussed at a meeting of the Provincial Banks; but the idea was not approved.

16651. There may be a difficulty about the rates of interest; for instance, you can borrow at 4 per cent, but Burma would have to pay 7 per cent or 8 per cent; but what is your idea?—Personally I would favour that idea of an All-India bank.

16652. I think it is more attractive than feasible?—I also think so.

16653. What is the rule that limits the scope for the educated classes to take an interest?—Because these institutions are on a federated scale, with unions consisting of representatives of societies, the village society consisting of a few village people who want loans and the management of the unions consisting of representatives of these bodies. Educated men cannot come in by themselves; they can come in only through the societies. Generally, the educated man does not join the society because there is no need for him to join. After all, only one can come in through the urban bank affiliated to the local unions.

16654. Only one representative?—Yes, and that too is very difficult because he must have the territorial residence qualification. We have a bye-law in the District Federation that only a representative of the local union should be the Secretary. So that restricts the scope for getting the best men for the District Federation. For instance, if the District Federation general body is permitted to select any Secretary it likes from the members, it may select a man who is in the town; but the union must have only one representative and you have only one union at the headquarters. So the effect of that bye-law is that the town union representative will become the *ex-officio* Secretary of the Federation so long as it lasts. That will be the effect of it.

16655. Taking your note generally, I find you lay great emphasis on the value of non-official efforts in all progressive rural reconstruction?—We do.

16656. May I ask you whether in general you notice any increase in the desire among young Indians to devote their energies to this line of rural and general social uplift?—(Mr. K. G. Sivaswami): As far as I have seen I have known many young men do take interest in the work. I am a member of the Servants of India Society and we started some flood relief work in Tanjore and Trichinopoly in 1924-25. We got any number of local people to work for these things. It is not even for a short time, for a month or two, but for a year or more. There are Professors in some colleges who do this work. Their salary is Rs. 100 to Rs. 150 a month, but they have to meet their out-of-pocket expenses themselves when they take up social work.

16657. You really think there is a marked improvement with regard to interest in social and rural reconstruction?—There is and it is growing.

16658. Professor Gangulee: With regard to Sir James MacKenna's question regarding non-official assistance, are you of opinion that the non-official helpers in this Presidency have any practical experience on the ground floor of co-operative structure?—Some of them have.

16659. Do they understand the co-operative movement and principles?—They do.

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16660. Where do they get training?—They observe the societies working in their midst. In these local unions a few get their training.

16661. Have you any system of propaganda?—Yes; we parcel out the Presidency amongst ourselves and our members go out regularly and we have organised some rural training classes where we do some work.

16662. Do you concentrate in any particular centre or diffuse your activities throughout the Presidency?—More or less diffused.

16663. No concentration?—Not much.

16664. You will perhaps agree with me that co-operation is a form of self-help and the credit really in co-operative movement is character. Do you find any improvement in that direction?—There has been since the movement has started and it is greater now.

16665. Now, can you tell us whether the co-operative societies or yourself carry on effective educational work to educate the primary society which is the basis of the co-operative movement?—That is the weakest point in our organisation. We have not been doing it satisfactorily.

16666. And you realise that is a very fundamental point?—I realise that all our difficulties are due to the want of education in primary societies.

16667. You cannot possibly hope to raise the structure of the co-operative organisation unless you have that basis righted?—I quite agree.

16668. Turning to your idea of a mortgage bank, you have, I understand, two land mortgage banks in this Presidency?—Five.

16669. Two working?—Yes, two working.

16670. Now have you followed the working of those two banks?—To some extent, yes.

16671. Their success suggests further extension?—I do not think so; not on those lines. They have not succeeded at all. I think they have completely failed; that is my view.

16672. Have you any alternative suggestion to offer as to how to improve them?—Yes; my suggestion is that the business of raising debentures ought to be entrusted to a centralised body like the Madras Central Urban Bank or any other centralised Bank which can command cheap credit and which can sell debentures at a lower rate of interest and command the confidence of the public and then lend money to the primary banks or any other banks.

16673. You are the President of the Madras Central Urban Bank?—Yes.

16674. The Madras Central Urban Bank can help such a scheme of land mortgage banks?—I am decidedly of opinion that it can.

16675. Can you tell the Commission briefly the direction in which you can help?—We can raise debentures at 5½ per cent; that is my hope and we certainly need not go beyond 6 per cent. At present we raise money at 4 per cent. Therefore we should be able to raise debentures at 5 or 5½ per cent and even if you lend at 7 per cent, it will leave a margin of 2 per cent, a thing which is impossible if the business is undertaken by the primary banks.

16676. On page 676, with regard to the local unions you say. "The one is the inherent weakness of Local Unions, and the second is the absence of any defined relationship of those bodies to agricultural officers." What is the inherent weakness you are referring to?—These unions are unable effectively to supervise the societies and the Supervisors they appoint are men without any training; therefore they are not able either to educate or to supervise the primary societies.

16677. How would you train these people? Have you any suggestions?—At present we give them a short course of lectures extending to 2 or 3 months and that is all the education that they get and the scheme of training all the supervisions is not complete. The pay is not sufficient to attract men of character and ability; that is our difficulty.

16678. In that way you hope to solve the first problem, the inherent weakness of your local unions. The second problem, you say, is the absence of any defined relationship of these bodies to agricultural officers, what do you really

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mean by that?—All that we want is that the agricultural officer should make the voluntary organisations the field of his operations; he must go to them; he must educate them; through them he must carry on propaganda.

16679. When you say "agricultural officers" whom have you in view?—The Deputy Director and the Demonstrator. If he takes the voluntary organisations into his confidence and works through them he can achieve much more than he can personally.

16680. Do you suggest that at present there is no such co-operation between the non-official agencies and the Department of Agriculture?—I do suggest that.

16681. Have you made that point clear to the Director of Agriculture at any time?—Yes; whenever I went out to the mofussil I always invoked the aid of the Deputy Director of Agriculture; he used to come with me for the propaganda work. He himself felt the necessity for greater co-ordination.

16682. But nothing has come out of your interviews?—Except that it makes him take more interest in these things.

16683. Who are the members of these local unions?—They are the representatives of the societies.

16684. What educational qualifications have they?—They may be able to administer their village society to write their accounts, but not be able to build up the leadership in the area. That is why we say that the better educated people should also have a place in these local unions.

16685. How are you going to create that leadership, that rural leadership that you are aiming at? Have you any definite proposal to make?—The leadership has to be created by association of the better class and better-minded people with those whose average is lower, and for that the constitution should provide scope.

16686. Just one more question; on page 16 you give an Appendix* in which you give us very interesting analysis of the extent of the indebtedness of the Tanjore district and you make that extract from the Resettlement Report of 1922. Now what conclusions would you draw from the analysis that you present before us?—The conclusions are that the indebted *pattadars* are indebted to the extent of nearly the whole of their property and in the case of those people nothing but credit for a very long term at a low rate of interest will be able to save them.

16687. Just look at item No. 8; you find that the percentage of indebted *pattadars* is 44 in the delta and 65 in the uplands. Let us take the delta which is marked more rich; then the average extent owned by indebted *pattadars* is $1\frac{1}{2}$ acres. So do you think a long term credit can in any way redeem these people?—Yes; if it is sufficiently long and the interest is sufficiently low, some of them may be redeemed.

16688. Mr. Calvert has just gone out and has left a few questions with me to be put to you. In your union meetings is the business transacted in English or vernacular?—In English necessarily because our union representatives come from various language areas. But if it is a general body meeting it is mostly in vernacular.

16689. Are the representatives attending actual cultivators who plough the land themselves?—Some of them are and some are not.

16690. Do these people possess the majority of votes on all important matters?—They do.

16691. *Mr. Kamat*: Mr. Ramdas, you said that you had very little State aid for your Provincial Union. Are you conversant with the state of things in Bombay about the Provincial Co-operative Union?—Not fully; but I am told that they get more than Rs. 14,000 per annum.

16692. You are familiar, Mr. Sivaswami, as a Member of the Servants of India Society with the conditions in Bombay?—(*Mr. Sivaswami*): I am a little familiar.

* Not printed: Appendix to the memorandum of the Madras Co-operative Union.

16693. As far as I know they get rupee for a rupee?—Yes, up to a maximum of Rs. 50,000.

16694. I am not quite sure; but I think it is more?—I do not know.

16695. Your Madras Government here are rather niggardly in helping your Union?—They do not help us at all.

16696. Then in the matter of this bye-law to which you referred, shutting out the help of non-official educated men, you know also the Bombay conditions, I suppose?—Yes.

16697. You know there are educated men, college professors and others who help the movement?—Yes.

16698. And some of them serve on a pittance of Rs. 100 a month, and anxious to do public service in various spheres, they take an active part in the co-operative movement?—Yes; I know many.

16699. Therefore I wonder whether you have sufficiently agitated in this Presidency to remove that embargo against educated men?—We have been agitating without effect; the fact is that there was a conference in March last, and almost the whole Conference suggested that there should be larger inclusion of individuals. But in spite of that conference the bye-law was changed in these District Federations (which are similar to your district branches in Bombay) not permitting these individuals to have a larger place.

16700. You know, for instance, that in the Fergusson College, practically all the college professors make it a point to join the village unions, municipalities and co-operative bodies?—Each one is interested in a village society.

16701. And he does not speak of public administration unless he had personal acquaintance with the working of these bodies?—Certainly.

16702. Is there any rule that there should be the fullest liberty to take part in propaganda although there may be restriction on joining as members of co-operative societies?—What we say is we do not want the institution to be swamped by educated men but utilise them as much as we can by giving a place for them.

16703. I want to know whether you are quite definite on that point. The college professors in Bombay Presidency are allowed to take part in propaganda; but perhaps there may be a restriction so as not to allow them to join as members of the primary societies; but so far as propaganda work is concerned, their help is not shut out. Have you agitated for that aspect of it here?—Here the colleges do not prohibit the lecturers and others.

16704. Not the colleges, but the department responsible for co-operative movement?—We have sufficiently indicated it even in the recent Provincial Conference.

16705. I want to know something about your training classes and the system you have under your Provincial Union. Have you got regular classes which you arrange?—Yes.

16706. Or is it the department?—No; we arrange a class for three months in the year in the city, from October to December. It is going on now.

16707. So that when you complained that there was paucity of men in the Supervision Unions, probably what you meant was enough people could not be brought to the training classes?—They could not be brought to the city. We want them in the rural training classes.

16708. The difficulty is to get the men in the rural areas?—Yes.

16709. About your land mortgage banks. From your account, it seems the experimental banks now being run are nothing but primary societies glorified under the name of land mortgage banks?—They are a mere apology for land mortgage banks.

16710. On page 674 you say: "We consider that the existing Central and Provincial Banks are eminently fitted to undertake mortgage banking as they already command sufficient influence and confidence among the public." Do you think you can command sufficient resources to tackle this problem?—Yes,

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most certainly, provided the interest on the debentures is guaranteed by the State and the debentures are made trust securities.

16711. Provided that is done?—Yes.

16712. That is to say, you will not require additional resources to be placed at your disposal by Government from money in the savings bank or elsewhere?—So far as the Madras Central Urban Bank is concerned we do not think a guarantee from the State is necessary. We can raise it ourselves.

16713. What about the successful management of this business? How can you investigate the titles to, and encumbrances on, the land if the matter is left to you?—The State must either lend the services of trained men or pay for it.

16714. It is a matter of knowledge of law?—We want people of the Deputy Collector's or Tahsildar's grade or lawyers to investigate these.

16715. You mean if the work is entrusted to you, Government should give you the aid of legal men in the matter of investigating titles?—Yes, either in the shape of men or money.

16716. If money is granted to you, you will take the risk of investigating the titles to land and the previous encumbrances thereon?—We shall.

16717. On this question of adult education by non-official agency, in another Province a suggestion was made that something like a "Servants of Rural India Society" could do a good deal of this sort of non-official work in the matter of village reconstruction and social work among the villagers. Do you think in your Province an agency like that will come forward to work efficiently for adult education, medical aid or improvement of other amenities in villages?—I think the Provincial Union may be converted into a body of that sort instead of multiplying agencies.

16718. But the Provincial Union has a definite function; it has not got the function at present of that wider social welfare work which will be done by the society to which I have referred?—It is within the purview of our functions, but we have not undertaken it because there are no funds.

16719. Have you enough of public spirit in the Presidency or enough of public workers to carry on this sort of work?—Yes; I am very hopeful.

16720. I quite appreciate your idea that such sort of work should be undertaken pre-eminently by non-official agency, but I want to be clear that you have the material in this Presidency for undertaking it?—I am absolutely certain that we have.

16721. I want to know whether your Union is conducting anything in the nature of sales societies or shops for the sale of agricultural produce?—You mean a bank?

16722. I mean a bank?—As you are having in Bombay?

16723. In Baramati or Kolhapur?—No. That line of work has been attempted here by three industrial societies, one at Shiyali, one at Tindivanam and another at Kallakkurichi. The one at Shiyali has been liquidated, the one at Tindivanam has been making losses for the past many years; the one at Kallakkurichi is making a bare profit. The fact is we begin from the bottom; we have to register these societies and then federate them. Instead of that if the Central Bank opens a branch and maintains a shop and takes up the work we will have more efficient service for these rural areas.

16724. This morning we were told that the Kallakkurichi society is showing some profit?—Yes; but an Inspector is lent free to it, and if you deduct his salary it is not giving even 4 or 4½ per cent dividend on the share capital.

16725. So you consider the sales societies supervised by the Co-operative Department to be failures?—Yes.

16726. If non-official men, honorary organisers, were to look after these, as they do in Bombay, do you think they would be more successful?—In regard to that point, we have an example of such a society at Nidamangalam. There is a gentleman there who takes immense interest in it and goes from place to

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place. Although his society has not extensive transactions it is making a profit every year, because he is a non-official propagandist himself.

16727. Does he combine with business knowledge, which is necessary for conducting a sales society, the influence to counteract the competition from vested interests?—No. That is why we say that whenever these societies are started they should be started by central institutions which command the services of influential men in the district or provincial towns, institutions which will command, in short, brains, capacity and influence.

16728. I am asking you specifically this question because my experience either as a liquidator of co-operative societies or as a supporter was this: unless you have a man thoroughly competent to manage, knowing the trade which the sales society is engaged in, and able to counteract the influence of competition by vested interests, such a society suffers. Have you got such men to conduct them? Take the jaggery trade, for example; the man must know the trade and he must know who are competing and how to counteract that competition?—I think such men will come only by working the societies.

16729. So, you are in favour of enlisting non-official agency for conducting even sales societies?—Yes.

16730. You refer to the Irrigation Department and the promotion of labour unions. Are you conversant with labour unions?—I am conversant with one labour union in the Tanjore district. The whole trouble in regard to this union arose in this way; the Local Boards do not view it with sympathy because when the work is done through the District Board, and through their officer, it might get in a larger profit; the Public Works Department do not view it with sympathy because they think that the Co-operative Department has come as an enemy to appropriate the kind of work which is done by the contractors over whom they have got a large influence. Apart from these two, there is the vested interest of the contractors. Now take a labour union; we take the services of the very same contractor; he works in the labour union this year; and next year he leaves the labour union and takes the tender himself.

16731. Have you considered what could be done in villages for the improvement of village sites, clearing of cactus, repair of roads by organisation of labour on a purely voluntary basis; that is, the villagers will contribute labour and will not be put to out-of-pocket expenses? Could you make labour unions a success in that line and show them what kind of work on a voluntary basis could be done in villages?—The village panchayats have been taking up some work like these, repair of tanks and roads, whenever the Collector has been willing to give such work. I know that the Collector of Ramnad, Mr. Ramamurthi, used to transfer such works to village panchayats, and they were done very efficiently by them. The handing over of these minor works to the village panchayats has to be done by the Local Board or the District Collector.

16732. You make a suggestion that the portfolio of Labour should not be a reserved subject, but should be transferred to the Minister for Agriculture. Are you quite emphatic on that point?—Yes.

16733. You think there will be no clash of interest?—I do not think so.

16734. *Rao Bahadur Muniswami Nayudu*: At page 676 of your note of evidence you say: "But the work of popularising improved methods in ryotwari areas cannot be divorced from that of the Co-operative Department." You use the word "ryotwari"; do you use it advisedly as distinguish from zamindari areas?—No, I use it collectively.

16735. You mean nothing whatever by it?—Nothing whatever.

16736. With regard to the Taluk Development Associations; are you familiar with the working of such associations in the Bombay Presidency?—Yes.

16737. Do you think such associations can be of use in this Presidency also?—Yes.

16738. You contemplate the present Supervising Unions being converted into something like Taluk Development Associations. One union now supervises about 30 societies within a radius of 7 or 10 miles; but the Taluk

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Development Association will have a much larger area. Do you contemplate extending the area of Supervising Unions corresponding nearly to the taluk, or do you contemplate Taluk Development Associations corresponding to the area of the Supervising Unions?—Corresponding to the area of Supervising Unions.

16739. That would mean bringing into being a very large number of associations of that size?—The improvement we suggest is that the jurisdiction should be increased.

16740. That is, more than 30 societies will be taken up by one Supervising Union?—Yes.

16741. Would you contemplate Supervising Unions having an area as large as that of a taluka?—That depends upon the availability of men in the area.

16742. Your scheme can fructify only if there is support?—Certainly.

16743. From outside bodies like the Government and the Taluk Boards?—Yes.

16744. Then you refer to the question of the educated classes not being brought in. Let me take you step by step. Do you contemplate the admission of educated classes as such into primary societies?—I do not understand what "as such" means.

16745. If a village society is started, do you want any urban educated members in that society?—They must join as ordinary members.

16746. Do you want the educated classes, the people living outside that village, to be members of the society?—Under the by-law, they must be residents of the village.

16747. Do you propose that the by-laws should be amended so as to admit of educated classes living outside the village to become members of the village society?—If they belong to the village but are not actually residing in the village but in an urban area, they must be allowed to do so.

16748. You want the educated classes who have some interest in the village, but for some reasons are living elsewhere to be admitted to such societies?—Yes.

16749. Do you expect that those educated people who, for some reason or other, are temporarily residing elsewhere, would take a strong interest in the management of the primary society?—If they take sufficient interest, it would be an advantage to the society, because they have got the necessary equipment.

16750. The members of the managing committee or the Secretary are elected members; do you expect a non-resident educated member of that village to be elected as Secretary, to carry on the day to day duties?—Not as Secretary.

16751. He will be only on the governing body?—Yes.

16752. He will not be available on any occasion except when he is able to come down to his village? Supposing a man is not a resident of the village, but is living miles away, what would be the position?—I am not contemplating cases where a man lives far away.

16753. You would restrict admission to such of the educated classes who live within a reasonable distance, and not too far away?—Yes, to those who live at a convenient distance; but it is more intended for the propaganda bodies. While I advocate this, I have mainly intended it for the propaganda bodies being enlarged.

16754. With regard to Supervising Unions, is there any rule now prohibiting an educated member of that locality from being a member of a society there and becoming thereby a member of the Supervising Union?—He can come through the society.

16755. If the amendment you propose is accepted, then there will be a chance for him to come on to the Supervising Union?—That gives only one representative; I want more educated men on the Supervising Union.

16756. What is the method of recruitment of these people to the Supervising Union?—The right of co-option may be given to the Supervising Union.

16757. To co-opt outsiders?—Yes.

Hon'ble Mr. V. Ramdas and Mr. K. G. Sivaswami.

16758. Would you also place some restriction as to the distance at which they should reside; would you say that they should live at a reasonable distance?—Fix a convenient limit; I would leave it to the Registrar. If there are workers in an area, let them have the scope to come into it; that is all.

16759. Supposing they are elected, and they have got the scope, how do you expect their co-operation; is it by taking up propaganda?—Yes; they should visit the societies, inspect the societies, and so on.

16760. As a member or as secretary, according to the wishes of the governing body?—As the general body chooses; as secretary or in any manner they want him.

16761. Do you contemplate any payment to the people for the work they do?—No.

16762. If these Supervising Unions are given the functions which you are referring to, and if the constitution continues as now, is there anything which would prevent, or which you contemplate would prevent, them requesting the educated classes to do honorary work by way of giving lectures or doing any other propaganda work?—They have no place in the constitution.

16763. You therefore think that unless they are members of, or find a place in, the governing body, they will have no interest in going there?—Yes.

16764. Honorary work would not be a sufficient incentive for them to take it up?—When they have no place in it, it is not humanly possible for them to take an interest in an institution.

(The witnesses withdrew.)

Mr. A. RANGANATHA MUDALIYAR, M.L.C., Madras.

Replies to the Questionnaire.

QUESTION 1.—RESEARCH.—(a) (i). The indigenous methods of agriculture are the results of long experience. The scientific value of different operations is not fully known as yet. Research is needed to find out this. With this information and with the knowledge of modern agricultural practices of other countries our indigenous methods might be adopted and improved to give better results.

No single research institute can undertake this kind of work for a whole Province, since the conditions vary from place to place. The Province should be divided into areas of more or less similar conditions and a research institute established for each as funds permit.

Every attempt must be made to have these institutes manned by competent Indians and if no research experts are available promising Indian officers and students ought to be sent abroad for training and return.

I am not for the employment of foreign agencies for I find from experience that many of the officers recruited abroad treat India as a training ground and avail themselves of an early opportunity to secure other appointments elsewhere. I must not be understood to blame them for doing so. Further, even if they serve their full term in India and retire, the country loses the fruits of their ripe experience.

As regards finance, there is no doubt that a good deal of money will be needed not only for research work but also for other measures calculated to develop the agricultural industry of the country, and after all I do not see why a good slice of the revenue derived from land should not be devoted for these purposes. The administrative machinery on the land revenue side is fairly well organised and does not need any considerable expansion. A good part of the revenue due to increase of assessment as a result of periodical re-settlements and of the remission in the provincial contribution should be devoted to the amelioration of the conditions of the rural population.

(b) Agricultural Engineering has not been the success it was expected to be. No agricultural implements superior to the indigenous tools have been designed.

The experiments of the Millet Specialist have not shown so far any encouraging results.

(c) Far too little attention has been paid to the improvement of red soil cultivation. For example, no attempts are made to find any improved variety of cotton suited for this soil. No work yet is done to develop drought resisting varieties of *jowar* (Sorghum).

QUESTION 3.—DEMONSTRATION AND PROPAGANDA.—(a) There have been improvements in the black cotton soil area in the yield of cotton due mainly to the distribution of better seeds. In parts of the Presidency farmers have taken to economic transplantation of paddy due to the efforts of the Department of Agriculture.

(b) Field demonstrations should be more numerous to be really effective and for that:—

1. A larger number of Demonstrators are required;
2. Judicious selection should be made of villages for demonstrations for it is easier to get cultivating landowners to try the improvements than the tenants;
3. Pecuniary help to ryots to enable them to adopt improvements should be rendered promptly, for example by expeditious loans for purchase of implements, levelling of soil and carrying out other operations.
4. Small areas of land on private fields might be taken on lease and improved methods demonstrated thereon at Government expense.

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(c) Expert advice might become more acceptable than now by—

1. Cinema shows which will impressively show all operations of improved agriculture.
2. Short courses of lectures for farmers at one or other of the agricultural farms; two or three ryots from each taluk might even be helped by railway fare to attend these lectures.
3. Sale of implements on instalment plan, and on favourable terms.
4. Sale of improved seeds on credit.

(d) Greater use of iron ploughs and improved cotton seeds are striking examples of success. I think this success is due to the personal effort of the Demonstrators in the first instance and subsequently to the realisation by the ryots of their advantages.

QUESTION 4.—ADMINISTRATION.—(a) Periodical conference of the Heads of departments, with a few outsiders acquainted with the subjects dealt with in the conference would facilitate interchange of ideas.

(b) I doubt whether an addition to the scientific staff of the Government of India would result in indirect advantages to the Province.

(c) (i) Number of Agricultural Demonstrators and Veterinary Assistants should be employed on a very much larger scale than at present. Research staff should be strengthened to solve the large number of problems facing the agriculturists.

(ii). The charges for transport by railway and steamers of manures, live-stock, agricultural produce and implements should be fixed at a minimum.

(iii) Roads are quite inadequate and village communications receive practically no attention. In some of the localities the movement of country carts is impossible during the rainy seasons. Bridges over all streams and causeways across all big rivers should be constructed.

(iv) The Meteorological Department is not rendering any service to the agriculturists.

(v) Postal service is too costly; facilities are to be given for the transport of eggs, butter, etc., by parcel post from rural to urban areas.

(vi) The Agricultural Department must make arrangements to obtain daily telegraphic reports of prices of agricultural produce prevailing at different trade centres and post them at the Post and Telegraphic offices, for the information of ryots.

Wireless may be used in the near future for broadcasting agricultural knowledge and information.

QUESTION 5.—FINANCE.—(a) More co-operative credit societies should be instituted and there should be little delay in granting loans to ryots. Co-operative societies should stock seeds, implements and manures and distribute them to the ryots. Long-term credit ought to be advanced to farmers for permanent improvement of land and for liquidation of existing loans.

(b) There should be unification of agencies for giving credit to ryots so far as Government or semi-Government agencies are concerned. Whether *taccavi* loans should not be advanced through co-operative societies is a matter for consideration.

QUESTION 6.—AGRICULTURAL INDEBTEDNESS.—(a) (i) Borrowing is chiefly resorted to for—

- (1) Purchase of land, (2) Marriages and other ceremonies, (3) Trade and speculation, (4) Buildings, (5) Permanent improvements, (6) Purchase of livestock, etc.

(ii) The sources of credit for the ryots are:—

- (1) The Government in their administration of *taccavi* Acts. (2) Co-operative societies, (3) Moneylenders.

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(iii) Reasons preventing repayment are :—

- (1) Failure of seasons. The Bellary District Manual of 1872 tries to give the climatic characteristics of the Bellary district for 70 years since its cession by the Nizam. No information is furnished for 6 years out of the 70. Of the remaining 64 years no less than 40 years were bad years from the agricultural point of view. The subsequent history is not different (*vide* pages 77 to 80, Bellary District Manual of 1872).
- (2) High rates of interest.
- (3) The insufficiency of the average income from farming to provide living for a family.
- (4) Want of subsidiary industries.

(b) It is obvious that the causes which now stand in the way of the ryot's repaying his loans must be removed; that would mean :—

- (1) Loans within the limits of his borrowing capacity should be available at easy rates of interest. (The borrowing capacity of a ryot should be fixed in advance subject to modification from time to time).
- (2) Recoveries should be made by easy equal instalments spread over 30 to 50 years.
- (3) Complete liquidation of all existing debts even by percentage payment by resort to legislation if necessary.
- (4) The ryot must be able to borrow as and when he needs providing he does not exceed his borrowing capacity.

Assuming that a man borrowed in the first instance up to the maximum of his borrowing capacity his application for a fresh loan should be favourably considered if it is within the sum paid by him towards the discharge of his original debt.

- (5) Interest should not be higher than 6 per cent. per annum.
- (6) *Taccavi* loans advanced by the Government and the loans by co-operative societies shall always be first charges on the hypothecated property and have precedence even over private loans advanced to the ryots after the first Government loan.

(c) Normally nothing should be done to limit or curtail the credit of the ryot. But if he should apply to and obtain from the Government loans by hypothecation of the property his credit should be restricted to the extent suggested in answer to question 6 (b).

QUESTION 8.—IRRIGATION.—(a) (i) Several new schemes of irrigation as well as extension of the existing ones are needed in the Ceded Districts which form the famine zone of the Presidency; but I shall restrict myself to Bellary district which I know best. That there is ample scope for new irrigation schemes will be borne out by the following extract from the Report of Col. Henderson, Civil Engineer, dated 21st November 1853. "The District of Bellary is always bountifully supplied with rivers and tributary streams for irrigation of its soils. It contains within itself all the essential elements of prosperity. The rivers and streams which intersect it might be taken advantage of to a much larger extent than now for the supply of works of irrigation". These remarks are no less applicable now.

One can see no justification for delaying the execution of the Tungabhadra project which has been under consideration for over half a century. It would certainly pay the Government to carry out this project for the following reasons :—

- (1) The direct net income will be sufficient to give a reasonable return of interest for about 6 per cent. on the amount invested. As a matter of fact the West Canal Project, the plans and estimates for which are ready, is calculated to yield a return of over 8 per cent. I do not think it would be much less in the case of the East Canal, the investigation of which has

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been promised. Even if it were it would be still worth while for the Government to undertake the project and save themselves and the people the enormous loss they are put to owing to the neglect of this project. The following extracts from official documents would bear out the above.

In the sixties some irrigation schemes had been prepared for irrigation of tracts in the Bellary district. With reference to these the Collector reported as follows:—

“The estimated amount for these works (without considering the reservoir for the second crop) is Rs. 95,00,000 or under a million sterling. The interest on this sum if guaranteed by Government at 5 per cent would amount to Rs. 4,75,000 or £47,500. In this district in 1854 there was actually loss of about four times that amount, *viz.*, by hurried expenditure on famine roads £133,000 and by remission on waste lands £80,000 to say nothing of the loss to the people of their crops and cattle.”

“As far as can be ascertained the total bill for direct expenditure and loss of revenue due to famine in this one district even in the last half a century (1854 to 1897) amounts roughly to no less a sum than Rs. 196 lakhs more than twice the estimated cost of the Tungabhadra project as per previous letter quoted; see following figures—

	On relief lakhs.	Loss of Revenue lakhs.	
1854	8	4 $\frac{3}{4}$	The loss to the ryots will never be known but was of course quite incalculably larger.
1866	2 $\frac{1}{2}$	1 $\frac{1}{2}$	
1876-78	88	37	
1884-85	2 $\frac{3}{4}$	6 $\frac{1}{2}$	
1891-92	2	7	
1896-97	29	7 $\frac{1}{2}$	
	132	64	

“The cost of relief operations with the losses of revenue due to deficient rainfall in these districts (Cuddapah, Kurnool, Bellary, Anantapur and Nellore) is reported to amount to over 6 crores of rupees.” Irrigation Commission’s letter No. 364 of the 9th March 1902, Appendix 1 in Vol. II, Tungabhadra Project, paragraphs 183, 186.

(a) (ii) Anicuts across Hagari (in Bellary district) here and there would be useful in filling up the tanks in the neighbourhood in the rainy seasons.

(iii) Bore-wells might be tried in selected villages and water lifted and supplied to ryots at cost price. To reduce the cost of water for the ryot the number of wells in any locality must be large enough to justify the appointment of a full time mechanic.

Want of understanding and absence of imagination on the part of the Government, I regret to say, are the chief obstacles to extension of irrigation in my district.

(b) That there is needless waste of water by ryots has to be admitted. This is due to the unevenness of their fields and want of means to level them up so as to take minimum water.

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QUESTION 10.—FERTILISERS.—(a) Greater use of natural manures such as green leaves, fish guano, oil-cakes, bones, cattle manure could be made of in this country.

These manures could be supplemented by artificial manures whenever the former are not available in sufficient quantities.

Our soils are deficient in organic matter and therefore they require any amount of organic manures. Chemical manures to the total exclusion of organic manures are likely to deteriorate the soils by spoiling their physical texture. To prevent this it is necessary to use in greater amounts:—

- (1) Fish guano and fish manure.
- (2) Oil-cakes.
- (3) Bonemeal.
- (4) Trichinopoly rock phosphate.

Fish guano which used to be sold at the rate of Rs. 50 to Rs. 60 per ton about eight years ago is not available now even at the rate of Rs. 160 per ton. This is mainly because it is exported to foreign countries such as Japan, China and Ceylon in very large quantities. The export of this should be prohibited.

Oil-seeds are being exported to foreign countries in very large quantities and only a very small quantity is crushed in this country. The oil-cake which would be available in this country in large amounts if oil-seeds were not exported is now lost to us. Oil-seeds, therefore should not be exported and the Government should take steps to demonstrate to the people better methods of pressing oil which could be sent out without becoming rancid during the transit. Bonemeal which is the source of phosphorus is also exported to Ceylon, and other countries and, therefore, should also be prohibited from exportation.

(b) Fraudulent adulteration of fertilisers can be prevented by educating the farmers by legislation and by ready and cheap means of having fertilisers analysed for the farmers by the Department of Agriculture.

(c) New fertilisers can be effectively made popular by supplying liberal amounts free for trial to one or two farmers in each area.

(d) In Hospet the use of ammonium sulphate has increased.

(e) The residual effect of sulphate of ammonia, sodium, nitrate, cyanamido and other chemical fertilisers on soil should be carefully investigated and measures taken to prevent any bad effects on soil by continued use of these manures.

(f) To stop use of cowdung for fuel, the supply of other cheap fuels for cooking purposes should be increased.

QUESTION 11.—CROPS.—(a) (i) *Jowar* (Sorghum), paddy, ground-nut, sugarcane and cotton are among the more important crops of the Province and measures should be taken to increase the quality and quantity of yield of these crops by selection, breeding and other methods.

(ii) Several varieties of cotton including Egyptian varieties were tried at Hagari farm in Bellary district and I understand they were all failures due perhaps to difference in climatic conditions.

It is desirable that fodder crops suitable for poor dry soils should be introduced.

There is every possibility for introduction of a better yielding variety of sugarcane but no serious attempts seem to have yet been made in this direction. New varieties of ground-nut also should be imported and tried.

(iii) At present the distribution of seeds is carried on only by the Agricultural Department and it cannot be expected that with their limited staff they could cover the whole area. It is, therefore, necessary that co-operative societies or other agencies should be entrusted with this work and empowered to give the seeds on credit to ryots unable to pay cash immediately.

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(iv) (1) Shelter for wild animals in forests should be reduced as far as possible by encouraging the removal of scrub jungle.

(2) Licenses for firearms must be freely granted to ryots. The license fees for breech loading guns must be placed at not more than double the rate fixed for muzzle loaders.

(3) Permission should be given to villagers to hunt wild animals in reserves by beats.

(4) Government should purchase wholesale barbed wire fencing and supply it on hire or sell it at cheap rates to ryots.

(b) No.

(c) Cotton is an example in Bellary district. A new strain popularly known as "Farm Cotton" has been evolved in Bellary district by the Department of Agriculture and it is fairly popular with ryots. It gives better yield, better outturn (per centage of lint to seed cotton) and better quality of lint and it fetches better prices in the market.

QUESTION 12.—CULTIVATION.—(i) The existing system of tillage is to plough deep the dry land in black soil area once in five or six years which is not sufficient to preserve moisture in a dry climate like Bellary. The soil should be ploughed deep at least once every other year. This can be made possible by using stronger bullocks or by the use of power driven machinery. Power machinery can be made popular by removing the import duty on agricultural implements, tractors and steam tackle and also by reducing the prices of kerosene and petrol to the ryots (kerosene and petrol are both cheaper in foreign countries than in India).

Investigations should be carried out to find out if fallowing cannot be practised in the dry land areas to make better use of the moisture available and also increase the nitrogen content of these soils.

(ii) So far as wet lands under perennial conditions are concerned the rotation consists in alternate sowing of paddy and sugarcane. Experiments should be made to improve this rotation by substitution of any other crop for paddy or by the addition of a third crop into the rotation. Investigations should also be made to find out if alternate fallowing in areas with scanty rainfall would not be more economical.

QUESTION 13.—CROP PROTECTION.—(i) Our worst crop diseases are:—

- (1) Boll worm on cotton, (2) Calcaris (*Aggi purugu*) on *Jowari*, (3) Stem borer on paddy, (4) Swarming caterpillar on paddy, (5) Grasshopper on all cereal crops.

No effective remedies have yet been discovered for these diseases.

QUESTION 14.—IMPLEMENTS.—(a) We need:—

- (1) Boll worm on cotton, (2) Calcaris (*Aggi purugu*) on *jowari*, (3) (2) a machine for harvesting *thenai*, *ragi* and paddy,
- (3) a machine to harvest *jowari* heads of the standing crop, i.e., a *jowari*-header,
- (4) a sugarcane crusher worked by an engine suitable for the use of small middle class farmers with about 10 acres of cane, and
- (5) a clod crusher for sugarcane lands.

Some harvesters of this kind are in use in other countries. Such machines have to be adopted to our conditions. These should be manufactured in India by subsidising competent firms if necessary. For instance, there is one firm in Bombay Presidency, viz., Kirloskar Brothers, and it is trying its level best to cater to the needs of agriculturists by manufacturing and selling improved implements as cheap as possible. Such firms should be encouraged by the Government.

(b) The difficulty experienced at present by the ryot in the adoption of improved implements is the lack of good bullocks suited to these implements and the poverty of the ryots to buy better bullocks. This can be remedied

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by prompt long-term loans either by the Government or by any other agency at cheap rates of interest to the ryots.

QUESTION 15.—VETERINARY.—(a) The Veterinary Department should be under the Director of Agriculture who should, however, have a Veterinary Expert as one of his Personal Assistants for the following reasons:—

- (1) Agricultural Demonstrators who are constantly on tour could more quickly come to know the outbreak of diseases and bring the information to the notice of the veterinary officers than the village officers.
- (2) The Agricultural Demonstrators could be supplied with medical chests as Farm Managers were supplied formerly so that they could treat minor complaints.

(b) (i) Except a few, there are no dispensaries under the control of Local Boards. The dispensaries under Local Boards are not likely to work well.

(ii) The need for expansion is not adequately met. For example, there are four veterinary institutions, including the S. P. C. A. Dispensary at Bellary, in the Bellary district which has an area of 5,700 square miles and a population of 539,000 cattle and 425,000 sheep and goats spread over 921 towns and villages.

(iii) I do advocate the transfer of control to the provincial authority and even the few that are not under the provincial authority at present might as well be transferred for the following reasons:—

- (1) The non-provincial authorities have not enough funds to manage their institutions properly.
- (2) Their choice of officers is restricted for lack of funds and also transfers are not easy even when necessary and desirable.
- (3) Dual control always leads to inefficiency.

(c) (i) The agriculturists, at present, are unable to make full use of the veterinary dispensaries and I suggest the following remedies:—

- (1) The number of dispensaries should be increased so that they may be within the easy reach of the ryots.
- (2) All officers of Agricultural, Veterinary and Co-operative Departments should make known to the ryots the existence and value of the dispensaries.

(ii) Full use is not and cannot be made of touring dispensaries because—

- (1) It takes time for the Veterinary Assistant to make known his arrival in the villages.
- (2) He does not stay long enough in any one village to successfully treat all the animals that may be brought to him and if he does it will take years for him to go round all the villages in his jurisdiction.

(d) The following are the obstacles met with in dealing with contagious diseases:—

- (1) Delay in reporting the outbreaks of contagious diseases due to the ignorance and indifference on the part of the ryots as well as the village officers.
- (2) Even when the Veterinary Assistant visits the villages the ryots do not easily bring their cattle for treatment, because firstly the ordinary inoculation, though it involves the stoppage of work only for a day, does not give immunity from attack for more than 10 or 12 days and secondly the serum simultaneous inoculation, though said to give more or less permanent immunity, disables the cattle for work for about 15 or 20 days, which the ryot finds highly inconvenient.

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- (3) There are not enough Assistants to attend to the work, as for example, when there was a severe outbreak of rinderpest in the western taluks of Bellary during the last summer.

There are already the necessary legislative provisions but they cannot be enforced with regard to:—

- (1) Segregation, for want of money for sheds and separate staff including Veterinary Assistants to attend to the segregated animals.
 - (2) Disposal of carcasses, for lack of provision to meet burial charges.
 - (3) Prohibition of movements of animals exposed to infection for want of staff to guard all exits (which are numerous) from the village and owing to the inconvenience to the ryots who have to attend to their cultivation in time and also secure their foodstuffs, etc., from the neighbouring markets and villages.
- (e) There is no difficulty at present so far as I know as regards the supply of serum.
- (f) *Vide* answer (d) (2) above and also lack of propaganda. No fee is charged from 1925 for serum alone method of inoculation and from 1926 for serum simultaneous inoculation.
- (g) Provision for further facilities for research into animal diseases is desirable.
- (ii) I advocate the extension of Provincial Veterinary Research.
- (h) Special investigations should be conducted by research officers in the Province.

(i) I know of no advantages resulting from the appointment of a Superior Veterinary Officer with the Government of India which cannot otherwise be secured. A periodical conference of the provincial expert officers must be sufficient on the necessary interchange of ideas and the laying out of programmes of future work as in the case of Board of Agriculture.

QUESTION 16.—ANIMAL HUSBANDRY.—(a) (1) Yes. So far as the red soil areas of Bellary district are concerned. It would not do to depend on imported cattle always. I suggest that Government should have a breeding station for the improvement of the indigenous stock and distribution by sale or otherwise of suitable bulls to the villagers. For example, one such station might be established near the reserve in Kudligi taluk, Bellary district, the control of which the Government have decided to retain in their hands. The best local breeds should be crossed with the most suitable breeds from elsewhere in order to produce a breed superior to the local ones.

(ii) I believe there is great scope for improving the milk-buffalo by selection and cross-breeding with Delhi and other better breeds.

(b) Promiscuous breeding and insufficiency of pasture land are to a considerable extent responsible for cattle deterioration.

Provision of manures such as oil-cakes, bones, rock phosphate at low rates might help the ryot to reduce the number of extra cattle kept mainly for manure.

(c) In red soil areas, April, May, June and subsequent months also if monsoon is delayed, show a shortage of fodder. So far as black cotton soils are concerned there will be no dearth of fodder from season to season if the monsoons are regular. It is during May and June that scarcity is most felt.

(d) Supply of fodder can be improved by:

- (i) Helping the ryots to reduce their useless cattle by providing cheap manures.
- (ii) Separation of pasture-lands for cattle and sheep.
- (iii) Allowing grass to grow sufficiently on pasture-lands before animals are let in.
- (iv) Grazing by rotation of pastures.

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QUESTION 17.—AGRICULTURAL INDUSTRIES.—(a) The average dry land farmer, both in the red soil and black cotton soil areas, holds about 15 acres of land. The red soil farmer is idle for about 250 days in the year. Before the period of seed-bed preparation and sowing at the times of the monsoon rains he is idle for the long period of three months at a stretch. Again after the first intercultivation and weeding somewhere about the 1st of August, he is again idle for a period of about three months. The black cotton soil farmer is idle for about 180 days in the year. In the years when he ploughs his land deep he is idle for about 60 days after the middle of March. During the years when he does not plough his land deep he is idle for about 5 months continuously. After the first intercultivation he is idle for about two months and a half. During the slack season, the cultivator goes to haul grain and other commercial products if there is an opportunity. He goes to work in the wet land areas if they are near by. If forced to stay home he busies himself by making ropes for his needs and doing other sundry things.

(b) If the Government and the Local Boards can carry on road repairs, tank repairs, village improvements, provision of water-supply, means of communication, sanitary arrangements, etc., enough work can be supplied to the cultivator during the slack season.

If the water-supply can be increased by bore wells, the dry land cultivator can keep himself busy growing garden crops, raising poultry and producing milk and other dairy products.

(c) Lack of sufficient water is the chief obstacle in the way of either starting or expanding most of the industries mentioned.

(d) Yes, with regard to sugar making, utilisation of cotton seeds for felt, etc., and rice straw for paper.

(h) Formation of village panchayats who should be given a certain amount of the revenue from the village.

QUESTION 19.—FORESTS.—(a) If anything, forests are overgrazed.

(b) Disafforestation has been going on, but no afforestation; trees such as casuarina, *babul*, *tugli*, and others, should be planted in forest reserves, wherever possible.

(f) Yes, to some extent. Grass should be allowed to grow to a certain height before cattle are allowed to graze. The Forest Panchayats must be encouraged to regulate the number of cattle permitted to graze in a given area with reference to the grazing capacity of the forests concerned.

QUESTION 20.—MARKETING.—(b) The intermediaries cannot be said to deal fairly with ryots with whom they transact business. Wrong measures and false weights are often used to the detriment of the producer of raw material. Establishment of co-operative sale and loan societies may reduce this evil.

(c) The quality of jaggery is to be improved. For this, the Department of Agriculture should bestow their attention on devising and popularising improved furnace and pan.

(d) Yes. Daily prices of jaggery, ground-nut, cotton, rice *jowari*, and *dal* in the chief market centres ought to be made available for ryots. Information regarding increase or decrease in the area of sugarcane, cotton and other important industrial crops and estimates of their probable yield ought to be made available for ryots.

Information regarding complaints as to Indian products must be gathered so as to enable the cultivators to guard against their recurrence.

QUESTION 23.—GENERAL EDUCATION.—(b) (i) I suggest that an educated Indian farmer be deputed to study the systems of education obtaining in other countries and see if they cannot be adopted to suit Indian conditions.

(iii) Only a small proportion of boys in rural primary schools pass through the fourth class, because children are needed for work in the fields.

QUESTION 24.—ATTRACTING CAPITAL.—(a) Agriculture as a profession does not pay at present. So no capitalist will invest his money in agricultural operations although large amounts are being invested in land since land is a safe investment for them.

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(b) Non-cultivating owner leases the land and gets from his lessee all he can get, and he is not interested in the further improvement of his land as he does not expect any further increase in his lease amount.

The cultivating owner is often too poor to improve his land, and, in fact, he is obliged to part with it in the end. The following figures from the Census Reports will show how the cultivating landowner is giving way to non-cultivating landowner and non-cultivating tenant in my district:—

	1901.	1921.
Non-cultivating landowners	13,103	35,920
Non-cultivating tenants	256	28,298
Cultivating tenants	43,655	113,168
Cultivating landowners	451,035	315,949

QUESTION 25.—WELFARE OF RURAL POPULATION.—(a) The general well-being and prosperity of rural population can be promoted by the formation of village panchayats and also by the adoption of the suggestion made in answers to questions 17 (b), 10 (b), 14 (b), 8, 5 and 1 above.

(b) There ought to be economic surveys which would give us some idea about the condition of the rural population.

The economic enquiries should be directed to ascertain:—

- (1) whether there has been an increase or decrease in population with causes therefor,
- (2) changes in the number and value of *pattas*,
- (3) variation in the extent under different crops,
- (4) irrigation sources and their condition.
- (5) general condition of labourers,
- (6) spread of literacy among the people,
- (7) average income from land, after deducting cultivation expenses,
- (8) variation in the wages and prices of articles needed for village life,
- (9) indebtedness of roys, and
- (10) extent and character of litigation in the village.

(c) My study of the Government statistics regarding cultivation in the Bellary district has confirmed my impression that agriculture is by no means the paying concern which it is represented to be in the Settlement Reports.

QUESTION 26.—STATISTICS.—I believe there is a consistent decline in the yield per acre of agricultural produce. The decennial reports of Hospet taluk, Bellary district, show that the yield of paddy per acre has declined from 20 bushels in 1891-1900 to 15 in 1901-1910, and to 13 in 1911-20. (A bushel is taken to be equivalent to 60 seers, each seer weighing 85 tolas or about 2 lbs.) Between 1891-1917 (27 years), I found that over 200 crop experiments were made on dry lands, and their results showed that there was a decrease in the yield by 38 per cent when compared with that adopted in the Settlement Report of 1891 for fixing the assessment. The decrease in yield becomes all the more striking when it is borne in mind that the fields selected for such experiments are generally superior to the average fields. This has been adverted to by more than one Commissioner of the Madras Board of Revenue. Mr. Atkinson in B. P. No. 225 of 1907, dated 27th June 1907, has remarked: "It is apparent that the land selected in many cases was superior to the average." Mr. Parsons has made similar remarks in his report embodied in G. O. No. 2619, dated 2nd September 1912. And Sir Frederick Nicholson, in his report embodied in G. O. No. 2687, dated 31st August 1917, remarked that the land chosen for experiment was largely superior to the general average and inevitably so when the situation of the poorer soils is concerned.

So I suggest that really average fields should be selected for estimating the outturns from year to year and effective measures taken to arrest the decline in the yield if not to increase the yield.

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Oral Evidence.

16765. *The Chairman:* Mr. Ranganatha Mudaliyar, you are a Member of the Legislative Council?—Yes.

16766. You have put in a note?—Yes.

16767. Do you desire to make any general statement, in addition to the note of evidence which is before the Commission?—I do not want to make any general statement. I think my note conveys mainly the things I wanted to place before the Commission, but I am ready to explain anything on which you want further information.

16768. Thank you very much. On page 698 of your note, you give us your ideas of how modern scientific knowledge may be brought to bear in improving the indigenous and empirical system of agriculture?—Yes.

16769. I want to ask you whether it is within your knowledge that European systems of agriculture, and certainly British systems of agriculture, originally of course entirely empirical, were just as conservative and, in my judgment, more conservative and less receptive of the earlier contributions that science was prepared to make than is apparently the case in India?—I do not know much about it. But this I do feel to be the case, namely, that so far as my knowledge of the working of the Agricultural Department goes, they have not been able to suggest very many improvements on the indigenous system of agriculture. I think possibly they made the mistake of introducing wholesale foreign systems of agriculture, without trying to adapt them to the conditions in India. I think the proper course is to build up our agriculture from our point of view, basing it on our present practice.

16770. How about their contribution in the way of improving the varieties of cotton? Do you think that is a satisfactory contribution?—I have explained that. For example, I find they have provided better seed, which has taken kindly to some soils, but at the same time other seeds have not taken kindly. You must try to improve agriculture from the Indian point of view, basing it on Indian conditions.

16771. Would you agree that, so far as this Presidency goes, one of the most material improvements that has been introduced as a result of the Agricultural Department's activities is the practice of single seedlings?—I think that had been in vogue in certain parts of the Presidency already; what the Agricultural Department has done is to spread that knowledge to other parts.

16772. It is just an example of what you desire to put forward, namely, that they should look about and make the best of the empirical system, and bring modern science to bear in improving that?—I may say the same thing with regard to deep ploughing. It was in vogue in certain parts, other parts did not know about it; they found it useful in some places, and they tried to introduce it in other parts if possible and practicable.

16773. You have something of a note of disappointment in your memorandum when you say that the experiments of the Millet Specialist have not shown so far any encouraging results. Is it within your knowledge how long those experiments were carried out?—I know, because I myself attended the Finance Committee meetings when this expert was appointed. I know that the appointment was for a short period, but even for the short period it was in operation I did expect something better, but nothing encouraging has come so far. I am prepared to admit that perhaps I expected too much, considering the progress hitherto made.

16774. Not only that, but you have been a little hard on the Specialist in question?—It is not so at all; I rather think it was due to the fact, that unfortunately for him a place was selected which was not the right sort of place at which to carry out the experiment. I do not think he is to blame at all; I rather think that the climatic conditions of the place at which those experiments were carried out were against him.

16775. Have you any scientific or technical knowledge yourself?—No.

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16776. Under the heading of 'Administration,' on page 699 of your note, you are complaining about the inadequacy of village communications. I wanted to know from you whether, in your experience, the roads have deteriorated within the last 10 or 15 years, or are they about the same as they were before?—The village communications have certainly deteriorated, and they continue to deteriorate.

16777. How do you account for it?—Because there is nobody at all to take care of these tracts. For example, suppose water flows down these village roads, there is nobody to rectify the damage done to them, so that progressive damage is being done to these roads, and never an attempt is made to put that right.

16778. What about the District Boards? How do you think they are working in relation to their responsibility as to roads?—Most of the boards are handicapped for want of funds, and they are not able to work satisfactorily at all.

16779. In the matter of transport by railway and steamer you say on page 699, "The charges for transport by railways and steamers of manures, livestock and agricultural produce and implements should be fixed at a minimum." Does that mean that you think they could be reduced?—I think so, for this reason: there was a complaint in the South of India that there was great difficulty felt for manure. I think the railway people reduced their freight charges, but I do not know whether they did it at a loss or whether they could afford to do so.

16780. Of course, one has to be careful, when blessings come in limited quantities, not to be ungrateful; otherwise, one may not get anything?—In a way, it has encouraged me to make a bigger request.

16781. Have you any close, personal experience of the co-operative movement?—I cannot say I have very much.

16782. These are your general impressions?—My general impression is that it requires thorough overhauling.

16783. You do not feel satisfied with it?—I am not satisfied with its working.

That is probably as far as you wish to go on the point.

16784. When you are talking about placing loans within the limits of the borrowing capacity of the ryot on easy rates of interest, the complete liquidation of his existing debts, and his right to borrow as and when he needs financing, are you suggesting there that the general body of the taxpayers should come forward and relieve the individual cultivator's position?—No, I do not suggest that the general tax-payer should altogether bear the burden of relieving the agriculturist. What I do suggest is that money should be made available for the uplift of these people. You can recover the money back from them; I would have an arrangement by which, while you advance money to these people, you could recover it in easy instalments from the people concerned.

16785. Of course, you recognise, I am sure, as a person familiar with these matters, that punctual repayment is the essence of any system which is going to advance money at a substantially lower rate of interest?—That is why I want to make repayment sure and certain. As at present, ten to one, there is difficulty of recovering your loan, because you make it difficult for him to live.

16786. Do you not think there is the danger, if you place easy credit at his disposal, that he might use that credit more to borrow further funds than to liquidate prior debts?—I have tried to guard against it; I make his credit only available with regard to one source, so that there is no danger of his over-borrowing.

16787. You give, under the heading of 'Irrigation,' particulars which, in your view, go to show that, taking into consideration the large expenditure as a result of famines, schemes which on their face appear unremunerative

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are in fact sound investments from the public point of view?—I think there can be no doubt in the matter. Latterly Government have conceded that point. If they take into account all the losses they are put to, which they can avoid by these protective works, they are bound to gain in the long-run.

16788. I must ask you for the authority behind these figures that you have cited and for the technical facts which you have given. Where were these figures taken from?—Will you kindly refer me to the page?

16789. Page 700 of your memorandum?—The first quotation is from Col. Henderson's report saying that the district is very well provided with facilities for irrigation. "It contains within itself all the essential elements of prosperity. The rivers and streams which intersect it might be taken advantage of to a much larger extent than now for the supply of works of irrigation."

16790. You give your authority there?—Yes.

16791. Is the Collector's report a published report?—The Collector's report was published in the District Gazetteer, and is a Government document.

16792. What was the date of that report?—It is in the District Manual of 1872. It was published some years ago, but the facts are as true now as they were then.

16793. I think your story there speaks for itself. I just wanted to be assured of the source from which you have drawn your quotations. Then on page 701 you say: "Bore-wells might be tried in selected villages and water lifted and supplied to ryots at cost price. To reduce the cost of water for the ryot the number of wells in any one locality must be large enough to justify the appointment of a full time mechanic. Want of understanding and absence of imagination on the part of the Government, I regret to say, are the chief obstacles to the extension of irrigation in my district." Too much imagination on the part of Government is rather apt to lead to bankruptcy on the part of the State. But are you quite satisfied that water is available? Has there been no survey?—I do not think any survey has been made.

16794. Do you speak with confidence on that point?—That is my impression; I cannot say with greater certainty.

16795. You would agree that it would of course be a very necessary and obviously prudent preliminary?—Yes, we can try boring in some places and see at what depth we can find water.

16796. Boring does not cost much?—The charges are not much; at any rate they are not very heavy, I should say. May I, with reference to the remarks about lack of imagination on the part of the Government, invite your attention to this. In my district owing to floods, thousands of tanks breached and spring channels were silted up. The Government in those days issued a rule that only those sources of irrigation should be restored the cost of which could be recovered within four years from its revenue. In other words, they would not invest money on the restoration of these ruined tanks, river channels and the rest unless they were sure of 25 per cent. return on the capital spent thereon.

16797. They are regarded as protective works?—Not only protective; but I say that the return calculated for the sum invested, i.e., 25 per cent. is a thing unheard of. I have got authority to say that. I am speaking of Belary district.

16798. *The Raja of Parlakimedi*: What do the maintenance charges come to? Have you calculated?—The maintenance charges would come to the same amount as before. There was a breach, and money had to be spent on that; but they wanted to know if the revenue from those sources amounted to 25 per cent. so that the money spent could be recovered within four years.

16799. Do you not think that the rise in the pay of the engineering staff is to a certain extent responsible for it?—I am sorry I have not made myself clear. It was not with reference to the maintenance charges or the increase of staff that such a rule was made. There were a large number of sources of irrigation in the district. They were works constructed by the predecessor:

of the Government. An act of God came to pass; there was a flood and tanks and channels were breached. In the normal course of things one would expect that these would be restored, if the cost were reasonable. But the standard which the Government of the day, fixed was that the amount incurred on the restoration must be recouped within four years from the revenue from that tank or source of irrigation. I say that that was too rigid a standard to apply, especially to a tract like mine which lies in the famine zone.

16800. *Dewan Bahadur Raghavayya*: When was that rule made?—The rule was made long ago and we have suffered a lot.

16801. When was it abrogated?—I do not know if it was abrogated at all.

16802. *The Chairman*: On page 702 in answer to sub-section (b), you say that the "fraudulent adulteration of fertilisers can be prevented by educating the farmers by legislation" and by other measures. Have you any experience of fraudulent adulteration of fertilisers?—I have not had direct experience of it; but still, looking at it from my own experience, it is just possible that the vendors try to make more profit out of the commodity they deal in by adulteration. So I suggest that in order to make these experiments sure and certain and to prevent the ryot from saying afterwards "Oh, the manure we used did not prove so useful as it was represented to be," we must safeguard against adulteration.

The Commission then adjourned till 10-30 A.M. on Thursday, the 25th November, 1926.

Thursday, November 25th, 1926.

MADRAS.

PRESENT :

The MARQUESS OF LINLITHGOW, D.L. (*Chairman*).

Sir HENRY STAVELEY LAWRENCE,
K.C.S.I., I.C.S.

Sir THOMAS MIDDLETON, K.B.E.,
C.B.

Rai Bahadur Sir GANGA RAM, Kt.,
C.I.E., M.V.O.

Sir JAMES MACKENNA, Kt., C.I.E.,
I.C.S.

Mr. H. CALVERT, C.I.E., I.C.S.

Raja SRI KRISHNA CHANDRA GAJA-
PATI NARAYANA DEO of Parlaki-
medi.

Professor N. GANGULEE.

Dr. L. K. HYDER.

Mr. B. S. KAMAT.

Dewan Bahadur T. RAGHAVAYYA PANTULU
GARU.

Rao Bahadur B. MUNISWAMI NAYUDU } (*Co-opted Members.*)
GARU.

Mr. J. A. MADAN, I.C.S.

Mr. F. W. H. SMITH.

} (*Joint Secretaries.*)

Mr. A. RANGANATHA MUDALIYAR.

Further Oral Evidence.

16803. *The Chairman* : Before we adjourned yesterday we were discussing the general question of the use of fertilisers and I wanted to ask you whether you ever had experience of such adulteration of fertilisers. Have you ever come across a case?—No.

16804. On page 703 under the heading "Agricultural Implements," you talk about the possibility of having to subsidise competent Indian firms. Why should you subsidise these firms? Why, if the market is there and the commercial capacity is available, should these firms not capture the market without subsidy?—May I say that I have not said that Indian firms alone should be subsidised. Coming to the other point; I know, for example, taking the case of iron ploughs, the demand was by no means so much when it was first introduced as it is now. We are dealing with a conservative class of people and we have to take some special steps to devise instruments perhaps even before there is an acute demand for them and popularise them in the interests of the people.

16805. You contemplate subsidising out of the general funds of the Presidency any firm which could supply a suitable agricultural implement, is that your idea?—If there is a competent firm willing to experiment and devise an improved implement for the country, why should we not give them a certain amount?

16806. Would you confine that subsidy to the experimental stage of their work?—That is all, I think.

16807. On page 704, section (b), sub-section (iii), you say "I do advocate the transfer of control to the provincial authority and even the few that are

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not under the Provincial authority at present might as well be transferred for the following reasons." You think that all these veterinary establishments should be under the direct control of the Provincial Veterinary Service, is that your idea?—Yes; my point is they should be all under one control; and, because the vast majority of them are already under the control of the provincial authority, I suggest that the few that are not now so might be transferred to the provincial control.

16808. You want the Presidency Veterinary Department itself placed under the Director of Agriculture; is that your idea?—That is what I have suggested for the reasons mentioned there.

16809. I do not know whether you would like to say any more upon that point. Are you concerned with the question of co-ordinating the work of the various branches or with what?—That is what I feel. There are a number of stations, for example, under the control of the Agricultural Department that require a lot of veterinary assistance as well, and outbreaks in the mofussil stations come more easily and more early to the knowledge of the agricultural people than perhaps to the Veterinary Assistants who are stationed far away. For these reasons I think it would lead to a greater co-ordination if the departmental control is unified.

16810. On page 705, as part of your answer to the general question on Animal Husbandry, you think "there is great scope for improving the milk-buffalo by selection and cross-breeding with Delhi and other better breeds." Do you think that if the milk yield of the cow could be raised by the same process of natural selection and cross-breeding the cow might take the place of the buffalo?—I doubt whether the cow can take the place of the buffalo in regard to the quantity of milk.

16811. Have you experience of the work of Forest Panchayats?—I have.

16812. How do you think they are working?—For the short period they have been in operation I must say they are working fairly satisfactorily but I do feel that there is very great room for improvement.

16813. In the control and management of forests?—Yes, in the control and management of forests.

16814. For the purpose of grazing and fuel?—Yes; I feel so.

16815. Under the heading "Marketing" have you considered the advisability of creating control of the markets, quite apart from co-operative selling?—I have not bestowed any attention to that. I am sorry I cannot say anything on it.

16816. You make a very definite statement in answer to our question 24 under the heading Attracting Capital. You say "Agriculture as a profession does not pay at present." Do you mean that the cultivator is not making money?—That is so.

16817. Does rent-collecting pay?—You mean the non-cultivating landlord?

16818. As against cultivating?—Yes; I think it does.

16819. In answer to our question 26 on Statistics you give some figures showing the slowly declining yield per acre of a certain class of land with which you are familiar?—Yes.

16820. How do you account for that?—I think the ryot is not able to maintain the land in its natural fertility for long; he constantly keeps it under cultivation but does not take any steps to make good the loss of fertility due to the continual cultivation.

16821. But do you think that 30 years ago the ryot used to put more fertilisers or manures into the soil?—For one thing, he had not under cultivation the same extent of land as he has now; there was a choice of areas and probably he kept the land fallow for some time.

16822. Do you tell the Commission that in 1891 and the following decade these lands were in fact cultivated on a scheme which involved fallow?—Considering that the extent then under cultivation was not so much as it is now. I have to presume that the ryot had the pick of land to cultivate.

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16823. But you are not certain on that point?—No; I cannot be more precise.

16824. *The Raja of Parlakimedi*: In your statement you say that there is not much advantage to be gained by having a Central Research Board. Do you not think for common crops it will be better to have a Central Research Board?—If there are any points which are of a fundamental character the results of which can be applied equally to all Provinces, then a central institute may be necessary. But in regard to cultivation we are concerned mainly with local problems. For example, take the case of the Ceded Districts. Their climatic conditions are of a peculiar character. Suppose the Government want to improve the millet of those areas. I think an institute in those areas, with experiments conducted on those soils, is likely to yield more fruitful results than an institute with experiments conducted elsewhere. The Chairman was good enough to refer to that point yesterday and I said that the experiments made on millet were not satisfactory; I think it is due to the fact that the experiments are conducted in Coimbatore in a soil which is not of the same character as that of the Ceded Districts. So I say that in regard to this matter it is better that we conduct these experiments in Provinces with special reference to the conditions prevailing there.

16825. But, given a measure of co-operation and co-ordination between the provincial heads of the departments, or between the people concerned, and the Agricultural Department, do you not think the necessary information could be carried to that body?—I think that result can be equally achieved by a periodical meeting of all the departmental heads as is perhaps now done in the case of Agricultural Boards. These people may meet from time to time and exchange their ideas and see if what is strikingly successful in one place might not be adopted in another place where it has not been tried.

16826. So you are of opinion that with that sort of co-operation a central body can be worked?—With that sort of co-operation a central body might be superfluous.

16827. But, of course, you are aware that the more we have of these research bodies spread over the country, the more machinery and more expenditure it means, and so on; so in order to save superfluous expenditure, I think that with conferences in different parts of India and with the research body at a central place, not much difficulty will be felt in carrying out the necessary improvements?—I am not at all against the multiplying of institutes. In fact, even for each Province I am not satisfied with one single institute. If it is a matter of cost, as you put it, I leave it to the Government to calculate the cost.

16828. Are you not convinced that it means cost?—I think you suggested that the Central Institute would be less costly than the system of periodical conferences I suggested; I say that is a matter for calculation.

16829. At any rate it means a body of men with separate sets of apparatus and buildings and all that; it certainly must be more costly?—That is what I mean; a Central Institute is likely to be more costly.

16830. No; if you have several institutions spread over each area it will cost more?—It is no good starting an institute to serve the whole country and getting results which cannot be applied everywhere. It is far better to restrict ourselves and try to produce tangible results with reference to that area at least.

16831. Have you been to the agricultural farm at Coimbatore?—No.

16832. Have you ever discussed matters with the Director of Agriculture of this Province, what research is being carried on with regard to paddy, for instance?—I have discussed the matter, not with the Director of Agriculture, perhaps, but with many people who have direct knowledge of the working of the farm, both officials and non-officials.

16833. You have not gone to the farm?—No. I never said I had gone to the Coimbatore farm.

16834. I think a visit would be very informing?—I dare say it undoubtedly would be.

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16835. You suggest just below that paragraph that selection should be more or less on national grounds?—I mean on grounds which are calculated to yield the best results to the country.

16836. Do you not think that that purpose would be served better if you stick to efficiency irrespective of whatever nationality the men may be?—That is exactly what I am trying to get; I do want efficient people who will remain in the country and give us the benefit of their experience even after they retire from the service.

16837. Of course, preference should be given to Indians if they are available; but there must be times when we must be prepared to take efficient people of whatever nationality?—I am quite at one with you in regard to that matter; I do want efficient people to train Indians and put them on their feet. But I have found, as I have tried to explain in my note, that the people who came here did not make this the place of their work. If I go into the figures I can make my point. I say with great regret that they did not stay here. I can give instances of very good officers—(I do not blame them, I would do the same in their place)—very good officers who gained experience in this country, but went away when they got an opening elsewhere.

16838. But they are prepared to train their assistants to carry on their work; they do train them?—That is the difficulty. If they had done so they would have been replaced by their assistants.

16839. The work on sugarcane is being carried on by an Indian who was trained by Dr. Barber?—I am not concerned with individual cases.

16840. You say on page 698 of your statement, "The administrative machinery on the land revenue side is fairly well organised and does not need any considerable expansion. A good part of the revenue due to increase of assessment as a result of periodical resettlements and of the remission in the provincial contribution should be devoted to the amelioration of the conditions of the rural population." I think that purpose can only be served if you effect retrenchment in staff as well as in other expenditure?—There are two ways by which more money can be found; it may be by expansion of revenue or by curtailment of expenditure, or the two may be simultaneously in operation.

16841. Do you think that enhancement of taxation takes place because we have to maintain a machinery which is found necessary, and because we pay the staff at certain rates with a view to keep them contented? How can you then make a saving?—If money is forthcoming there is always a way of expenditure for it; there is no question about that.

16842. It is not for the fun of the thing, is it, that departments are created?—May I explain myself? Now, there is resettlement going on in district after district, and that does bring in a considerable amount of revenue to the Presidency. Who contributes those increased revenues? It is the ryot. I think on the ground of common fairness that at least a part of the revenue so contributed by the ryot should go directly for the improvement of his condition; that is my point. And I think it can be afforded, because the departments already in vogue have been so far organised and perfected that there is no longer the need for proportionate expansion in their case as in the case of the new departments.

16843. Do you think there is sufficient co-operation from the people of the country?—I believe there is that co-operation, only they have to be educated to that. The men are poor and they cannot afford to make experiments. If only you convince them of the utility of the things, no one is quicker than they to take to them. But they cannot afford to take risks; that is the point.

16844. May I know what propaganda is being carried on for the benefit of the agriculturists by private bodies?—I am very sorry to say there is not much of it.

16845. There you are?—That is my point, and that is why I am before the Commission.

16846. It is for the country to co-operate. Of course there is the department and Government are trying to do as much as possible, but unless we, the

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people of the country, also take interest in such matters and create agencies to carry these improvements to the doors of the people, it will be very difficult for any Government to improve matters?—Undoubtedly. I am free to confess that there is a great deal of improvement in the attitude of the Government recently, but when it goes further and the Government is of the people, for the people and by the people there will no longer be this question at all.

16847. Then, about the machinery that has been created by the department, even on that point your doubts would have been very largely cleared up if you had paid a visit to the Coimbatore farm or had a talk with the Director of Agriculture?—It must not be understood, if I may venture to say so, that I am making these observations without trying to satisfy myself as to the justifiableness thereof. If I have not seen a particular officer, I do not want you to deduce from that that I am hasty in my observations.

16848. I do not come to that conclusion at all. You say they have not done anything practical?—I have not said so absolutely; I have recognised the good they have done; I am grateful for whatever they have done.

16849. In the machinery department improvements have, of course, been effected on the indigenous methods of cultivation?—What are those?

16850. Ploughs, harrows and seed-drill monsoon ploughs, Sind ploughs?—By whom were they manufactured?

16851. I do not mean they manufactured them or invented them?—That is the point.

16852. Anybody can manufacture the harrow?—When there is a special department for that work, one does expect a little more.

16853. When they come to the Legislative Council for funds, there is a tremendous lot of criticism; they complain of enhancement of expenditure?—I am one of those who have been finding fault with the Government for not utilising the money given to them. I do not think it has been due merely to want of money. I want to be quite fair in this matter.

16854. You must take everything into consideration?—I have tried to be as fair as I could be, and I still am of that opinion.

16855. What prevents people themselves from inventing improved ploughs, harrows and seed-drills?—Lack of initiative to which many things have contributed.

16856. Initiative in what?—In the matter of inventing new things.

16857. Is there no initiative to further improve upon the plough and the harrow?—In this connection, I would like to say one thing. I have always had high hopes of the rich proprietors of the country; I think it is up to them to lead the country, because they have a large extent of property and considerable means at their disposal; if they take this question into their hands, much good will result; it is no good expecting these poor people to do it.

16858. They are taking it up very largely?—It should be more; the consummation would be much nearer if they took more interest.

16859. Take for instance education. Unfortunately I have to mention the part I myself took. Right from Ganjam to Godavari you will find the zamindars devoting their time to the public interests?—I am very glad you refer to yourself. It will make other zamindars follow your example.

16860. Do not talk of Parlakimedi. Take the educated gentlemen and people of standing in the industrial walks of life. Do you not think that they ought to take their share in the improvement of society?—I do.

16861. How many agricultural farms are there?—Run by private individuals?

16862. Yes?—To my regret I do not know of any.

16863. On page 698, you say, "Small areas of land on private fields might be taken on lease and improved methods demonstrated thereon at Government expense." That means practically you go back to demonstration being carried on by the department on their own farms?—On a very much less expensive scale than they are doing at present.

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16864. The expense is not the point I am referring to. To convince the ryot it is no use carrying on demonstration outside his own area; you must carry on the demonstration in his own field through him; that has been my experience?—I quite agree.

16865. Then, why do you prefer demonstration carried out on land leased at Government expense?—When you cannot get private people to experiment, then you can take land on lease; but wherever private people are forthcoming, certainly I should not ask Government to take land on lease.

16866. Do you not think that this may be put as an alternative?—I believe I have done so.

16867. But it does not serve any purpose?—I have been encouraging people in my district to carry on the experiments of the Agricultural Department under the supervision of Demonstrators. That is going on, and I say with good results also.

16868. You can encourage that sort of thing in other areas?—My point is this. Say, a demonstration is being carried on in Kalahasti. It is perfectly clear that only people who live within a radius of ten miles from that place may be benefited by it. But I want this to be carried to the people who live more than ten miles away from that place. If there is a private individual there ready to follow the advice and carry on a demonstration there, well and good. If not, then let the Government come to the rescue, take a small plot of land on lease, say, 2 acres, and show to the ryot what can be done by improved methods.

16869. Excuse my saying so, but with more practical experience I do not think you will encourage it because the ryots will not follow it, and unless they do it themselves, it is no good. Their answer is "You have got so many facilities, you have got money, and you can carry on such experiments, but it is beyond our reach."—Undoubtedly, I would prefer the ryot to do it, under proper direction, but failing that, I have suggested the second best thing.

16870. If they go round and talk to them, it has a good effect?—Yes.

16871. Would it not be a good thing if bulletins in their own vernaculars were circulated among the people?—Yes, but with the supreme illiteracy of the people, it does not go far enough; nothing but ocular demonstration would convince them.

16872. That is also one of the agencies which might be employed?—Yes.

16873. On page 699 of your memorandum you say, "Short courses of lectures for farmers at one or other of the agricultural farms; two or three ryots from each taluk might even be helped by railway fare to attend these lectures." Do you not think you should also take into consideration from what part those ryots come from, and also see under what conditions they carry on their methods of cultivation?—Surely, when we are going to help the man to go there, we should certainly choose the man who will derive the utmost possible benefit by going; it is no good having any one who offers himself.

16874. It is no good getting a ryot outside the permanent estates or from ryotwari areas, unless you are sure that he holds a long period lease?—Yes.

16875. So, when such instances have to be dealt with, you would make that distinction?—We shall take all these factors into consideration when choosing the people to go and attend the course of lectures, if they do not go there at their own cost.

16876. Further on you say, "I doubt whether an addition to the scientific staff of the Government of India would result in indirect advantages to the Province." Will you please put it more clearly?—I think that point has been discussed; when you, Raja Sahib, suggested whether a Central Institute might not be had, we went into that question.

16877. *Mr. Calvert*: Have you been to Pusa?—No, I hope to have that opportunity.

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16878. *Professor Gangulee*: You just now said that you had no opportunity to go to Pusa; did you seek an opportunity, did you create one?—If it is a question of funds, I am free to confess to you that I could not afford it.

16879. Is it a long journey? On your way to Delhi, you could have gone there?—No.

16880. Are you a landholder?—There is some land registered in my name, but I am not a farmer.

16881. I think you belong to the Theosophical Society?—I am a member of the Theosophical Society.

16882. Can you tell the Commission what success you have achieved in the efforts made by your Educational Trust in the direction of agricultural education?—They began it.

16883. When did they begin it?—In 1917, if I remember rightly.

16884. What happened to that scheme?—There was not sufficient response in the matter of money.

16885. Not sufficient response from the people?—There was not sufficient response in the matter of money.

16886. What about equipment?—Equipment they had, and it could have been improved if more funds were available.

16887. That farm, if I remember rightly was under a Dutch expert; was it not?—Yes, under Mr. Hindekoper.

16888. Both the farm and the curriculum, the teaching part, were under the care and charge of a Dutch expert?—Yes.

16889. And yet, you say in your memorandum "I am not for the employment of foreign agencies"?—It makes a world of difference, I should say. There was Mr. Hindekoper there, but his colleagues were all Indians, so that Mr. Hindekoper had always the benefit of his Indian assistants; I do not want to discriminate with respect to capacity and all that.

16890. Would you call him a foreign agency?—Yes.

16891. And yet you say that for agricultural research you would not have a foreign agency?—Mr. Hindekoper is no longer there.

16892. He gave the impetus?—That is my point; the impetus is no longer there.

16893. May I take it then that as soon as he left the place, the whole thing collapsed?—I am not quite sure about the dates and I cannot be positive about the matter, but I think he left in 1921.

16894. That is so. I think you have made a reference to the Millet Expert; you have not been to see his work?—No.

16895. Do you know the nature of the experiments he has been carrying out?—I admit that the appointment was for a period of short duration, 3 years or so, and I said that the results have not been encouraging, but I have said that it might be because the experiments were conducted in a soil not suited for the purpose.

16896. I have heard that answer already. I want to know whether you are aware of the type of experiments that have been done there, whether they were aiming at better cultivation, or better breeding, and so on?—The experiments were for better yield.

16897. Do you know how that work began, and who gave the money for it?—The Government gave it.

16898. You make comments on demonstration; have you ever attended any of the demonstration work?—Yes, sometimes I have.

16899. In which area?—In Kurnool district and Bellary.

16900. The Agricultural Demonstrator was demonstrating when you were present there?—Yes.

16901. What was your impression?—It was the usual kind of thing.

16902. What was the usual kind of thing?—Iron ploughs and so on.

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16903. What was the Agricultural Demonstrator demonstrating?—He was demonstrating with regard to smut disease for example.

16904. What was he actually demonstrating on the day you attended this particular demonstration work?—If I remember aright, it was only deep ploughing.

16905. What kind of plough was he using?—An iron plough.

16906. You consider it is quite an improved plough?—From the way it has been taken to, it must be so.

16907. Then what happened? There was the field, and you saw a number of villagers round about; there was the iron plough, there was the Agricultural Demonstrator and you yourself; what happened then?—Some people would observe that the iron plough goes deeper than the country plough.

16908. Did you feel that the cultivators were impressed?—I think so; they were impressed.

16909. Were you impressed?—Yes.

16910. With regard to your view that the Meteorological Department is not rendering any service to the agriculturist, have you any suggestions to make in that connection?—Absolutely none.

16911. Do you know the nature of the data that the Meteorological Department collects?—No; all that I am concerned with is that they should make a proper forecast as to when the rains will begin and things like that, for the cultivator to be ready for his operations.

16912. Have you taken any part in the co-operative movement?—I have just begun to do so.

16913. How have you begun?—There is the District Federation in Bellary, and I have been chosen to work on that.

16914. Are you a co-operator yourself in any form or shape?—I do not know if taking a couple of shares means being a co-operator.

16915. What shares?—Shares of the society.

16916. What kind of society?—A credit society.

16917. Is that credit society in a village area?—It is in a town area.

16918. You say that more co-operative societies should be instituted, but you say you cannot give us any idea how. You have no definite suggestion to make except to say that the co-operative movement should expand; but you have not studied the problem?—I have been touring round the villages; I know the places where the societies are.

16919. But many people can tour without knowing the conditions?—I have been touring round and seeing the societies.

16920. Have you made a serious study of the problem of agricultural indebtedness?—Yes, to some extent I have.

16921. Can you give us any idea of the extent of such indebtedness in your district?—Yes, I think I can, from the figures published.

16922. From the Government figures?—Yes.

16923. Anything from your own observation?—I feel that indebtedness has increased.

16924. Could you supply the Commission with certain definite data with regard to the extent of such indebtedness?—I take it you ask me whether I have collected the figures with regard to what it was sometime ago and what it is now; I have done it in stray cases, but not in a systematic way to cover any particular area.

16925. From stray cases, you are under the impression that indebtedness is increasing?—So far as statistics are concerned I have collected them in some cases, and my general observation is fairly extensive; that view is confirmed by the Government records which at any rate need not be considered to favour one view more than another.

16926. Do I understand you aright that you have made a study of a particular area with regard to indebtedness?—Yes, in the town.

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16927. We are concerned with the rural areas?—Sometimes I have tried to find out how they pay their assessments and things like that.

16928. It is a question of the extent of agricultural indebtedness?—That is why I have suggested that some attempt should be made to prepare such statistics.

16929. You state that you have made an enquiry in a certain area with regard to agricultural indebtedness; I want to know from you whether you can supply the Commission with any definite data?—No.

16930. You say, "Complete liquidation of all existing debts even by percentage payment by resort to legislation, if necessary." Can you explain, if you were Registrar of Co-operative Societies of this Presidency, how you would put this suggestion of yours into practice?—Even without the collection of definite statistics for an entire area, one can well be convinced of the indebtedness; that is my position. I know indebtedness is on the increase, in spite of the fact that I have no statistics of the sort required by you and I suggest that, in view of the fact that these people are indebted more perhaps than they are able to cope with, something must be done to start them with a clean slate. Now, how we shall do it is the question. Obviously, it is out of the question for them to repay, we must help them to start with a clean slate. So I suggest that we take into account all their assets and liabilities and see if we cannot pool resources and get the debts liquidated.

16931. But how?—For example, if the property is valued at Rs. 1,000 and his indebtedness is Rs. 2,000, I should say that it must be cleared for half the money; that is my point; it should be met by percentage payment. It may be drastic, but I know of no other way.

16932. I am afraid you have not studied finance carefully?—I have not.

16933. Have you any experience of the use of sulphate of ammonia?—Yes, in Hospet taluk it is used.

16934. Did you yourself use any quantity?—I am not a farmer.

16935. In what way have you come to know about it?—The ryots have been using it.

16936. You say the residual effect of this and other ammonium compounds should be carefully investigated. Are you here suggesting that the residual effect may be bad?—That is what one of the experts, a gentleman who has returned from America and who has been conducting these experiments, is not yet certain about.

16937. Did you yourself observe any residual effect?—It is too early to say.

16938. So, when you made this remark, you did not depend on your knowledge of chemistry?—I began by saying that I am not a scientist.

16939. So this remark has been suggested to you by a friend of yours?—Surely, as many other things have been.

16940. You ask the cultivators to stop the use of cowdung for fuel. Have you any definite suggestion as to how that could be done?—The only way I could think of is substitution of other fuel.

16941. How?—If a substitute is available. I do not know, it may be from the forest reserves; we can work them on a cheap method and procure fuel and supply it to the cultivators.

16942. On page 705, you make a suggestion that the supply of fodder can be improved first by helping ryots to reduce their useless cattle. That is a very desirable thing to do, but how?—I find that they are having a large number of cattle mainly for the purpose of manure. So I thought that, if they could have the manure from another source there would not be any necessity for them to keep such a large number of cattle on their hands, as they are doing now.

16943. *Mr. Calvert*: You say that you think a part of the increased income from land revenue should be devoted to the rural population. You know of course that in each succeeding settlement, the increase of revenue is less than the increase of prices of produce?—It is said to be less.

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16944. So, the burden on the land is getting less and less per acre after each settlement?—I cannot quite say so.

16945. The cultivators have to sell less and less of their produce to pay revenue?—Yes, they have to sell less and less, but whether the proportion is the same to the net produce, I am not able to say. It is true that he sells less quantity, but whether it bears the same ratio to his produce I am not able to say.

16946. With decreasing burdens, you want increased amenities? You say that you are opposed to the curtailing of the credit of the ryot?—Yes, that is true in one way; that is to say, I do not want to impose such a restriction on the whole class of ryots.

16947. You would be in favour of restricting his credit for extravagant and wasteful purposes?—We cannot do that absolutely for the whole class of ryots. That is to say, we cannot say to a ryot 'you shall not go and borrow from X, Y or Z;' but if he comes to me for a loan, I then impose on him a condition that he can borrow from me only and from none else; in that way I would restrict his credit.

16948. I gather that in your opinion there is an excessive number of cattle in the Presidency?—Yes, in areas near to the forests.

16949. Can you suggest any means compatible with sentiment of keeping the number down?—I think it might be kept down if the demand made for the use of those forests were reduced. I shall try to elaborate my point. Some of these forests have been given over to Forest Panchayats. These forests when they were under the control of the Government were not giving revenue to the Government; more or less they were losing concerns. When they were handed over to the panchayats, a sum has been asked of those people; sometimes it is comparatively heavy. I suggest the imposition of that amount as rent from the people makes them let in perhaps more cattle than they need otherwise do, in order to enable them to make up the money demanded of them. That is one way. Probably if you reduce the rent for those forests, we may eventually be able to persuade the ryots to restrict the number of cattle. They will have less to pay then.

16950. *Dewan Bahadur Raghavayya*: Is not a grazing incidence fixed for each reserve, i.e., so many cattle for so many acres, etc.?—That is what I object to; it must be left to the people.

16951. To Forest Panchayat officers in consultation with the people?—You know, in any argument between the Forest Panchayat officers and the people, who gains the upper hand.

16952. *Mr. Calvert*: From the figures supplied, I gather that a vast proportion of the cultivators of this Presidency are trying to live on three acres upwards. Can you suggest any means by which their prosperity and welfare can be improved?—No, except by the theory that the department should set out to make two blades of grass grow where one blade grows now.

16953. Three acres. Would not six acres mean still more prosperity?—I should say that by trying to improve the yield, by selection of seeds, by providing them with manure, by trying to economise their expenditure, by the introduction of machinery and things like that and in many other ways, you can bring about that result and probably find other avocations also for people.

I wish you success in your endeavours in your own district!

16954. *Mr. Kamat*: You are a public worker of some standing, are you not?—It depends on how you take it. I am trying to serve the people.

16955. You are a public worker?—Yes.

16956. You have been devoting some of your time to studying the needs of your countrymen and solving their difficulties if possible?—Yes.

16957. I suppose you are not in receipt of any Government salary?—No.

16958. And all this is purely voluntary and philanthropic work?—I am glad to say it is so.

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16959. And even for the agriculturist, such non-officials like yourself are absolutely necessary?—Yes, very necessary and the more their number the better for the agriculturist.

16960. Yours is a problem of studying facts in the field, by working on local bodies like panchayats or Municipalities, by mixing with the people and coming in touch with them. You agree with that view?—Quite so.

16961. You were asked a question as to whether you had visited Pusa. May I know your impression whether even all the agricultural officers of this Government have visited Pusa?—I do not know.

16962. Can you say that?—I think not.

16963. *Professor Gangulee*: How do you know?—There are so many Demonstrators and other officers like that who have never been there. I know a Deputy Director has gone; there may be others who have not gone.

16964. *Mr. Kamat*: For the matter of that, you think even the officers in the Agricultural Department of the Government of India could not have, all of them, visited Pusa?—It is not likely, I must say, on the face of it.

16965. We were told yesterday here that in the co-operative societies they have enough capital, and could also get more capital, to run land mortgage-banks. My question is with reference to the capital available in your Presidency and the state of private enterprise here. You make a suggestion somewhere that so far as expressing oil from oil-seeds is concerned, Government should take steps to demonstrate that something could be done. Is it your outlook that Government could do everything in such matters?—No, not everything, but they have to begin it if there is no other way of getting it done.

16966. If there is enough of capital available in this Presidency as we were told yesterday, I wonder why private enterprise is not coming forward to start an oil-mill?—I suppose it is due to want of knowledge on the part of those people and unwillingness to invest the money.

16967. In other Presidencies, Government have not started oil-mills. Why do you expect them to do it here?—I do not want them to do one thing or the other; but I suggest that these things can be done. If they can get private-agencies to do them, they can do so. For example, the pencil factory was started by the Government and then they made it over to private enterprise. Aluminium, I think, was similarly first demonstrated by Government.

16968. What happened to it?—They gave it to a private agency afterwards.

16969. Take again another observation of yours about the improvement of agricultural implements. You acknowledge that in another Presidency private enterprise has done something, but you add that such firms should be encouraged by the Government, you mean by the Madras Government?—By any Government.

16970. In Bombay they are not encouraged by Government?—That was a proposition that I made on behalf of Government.

16971. I am just trying to get at the outlook of people in this Presidency. Is capital available in such overwhelming quantity?—It is not available in such overwhelming quantities.

16972. We were told by non-officials yesterday here, by the Chairman of the Provincial Co-operative Union, that any amount of capital was available and that capital was lying idle with him, that he could run more land mortgage-banks?—In the co-operative societies there is a certain amount of capital lying idle, but they are finding it difficult to find an investment for it. I think it was based on that data.

16973. I want to ask you, as a public worker, why an outlet for that capital is not being found in the shape of private enterprise in the two directions which I cited?—Because they are not sure that those private enterprises would really prove remunerative. That is one thing: the second is perhaps that they have not the willingness or the ability to carry on the enterprise.

16974. I do want non-official agency to take up agricultural improvement work. Here are the two directions in which possibly a worker like you may

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try to do something. I want to know what the difficulty is?—As I have said, the people concerned are not convinced that they can take it up as a profitable enterprise perhaps.

16975. *Rao Bahadur Muniswami Nayudu*: You are a member of the local body?—I was. I am not now.

16976. You have some experience of the working of the local bodies in your district?—Yes.

16977. You say that the communications are quite inadequate and they receive practically no attention?—I refer to village communications.

16978. Is it your opinion that there has been some default on the part of the local bodies or that the local bodies have not sufficient funds?—I have said they have no funds.

16979. Have you any suggestion to make with regard to improving these communications?—I think the formation of village panchayats is the only practical method, so far as I can see, of creating an agency to look after these communications.

16980. Once there are roads, the village panchayats may look after them; but do you think the village panchayats will take up the work of constructing new roads at great cost?—All of these village communications cannot be made into first class roads, second class roads and trunk roads; but such communications can be improved a good deal for traffic; I think the village panchayats, if constituted and helped in certain directions, can take up the work and gradually improve the communications.

16981. Do you think the village panchayats, if constituted, can do that without further taxation?—I suggest that a certain percentage of the money accruing from the village should be given over to the panchayats, so that a percentage of the total revenue may form a nucleus of the panchayat fund.

16982. *Sir Henry Lawrence*: You have had some administrative experience?—Yes.

16983. How long ago?—Till 1915.

16984. You make a suggestion about the indebtedness of the ryot, to the effect that the borrowing capacity of the ryot should be fixed in advance subject to modification from time to time?—Yes.

16985. I understand you envisage a state of things in which the ryot will borrow all the capital he needs from Government for all purposes?—That is so, for all purposes.

16986. Have you calculated at all what is the total amount that the Government would have to advance for such a purpose?—I know it would be a very large sum indeed.

16987. Have you made any calculations?—No, I have not.

16988. It would run into a good many crores, would it not?—It would.

16989. But you think the Provincial Government should borrow this money?—It will have to borrow this money.

16990. And then advance it to the ryot?—If it cannot borrow the whole of that amount, it can make a beginning and see how it works.

16991. That is your scheme?—Yes.

16992. And then you propose to fix the capacity of the ryot; that is to say, the Deputy Collectors and such officers would have to ascertain the actual financial position of every ryot and decide how much he is entitled to borrow?—Yes, that is so.

16993. Would that be within the administrative capacity of Deputy Collectors in your experience?—It need not necessarily be a Deputy Collector, but some existing agency.

16994. What agency would you think preferable to the Deputy Collectors?—Well, there are the panchayats coming into operation; the panchayat officers or the revenue officers may be entrusted with that work; and in the co-operative societies you may perhaps find people capable of doing that work; that is a matter of detail.

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16995. You think it would be a feasible practicable administrative action to take to fix the borrowing capacity of every ryot?—It has got to be done.

16996. And to modify it from time to time?—That also has to be done, because the price of cotton, for example, may go down, and then the borrowing capacity of the ryot would be reduced; that is why I say we should not commit ourselves once and for all time to any certain figure.

16997. You have held *jamabandi* meetings?—Yes.

16998. Would you have there this annual discussion as to the borrowing capacity of every ryot?—No, not at a public gathering; it would scare them away at once.

16999. It would be done *in camera*?—It need not necessarily be done in public; certain people can be enquired of.

17000. Then after that the further stage is that you should have a complete liquidation of all existing debts by percentage payment by resorting to legislation if necessary; that is your phrase?—Yes.

17001. What does that mean? Would you have some legislation passed through the Legislative Council?—Yes.

17002. To decide that all debts should be liquidated at a particular percentage?—We should probably pass a rule that no creditor should claim as interest a sum larger than the principal; a rule of that sort would go some way to help. If we dealt with each village as our funds permitted, we should be able to deal with the indigent people in that village, or at any rate, such people as cared to come to us to have their debts liquidated.

17003. I want to go step by step. First of all, you will have a law introduced into the Council to authorise Government to wipe out all debts upon payment by the ryot of a certain percentage?—Yes.

17004. What sort of percentage would you contemplate?—I would take into consideration the assets and liabilities of the debtor.

17005. But in a law you cannot deal with the individual case?—We should not fix the percentage in the law.

17006. You leave it to Government to determine that?—Yes.

17007. Do you think the Legislative Council would be willing to give that power to the Government?—That remains to be seen.

17008. Do you think it is probable?—I think that is the only thing that can be done; there must be a complete liquidation of the debts of the ryot so that he may be able to start afresh and not be allowed to run into debt.

17009. What have you in view: that if the moneylender is paid 20 or 30 per cent. of the debt outstanding, then the ryot would be free of debt?—That is right.

17010. Is that the sort of percentage you have in view?—Yes, and he would be able I think to come to terms on that basis.

17011. The moneylender would?—The moneylender, because when he knows that the man's capacity is only that and no more, and when he sees also the danger perhaps of postponing the recovery, he may come to terms.

17012. Would that apply also to mortgage debts; would he be glad to come to terms on a similar system for mortgage debts?—It depends on the amount.

17013. You are a man of experience in business?—I know you have to respect encumbrances on the land, and we cannot make them all insecure.

17014. You think that is the best solution of this problem of indebtedness?—I cannot think of anything else.

17015. *Sir Thomas Middleton*: You have told us that your experience has been chiefly as an administrative officer and as a public worker?—Yes.

17016. Have you at any time farmed your own land?—No.

17017. In what districts has your experience been mainly?—In Bellary and Kurnool.

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17018. Can you tell me, from the information you have gained as an administrative officer, what number of acres a ryot in the Bellary district can work with one pair of bullocks; what is the usual extent?—About 15 acres.

17019. Does it vary much in that district?—It does.

17020. Under what conditions?—I suppose if he has less land he cannot cultivate more; if he has more he tries to do it with the bullocks in his charge; that is all; I mean it depends on the extent of his occupation. The average would work out at 15.

17021. The average is 15 acres, but if he has a holding of less than 15 acres, naturally he is unable to supply the 15 acres required. Is there no difference in the different soils of the district?—A very great difference.

17022. Have you got both black and light soils in Bellary district?—Yes.

17023. Has there been much experimental work done by Indian agriculturists in the Bellary district?—Some people have carried on experiments under the direction of the Agricultural Demonstrators.

17024. *Dr. Hyder*: You have referred to transport charges. Is there much coastal traffic in the Madras Presidency?—No, not much I should think.

17025. Do you think the charges are high?—I had in mind the transport charges between, say, Great Britain and here.

17026. Sea transport or land transport?—Sea transport.

17027. Are you acquainted with the system of charging?—It is 33 per cent.

17028. Is it at the back of your mind that these charges are kept up by means of rings?—There is also that.

17029. Have you got any proof of that?—No.

17030. I did not understand some of the answers you gave to questions put by my colleagues at the other end of the table. Your idea with regard to grazing is that the Government should limit the amount which it at present levies from these Forest Panchayats?—Yes.

17031. Do you say that would tend to reduce the number of cattle?—I say that would be one of the factors.

17032. Let us see if we can test that by an illustration. Do not consider the grazing of cows; let us turn our minds to motor cars. If charges for the use of motor cars were abolished, so that anyone could ride whenever he liked in a motor car without charge, do you think that would increase or decrease the number of people who would ride in motor cars?—Obviously it would lead to an increase.

17033. Supposing these charges were remitted in the case of grazing, would that increase or decrease the number of cattle?—I admit we should have to remove all the inducements to the people to increase the number of cattle. The charge for grazing is 4 annas per cow; if the forest is charged a lump sum of Rs. 250, the people think that they have to permit a thousand cattle to graze in order to be able to pay the Rs. 250. If the amount charged were less, we should be able to educate the ryot and show him that as he has not so much to pay he need not allow so many cattle.

17034. If the amount charged were decreased, you think there would be a tendency for the number of cattle to decrease?—We should have to educate the ryot.

17035. I suggest to you you have used extreme instances to illustrate your point with regard to Bellary famines and decrease in yields?—No, I have not: I have taken the latest.

17036. With regard to this consistent decline in the yield per acre of agricultural produce, I think you refer to the Hospet taluk particularly?—Yes.

17037. What is your explanation of this consistent decline in the yield per acre?—I cannot give you the explanation, but the fact is there, and that is the reason why I want statistics to be collected.

17038. I wonder whether you will agree with this explanation. This refers particularly to the division of Hospet with its three taluks; this is what is

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said: "Transplanting, a practice most useful in economising water, in increasing the outturn, is not in vogue in this district except in the case of *ragi*. The ryot is by nature somewhat apathetic and is content with the minimum crop that untilled land can yield"—I disagree with the last part.

17039. Do you think this does not represent the facts?—The ryot is not content with the minimum crop.

17040. With regard to this taluk of Hospet to which you refer, do you not think that the lands are of the poorest quality in the whole of the district?—Lands on the Tungabhadra canal are all valuable lands.

17041. Apart from those lands, what about the other lands?—Those remarks apply to lands under the Tungabhadra canal with reference to paddy and paddy is grown there.

17042. What is your idea about crop cutting experiments? You say that the average fields should be selected for estimating from year to year. If you were asked to conduct these experiments, how would you proceed?—I should select typical villages for each taluk and in these villages typical fields which may not necessarily be lands of more than average quality. I should like to carry on experiments from year to year. Then probably we should be able to come to a definite conclusion whether the yield has steadily been on the decline or on the increase.

17043. Would you keep the yields from different classes of soil separate? Do you not think that if a larger number of experiments is carried on in a particular kind of soil, there will be greater accuracy in results?—Yes, greater approximation.

17044. *Dewan Bahadur Raghavayya*: On this question of roads, a question was put by Rao Bahadur Muniswami Nayudu and you said that village panchayats could be entrusted with the formation of village roads. That does not dispose of the whole problem. I take it that it is your view that trunk roads (first and second class roads) are also not adequate?—No, they are not adequate.

17045. You will find there is only one mile of road for about 6 square miles in the whole Presidency. Do you consider that adequate?—No.

17046. Do you consider that the trunk roads are also not adequate?—They are also inadequate.

17047. Have you any constructive suggestion to make in regard to the financing of the construction of these important roads?—For the trunk and the second class roads?

17048. Yes, and also those which are not village roads but inter-taluk and inter-district roads?—For their improvement, provincial contributions are required. Also the District Boards may be enabled to earn more.

17049. In what way?—For example, if a scheme like the Tungabhadra is introduced in the Bellary district, you increase the revenue of the District Board. That, again, means an increase in the revenue of the Local Boards because they charge so much per rupee of the land revenue. In that way their resources can be increased.

17050. In the shape of the road cess also?—Yes.

17051. Do you find the road cess adequate for such purposes now?—It is one of the methods by which you can improve the resources of the local bodies.

17052. You have no other constructive suggestion to make in order to improve the finances in such a way as to enable local bodies or the Government without entrenching upon the public exchequer to extend these communications?—They have the power to tax themselves also. If they are in a position to tax, they will tax themselves.

17053. Yesterday you referred to some order under which tanks and channels which had been damaged and which required reconstruction or repairs should not be reconstructed or repaired unless the revenue came to 25 per cent. of the outlay on their repairs or restoration. What order are you referring to? Is it any standing order?—No. The Chairman was good enough to observe that I had used the words "want of imagination." That was a strong expression,

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and I wanted to justify myself by citing a case which makes one rather feel strongly. I find from the Gazetteer that when these tanks were destroyed, the then Government issued an order to the above effect, the exceptions being only two tanks, one at Daroji and the other in Anantapur district.

17054. That was an order issued at the time and applicable to the representations that were made at the time to the Government of the day?—By the officials of the day.

17055. I was in the Anantapur district for 2½ years and I did not come across any such order?—I have been referring to what has taken place.

17056. *Sir Henry Lawrence*: What was the order?—I shall read out the extract from the Gazetteer. I think it was in Sir Thomas Munro's time. "In May of the next year he sent some details of the damage done. In the 4 Ceded Districts, 4 dams, 752 tanks, 260 *nullahs* and 855 wells had been either destroyed or greatly injured and, although only such of them had been restored as possessed sufficient *ayacut* to repay the outlay in four years, as much as 6½ lakhs had been spent in repair. Again you will find a similar thing in 1851. The estimates for the necessary repairs amounted to 3 lakhs and, as before, it was directed that only those works should be put in order which would cost less than four years' revenue to restore."

17057. You say there is an order to the effect that unless the money could be recouped within 4 years, the work should not be done. Can you quote that order?—That was the order issued and acted upon in these areas.

17058. What is the order?—I do not know exactly what the order is but the reference is made to it here in the Government publication.

17059. There was no such order?—I am only referring to a Government publication.

17060. *Dr. Hyder*: How old is this reference?—There was one storm in 1804, another storm in 1817 and another in 1851.

17061. Those are the dates of the storms, but when was this order passed to which you refer?—The orders were issued evidently as each event took place.

17062. You do not know anything about such an order?—Except that such a thing was acted upon, I know nothing else.

17063. *Dewan Bahadur Raghavayya*: You do not mean to say that it was due to the wrong policy of Government that there was such an order?—I never suggested that.

17064. *Sir Henry Lawrence*: There never has been such an order?—May I pass on this book, namely, the Gazetteer? It is a Government publication.

17065. *Dewan Bahadur Raghavayya*: You say that in order to stop the use of cowdung as fuel other cheap fuel should be increased for cooking purposes. I believe it is within your knowledge that until very recent times there were a large number of babul trees and also a number of topes on communal lands in villages. Even in the Bellary district, I believe there was a larger number of trees in the old days than there are now?—To some extent that is true.

17066. Can you say why the tree growth has diminished in recent years?—It is due to cutting down of trees by the cattle-grazing people.

17067. Have you any private plantation of fuel trees in Bellary or Anantapur?—Just a few of them.

17068. Will it not be possible to raise private plantations of fuel trees on the poorer soils of Bellary and Anantapur?—I have been suggesting that. I have requested some friends to grow casuarina trees. It will be taken up as an experiment.

17069. If lands are assigned for that purpose, people would be inclined to grow those trees?—I am persuading the people to try the experiment.

17070. Will the Forest Panchayats do such work?—They may.

17071. I find that they have done a certain amount of tree planting in the area under their jurisdiction?—That is one of the reasons why I want to encourage people to do this. Let them amass money and grow rich; it does

not affect us at all. But we must offer as much inducement as is possible to develop these things. I do not want that the Government should put any burden on them.

17072. If you entrust this work to Forest Panchayats, then it does not mean any burden on the people?—At times, you fix the rent that is due to the Government high.

17073. That is about the administration of Forest Panchayats. Are you not aware that these rents represent the average income which Government was realising from these areas for certain panchayats?—It is not so. In these districts the Government had not been realising anything worth mentioning but when they were transferred to Forest Panchayats they wanted to levy an unduly heavy amount.

17074. I am afraid that is not the case. I had been to these Forest Panchayats while on the Board of Revenue and I know that the rent fixed by Government is always less. In some cases no rent is levied and in other cases it is levied only for the first three years?—I know the Government have been revising their old policy during the last year or two. The Government themselves have said that these figures were excessive and they wanted to reduce the amount. This is what they said in answer to my questions in the Council.

17075. You cannot complain now about this rent?—We are not concerned with that now.

17076. You have mentioned it as a policy which is not conducive to proper administration?—Those figures which were fixed 5 or 6 years ago are still heavy enough.

17077. You know, I suppose, there is something like grazing incidence and the Forest Panchayats fix the number of cattle to be taken into their reserves. It is something like 3 acres per cow?—It is practically fixed for them by the Panchayat Officer.

17078. It is a matter of expedience. You want three acres of land at least for a cow to get adequate grazing and that is why three acres is fixed as a unit?—Why should the Government fix this at all. Why do you not trust the panchayats to find out the proper number?

17079. It is just to prevent over-grazing. You were just now complaining of over-grazing. You wanted the area to be limited?—These restrictions defeat their own object. We have to create a sense of responsibility among the people. If they over-graze, then you should take away the forest from them. A system like that would be more effective. The whole system is based upon the assumption that we are devolving a certain amount of responsibility on these panchayats.

17080. You make a suggestion on page 704 that the outbreak of contagious diseases could be brought to the notice of the veterinary officers much more quickly than at present because Agricultural Demonstrators who are constantly on tour could more quickly come to know of the outbreaks of diseases and bring the information to the notice of the veterinary officers, much quicker than the village officers. You mean to say that village officers remain in their villages and therefore are the people that would naturally come to know of these diseases first?—Yes, I had that in my mind.

17081. While Demonstrators are people who are in charge of two taluks; if there is an outbreak in a taluk from which they are removed they might not know about it for sometime?—I do not say that the village officers should be nowhere in my scheme. The Agricultural Demonstrator may derive the information through the village officers and also directly from other sources.

17082. You want that that should be a supplemental source of information?—The village officer is now the person who communicates the outbreaks to the Veterinary Department.

17083. And also to the revenue officer?—Yes; I would substitute the Agricultural Demonstrator for the Veterinary Officer, so that the Agricultural Demonstrator will have to get the information from the village officer as also by his own observations.

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17084. But the man that is to tackle the disease is the Veterinary Officer?— I have said that the Agricultural Demonstrator may attend to petty diseases; I have suggested that.

17085. You want to convert him to an additional Veterinary Assistant?— Just as the post offices are entrusted with small additional work like sale of quinine and the rural officials are entrusted with small medicinal boxes.

17086. That does not apply to epidemic diseases such as rinderpest?—No.

17087. Then there are figures which you give on page 707 of your note which I am not able to understand. You say the number of non-cultivating tenants in the Bellary district rose from 256 to 28,298 in 20 years. Have you not misread the figures in the Statistical Atlas; I find there has been in the Presidency, as a whole, a certain amount of increase under non-cultivating tenants; from '4 of the population it rose to 2·2? But your figure suggests that the increase was far greater, from 256 to 28,298? I think you have misread these figures? Have you the Statistical Atlas?—I have not got the Statistical Atlas but I have my authority for it.

17088. The figure I have here against landowners, deriving income from rent of agricultural land leased, is 28,298. This includes actual workers and dependents. The income from agricultural land leased applies to landowners and not to tenants?—I have taken my figures from the Madras Census Report.

17089. The figures are all right; but you have misread those figures. The landowner who has leased his agricultural land has ceased to cultivate himself?—Are you referring to figures for 1921?

17090. Yes, for 1921?—The income from rent on agricultural land is the important thing. The figure against non-cultivating landowners is 35,920 (including workers and dependents, of whom 16,000 were dependents) deriving income from rent on agricultural land.

17091. Leased?—Leased, yes; that is, the non-cultivating tenants; income from rent on agricultural land leased.

17092. *Mr. Calvert*: What is your deduction? What do you deduce from these figures?—My point is that the cultivating landowners are on the decline.

17093. Does it not show a large increase of prosperity?—No; non-cultivating landowners are increasing.

17094. Take the converse. Government revenue has gone down; taxation has not increased with the rise of prices and other people are now living without doing any work?—But they have purchased the land. They have taken the land from the poorer people and leased it out to the others. How does this come about?

17095. Increase of prosperity?—You find that the cultivating landowners have gone down considerably. The number was 451,035 in 1901 and it is now 315,949.

17096. Increase in prosperity?—But the people have sold their land?

They have no need to work; they live on rents; there is less need to work now and people depending on land also have been compelled to part with their land.

17097. The margin left to the owners is more and therefore more and more people are living on land without working?—No; they come back again as tenants.

17098. *Dewan Bahadur Raghavayya*: If your interpretation is correct then the holding of the land must be profitable; it must be paying to the non-cultivating tenant as well as the cultivating tenant as the case may be, and also to the owner of the land?—My reading is this; so far as the actual cultivator is concerned he is not getting sufficient return; the other gentleman makes the most of it.

17099. Who is the other gentleman?—The non-cultivating landowner or tenant; he gets more for his share while the man actually tilling for him, the tenant or the cultivating landowner, does not get enough.

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17100. *Dr. Hyder:* Was there not plague in Bellary in 1910 and did not people leave the district? They did not invest the money but took away the money from the land and invested it outside Bellary?—No; I do not think so.

17101. *Sir James MacKenna:* In answer to Sir Henry Lawrence I think you said that you are in favour of flotation of public loans to raise money to enable the ryot to borrow as and if he needs, provided he does not exceed his borrowing capacity. Where would you suggest that this highly attractive loan be floated, in Madras or in London?—I have not thought about the matter. I think the Government, if they care, will devise the best method for it, in the most profitable way.

17102. You suggested a loan; you think that it would be subscribed by the public?—I do not know.

(The witness withdrew.)

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Note on the well-being of rural population.

The normal yield in the Madras Presidency of the various food grains, allowing for removal of the husk is approximately—

	Tons.
Paddy	5,250,000
Cholam	1,308,000
Ragi	1,064,000
Cumbu	682,000
Korra	210,000
Varagu	263,280
Samai	88,030
Maize	36,930

Very little work on nutritive value of food grains, apart from that now being carried out by Lieutenant-Colonel McCarrison, I.M.S., at Coonoor, has been done in India. The most notable investigation is that undertaken by Lieutenant-Colonel McCay on the dietary of prisoners in Bengal Jails, and published in 1910. By chemical tests he showed the quantity of each nutritive material (protein, carbohydrate, fat, mineral matter, water) certain grains contain. The facts are given in the following table.

	Protein.	Carbohydrate.	Fat.	Moisture.	Ash.
Burma Rice	6·95	77·25	0·96	11·13	1·34
Country Rice	6·86	78·85	0·86	11·05	1·32
Wheat Flour	12·24	70·92	2·18	11·83	2·43
Makki Flour	9·55	66·20	2·30	11·50	3·55
Mung Dal	23·62	53·45	2·69	10·87	3·57
Masur Dal	25·47	55·03	3·00	10·23	3·33
Gram Dal	19·94	51·13	4·31	10·07	3·72
Kalai Dal	22·53	58·02	1·10	10·87	3·61
Malton Dal	22·01	53·97	1·96	10·96	3·60
Arhar Dal	21·67	54·27	3·33	10·08	5·50
Millet	10·20	68·30	3·90	13·00	5·10

The analysis of millet was not made in this country.

The chemical composition of grain as revealed by ordinary analysis varies within certain limits according to the area in which it is grown. This is perhaps not of very great practical importance. There are, however, certain "accessory food factors" or "vitamins" which have not yet been isolated but are of vital importance. Their presence is necessary to growth and their

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absence is the cause of certain definite deficiency diseases, and perhaps of other vague conditions of ill-health. Lieutenant-Colonel McCarrison has shown that the vitamin content of a grain varies with the conditions under which the plant is grown. Further investigations on these lines are of incalculable importance.

I wish to add a few words on the effect on health of a deficiency of the ordinary chemical constituents of a normal dietary.

Such deficiency may arise for two reasons:—

In the first place a diet though abundant may not be easily digested and absorbed. That is a diet of choice, though chemically abundant may be physiologically a diet of partial starvation. Secondly there is the diet of necessity from economic reasons—a diet chemically deficient and so a diet of starvation. In both cases ignorance may be of importance.

Lieutenant-Colonel McCay carried out many experiments on the digestibility and absorbability of the Bengal jail diets. His work was published by the Government of India in Scientific Memoirs No. 37. He found that about 50 per cent. only of the proteid value of the food was absorbed when rice in large quantities was consumed. In those days the jail diet included 26 oz. of rice.

A man in full work requires 19 oz. of rice to provide his carbohydrate need. Lieutenant-Colonel McCay found that any excess over this quantity resulted in very defective protein absorption—in other words protein starvation on what chemically and physically appears an abundant diet. The consumption of 1½ lbs. of rice daily is not uncommon among rice eaters.

There is no need to multiply instances of defective absorption: it is patent to all that methods of cooking influence digestion; thus, large masses of tough *chappatties* make effective penetration by the digestive juices difficult.

The points I wish to bring out are that a degree of starvation may arise even with a diet of choice and that much more work is required on the chemical composition of food grains in India, on their absorbability. Under-feeding from a deficiency in the diet itself of one or more of the essential chemical ingredients (excluding vitamins) is even more common. It is not generally due to a general insufficiency of all ingredients, but to a relative lack of one nutritive constituent. I do not wish to be misunderstood. I am not now including vitamins in the nutritive constituents, although their absence appears to arrest growth. Their action is obscure, but they seem to render possible the assimilation of certain nutrients. Vitamins cannot maintain life and health unless the nutritive constituents of the diet are present in their proper proportions.

What is the constitution of the diet of the agricultural population? It varies naturally in different localities and I have no certain knowledge.

Here is an actual example of a diet of agricultural workers on the East Coast, among whom the deficiency disease allied to beri-beri is common.

Rice	24 to 30 oz.
Dal	1 oz. (eaten 2 or 3 times a week).
Meat	½ oz. (eaten once in 10 days about).
Oil (vegetable)	½ oz. to 1 oz.
Milk—Milkproducts—very occasionally used.	

The figures constitute an average, based on the amount of these materials consumed over a certain period. It cannot be said that each individual received a similar share.

This is a diet extremely deficient in protein and fat and this deficiency is accentuated by the huge bulk of rice interfering with protein absorption. It is a starvation diet. Compare this with the diet of certain hill tribes of Bengal (taken from Lieutenant-Colonel McCay's Report) and with the diet given to Indian Troops.

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Bhutias (dandy-wallas, coolies, etc.)

Rice	24 to 28 oz.
Meat	16 to 20 oz.
Vegetables	6 to 10 oz.
Butter	4 oz.
Bread	6 to 8 oz.
Cheese	2 oz.

Bhutias who earn less wages.

Rice	16 to 18 oz.
Meat	16 oz.
Vegetables	8 oz.
Cheese	2 oz.

Sikkim Bhutias.

Rice	16 oz.
Meat	16 oz.
Vegetables, etc., as above.	

Lepchas (Poor classes).

Rice	28 to 30 oz.
Meat	8 to 10 oz.
Vegetables, etc., as above.	

Nepalese.

Rice	16 oz.
Dal	4 oz.
Meat	8 oz.
Vegetables	8 oz.

Nepalese Cultivators.

Rice	24 to 28 oz.
Dal	4 to 6 oz.
Meat once a week	8 oz.
Vegetables	8 oz.

Indian Troops Diet—(Supplied free to Indian Army Service Troops).

Rice or atta	24 oz.
Dal	3 oz.
Meat	3 to 4 oz. in lieu of 1 oz. ghi.
Ghi	2 oz., or 1 oz. if meat is given.
Vegetables	6 oz. (3 times a week).
Sugar	1½ oz.
Potatoes	2 oz.
Salt	½ oz.

Considerable information on the part played by habitual underfeeding in the production of physical deterioration is to be found in the Report of the Inter-Departmental Committee on Physical Deterioration—London, 1904.

The Food (War) Committee Report contains further information on the effect of a reduced diet on a population previously well fed.

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"The first effect of diminution of food is a diminution in the weight of the body. The individual if he remains at his work puts out the same amount of energy as before, the energy lacking from food being supplied in the first place by the fat and in the second place by the muscular tissues of the body."

"This seems to have been the condition of the greater part of the urban inhabitants of Germany during the War, these having received a daily allowance of food of not more than 2,000 calories. They lost weight, but they were stated to be able to carry out their ordinary work under the stress of circumstances in which they were placed. This state of economical nutrition seems to be without danger to health even when extended over some months. When extended over years, as in Germany, the general effect appears to be a diminution in the resistance to tubercular infection, the incidence of tuberculosis and the deaths from this disorder having largely increased in all parts of Germany. On children the effect of the diminished diet has been to restrict growth, but not to stop it. Experiments on animals, as well as German observations tend to show that return to normal conditions will probably be followed by an increased rate of growth, which will be sufficient to make up for that lost during the past years."

The important points brought out are:—

- (i) Underfeeding leads to physical deterioration.
- (ii) The effect of underfeeding is a lowering of the power of resistance to disease.
- (iii) The resumption of a sufficient and well-balanced diet results in a return to normal health.

The effect of underfeeding in producing liability to disease is well illustrated in the outbreaks of relapsing fever and typhus which followed the potato famine in Ireland: in the epidemic of malaria associated with scarcity in India, in the prevalence of epidemic ophthalmia among underfed children.

The remote effects of underfeeding especially on the mind are not less injurious. There is not only a lowering of mental power, but imperfect nutrition of the brain is apt to produce a "feeling of dissatisfaction, discomfort and depression, culminating sometimes in madness and hallucinations."

Investigations into the dietaries of sections of the population in other countries have yielded valuable results, one of the most important deductions being that defect is due not so much to poverty as to ignorance. Further investigation is urgently needed in India. May I indicate a few lines for such investigation for the information of the Royal Commission.

- (a) Actual dietary of different classes in all parts of the Province;
- (b) the chemistry of food;
- (c) the physiology of food, i.e., the factors favouring or impeding digestion and absorption of each food;
- (d) the pathology of food;
- (e) the natural food products that are substitute foods for use during famine and other times;
- (f) the preservation and distribution of food;
- (g) utilisation of waste products;
- (h) the cooking of foods;
- (i) the economics of nutrition.

The above can be multiplied but they are sufficient to indicate the need for knowledge. Poverty is difficult to remove; ignorance can be countered more readily.

The requirements are:—

- (1) an Institute where nutrition in all its aspects can be studied;
- (2) a liaison either in the Institute or in different institutes between medical men, pharmacologists, agriculturists and engineers;

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- (3) a direct connection between a nutrition enquiry and "Sanitary demonstration areas," "model villages or health villages" the establishment of which is of such vital importance to the welfare of the rural population.

Remarks on medical education may seem to have little connection with a Commission on Agriculture, but the work of the Commission will not be complete unless the future health of agricultural workers is assured.

"The practical basis of preventive medicine is personal hygiene." *

* * "a knowledge of the laws of health, sound physiological living and the avoidance of slight but habitual departures from it."

"If every individual could forthwith practise a life of hygiene * * *

* a vast mass of functional disease would disappear in a month, and a great deal of preventive work for the individual and the community now incumbent and imposed upon us as a nation, would be redundant and unnecessary."

The laws of health may be acquired through propaganda work and demonstration areas, but the real way for spreading such knowledge is through the medical practitioner who comes in intimate and daily contact with the people.

Sir George Norman, from whose pamphlet the above extracts are taken rightly points out that the student of medicine should be taught "the science and art of his calling as they are applicable to the work he will have to do." When a patient consults a doctor he wants treatment, but he also wants to know how long he will be ill and incapacitated for work, and if he can keep from getting the same illness again. Preventive medicine enters into every case and should enter into every subject in the curriculum. The General Medical Council of Great Britain has laid down that it should, and facilities for carrying out this instruction have in part been secured by the raising of clinical teaching to University standard through the establishment of "University clinics" or "Clinical Units." India should follow suit.

Addendum to the above Note.

Pulses.

According to information received the normal output of the pulses freed from husk is 260,000 tons approximately. This figure is exclusive of horse gram, but it is said that this is mainly used for horses and cattle.

The chemical composition of the pulses has been given in the table of analyses. They are relatively rich in protein, and provide a cheap and efficient method of supplementing the deficiency of nitrogen in a purely vegetable diet.

260,000 tons would supply only about $\frac{1}{4}$ oz. per head daily to the population of the Presidency. If these figures are correct the deductions are:—

- (i) Many individuals must obtain their protein from animal sources—this is certainly the case to some extent: fish, meat and milk products are used, but I cannot say how many use them and how much.
- (ii) A considerable section of the population must depend mainly on cereals for their protein supply. In other words there is protein deficiency in the diet. It is protein deficiency which is responsible for lack of resistance to infection and for physical deterioration.

The average output of the main cereals is about 9 million tons allowing 1 to 1½ lbs. per head of population daily. Of the cereals rice is by far the poorest in protein, and about 20 per cent of the protein is unabsorbed even when rice is taken in small quantities. Rice forms nearly 60 per cent of the cereals produced in the Province. In nutritive value the millets are held to stand midway between rice and wheat.

I have no information on the volume of cereals—pulses imported and exported.

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Oral Evidence.

17103. *The Chairman:* General Hutchinson, you are Surgeon-General to the Government of Madras?—Yes.

17104. We have heard evidence on the Public Health side of this Presidency. Would you just, for the sake of clearness, tell the Commission what your own responsibilities are?—My responsibility is for the health of the Province generally; it is mainly medical education and the treatment of the sick in the hospitals.

17105. You put in a note, which the Commission has read with much interest and for which we are greatly obliged to you, which deals in the main with the question of nutrition?—Yes.

17106. I do not know whether on that or any other subject you wish to make any general statement at this stage or shall I proceed to put a few questions?—I should like to answer questions.

17107. Did you hear the evidence given before the Commission by Colonel McCarrison this morning?—I did.

17108. Have you anything to say on Colonel McCarrison's work and opinions?—I think Colonel McCarrison's work is of vital importance to the well-being of the whole population of the Madras Presidency.

17109. It will be within your knowledge that Colonel McCarrison is concerned about the future of the work which, in the nature of things, must pass from his hands some day. Have you any views about that?—I am personally more concerned about it, because I see we are never going to get any great advance in making a healthy population unless we get down to the root of the whole problem which is nutrition; my aim is now as soon as ever we can, to attach men to Colonel McCarrison's Laboratory so that the work can be carried on.

17110. That is so far as the problem can be met by training future workers. How about the relation of Colonel McCarrison's Institute to the Presidency? Would you look with favour on any proposal to incorporate such work as part of the medical work in this Presidency?—Yes, certainly.

17111. And do you like Colonel McCarrison attach importance to a continuation of the sympathetic interconnection between Colonel McCarrison's Institute at Coonoor, the Agricultural Institute at Coimbatore and the Animal Nutrition work at present being carried on at Bangalore?—Yes, I think that is very important.

17112. So that I gather that it would be your ambition in any scheme that you might recommend to the Government to make provision for the proper co-ordination of these three departments?—Undoubtedly.

17113. The Animal Nutrition Section at Bangalore is of course under the Imperial Government, but that should be no bar to a sufficient linking up of these three institutions to ensure complete co-ordination of the work?—I think co-ordination can be secured by the individuals concerned.

17114. You probably agree that you are very fortunately placed in the matter of individuals at this moment?—Very.

17115. One's experience in these matters is that a continuity of co-ordination sometimes has to depend on something more than mere good-will between individuals?—If you wish to secure continuity of co-ordination then you must have a Central Institute where all are working under the same roof under the same Director.

17116. That is your view?—Yes.

17117. Do you attach great importance to a continuation of the co-ordination between these three?—Yes, I do; it is very important.

17118. Then what scheme have you in mind?—At present my scheme is to get the medical side going.

17119. Under the Province?—Yes; that is the first essential.

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17120. What would Colonel McCarrison's personal position in regard to his own seniority in the service and so on be in such a scheme?—Colonel McCarrison is now a Member of the Medical Research Department. What I hope to see is that he will become the Director of the Pasteur Institute at Coonoor.

17121. That would give him complete control of the buildings and in your view he could carry on the essential work of the Pasteur Institute which, I take it, is the supply of anti-rabic serum?—It could be done under his direction; it is not a very difficult business. At the present moment the people do not come up there for treatment in large numbers; the vaccine is distributed to various centres and people are treated in the hospital centres.

17122. So that practically it is a matter of routine?—Certainly.

17123. It would not interfere with his work to any serious extent?—No.

17124. Would you tell the Commission what degree of probability there may be in your mind that your plan will be given effect to within a reasonable amount of time?—I am afraid it is very difficult for me to answer. It is a question of finance; but I very much hope that we shall get a beginning in the next year.

17125. You say "beginning"; what do you mean by that?—To get Colonel McCarrison appointed in charge of the Institute, and to put under him a trained Chemist. That I call a beginning.

17126. But you do not anticipate that the Institute could be put on to the provincial budget at that time?—The Institute at the present moment is a private association more or less, but Government already subscribe practically half the expenditure. It is quite possible we may get the Institute taken over entirely as a Government institution.

17127. But the Government of the Presidency?—Yes. At the present moment it is run nominally by a private association.

17128. Have you considered the alternative, the obvious alternative, of this Institution or a group of institutions being under the Government of India?—I have not considered this particular Nutrition Institute as a central institute. I have had experience of getting a Central Institute started. There has been a proposal for many years for having a Central Research Institute at Delhi; we almost got it on its legs; but it has not been got going yet.

17129. I have no views one way or the other myself; I merely throw out the suggestion. Quite obviously the work of the Institute is of All-India importance?—I admit that; but I am speaking from the point of view of the Presidency for the health of which I am responsible and I want one immediately.

17130. Is there any half-way house by which you can ensure continuity and ensure financial support for this work?—The half-way house is a Provincial Institute to which the Indian Research Fund Association will continue to contribute.

17131. You look forward to a contribution?—That is what I want.

17132. I am well aware of that. You do look forward, when this Institute is provincialised, to a considerable contribution from the Research Fund?—Yes, just as any other provincial institute.

17133. I am well aware of that. You do look forward, when this Institute is have the financial measure of the problem at the start. We should require to start with about Rs. 30,000 over and above what the Research Fund Association gives now.

17134. As an annual recurring charge?—Yes, as an annual recurring charge to start with.

17135. Under the present constitutional Reforms, of course the Government of India are not in a position to make financial contribution to an institution carried on by a Province; you are no doubt aware of the position?—Yes.

17136. If an institute of this sort, or rather a group of institutions under the control of the Provincial Government, assisted by the financial support of the Indian Research Fund, is started, having regard to the fact that the work

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being carried out would be beyond all dispute one of All-India importance, would you look with favour on a proposal that the Government of India should also make some contribution towards the expenditure?—I should not object to a contribution.

17137. You would never object to any financial support?—No. May I point this out? Supposing by a chance Colonel McCarrison became Director of the Pasteur Institute at Coonoor his pay would be paid by the Provincial Government as the pay of the Director is now.

17138. So much for the financial aspect of the problem. Your note deals in a very interesting manner with highly technical questions which I do not propose to enter into, because I am not competent to do so. There are just one or two points which I want to ask you of general application. You give on page 731, under the heading "The well-being of the rural population" the normal yield of the various food grains, allowing for the removal of the husk. Do you know whether there is an annual exportable surplus over and above the requirements of the population?—If the whole of the population eat cereals, at the rate they eat they will consume very nearly the whole.

17139. Would I be approximately correct if I said that once in five years there is an exportable margin of food grains over and above the requirements of the population? Would you contradict that?—I would not like to contradict that, but I would like to note that the production of pulses is very much below the requirements of the population.

17140. I am not suggesting that there is an over-sufficiency?—There is no sufficiency of pulses, but there is a sufficiency of cereals.

17141. On page 734, you are detailing the two principal physiological effects of underfeeding, physical deterioration (stunting in growth) and lowering of the resistance to disease, and then you say: "The resumption of a sufficient and well-balanced diet results in a return to normal health." That is only so in the case of juveniles, assuming that there is a sufficient growth period left for them to grow to normal bulk?—I am referring there to the effects of a diminution of food in a population previously well fed. Those were extracts from the Food War Committee's report, and they are practically based on what happened in the case of Germany.

17142. I refer to the view expressed in these words: "On children the effect of the diminished diet has been to restrict growth, but not to stop it. Experiments on animals, as well as German observations tend to show that a return to normal conditions will probably be followed by an increased rate of growth, which will be sufficient to make up for that lost during the past years." But is that true only in the case of children to whom a sufficient period of the normal growing life remains?—Yes.

17143. That is all I wanted. I just wanted to be sure I understood you rightly. In the list of subjects for investigation you have given "(g) Waste Products." Have you in mind there the utilisation of night-soil for manure?—Yes, certainly.

17144. Waste products from the human body?—Certainly.

17145. Are any experiments being carried in the Presidency or elsewhere in India to your knowledge, on the preparation of night-soil for use as manure?—I am not aware of any. There is a great deal of work being done in connection with the safe way of utilising night-soil, and especially the utilisation of stable manure. They are trying to get erected a set of platforms on which the manure is stocked. It has been found if you put one layer of your stable manure then a layer of night-soil above it, and then another layer of stable manure you get rid of your night-soil and naturally you get rid of your flies, and you get splendid manure.

17146. Is it the case that harmful bacteria or parasites are destroyed by the process of fermentation?—I think very likely; yes.

17147. On page 735 you say, "The laws of health may be acquired through propaganda work and demonstration areas, but the real way for spreading such knowledge is through the medical practitioner who comes in intimate and

daily contact with the people." How far is the suggestion there practical? In India does the medical practitioner come into intimate and daily contact with the villagers?—No, but it is growing every year. Government have now started a system of subsidising practitioners to settle in rural areas; they are trying to get these medical practitioners, who are given a very small subsidy, to settle in rural areas, in different villages and to come in daily contact with them.

17148. Have you to apply any further financial stimulus?—At the present moment it has not been altogether successful. Probably the amount given to them as subsidy is not sufficient to attract them, and the practitioners have not been long enough in the villages to acquire private practices.

17149. *Professor Gangulee*: What is the amount?—It is Rs. 400 a year for the L. M. P., and I think Rs. 600 a year for the M. B. B. S.

17150. For what period?—A year. He is also given drugs and an extra little subsidy to maintain a mid-wife. He gets Rs. 360 a year for drugs which become his own property. A few have been successful, but it depends a good deal on the individual.

17151. *The Chairman*: What do you think about the possibilities of improving public knowledge of hygiene through the agency of the public schools?—I think an immense amount could be done provided you do not attempt to teach too much in the schools, for what the students want to learn is personal hygiene, how to live a healthy life. If that was taught in the schools I think an immense amount of good would be done.

17152. The ordinary rules of health and not too much about medicine?—Yes, the ordinary rules of health.

17153. Is there a prospect that some such scheme might be set on foot if it is not already under way?—We hope to do a little in connection with inspection of schools in the way of giving them general ideas on one or two points connected with health. The schools are inspected regularly by a Medical Inspector, and we hope to utilise the Medical Inspector to do that.

17154. One difficulty in the way of getting anything done through the schools lies inevitably in the low calibre of many of the teachers?—I do not think the teacher can teach the laws of health unless he knows and practises them himself.

17155. Do you suggest that the teachers do not know them?—Yes.

17156. I judge from that that you would recommend that in any normal school or other institution carried on for the purpose of instructing teachers emphasis should be laid on teaching hygiene?—Undoubtedly.

17157. What about water-supply in rural areas? Do you think there is much disease in the Presidency amongst the rural population as a result of bad water-supply?—Undoubtedly.

17158. That no doubt depends upon habit, but it also depends upon the physical arrangement of the well?—There is not always a well.

17159. There is not always a well?—There is a great deal of cholera in the part of the Presidency with which I am acquainted in villages on the river beds during the hot weather. That is due very largely to the custom of damming of the water into a little pool which is fouled in every conceivable way.

17160. Why is it dammed? Is it for convenience?—Yes.

17161. Do they enter the pool?—Yes.

17162. Do the people wash in it?—They wash cattle.

17163. Defecate in it?—They do not.

17164. How does the cholera infection take place?—People go into the water themselves. The worst cholera I ever saw was due to direct contamination of the water by the coolies working there. It is one of the worst cholera epidemics I ever saw.

17165. So that the infected person by merely touching the water charges it with cholera?—I have been trying to prevent it for years; I should like to see the principle of the village pump adopted as far as possible.

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17166. Rather than the bucket and the rope?—I do not like the bucket and the rope.

17167. Are you in favour of any particular style of pump from the medical point of view?—I am not talking of any particular style of pump, but I want a simple pump.

17168. An ordinary surface tension pump?—A chain pump would be very good indeed.

17169. Do you think that a considerable expenditure of public funds on the provision of wells fitted with pumps would be justifiable?—I think it would reduce a good deal of the sickness and mortality of the Province.

17170. And does the sickness and mortality of the Province lay a heavy charge on provincial funds?—A very heavy charge; at the present moment, we are treating an enormous number of sick people.

17171. Do you think you could get down to rupees and make a good case for the spending of important sums of money in this direction?—It would be difficult to make a financial case for it. See Appendix.

17172. You think it would? You do not think that the indirect savings would be sufficient to carry on the expenditure incurred?—In all these health measures, you have to take into account that a healthy man is of certain value; it is very difficult to put it down in terms of rupees.

17173. Probably, a ten-year programme, spreading the expenditure over that period of years would be the ideal arrangement, would it not?—It seems there is a possibility of meeting these things by estimating the cost of the whole thing, floating a loan, and paying it off over a series of years. I think the great difficulty for finance is that we have to spend everything out of revenue.

17174. If you could by a loan or by other means, finance an important movement of this kind, you would of course be in a position, having settled the type of pump that you require, to place a very large order on the market and get the advantage of a large quantity at reduced prices?—Yes. Water by itself, unless it is tackled with the food question, is not going to do wonders; after all, the food question has got to be tackled as well as that of water.

17175. I come to the food question, and I should like you to tell the Commission what practical steps you recommend to meet the deficiency in foods, and the insufficiency in the total diet due to semi-starvation, the result of extreme poverty?—May I take the example of the diet, particulars of which were given to the Commission on Sunday, when they went to see a village? I think, if I am right and the *Madras Mail* figures are correct, the villager said that he spent roughly Rs. 300 a year on rice, for a family consisting of himself, his wife and 2 children and possibly guests. He also spent Rs. 37 a year on different varieties of gram. If you work those figures out, it comes to roughly 26 to 30 ounces of rice per head per day, and somewhere about 3 ounces of gram. The work that has been done on food absorption in this country (one of the important things as regards food is the quantity absorbed after it has been taken) has shown that rice taken in that quantity, 26 to 30 ounces per day, prevents the absorption of the proteid in the diet. 18 to 19 ounces per day is the maximum that is necessary for man in full work, to give him the necessary carbo-hydrate value; anything in excess of 18 to 19 ounces is not only a waste, but it is harmful; it prevents the other proteid in the diet being absorbed. The point I want to bring out is this: supposing the family could reduce the rice consumption to 18 ounces per head per day, with the money that they would save by that means, which would be about Rs. 80 a year, they could double their gram consumption, and have about Rs. 43 in hand for other expenditure. That is the line we could easily take. I have given you in my memorandum an example of a diet which is consumed by people who suffer from beri-beri and many diseases such as intestinal diseases, gastric ulcer, duodenal ulcer, renal diseases, etc., that are associated with that kind of diet; if they could reduce their rice to 16 to 18 ounces a day, they could afford double or treble their present proteid intake.

17176. In the matter of milk supplies, do you think that the lack of milk is an important cause of the peasant's weakness?—Milk in itself is an important

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diet; it is easily absorbed, and it is a very good way of giving proteid. A man in full work requires 19 ozs. of pease for the full protein need, that would be about 24 soup plates, taking a big table-spoonful of pease to the soup plate; if you make your soup with milk, it reduces your volume down to 8 soup plates.

17177. Is that a complete diet?—No, it is proteid need.

17178. A complete proteid diet?—Yes, and a certain amount of carbohydrate and fat too. The people are wasting their money in taking such large quantities of rice.

17179. In the matter of the lack of certain essential elements in the food called vitamins, do you think it is within the financial capacity and within the range of practical house-keeping for the cultivator to supply himself with these things in which his normal diet is deficient?—Take the case of beri-beri disease; it is due to this particular diet that I have given you an example of, lack of vitamin B; double his proteid by doubling his gram consumption, and he has got his vitamin B.

17180. How about vitamin shortage?—There is great vitamin shortage and an increase in consumption of pulses and milk products would help.

17181. Is there any practice of growing lettuces or other green vegetables and eating them?—This is not a common practice, but the people eat leaves and roots the value of which I do not know.

17182. A good deal of research work has to be done in that direction?—It is needed.

17183. I understand your general view then is that it is largely a matter of propaganda to teach these people how to balance their diet properly?—That is the first thing to do.

17184. Do you think they would listen to propaganda directed to that end?—That is a question of habits; habits once acquired take a long time to break, but because that is so, there is no reason why we should not make a start.

17185. It is so important in your view that an effort ought to be made to put matters right?—Yes.

17186. Is it your opinion, from your long experience, that the average member of the cultivating and agricultural labouring class is below the par of physical vigour during an important part of his life?—Usually, he is below par, in fact he has got no reserve; once he gets ill, it is very difficult for him to pick up.

17187. He is fairly active as long as he is really well?—I am talking about agricultural work, about the man who works in the open air; he is fairly active as long as he is well, but once he gets ill, he has no reserve.

17188. *Professor Gangulee*: You consider this amount of rice, 24 to 30 ounces per head per day, considerably more than they ought to eat?—Yes.

17189. Because, in your opinion, it interferes with the metabolic processes?—Yes.

17190. 16 to 18 ounces is sufficient?—19 ounces for the man in full vigour.

17191. What is the rate you give in the jails to the prisoners at work?—I speak open to correction, but I think the jail rate has been reduced to 18 ounces; it is largely in the jails that this work was done.

17192. Colonel McCay in Calcutta has done some work in that connection?—I think he has reduced it to 18 ounces of rice and 6 ounces of *dal*.

17193. In the diet that you have mentioned, *dal* is one of the things lacking?—It is lacking in protein value, but the point is that it could be improved without costing any more.

17194. With regard to the suggestion of yours about model villages and health villages, have you any idea how one should go about building up these model villages?—In the Madras Presidency, we have been hearing about them for some time. The idea is to show the people how to live.

17195. Is it under your department?—Not my department, but the Public Health Department; the idea is to show them simple ways of living healthily,

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and in conjunction with that we ought to be able to undertake enquiries into nutrition, and try to improve their food.

17196. How many such villages would you have in the Presidency, one in every district?—That is rather a large order to start with; I should like to see that, but at the present moment I think they have got one in Madura; I think they have started two or three in the Presidency.

17197. They are starting?—They have got one going now, and that is run in the Madura district.

17198. With regard to this Indian Research Fund Association, is this Association confined only to medical research?—It is for medical research.

17199. Only for medical research?—Yes.

17200. Is it a semi-official body?—No, it is a private body.

17201. In the governing body there are 5 members and most of them are officials?—The main reason for that is that Government is the only subscriber.

17202. You do not have any subscription from the people?—No.

17203. And you have no place in the Association for research workers who are actually doing the work?—There is no laboratory belonging to the Research Fund Association.

17204. No research worker can be a member unless he pays Rs. 500. Is there any place for a research worker?—This point I have mentioned before. For nine years we have been trying to get a Central Research Institute started, and it was going to be largely financed by the funds of the Indian Research Fund Association. But there is no laboratory actually belonging to the Research Fund Association.

17205. With regard to the Scientific Advisory Board, I think the governing body consists of members of whom not less than three shall be the members of the governing body?—The Scientific Advisory Board advises the governing body.

17206. Supposing a requisition for a piece of research comes to you, you will have to refer it first to the governing body?—It is referred to the Scientific Advisory Board.

17207. And then the governing body decides? Who allocates the fund?—The governing body.

17208. I find there again "the member of such board shall be appointed for one year." That means the member of the Scientific Advisory Board?—Yes.

17209. In that case there may be some difficulty as regards continuity of direction?—You find that there are three members belonging to the governing body who are practically *ex-officio* members.

17210. *Mr. Calvert*: I understood that you consider about 16 ounces of rice is the maximum for good digestion?—As a matter of fact, I said from 18 to 19.

17211. Your note seems to put it at 24?—I think it is a waste.

17212. This ration you have given us is the Indian troops' peace time diet?—Yes.

17213. Have you ever attempted to ascertain whether the ordinary soldier in peace does more work than the cultivator?—I regret I cannot give an answer to that.

17214. I understand that you would favour detailed enquiries into rural dietaries?—Yes.

17215. We have done that in the Punjab. I think considerable progress has been made on this question of rural dietary?—I think it must be continuous.

17216. You practically want a detailed enquiry into it?—Yes.

17217. Do you attach any value to Colonel Gill's epidemiological forecast?—Yes. I think it is extremely valuable.

17218. You think it will enable you to take preventive measures in advance of an epidemic?—Undoubtedly.

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17219. *Mr. Kamat*: You told us just now that the agriculturist is below par and that he has no reserve. Taking into consideration the peace scale diet of Indian troops, how much below that is the agriculturist if he is below par?—I cannot give you an exact answer to that. What I want to imply is that the agriculturist's scale, *i.e.*, his diet, affords no reserve when he gets ill; he goes down, it is very difficult for him to pick up.

17220. When you said that he is below par, am I right in taking it that his diet is below par compared to the food which is allowed to the Indian soldiers in peace time?—Yes, it is undoubtedly. The diet of the agriculturist, as a rule, is insufficient for his needs.

17221. In this connection, I should like to ask you whether he is also below par in this respect with reference to the British workman?—That is rather a difficult question to answer.

17222. But you will subscribe to the view, as a general impression, that he is below par compared to the British workman?—I think very much so.

17223. And if, therefore, the efficiency of the Indian labourer or of the Indian agriculturist is below the efficiency of the Britisher, it is partly due to the diet of the Indian?—Yes.

17224. You have given us an idea of the normal amount of protein matter and the nutrition required for healthy living. Taking that as the standard, did you try to find out whether the food supply in this Presidency if distributed to the population, comes up to their requirements according to your scale?—I have pointed out that the supply of gram grown in the Presidency is quite insufficient and inadequate. In my note, I have said so. Assuming that 6 ounces is the minimum requirement, it is obviously very much below, even allowing for the fact that a great many people eat meat and fish.

17225. This morning we were told that the average requirement of pulses will be about 4 oz. Perhaps you think it should be 6 oz.?—I think Colonel McCarrison would like to correct his figure from 4 to 6 oz.

17226. And the Presidency is not producing that amount of pulses here?—No, not to give that amount all round.

17227. I want to know whether the same thing is occurring with reference to the other food grains?—All the cereal grains are consumed in the Presidency. We have an abundant supply.

17228. More than the 19 oz. you said?—It supplies more than that.

17229. You say the Presidency is producing more cereals than pulses?—Yes.

17230. I should like to ask you something about the subsidy to medical men in order to induce them to go into rural areas for medical relief. How much of subsidy is generally given to a medical practitioner to go to the rural areas?—The amount given to an L.M.P. is Rs. 400 a year, and to an M.B., University graduate, it is Rs. 600 a year. He gets in addition to that Rs. 360 for the purchase of drugs. And if he maintains a midwife, he gets Rs. 100 extra.

17231. Can you give me roughly an idea of the total number of men who are receiving such subsidies in the Presidency?—The sanctioned scale is three to each taluk. I think we have got something over 200 now.

17232. You have over 200 men receiving such subsidies?—Yes. I am speaking from memory. I think the figure is something above 200, 260, or so.

17233. This scheme of yours, of subsidies in the Presidency, is working well?—Yes, in some places it is working very well indeed. In other places it is not working well. But a good deal depends on the individual. If he is going to succeed, the medical practitioner must make private practice, because he cannot live on Rs. 30 a month; he must have private practice and earn more. You cannot make private practice at once; you can make private practice by getting your name known; you have got to work for one or two years before you really make much of private practice. The scheme has not been going long enough yet. I cannot say how far it is going to succeed. The practitioner must make sufficient to live on.

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17234. In places where it is not showing signs of success as you just now mentioned, have you got any indication as to why it is not likely to succeed?—It is only my conjecture. I think it is a good deal due to the individual.

17235. Chiefly due to the individual owing to the local circumstances?—I think it is mainly due to the individual. He must go about and try to get himself known; he wants a lot of energy.

17236. *Sir Henry Lawrence*: In the diet you have given us here for the Indian troops, you say 1½ oz. of sugar. Is sugar a necessary item of diet?—You must have carbo-hydrate in some form; it is not essential that it is in the form of sugar; it is a very useful article of diet.

17237. Do you know whether, as a matter of fact, the ordinary ryot does take any sugar in any form at all?—I could not say that.

17238. In jails, is it kept as a portion of the diet?—Sugar is not an article of diet in the Madras jails. As long as they provide carbo-hydrate in some form, it is not necessary that it should be in the form of sugar.

17239. *Sir Ganga Ram*: With reference to the question which Mr. Kamat asked you, is this subsidy governed by qualification only, or by the place from which the medical practitioner comes?—Entirely on qualification.

17240. Not by the place; because some towns are very paying and others are not?—This is for rural areas.

17241. Some of the rural places also are very paying. I suppose the delta areas are paying?—It is all based on qualifications.

17242. Is any scale of fees laid down for them?—Yes.

17243. Is there a sufficiency of nurses in this Presidency?—You mean for the hospitals?

17244. Yes?—No, we have not enough. We train them by degrees. There is a scheme for training.

17245. Is there a scheme for training here?—Yes.

17246. Could I get a copy of that scheme?—I shall try to send it on. We train nurses, we train Indian women as nurses; we also train midwives.

17247. On page 731 you have given a table showing the yield. Is that with the idea of proving whether there is sufficient grain or not?—I was asked that question.

17248. What was in your mind when you gave these figures?—I was asked.

17249. Unless you tell us how much of it is export and how much is import, we can derive no conclusion whatever?—The letter I got in regard to the questions did not require that.

17250. I wish you would give us the export and import? We cannot judge whether you grow sufficient food for the people or not?—I had a very short time in which to prepare my memorandum.

17251. Amongst the *dals*, you have omitted two *dals* which have got great nutritive value. One is *mash* and the other is *pea dal*. And in both these, the vegetarians put down the nutritive value as compared with meat as 14 to 15. So, I thought you would have mentioned these two *dals*?—I do not think they can be grown in very large quantities. None are grown as far as I can see.

Mr. Kamat: Might I mention here that one of the *dals* to which *Sir Ganga Ram* referred, which is called *mash*, is referred to in the Hindu books as having the nutrition value of meat?

17252. *Sir Ganga Ram*: On page 733 you have given figures. Are they added together or not? For instance, under *Bhutias* (*dandywallas*, coolies, etc.) it comes to 58 oz. Is that all added together?—With everything added together, it comes to 58 oz. That is what they get. It is very hard work.

17253. Even in the Indian troops' diet, are they to be added together?—Yes.

17254. *Sir Thomas Middleton*: You have referred to the need of a nutrition institute for the Madras Presidency. After listening to your evidence and that of Colonel McCarrison I do not think anyone would be disposed to question the need; but, in view of the present position of nutrition studies in

India, do not you think there is something to be said for an All-India institution in the first instance?—I think there is a great deal to be said for it. The attitude I take up is this, that I feel the urgency of the problem is so great for this Presidency that I want to get a start made. I am not in the least opposed to that principle.

17255. Listening to the evidence of Colonel McCarrison it seemed to me that the value of his work was very largely due to the very wide range over which it was possible to extend his observations?—Quite.

17256. You think that if the institute were definitely for the Madras Presidency, there would be no danger that this width of observation would be restricted; you think it would still be open to Colonel McCarrison to collect data from All-India?—If we get for that a grant from the Indian Research Fund Association, that grant would be allocated not solely for the needs of this Presidency alone; it would be for India.

17257. So that while the fact remaining in Madras, the institution would work for India?—It might work quite well for the whole of India.

17258. Sir Ganga Ram has drawn attention to the very generous diet of the Bhutias?—Yes, it is generous.

17259. They are doing fast work?—They are doing very heavy lifting work up and down hill, doing a tremendous amount of work.

17260. Can you tell us anything about their health? Are they healthy?—I do not know the Bhutias at all, but the men you meet up in the other parts of the Himalayas, like the rickshaw coolies and the people who carry those enormous weights, I am told, though I have no absolutely certain information, have a very short life.

17261. Yes, I heard that; that is why I asked you?—They are very fine people physically while they last.

17262. Their diet is rather more generous than is allowed for an Army on forced marches?—Yes.

17263. Then coming to the other end of the scale, you have got a diet here for the East Coast agricultural workers who suffer from beri-beri?—Yes, and other diseases.

17264. Taking the minimum quantities eaten, one of the diseases from which they must suffer is starvation, because their total intake of energy I estimate at about 2,500 calories?—It is a starvation diet.

17265. It is quite impossible for any man who is doing manual work to maintain himself healthily on so low a diet?—Quite.

17266. I notice that you say one-third of an ounce of meat is eaten in 10 days; do you mean one-third of a pound?—No, I do not at all; they only get a certain amount of meat once in 10 days and the average comes to $\frac{1}{3}$ rd oz. per day.

17267. But the one-third ounce means the daily average?—Yes, they get one feed once in 10 days.

17268. You have noted the questions we put to the cultivator last Sunday at the village of Palal?—Yes.

17269. One asked particularly as to the dietary because that man whom we questioned seem to be a well-nourished man?—Yes.

17270. I see that his dietary would give about 3,000 or 3,100 calories?—Yes.

17271. That is just about what would be required as far as energy is concerned, but, as you point out, his intake of protein is much too low?—Yes.

17272. He showed indications of it?—He could increase his protein and reduce his expenditure.

17273. *Devan Bahadur Raghavayya*. You will probably be surprised to hear that the diet you have given as the diet of the agricultural worker on the East Coast is really a better diet than he actually gets?—This diet is actually

taken from a group of people who are suffering from beri-beri and other diseases; it is not a made-up diet.

17273a. That is the diet prevailing, I take it, in the two or three delta districts in the North-East of the Presidency, but in the poorer districts the ordinary diet of the poor cultivator does not include *dal*; all the pulses he grows are exported, and he does not get even that small quantity of meat that you have allowed for him. The whole of his milk and milk products go to the nearest town; the *ghi*, butter and the curdled milk; as against that there is this point, that he does not eat rice, he eats millets mainly?—His diet consists of millets, chillies and salt and an occasional dish of green tamarind leaf made into a paste with chillies and salt.

17274. As to the suggestion of fitting up hand pumps to wells, do you not think there will be a practical difficulty in working the scheme, because the experiment of having two wells with pumps has been tried in this Presidency and it has not been a success. The difficulty is to maintain the pumps; the pumps get out of order very quickly, the villagers have not sufficient knowledge to keep the pumps in order, it becomes necessary to have a large supply of mechanics among the villagers who are interested in maintaining the hand pumps?—Yes, I have been aware of that objection for some time about the pumps going out of order.

17275. In view of that difficulty perhaps the provision of improved wells with watertight platforms and good drains might be considered?—Yes, provided everybody does not bring his own bucket and rope.

17276. Yes, that is a difficulty; here people would insist on bringing their own buckets at any rate. Those dams that are put up across rivers are put up when there is only a spring flow in the river?—It is the hot weather flow.

17277. To *bund* up and collect the water?—Yes.

17278. *Professor Gangulee*: What is the position in the Madras Medical College in regard to clinical teaching?—The position with regard to the Madras Medical College is as it was practically all over the world up to a few years ago. The old idea was to give the student a grounding in anatomy, physiology and pathology in the first two or three years; then he passed an examination in anatomy and physiology and he had done with these subjects for good; he then went into the wards. The modern idea is to bring the study of anatomy and physiology into the wards, so that a man studies his group of diseases from every aspect, anatomy, physiology, prophylaxis, etc., at the same time.

17279. So that he gets a synthetic view?—Yes, that is the whole point. That system has not yet been started, but we are hoping to start it.

17280. *Mr. Calvert*: Would you dare to venture the view that amongst the Indian troops in this country those with the *atta* ration are stronger and healthier than those with the rice ration?—I am afraid I have no information about that.

(The witness withdrew.)

APPENDIX.

The need for greater hospital accommodation in Madras.

It has been suggested that too much is spent on hospitals and too little on public health. The truth is that too little is spent on both aspects of health. An increase in expenditure on public health will not reduce the demand for hospital treatment.

In England and Wales there is rather over one hospital bed per thousand of population. The figures in this Presidency is 0.14 per 1,000. Even if public health in this Presidency advances to the level in England we shall have to increase hospital accommodation. The following table shows this clearly.

	NUMBER OF BEDS.		
	England.	Wales.	Madras.
General	48,201	2,259	8,643
Isolation	36,400	1,800	420
Tuberculosis and Sanatoria	21,262	1,393	210
Lepers	1,052
Mental diseases and infectives	132,579	6,543	1,086
Poor Law	116,607	3,628	Nil

The population of Madras is greater than that of England and Wales combined.

**Mr. HERBERT CHAMPION, M.A., Principal, Teachers' College,
Saidapet (Madras).**

A Note on Education—general and Agricultural.

I.—The problem stated.

The main criticism levelled against higher education in India is that it leads only or mainly to clerical, administrative and professional occupations. While admitting the pertinence of this criticism, I do not think that it is always made with a due sense of proportion. In England the large majority of parents who send their sons to secondary schools do so in the hope that they will secure "black-coated" employment, employment in a clerical or professional calling. In this sense the effect of higher education in attracting boys away from the land and towards professional callings is the same in England and in India. There is however this difference between conditions in England and in India. In England, notwithstanding the inevitable drift of educated persons from rural to urban life, there exists the racial instinct and natural inclination of large numbers of Englishmen of all social and intellectual grades, which urges them towards an outdoor life and to work on the land. The racial instinct and natural outlook of the educated Madrasi however is away from the land and towards an urban indoor life. Again, in England, of the educated persons who by force of circumstances lead an indoor life, there are large numbers of both sexes who turn to nature in their leisure and who have built up a large body of nature knowledge. In India there is very little nature knowledge, for the reason that the educated Indian takes no interest in nature as such. Added to this, there is the in-born objection of the higher social classes to manual work. Briefly, while there are the natural outdoor interests of Englishmen and the natural pull towards the land to counteract the effect of higher education in England, the natural outlook of the Indian consorts with the influence of higher education, both urging him from the land to urban life, to clerical and professional occupations.

2. The problem, as I conceive it, is to turn the minds of the people from professional and clerical careers to a life on the land. In so far as the high school has a part to play in this task, the problem is as follows. At present people can conceive of only one form of education—an education leading to traditional University courses of study or to clerical occupations, an education which does not lead, either directly or indirectly, to outdoor work in general or to work on the land in particular. The problem is to devise a form of education which shall be liberal and cultural to the extent that the existing form of education is liberal and cultural, and which at the same time will attract educated persons to a life on the land. To state the problem thus is to realise that the process will be a slow one, and that higher education in India will have to perform the double function of giving the pupil a liberal education and, in attracting the pupil to the land, of doing the work that in England is being done by the natural outlook of the Englishman.

3. It is sometimes argued that an increase in the efficiency of general education in its present form would result in an increase in agricultural efficiency. I believe this view to be unsound. In the first place, the possibility of increasing the efficiency of education—higher, middle or elementary—is extremely problematical. There is no movement towards any increase in efficiency: on the contrary, the interest of the public in education is generally directed towards a lowering of educational standards. I believe that most thoughtful educationists in this Presidency would agree that the quality of education imparted in secondary (high and middle) schools is going down. The present pressure in secondary education is for an increase in quantity in respect of the number of youths turned out by high schools, and not for improvement in the quality of instruction. I believe that pressure in this direction will continue to be exerted, and that it will continue to be effective.

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4. Again, even assuming the possibility of securing an increase of efficiency in education, it by no means follows that such efficiency will react on the efficiency of agricultural practice. It is unsound to argue that efficiency in one direction will react on efficiency in another direction unless the two are closely related in character. School education in Madras has a very limited sphere of efficiency: it is largely clerical, verbal efficiency, and not the practical, business efficiency required in the agriculturist.

II.—Suggestions. (a) The teaching of agriculture in schools.

5. In view of the fact that the kind of efficiency inculcated by education in Madras is not and in existing conditions cannot be the kind of efficiency required in agriculture, I venture to express the view that the only way to increase agricultural efficiency is to teach agricultural efficiency in the schools—not an efficiency allied to, or that may be expected to result in, agricultural efficiency, but agricultural efficiency itself. In a word, I believe that the science, practice and business of agriculture should be taught in the schools.

6. This needs explanation. I do not mean that schools should aim at producing finished agriculturists, or that it is possible to include a complete course of agriculture in the curriculum of any grade of school: schools are for general education, and they should abstain from the pretension to qualify their scholars for the detailed tasks of the agriculturist; and on practical grounds the quality of general education now imparted is so poor as to leave very limited time for anything outside general education. My suggestion is that in the middle school the boy should receive a course of selected lessons in agriculture appropriate to his physical capacity and mental attainments. In the high school the principle would be the same—a course of selected lessons in agriculture appropriate to the physical and mental capacity of the pupil. In both stages the work should be definitely and organically connected with the vocation of agriculture: i.e., the agriculture taught in schools should, within the limits imposed by the physical and mental capacity of middle and high school pupils, be the kind of agriculture practised by enlightened agriculturists.

7. In the elementary school the work would take the form of school gardening—not the kind of garden work that is, as at present, largely limited to the observation of plants grown in school gardens, but the cultivating by enlightened, systematic methods of the vegetables, flowers and fruits that can and should be grown in the now generally neglected gardens attached to Madras households.

8. In both elementary and middle schools this work should have a backing of nature study. The difficulty here is that in the Madras Presidency there is very little nature knowledge. The result is that in the elementary school nature study means largely the purposeless observation of plant and animal life, and in the middle school the study of botany and botanical classifications, which is inevitably more academical and scholastic than practical, and which takes the pupil away from nature instead of bringing him nearer to nature.

(b) Special schools of agriculture should be established.

9. The suggestions made under this head have the double purpose of directing boys from the clerical, professional life with which they are at present obsessed and of opening up avenues of employment more suited to their natural capacity, and of increasing agricultural efficiency.

10. To recommend the opening of agricultural schools is insufficient: the important point is that the boy should be admitted to a special course in agriculture only after receiving a complete course of general education. There are two points in the general secondary school course at which a pupil has received a general education complete in itself, (1) at the end of the middle school stage, and (2) at the end of the high school stage. At each of these points pupils unfit or unwilling to proceed to higher stages of general education could be diverted to definite vocational training such as agricul-

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tural training. My suggestion is that the Agricultural Department be required to frame schemes of instruction in agriculture suited to the mental and physical capacity of boys who have passed through (1) the middle school stage and (2) the high school stage. So far as I know, the Agricultural Department has never considered its educational schemes from the point of view here suggested.

11. The suggestion made in paragraph 10 above needs qualification. Agricultural schools, if opened at the present time, would almost undoubtedly fail to attract pupils. What is wanted first is a preliminary training which will turn the minds of the pupils to the vocational possibilities of agricultural schools. Such preliminary training is provided in the suggestions for the teaching of practical agriculture made in paragraphs 5 and 6 above. I would recommend that agricultural schools be opened only after the scheme for teaching practical agriculture in middle and high schools has been in operation at least two years.

(c) *The giving of an agricultural bias to the general school curriculum.*

12. When the schemes of instruction in agriculture referred to in paragraph 10 above have been framed, the Agricultural Department should state what kind of general education they require for boys who are later to seek admission to the special agricultural schools: e.g., I imagine that a boy passing from a general high school to an agricultural school should along with the general school subjects, have received a more than ordinary grounding in chemistry, botany, elementary physics and manual training. It will then be for the high school authorities to consider the desirability of fitting their curricula to these special needs, in other words, of giving a vocational bias to their curricula while preserving the general liberal character of the course as a whole.

13. Much has been made by critics of the present system of general secondary education of the necessity of giving a rural or agricultural bias to the curriculum. In my opinion, a bias that leads to no practical end serves no purpose.

(d) *The exclusion of unfit pupils from secondary schools.*

14. Schemes framed on the lines suggested above should in due course have the effect of attracting pupils in increasing numbers from an indoor life to a life on the land. This however is not the whole of the problem. Secondary education in this Presidency is seriously handicapped owing to the presence of large numbers of pupils who are naturally unfitted for a middle or high school education, and whose education should have ended with the elementary school. While these pupils continue in secondary schools, it is difficult to conceive of any kind of real efficiency in secondary education, either general or agricultural efficiency.

15. This situation however cannot be entirely condemned. The only form of education which has any vocational value is secondary education, and parents cannot therefore be blamed if they press for the admission of their children to secondary schools.

16. The first step in this problem is to improve the quality of elementary education so as to make it worth while from the point of view of the parent. Personally I believe that this improvement of elementary educational standards is not only of the first importance, but that it should take precedence of the extension of elementary schools. To bring into existence a large number of elementary schools manned by teachers of quite inadequate educational attainments is to exclude all possibility of afterwards raising the standard of elementary school work to any appreciable extent, in the sense that it is impossible to raise to any appreciable extent the educational attainments of these ill-qualified teachers. But to start with elementary schools giving a reasonable standard of education and afterwards to extend the number of such schools would be to establish a system of elementary educa-

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tion worth while. I am aware that there are other considerations, *e.g.*, political considerations which require that every voter shall be a literate person. In any case, we have gone too far in the direction of extending the number of unsatisfactory elementary schools, to be able to tackle the problem *de novo*. But it is strictly relevant to the question of general and agricultural efficiency to recommend at the present time that the question of improving the standard of elementary education is of equal importance with the question of extending facilities for elementary education, and that the former should not be lost sight of in preoccupation with the latter.

17. Coming to secondary education, it should be a general principle that secondary schools are not for the education of the masses, but for the education of only those who are naturally fitted to receive a secondary education: in a word, that admissions to secondary schools should be on a selective basis. There are however other considerations. The adoption of this principle would mean that large numbers of boys drawn from the lower social classes would be excluded from secondary schools. With a view to encourage the participation of these classes in secondary education, there is in the Madras Educational Rules a list of backward classes, and any boy belonging to one of these classes is admitted to a secondary school on payment of half the usual rate of tuition fee. The effect of this concession has been to increase the number of unfit pupils in secondary schools.

18. I would first lay down the selective principle enunciated in paragraph 17 above. I would then abolish the list of backward classes together with the fee concessions granted to backward classes. In its place I would establish a liberal system of scholarships on a communal basis, the aim of which would be to discover talent in every class of the community and encourage it to enter secondary schools. Such a scheme would be far more conducive to the interests of the country and of agriculture than the existing arrangement, which admits all and sundry to secondary schools and which makes no attempt to discover talent.

19. There is another aspect of this problem. Many boys fail to fulfil the promise of their early years. Added to this, promotions from class to class in secondary schools are laxly made, one reason being that considerable pressure from parents and the public is brought to bear on headmasters with a view to secure the promotion of unfit pupils. The result is that high schools contain large numbers of pupils who should have diverted from secondary education at an earlier stage in the school course. I would recommend the imposition of a public examination at the end of the middle stage, only pupils who pass this examination being admitted to the high school. For pupils who fail to pass this examination and for pupils who do not wish to proceed to a high school there would be the agricultural schools referred to in paragraph 10 above.

(e) *The administration of the scheme.*

20. I anticipate that any scheme for the advancement of agriculture or agricultural efficiency will have very limited effect unless it receives the whole-hearted active support of administrative authorities from top to bottom. If the sympathy of the public is to be enlisted a good deal of intensive propaganda will be necessary, and this propaganda should start from the top of the administration.

21. There is another point in this connection. Educational movements, started in a flush of enthusiasm, have a habit of being whittled down and ultimately lost sight of, in the preoccupation of administrative authorities with other movements. To avoid this, I would recommend the creation of an Advisory Board of Rural and Agricultural Education. This should be composed only of professional educationists and professional agriculturists in sympathy with the recommendations of the Royal Commission. Its membership should be limited—from 5 to 7 members would be enough. And it should be sufficiently influential to ensure that its recommendations secure adequate consideration at the hands of Government and the departments concerned.

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Oral Evidence.

17231. *The Chairman:* Mr. Champion, you are Principal of the Teachers' College, Saidapet?—Yes.

17232. You have put in a very interesting note for which we are greatly obliged to you. Do you want to make any general statement at this stage?—I do not think so.

17233. I have read through your note of evidence very carefully and it appears to me that you have made your views quite plain. I want just a little elucidation on one or two points. In the first place, I think it is worth while pointing out, as, I think, you yourself have pointed out, that this problem of discovering a system of education which will equip the agriculturist in his business of tilling the ground and not encourage him to go into the town is world-wide. It is not solely an Indian problem?—Quite so. I have no doubt that you would get the same gravitation of educated persons in England to an indoor life as a result of education.

17234. I suppose it is due to better remuneration of urban occupations and the so-called amenities of town life which, although many people grumble at them, are liked by a considerable majority?—And also to the respectability of the urban life.

17235. There is in this country a traditional dislike to any form of manual labour which does not exist to the same extent in occidental countries?—Quite so. I think people do not realise that so far as education has any part in this matter it has to fulfil a double function. It has to fulfil the function of imparting a culture and at the same time doing the work which in England is done by the natural outlook of the Englishman.

17236. I take it that the ideal education of an agriculturist would have this effect. It would teach him to read, to write and to do arithmetic and thus equip him to look after himself in his commercial dealings and in his marketing?—That is so far as the elementary education is concerned.

17237. Then, so far as agriculture goes, any further education would improve his value as a citizen and teach him to live better in every way. And then if he had any technical education, which is quite a different matter, it would teach him how to better the purely traditional and empirical methods of agriculture in vogue in the district in which he lives?—And if it is a proper kind of technical education, it would show him the possibilities of agriculture as a vocation. It would do something to modify that natural outlook which he has towards urban life. The kind of technical education which I envisage and which I have tried to describe here would attract him to the land.

17238. You would probably agree with me that no one in any country has yet discovered in any system of education as such the means of keeping the sons of the agriculturist on the land?—No; the same problem is being discussed and studied in England.

17239. Would you agree with me that as regards the elementary education, nothing should be allowed to detract from the importance of literacy as the first objective?—I quite agree with you. That is the first objective.

17290. And the years of learning are so short and unfortunately the standard of teaching so indifferent in most cases that there is very little time for individual teaching during the elementary stage?—I think that is rather too general a statement. The elementary school works from 4 to 5 hours a day. You cannot keep a boy at reading the 3 R's for more than three hours a day. He is after all a child. All that you can do is to give him 40 to 45 minutes' teaching per hour of the three hours. For the rest of the day he must be engaged in doing something else.

17291. How long do you reckon the ordinary child at an elementary school has school hours other than those necessarily taken up by the three R's? About an hour a day?—No, more than that. A school day consists of at least 4 hours. Many of them go on for 5 hours, but we will take the minimum

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of 4 hours. He has three lessons of 45 minutes, which is two hours and a quarter, even if we leave out an hour and three quarters for other subjects or about an hour and a quarter excluding intervals and the time wasted.

17292. Just over an hour?—Yes.

17293. You proposed to use that for nature study or some such thing?—Not all of it. I propose that in that hour, which is an hour a day, nature study and practical economic school gardening should be taught.

17294. And other handicrafts?—I do not think I can make any definite recommendation on that point at this moment. I would recognise the paramount importance of school gardening.

17295. Has the average Indian boy of the rural classes handy hands in doing things?—I should say not.

17296. It would be rather a good thing to try and encourage that?—It would be certainly better and the sound gardening which I have visualised would insist on his using his hands.

17297. On this question of middle schools which is one of the principal difficulties as you move up the scale, do you think there is a demand for purely vocational vernacular middle schools? There is no use in trying to force it down the throats of parents. If there is no demand you cannot make a success of it?—I should like to know the connection of this question of vernacular middle schools. There is a demand for them in Madras. Theoretically there is a demand for them, practically there is none. Theoretically there is a demand for less English and more of the mother tongue. I have tried to introduce a policy of that kind in the school which is attached to my own college. I received a good deal of opposition from the parents. They want no time taken away from English.

17298. So that you agree with me that when you come down to practice, which is after all the important thing, there is no demand for vernacular vocational middle schools?—When we speak of middle schools, all subjects except English are taught there through the vernacular.

17299. Let us leave out vernacular. Let us say vocational schools in which English is not taught?—There is no demand for that. Personally I would be against the vernacular middle schools.

17300. The attendance at such schools would practically bar the promising boy from the University. He would not have learnt English early enough?—It would. That is one thing which we would have to be very careful about. We should not in this way penalise the boy if he wants to go to the University.

17301. People talk about the public drawing their own lessons from the enormous mass of unemployment which unhappily causes so much distress amongst persons who have even taken degrees, the educated youths of the country. Do you see the slightest sign of that lesson being learnt?—The sign is all in the other direction.

17302. There, again, the theory is not supported by the practice?—No.

17303. I wanted to ask you what are your views as to the training of teachers. Have you got such a thing as a normal school situated in a rural area in this Presidency?—Not many.

17304. And you have them also in urban areas?—Yes.

17305. Is it your experience that the fact that they are situated in rural areas tends to make the teachers better equipped for teaching rural classes?—No. They all follow the same course whether they are in rural or in urban areas. In this connection I should like to point out that I do not think you can discriminate between urban and rural areas to the same extent as you can in England. There are very few real cities in the Madras Presidency, possibly at the most four. When you hear of towns of 80 or 90 thousand people, they are simply congeries of villages.

17306. I am thinking, of course, of equipping teachers with the knowledge of nature required to teach nature study and with the modern method

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of teaching nature study. You will probably agree with me that the teaching of nature study is not so easy as it is taken to be?—I do not think you can do anything in the training school to equip a teacher with nature knowledge. All that you can do in the training school is to teach him the methods of handling this nature knowledge.

17307. I think the rest of your note is very clear. There are one or two subjects not included in the note about which I should like to ask you one or two questions. Have you any views about the education of females?—I am afraid I have none which would be of any use.

17308. Is there any sign that the demand for education for girls is going up in the Presidency? It is available, of course?—There are many facilities.

17309. Are they being taken advantage of?—Not to the full extent in this sense. There are many girls' high schools situated throughout the length and breadth of this Presidency. My experience is that there are a very few of these high schools which are at full working strength. You will find in the top classes two or three girls in each class.

17310. Have you any experience of adult education?—We are considering the scheme here in Madras. The scheme I have in view is a scheme for adult education on a co-operative basis. In the training college of which I am in charge there are 106 graduates under training as teachers and about 90 matriculates, people who have passed through the high school. My idea is that when they revert to their schools they should run schools for adults. Now, the difficulty is that when a man has to do a day's work, he obviously is not fit to run a night school. Either his night school is neglected or his legitimate work in the day school is neglected. So the scheme we have in Madras is that 4 or 5 teachers should join together, graduates and under-graduates, and should run the school in combination; that is, one teacher should be in charge of it, say, one night a week. This arrangement would not interfere with their legitimate work in the day school and at the same time it would enable us immediately to bring into existence night-schools wherever there are at present secondary schools. As we have about 500 secondary schools in this Presidency, we ought to be able in a very short time to bring into existence at least 500 schools for adults.

17311. Do you think that you have at your disposal all the past experience in this matter in this Presidency?—I do not think so.

17312. There must have been experiments made?—Yes.

17313. Are there records of these experiments?—So far as I know there are not. The only record we have in Madras is a record of an experiment that is being carried out in the Punjab.

17314. It deals more with the Punjab than with your Presidency?—Yes, it does unfortunately.

17315. You will agree with me that experiments must have been made. That is actually the case?—Yes.

They have been allowed to fall through and the valuable lessons learnt have been lost.

17316. I suggest it to you that the machinery for recording these experiments is faulty. Are you quite satisfied that on the administrative side, the records in the Secretariat would be available?—All that we can do in the Education Department is to look into the records of the Secretariat that have been sent to us.

17317. You no doubt recognise how severely your department or some other agency might feel the want of proper records because after all failures very often are more valuable than successes?—Quite so; I am not sure that it is a question of the availability of records; I am rather inclined to think that too much direction or control is attempted by the Secretariat. In the last paragraph of my note I have suggested that for the purpose of the Agricultural Department there should be a Board of Rural and Agricultural Education. They would keep themselves in touch with records and experiments which are being carried on.

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17318. But they cannot keep in touch with records that do not exist. You know under the departmental system with which we are familiar in Great Britain, although everybody laughs at red-tape, at least the thing is tied up and put somewhere and you know where you can get it?—Yes; I think what happens is, the question of adult education comes up, then the man looks up to the records that exist in the office on adult education and they are put up to the officer concerned, the Secretary to the Government, who sends them to the Director of Public Instruction.

17319. And do you agree with me that experiments must have been made? Do you also agree that no record is available for you?—I presume that experiments have been made and records of those experiments exist.

17320. Where are they?—That I do not know.

We should like to have them if you find them.

17321. *Dewan Bahadur Raghavayya* : Mention is made of adult education in the Administration Report on Public Instruction?—That is work that has been done in Madras.

17322. *The Chairman*: That is not a record of past failures?—No.

17323. If you or your department can send us those we should be greatly obliged?—I shall try and find them.

17324. *Sir Ganga Ram*: Do you teach your teachers scale drawing?—A boy in school is taught elementary mathematics throughout his high school course before he becomes a teacher. In that connection he does scale drawing.

17325. Elementary mathematics has nothing to do with scale drawing. Drawing is different from mathematics. If you have a map of India on a scale of 100 miles to an inch and ask him to reduce it to 50 miles an inch, would he be able to do it? Do you teach him how to do it?—Would that be connected with surveying?

17326. No; every man ought to be able to do that. You do not teach that?—I think there are two opinions about it, that every man should have a knowledge of scale drawing.

17327. Do you teach boys books on self-help and self-respect? I tell you why. Some people come to me and ask me to appoint them as *chaprasi*, but they say 'we will not do *chaprasi* work'. They bring letters and bring everything else but say 'we do not do the *chaprasi* work'. Do you teach them small elementary books of which there are plenty?—Smiles' *Self-Help*, I suppose, exists in every school in India.

17328. That is what I was referring to?—If you asked me whether we give them definite lessons on self-respect and self-help, I say we do not.

17329. Self-respect they learn themselves without your teaching. As regards your proposal for gardening, do you not think skill in subjects like carpentry would be better?—No.

17330. Why?—It is not sufficiently closely related with the object which we want to achieve and that is to turn the boy's attention to the land, to attract him back to the land.

17331. Everybody cannot be attracted to the land?—That is the problem.

17332. I say simple elements of carpentry would also bring him ideas of scale drawing. He would learn at once that the chair, for example, is 18 inches high?—He could tell you that already.

17333. Would he?—Yes; he could tell you that the chair is 18 inches high and he could do a scale drawing; but if you want him to reduce the map of India by half he cannot.

17334. This is much simpler than that. All I say is that the system of reducing simply by squares is much simpler. It is a very simple process?—Then he could do it.

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17335. *Sir Thomas Middleton*: Taking first that question which Sir Ganga Ram has raised about carpentry, you are aware of course that it is a subject which has been very much pushed in England in primary schools?—Not carpentry as such; but wood work. We have many schools in Madras. I have a manual training centre attached to my college which turns out from 15 to 20 teachers of wood work every year.

17336. My only point was that high educational value is now attributed to the subject in the primary schools in England and I wondered whether the same value was placed on it here?—This manual training of which you are speaking which includes wood work or elementary carpentry is only in the higher classes of elementary schools. Obviously a boy of 9 years cannot handle a hammer or a saw. It is only in the higher classes that the manual training ends in wood work; it starts with card-board work in the lower classes. But I do not think it is possible that this elementary carpentry should be done as part of the gardening.

17337. It is combined with gardening?—That is it.

17338. You agree that agriculture should have a place in both the middle school and in the high school?—Yes.

17339. At what age would you introduce the subject in the middle school?—The middle school extends from Form I to Form III. The average age now for Form I is 12 to 13; the average age for Form II is 13 to 14 and for Form III, 14 to 15. I would introduce it in Form I. I think it should be possible to introduce it; but I do not commit myself to the definite statement that it should be introduced in Form I. I should be quite content if it were introduced in Forms II and III.

17340. Then similarly in the high school what is the average age?—From 15 to 18.

17341. And would you say that boys who have been through the agricultural course in the middle school and who proceed to high school should continue the agricultural course?—Yes.

17342. Would you also in the case of those boys who have not taken up agriculture in the earlier days, introduce it in the high school?—I see no reason why it should not be.

17343. How many hours a week of instruction have you in your mind?—I was thinking of 4 periods of 45 minutes each, that is 3 hours a week.

17344. That would be for the class room instruction; is there additional outdoor work?—I was thinking of the class room and outdoor work.

17345. Have you reduced your proposals to the form of a syllabus? Is there any draft syllabus in existence of such a scheme?—No; there is not.

17346. Do you think there would be any trouble arising from the absence of text-books?—Text-books would be unnecessary; we do not attach very great importance to the necessity of text-books.

17347. Would it be possible for such classes to make any satisfactory progress unless really suitable text-books are in existence?—My idea is that these classes would be taught, in the high school, by agricultural graduates who had passed through the Agricultural College, Coimbatore; they should not be in need of text-books; and in the middle school agriculture would be taught by teachers who had passed through the Secondary School Leaving Certificate course and who had sufficient knowledge of agriculture to handle this subject in the middle school; so that text-books, I think, would not be necessary at the outset.

17348. I should suppose that if you had teachers who had a special aptitude for this class of teaching they would succeed without text-books; but that the average teacher whose services you could command must be supplied with a series of text-books?—I imagine that we should employ only such teachers as had a special aptitude towards that subject as we do at present. Our teacher in mathematics is a graduate in mathematics and he has a special aptitude for it.

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17349. He has a special aptitude for getting it up but not necessarily for teaching?—You can train a man to be a teacher; you cannot train him to be an excellent teacher, but you can turn bad material into fairly good material, teaching material.

17350. Then your conclusion is that the absence of text-books does not necessarily make your scheme impossible?—No; I would not wait for the text-books to come into existence.

17351. *Dr. Hyder*: Do you think, if you had been a teacher to Alfred the Great or Akbar, you could have improved the intelligence of such people?—I might not.

17352. I put this question to you, because you are all for selecting pupils. I myself thought that the business of an educationist was to improve the student. Do you not think that if the boy was naturally gifted no educationist would do any good to him?—Yes, I think he would.

17353. I quite see the task of the educationist would be very much easier and the pupil might outstrip the teacher. I thought the educationist was there to raise the general level of intelligence?—The “educationist”? We are talking of the school master; we are not talking of the “educationist” which is a larger term.

17354. I wanted to be polite. Let us say the school master. He is there to improve the minds of the boys who are under his care in the school?—That I take to be his task.

17355. Since when have the English acquired a love for nature study; is it racial or is it a question of training?—I think it is racial.

17356. Two hundred years ago no one would look at the Alps. Is that known to you?—But they would look at nature in England.

17357. I doubt that very much?—I should like you to ask your colleagues on the Royal Commission. I do not think it is education that has given the thousands of Englishmen an interest in nature; I think it is something in their blood.

17358. *Professor Gangulee*: You do not think it is education that has given them that outlook?—I think education is given them from nature.

17359. *Sir James MacKenna*: Do the teachers trained in the Teachers' College go back to middle schools?—The greater number go back to the high schools; a part go back to the middle schools.

17360. You have no college-trained men in the primary schools?—No.

17361. The primary school teachers are rather poor material?—Yes.

17362. *Professor Gangulee*: You said that there are only four towns in this Presidency?—Four cities, as cities are generally conceived.

17363. Do you think that most of the pupils are from the rural areas?—Most of the pupils in the elementary schools are.

17364. And also in your college?—Are you thinking of the training college?

17365. Your Teachers' College?—That is the training college.

17366. From “rural” would you exclude a town like Tinnevely, which has a population of 70,000 or 80,000 and which I think is more a collection of villages than a city? Would you exclude places of that kind? What is the population?—Seventy thousand.

17367. Those are merely a collection of *peeths*?—Yes. They are certainly villages. The teachers who come from there are drawn from rural areas.

17368. Then, you go on to say: “The racial instinct is away from the land.” In the first place, how do you explain this tendency, this racial instinct?—Racial instinct is a very difficult thing to explain. I cannot explain the racial instinct of the Englishman towards the land.

17369. What had you in mind when you put in the words “racial instinct”?—What I had in mind is explained there, that the majority of Indians take no interest in nature as such.

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17370. Are you familiar with Indian literature, poetry, etc.—Yes, a certain amount of it.

17371. I do not press the point. Is it your experience that there is an increasing tendency towards the cleavage of the urban and rural population? You deal with teachers; they are all adults; you come in contact with them I suppose?—Yes.

17372. Do you find that their mind is drawn away from the rural life? Do you find that tendency?—I do not understand the question.

17373. People born in rural parts are educated in your schools under the University of Madras. What psychological changes have occurred in them with regard to their outlook?—Psychological changes?

17374. Yes?—The change is that their outlook is urban; they look towards the town for a means of livelihood and interest.

17375. Are they from the rural areas?—They are people born in rural areas and brought up in rural high schools. Having passed through the examination they look towards an indoor life, their personal interest, apart from their pockets, is towards an indoor life.

17376. An urban life?—Yes.

17377. Do you think the system of education has played a part in creating this state of things?—I think it has.

17378. Have you any experience in agricultural education?—Yes, a certain amount.

17379. Do you know of any attempt in this Presidency to introduce agriculture in secondary schools?—Yes.

17380. Where was the experiment made?—Madura and Chinglepet.

17381. You are referring to experiments carried on by missionaries like the Rev. Mr. Sutherland. Do you know of any effort on the part of Government to start agricultural middle schools?—Yes; we have agricultural middle schools under the control of the Agricultural Department. I know of one at Anakapalle; and one is to be opened at Chittoor, as soon as teachers are available.

17382. Did you pay any visit to these schools?—I was on the committee that organised these schools.

17383. *Mr. Calvert*: Madras of course is mainly an agricultural Province. Does your Madras University take the lead in encouraging the study of Madras rural problems?—No. There used to be in the Madras University a Professor of Economics, Dr. Gilbert Slater; however, that appointment has come to an end.

17384. I understand they had a three years' course in rural economics, and now it is two years?—I think it is.

17385. I gather you are rather in favour of separating the work of rural education from that of urban education?—No; I am not.

17386. Would you have a separate board for rural education?—A board of Rural and Agricultural Education?—Yes, possibly. Rural education is a misnomer. I want agriculture, or strictly defined, selected lessons on agriculture, which is a different thing altogether, to be taught in middle schools and high schools whether those schools are situated in urban or rural areas. My object is not to make a distinction between rural and urban education. My object is to turn the interest of the educated people to the land and the possibilities of nature.

17387. At present the urban bias is rather stronger than the rural bias?—At present there is no rural bias so far as school education is concerned.

17388. *Professor Gangulee*: Do you teach rural economics in your Teachers' College?—No.

17389. That means, in the Training College there is no place for rural economics?—The Training College is a strictly professional college, and all

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that we teach the teacher there is the general principles of teaching and the method of handling his own particular subject.

17390. *Mr. Calvert*: I presume you regard the teacher as one of the most important elements in education?—The most important.

17391. Would you say he is more important than the curriculum?—Yes.

17392. You would go so far as to say that the rural bias in the teacher is more important than in the curriculum?—I would.

17393. *Mr. Kamat*: Would you tell us in what period the Madras City has been built up to its present dimensions?—I should like to have notice of that question.

17394. About 100 years or 150 years?—I would like to have notice of that too.

17395. When was the University built up here?—I should like to have notice; it took place a long time ago.

17396. Before these institutions were built up, I suppose there were ancient seats of learning in India?—Yes.

17397. All these ancient seats of learning were in jungles and in the pastoral parts of the country, not in cities?—So it is said.

17398. In the light of that, may I know who brought the Madras from his pastoral surroundings to urban surroundings?—Not only education.

17399. Would you agree that it is British education?—He was brought to it in the natural course of events.

17400. In the rural parts of this country, have you got the same amenities as, for instance, a Britisher finds in his village?—No; I think not.

17401. Can an ordinary educated man, educated say up to the matriculation standard, make a decent living nowadays in rural surroundings?—I think it is difficult for him.

17402. But in other countries such educated people can?—They can make a living.

17403. So, it is not a question of racial predilection or instinct, but it is a question of bread and butter?—I do not think it follows. I think there does exist a racial instinct among Indians towards an urban life.

17404. I just pointed out that the racial instinct which existed among all the ancient *pandits* and *moulvis* for rural surroundings has been changed owing to certain circumstances. There is no decent living left in rural areas, and that is what we must create. Do you agree?—I think I should like to be rather more clear. You talked about ancient seats of learning and of the nature knowledge that they have left us. They have left us knowledge of all kinds, but my submission is that in those ancient seats of learning there was no rural outlook.

17405. The point is not the quality of the learning. The point is entirely different; it is about rural and urban outlook. The real point at issue is, when we send back men to rural surroundings, whether there are any occupations for them. Before we create occupations can we really send back our educated people there simply by changing the system of education?—It will be a slow process, but I think if we can show the educated youth that agriculture has possibilities as an avocation, if we can get him to take an interest in nature (it will be a slow process), I see no reason why his outlook should not gradually change.

17406. If a matriculate or high school trained boy could get a decent living, say, Rs. 100 or Rs. 75 a month, with a capital of, say, Rs. 2,000 would you be surprised to hear that 95 per cent. of the educated people would go back to the land?—You say if a matriculate could get an income of Rs. 75 a month?

17407. Yes?—It is a decent living; I think he would be prepared to go to the village.

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17408. So, it is not a question of rural outlook; it is a question of bread and butter?—No. The bread and butter question is included; it has its influence. But there is also, I say, apart from that bread and butter question, the question of this natural outlook.

17409. What I wanted to ask you was, unless 5 or 10 acres of land pay an educated man enough to give him a decent living, decent clothes and ordinary food, can you expect him, merely by instinct of rural outlook to go back to the land?—No, you cannot.

(The witness withdrew.)

**Mr. J. W. KEITH and Mr. C. E. WOOD, Representatives of
Messrs. PARRY & Co., Madras.**

Replies to the Questionnaire.

QUESTION 2.—AGRICULTURAL EDUCATION.—Apparently not many of the students who have been trained go back to the land, and it is suggested that a college, where sons of *mirasidars* could be trained in agriculture, would be of great value.

Poultry farming and market gardening, especially in the vicinity of large towns should form a means of livelihood to many if they could be induced to adopt it and can find the necessary capital to start.

QUESTION 10.—FERTILISERS.—(a) Our efforts as a firm of fertiliser manufacturers for over 25 years is a sufficient answer to the first question—our general experience being that the application of fertilisers to normal soils is profitable. The average Indian soil is impoverished by centuries of crops and the shortage of farm yard manure indicates that artificial manure is very necessary. We have a very large number of customers who have been using our fertilisers year after year for periods ranging in some cases up to 20 years. It is almost impossible to give a general statement showing the actual profit derived from the use of artificial manures, as ryots keep no proper accounts, but from our long experience we estimate that the profit per acre may range between Rs. 15 and Rs. 150 per acre depending on the locality and crop and on the amount of fertiliser used.

Extended use of natural and artificial fertilisers will come as soon as ryots realise that their use is profitable. In order to popularise the use of fertilisers continued demonstration is necessary. A demonstration plot in every village is desirable, but a start might be made by having three or four plots in every taluk, under the control of the Agricultural Demonstrator. Such demonstration plots should be confined to artificial manures only. Other plots could be used to demonstrate advantages of seed selection or the use of improved methods of cultivation. Continual advertisement is also necessary but this is the business of the fertiliser firms interested, who at present are quite prepared to distribute free a reasonable amount of fertilisers for experimental purposes.

(b) Reliance would have to be placed on a system of inspection and analysis with punishment of transgressors, but we submit that this matter is, at present, not of great importance, as, generally speaking, fertilisers are supplied only by firms of good repute. The presence of sand in poonacs and in fish guano and manure is not usually due so much to wilful adulteration as to defective methods of manufacture. Poonacs have been known to contain up to 60 per cent. of sand, but simple inspection is sufficient to show the inferior nature of the product.

All artificial fertilisers should be sold on guaranteed analysis but we would urge the fertiliser industry should not, at the present stage of its growth be too much hampered by inspection which is liable to have its attendant abuses.

(c) Much is being done by fertiliser firms at present to popularise the use of artificial fertilisers by the distribution of free samples to *bonâ fide* experimentors and the good results obtained are broadcasted by canvassers and by advertisement amongst potential users.

Every Agricultural Demonstrator should supervise experimental plots, if not in every village at least in every taluk and fertiliser firms are only too willing to co-operate with the Agricultural Department by the supply of reasonable quantities of fertilisers.

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After demonstration has proved the usefulness of fertilisers, a system of distribution must be considered and the ideal system is a series of local depôts fed from a central factory or distributing centre. Through the co-operation of the Agricultural Department during the past few years we have demonstrated that this system is good and a very much larger turnover would have been obtained had ample supplies of fish guano been available. Ryots are very conservative and once having obtained good results from one particular manure are very unwilling to use any other. For example in Guntur, Repalli, Tenali and surrounding districts a very big demand for fish guano was created through the work of the Agricultural Department and ourselves, over 300 tons being sold through a chain of depôts. Unfortunately the fish guano season was a failure on the Malabar Coast for two years in succession but sales of other fertilisers were practically *nil*. There is, however, evidence of an increasing demand, from this district, for superphosphate and bonemeal—supplies of which are always available.

A system of depôts is necessary for the reason that the ryot will not buy ahead but waits till he sees signs of a good crop before ordering manures and this allows no time for supply from a central factory which may be 300 miles away. Individual orders are placed for only a few hundredweights at a time.

Because of overhead charges distribution from depôts is of necessity more expensive than from one central depôt but the extra cost is justified by the convenience. To popularise the use of fertilisers and improved methods of cultivation, a suggestion has been made that when remission of land tax is necessary on account of failure of crops, a larger remission might be made to cultivators who can show they have made some effort to improve their cultivation either by extended use of manures or by seed selection or by use of improved implements. This matter would need great care.

More attention might be paid to local agricultural shows—a spirit of healthy competition in the growing of paddy, *ragi*, chillies and tobacco, etc., would be very stimulating. Such shows would be useful as centres for disseminating knowledge of genuine interest to agriculturists, and, to give the best results, should be very local in character. Certificates of merit issued by the Agricultural Department would be of great value in raising the standard of cultivation. Fertiliser firms would be prepared to co-operate with the department in making such shows a success.

Popularising the use of manures is of course closely allied to the question of payment. It is impossible for any firm to give credit to thousands of small customers and this is where co-operative societies should be of great assistance. For cash payment we allow such societies special discounts and if these societies would grant short-term loans to members on the security of crops to enable them to take fertilisers, the actual cost of the fertiliser to the member would be very little more on credit terms than it would be for cash—in so many cases an impossibility. Of the hundreds of co-operative societies in South India there do not appear to be more than half a dozen who do anything to help their members to purchase manures. Very close co-operation between the Agricultural Department and the co-operative societies seems essential and from such co-operation the greatest good seems likely to accrue.

With a guarantee of payment we should even be prepared to distribute on credit through co-operative societies and this would very largely help to solve the very difficult question of distribution.

(d) In Guntur district in 1925 we sold 63 tons and in 1926 to date we have sold 268 tons.

In Nellore district we have a customer who in 1922, bought one ton as an experiment. In 1926 he has bought 33½ tons.

The sales in this district in 1925 were 27 tons and up-to-date in 1926 are 70 tons.

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In Chingleput and North Arcot, South Arcot, Tinnevely and the Nilgiris increased sales are also to be noted.

(e) Much investigation has been done by the Agricultural Department in connection with manuring and experiments in conjunction with private agencies are in progress at various places in the Presidency. The experiments we are conducting on behalf of the Potash Supply Company of London have demonstrated to the full the importance of potash manuring in tobacco.

Much of the work done by the Agricultural Department seems to be hidden away in official bulletins which are accessible only to a very few and the possibility of more widely disseminating the knowledge gained is one that deserves great consideration. Distribution in the vernacular is necessary and it should be a point of policy that every ryot able to read should be in possession of the results of experiments.

We find one of our greatest difficulties is to spread the results of successful demonstrations. One district is sceptical regarding the results obtained in another with the result that demonstrations are often multiplied where a little faith is really all that is necessary. This means slow progress. It seems possible that work by the Agricultural Department could remedy this.

QUESTION 17.—AGRICULTURAL INDUSTRIES.—We do not consider it advisable that Government should take any steps to establish industries as suggested in this question.

Industry and agriculture are, generally speaking, two entirely separate ventures and should not be confused. In any case we submit that it is not the province of Government to commit itself to industrial undertakings except purely on an experimental scale.

Agricultural Departments can disseminate useful information about improved types of agricultural implements, crushing machinery, etc., and might demonstrate their use and encourage purchase through co-operative societies, but should abstain from taking any active part in the establishment of industrial enterprises, a matter for which Government is not, ordinarily, properly equipped.

Oral Evidence.

17410. *The Chairman:* Mr. Keith, you are the representative of Messrs. Parry & Co., manufacturers of fertilisers, and you are accompanied before the Commission to-day by Mr. Wood. You, Mr. Wood, are the senior partner?—Yes.

17411. Which of you, gentlemen, will speak to the note of evidence?—Mr. Keith.

17412. And we shall assume, Mr. Wood, that unless you contradict Mr. Keith, you agree with him?—Yes.

17413. You have put in a note which the Commission has read with great interest; it really explains itself, but there are just one or two questions which I should like to ask you. You point out on page 761 that in order to overcome the natural prejudice and conservatism of the ryot, it is necessary that a great deal of demonstration and propaganda should be undertaken. Have you yourselves financed any such propaganda?—We have run a considerable number of experiments in the Presidency.

17414. Have you any views as to the relative merits of propaganda and demonstration on your own plots and propaganda and demonstration on the ryot's own holding?—I think I should prefer the ryot's own holding, if it can be arranged.

17415. He always thinks there is some magic at work, if the Agricultural Department controls the land?—That is one thing.

17416. What are the others?—He very often has the impression that the demonstration is conducted on a specially selected plot; he may think it is much better land than his.

17417. That more money is spent than he can afford and that better land is being used?—Yes.

17418. On the question of adulteration of fertilisers, have you in your experience had any cause to suspect the distributors of adulterating fertilisers?—No, because at present we have practically no distributors; we have our own agents.

17419. So that they have nothing to gain by adulteration?—No.

17420. Unless it would enable them by the increase in bulk to steal a certain amount of substance; but that does not arise in your experience?—A large amount of pilfering goes on, but that is quite different from adulteration.

17421. The bulk is not made up by foreign substances, but it is simply a question of petty theft?—That is so, so far as I can understand from my complaining constituents.

17422. The theft takes place on the railways?—Partly on the railways and partly between the station and the city.

17423. That shows a fairly active demand for fertilisers amongst a certain section of the community?—It is quite surprising.

I suppose you take it as a hopeful omen, do you not?

17424. Have the railways been accommodating to you in the way of providing godowns or space for godowns?—No.

17425. Did you have to ask for that at all? How about your depôts; are they situated in large railway centres?—No, because the difficulty is that we want these depôts outside municipal limits, for purposes of taxation.

17426. Do you find there are municipal dues to pay?—There are license fees to pay.

17427. And you find that the cartage to distant depôts is less than the fees?—That is very difficult to say.

17428. On page 762 you point out that a few co-operative societies appear to take an interest in the matter. Have you ever approached, or in your knowledge has any one else ever approached, any representative body able

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to speak for all the co-operative societies, with the view of pushing schemes of this sort?—We have addressed the Deputy Registrar of the North Arcot district, but we have not received a reply.

17429. Did you point out that if fertilisers could be distributed on a co-operative basis, that might provide the security upon which you yourself could give credit?—Quite so; we are considering that question; of course, as we have pointed out that with a guarantee of payment from some body, Government or the co-operative society, we should be prepared to distribute on credit through co-operative societies.

17430. Naturally, you must have reasonable security for your loan?—Yes.

17431. Are you the only firm distributing artificial manures in those parts of the Presidency in which you trade?—No, there are two other large European firms.

17432. Do you know the extent of their sales?—I have no figures.

17433. Can you say, from your experience, that there is a steadily growing demand for artificial fertilisers?—Our figures point that way.

17434. Are you asked by cultivators for advice on the technical aspect of fertilisers?—Yes.

17435. What is your advice as to the need or the reverse for a certain proportion of organic manures with the artificial fertilisers?—We continue to recommend that as much organic manure as possible should be used, and that, in our opinion, the best results are got from a combination of organic and artificial fertilisers.

17436. Do you manufacture all your manures or any of them?—We have large bone presses, and we are at present manufacturing superphosphates; we crush ground-nut poonacs and bone.

17437. Do you handle sulphate of ammonia?—Yes, we do.

17438. Have you difficulty in getting all the bones you want?—Yes, the supplies are running short.

17439. Have you any views about the desirability of prohibiting the export of bones from this Presidency?—I think the question is largely an economic one.

17440. Is it not rather more than economic? There is a very definite shortage of certain substances in the soil, and if you are exporting those substances, how can you make the deficiency good? That is the problem?—We are simply exporting because there is no demand for them in the country; we would much prefer to sell in the country.

17441. You yourselves are exporting?—With regard to the suggestion that export should be prohibited, our position has always been that it would be a correct policy to follow as soon as it was found that the supplies were being utilised in the country, but our experience up to date has been that unless we export a certain quantity every year, the turnover is not sufficiently large to make bone crushing a commercial success.

17442. You, gentlemen, of course represent a limited liability company, I take it, and you very rightly look to the interests of the shareholders?—We have got the cost per ton; it makes a difference to the cost of the turnover whether we do 100 tons or 1,000 tons; unless we can get a sale for 1,000 tons to work economically means that we have to charge very high prices for the small quantity sold in the country.

17443. I see the point. I was going to say that you very naturally and rightly take the commercial view, and that is what you are here for?—Yes.

17444. I was wondering whether you would suggest that the increased cost of production as a result of lower outturn would counteract the natural tendency for the prices to drop, if the export demand were cut off?—The cost of crushing by unit crush would not come down unless the crushing were done in the country.

17445. Meantime, your overhead charges are spread over the whole of your product whether sold in the country or exported?—Yes

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17446. If there were no export of bones, you would have presumably lower outturn?—Yes, a lower outturn.

17447. If you continued in business, the whole of that business would be confined to the Presidency?—Yes.

17448. Whether you could do so at a profit or not I do not know; you presumably would have to lower your charge to the public in this country in order to encourage the extension of your business in the Presidency?—Yes.

17449. And the question is which of these two factors would be the more powerful?—With the present off-take of Madras from factories, I should say that it would not pay a fertiliser concern to continue unless it could export.

17450. That is definitely your opinion?—I think so. The price of the product to the consumer would of course go down so far as bones are concerned, but that is a small proportion of the turnover of a factory.

17451. What is your technical method; do you digest these bones?—Some of them, when steamed bonemeal is required, but the greater part of them is merely crushed; they are very dry in this country.

17452. Have you carried out experiments yourself, to satisfy yourself that you in fact break down the bones and that they are available for the plant in the shape of food?—That is undoubtedly so; we have carried out experiments for many years.

17453. You are familiar with the practice in colder countries, and you know that if any grease is left in the bone, it does not dissolve but lies a long time in the soil; that does not exist here?—Not to such an extent; some users prefer that some of their fertiliser should become available at a later date gradually; they want it spread over a period.

17454. *Professor Gangulee*: What is the smallest bag that you sell?—We sell anything from 75 lbs. to 300 lbs.; the customary packing is 1 or 2 cwt.

17455. Is there any collective buying by a group of ryots?—We have one or two villages that do have the system of collective buying.

17456. Not through co-operative societies?—They come direct.

17457. Do you know enough about the details to tell the Commission who arranges that?—In this particular village that I am thinking about, it is simply arranged by one or two headmen of the village.

17458. And those men have been in touch with the Agricultural Department?—Yes, they have been in touch for many many years.

I suppose you are trying to extend the lesson.

17459. With regard to the demand in India, is the demand from the Indians or from the European planters?—We have large demands from both.

17460. Which is greater? Is the European demand the greater?—I should say so at present.

17461. You manufacture sulphuric acid yourself?—Yes.

17462. You get your sulphur from Sicily?—No. We get American sulphur.

17463. *Mr. Calvert*: You suggest that the profit per acre may range from Rs. 15 to Rs. 150 per acre. Is that the net profit?—Yes, net profit after cost of the fertiliser has been deducted.

17464. And the additional cost of cultivation and harvesting involved?—No.

17465. You are suggesting that co-operative societies are not taking much interest. If the profits are anything like Rs. 30 per acre net, it is difficult to understand why they do not come forward?—We know ryots do get profit. We are surprised at the slowness of the advance.

17466. That applies to the Madras Presidency?—Yes.

17467. Is the consumption limited to places near Madras?—It pays them to carry this stuff to long distances as well, by rail. We have a very large demand in Guntur district which is about 300 miles from the factory.

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17468. You are opposed to Government undertaking pioneer industries?—
(Mr. Wood) Yes. How long is the country to wait for private enterprise to undertake these experiments?

17469. On page 763, in reply to question 17 you say "it is not the province of Government to commit itself to industrial undertakings except purely on an experimental scale." That is I think the commercial opinion about all matters relating to commerce and industry, that the Government should confine itself to experiments and leave it to commercial enterprise to do the rest?—The experiments may be on some considerable scale so long as they do not interfere with private enterprise. I have no general objection to that. You cannot interfere with private enterprise; it does exist. There are three fertiliser factories which have been in existence for 10 or 15 years, and they have had a very difficult time indeed and spend a great deal of money on propaganda work, in spreading knowledge of fertilisers, etc. And if Government were to come in now as competitors, it would be a very serious thing indeed for them, as it is in the other Presidencies.

17470. You make two definite proposals. One is to make card-board by the utilisation of wheat straw. There is no private enterprise to interfere with it?—I should say there is private enterprise.

17471. There is no manufacture in this country of such straw card-boards?—Yes. I think there was an industry established in Madras very long ago and it is closing down. I do not think it is correct to say that it should be done or ought to be done, but if it obtains orders from Government for all their requirements, it could possibly exist.

17472. "The utilisation of cotton seed to extract felt, fuel, fodder and oil." What is your view about cotton seed oil?—I have no objection to experiments.

17473. Would you permit the experiments to go so far as to encourage private industry?—On a small scale, certainly. There is the instance of a soap factory on the West Coast which has been started by Government and quite successfully run by Government, and Government have now offered it to the public, but no private enterprise has come forward to run it because there is nobody who has come to the conclusion that it could be run as a commercial concern with success. It is merely as an experiment; if Government were to take it up on a very large scale now, it would be incorrect, I think, because commercial opinion is that it could not be a paying proposition. Government undoubtedly could run a considerable number of ventures; but there will be a great deal of harm to trade.

17474. My point is this: Is not the country losing while it is waiting for private enterprise to take up these industries?—Private industries will come if there is chance of reasonable profit accruing.

17475. The turpentine factory in the Punjab has been started by the Government?—Yes, but it is closing.

17476. It is still going on? It is now on a co-partnership basis?—Is that so?

17477. I presume it is part of the scheme for utilisation of forest product, is it not?—Yes, they are using forest product. And commercial enterprise and things of that sort are rather handicapped because they do not know what Government is to do next.

17478. Practically, in this ill-organised country, there is very little manufacturing enterprise?—There has been a great deal of manufacturing enterprise, but I suppose very unsuccessful in a great many instances.

17479. They are manufacturing?—Yes. The Presidency was strewn with sugar factories which have closed down. That is one instance.

17480. *Sir Ganga Ram*: You are a manufacturing firm as well as an importing and exporting firm?—Yes.

17481. Are the other firms also the same? Have you any connection with Shaw Wallace?—None.

Mr. J. W. Keith and Mr. C. E. Wood.

17482. What manures do you deal in?—We produce manures as any one else does.

17483. Have you got a branch here?—Yes.

17484. You state you make superphosphates. How can you make it without sulphuric acid?—We make it from imported sulphur.

17485. You stock the bones for making bonemeal?—Yes, some of them.

17486. Do you get any by-product?—The only thing is glue. The Madras Government make glue and we do not.

17487. Have you any branch in the Punjab?—No.

17488. You send your representative to the farms to show the effect of these things and point out what a profitable thing it is to grow with manure?—Also without manure, in big flower pots.

17489. That is what is done all over the world?—We have started experiments like that here.

17490. Do you send them to farms outside?—Are there no agricultural farms?—No. We send representatives to all the exhibitions, agricultural and co-operative society exhibitions.

17491. You do not deal in agricultural implements?—We do; we have an agency in Madras.

17492. Agency?—I think an agency for American machinery.

17493. Supposing I copy a piece of plant? Would you claim any royalty?—We should.

17494. You or somebody represented to me that you were very much handicapped by the high rates of railway freight. I do not remember which firm it was, but are the railway freights so very high as to retard your spreading these things?—It is a very big factor, I should think.

17495. Is it a big factor?—Yes, it is.

17496. Then there is no doubt that the manure is mixed with sand in large quantities. Where is it done, at the destination or at the beginning?—I suppose at the destination, to save the railway freight.

I do not know if you have experience, but I have experience and I am telling you. It is 60 per cent. or so.

17497. *Sir Thomas Middleton*: Is your main business with manures?—Yes, I should say, at present.

17498. Is the demand mainly for nitrogen or phosphates?—That is a mathematical calculation; there are mixtures containing both. The people take compound manures.

17499. Can you say whether different tracts of the Presidency are likely to want different mixtures? I think you are meeting special demands?—That is really an important question to be thought out and worked. We supply all demands for special fertiliser.

17500. You are finding a demand for phosphates in the tobacco-growing districts?—Yes.

17501. Is there any demand coming from the cotton growing districts?—At present the demand is slight.

17502. In what form do the tobacco growers take potash?—What is known as high grade sulphate.

17503. 50 per cent. quality?—Yes.

17504. You refer to the conservatism of cultivators who have been accustomed to fish guano in taking to other fertilisers?—Yes.

17505. You want fish guano for a certain purpose. What about bonemeal? Does it give the same result?—It is good, otherwise we should not have recommended it.

17506. What percentage of nitrogen does fish guano contain?—I presume it is 8 per cent.

Mr. J. W. Keith and Mr. C. E. Wood.

17507. A much lower percentage than the fish guano used in Britain?—
Yes, much lower.

17508. *Dr. Hyder*: I should like to know whether as the manufacturer of bonemeal you are for the prohibition of its export as a manure or for taxing its export?—I have answered that question before. At present, we think that the export should not be prohibited, but that as soon as there is an indication that as much of the bonemeal as is available in the country will be consumed, export should be stopped.

17509. *Dewan Bahadur Raghavayya*: With regard to this analysis which you conduct for the benefit of your constituents, are there any conditions under which it is conducted, that is to say, should the constituent or the ryot who seeks your advice purchase a certain quantity of the fertiliser before the analysis is made, or is it made in the case of anybody who seeks your advice?—We make no stipulation.

17510. *Sir Ganga Ram*: You are sending your manures to the Punjab?—It is rather far away.

(The witnesses withdrew.)

The Commission then adjourned till 9-30 a.m. on Tuesday, the 30th November, 1926, at Calcutta.

APPENDIX

Export Duties on Bones and Oil-Cakes.

As already explained in evidence, it is through exporting bones that fertiliser manufacturers in India are enabled to keep down their prices of all fertilisers sold in India.

The imposition of an export duty on raw bones would not, except perhaps temporarily, have the effect of lowering their price to the agriculturist.

The price of raw bones must in due course become adjusted to world prices for similar fertilisers, that is, purchasers in India will, in the ordinary course of events, be made to pay for them a price bearing direct relationship to the lowest price at which other fertilisers, having similar chemical composition, could be imported or otherwise obtained.

It must not be forgotten that fertilisers are already being imported in increasing quantities, will be still more needed in the future and will continue to set the price for indigenous fertilisers.

That there cannot be two prices for the same article in a market is as true when applied to the units of nitrogen and phosphoric acid in a fertiliser as it is to any other commodity, and in my opinion an export duty on raw bones or export prohibition would not materially affect the ultimate price situation.

Further, restrictions upon the export of bones, if in the first instance resulting in lower prices, would adversely affect collections.

A present feature about bones' export is that higher prices are being obtained than are warranted by their nitrogen and phosphoric acid contents only. This is because they are required for their glue contents also.

The position therefore is that it is to the advantage of India to take this high price and to purchase instead foreign fertilisers costing less per unit of nitrogen and phosphoric acid.

Restriction on the export poonac—another indigenous fertiliser—might even cause very grave hardship to those engaged in oil extraction, and this would re-act adversely upon the cultivator of oil-seeds.

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CHAMPION, HERBERT, M.A., Principal, Teachers College, Saidapet, Madras.

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 MUDALIYAR, M.R.RY. RAO SAHIB K. DEIVASIKHAMANI.**

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RAMDAS, V., and SIVASWAMI, K. G., representing the Madras Pro-
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MADRAS

(Vol. III)

GLOSSARY.

Ayacut	The land irrigable by an irrigation work.
Chaprasi	Peon (a messenger in the employ of Government).
Charka	Indigenous spinning wheel.
Cheri	Segregated portion of a village inhabited by low class people.
Cholam	The large millet, a very common food grain. (<i>Sorghum vulgare</i>).
Chuklars	Cobblers.
Cumbu	A small millet (<i>Pennisetum typhloideum</i>).
Dal	A generic term for pulses.
Darkhast	Application for a grant of waste land.
Dhoby	Washerman.
Dhoti	A garment for the lower part of the body consisting of one long piece.
Fasli	The revenue year beginning on the 1st of July and ending on the 30th June.
Inam	A grant by the Government of land free from land revenue or on favourable terms or of the land revenue on a specified piece of land.
Jamabandi	An annual account of lands held in a village and the amount of land revenue due on them.
Janmi	The name given in Malabar to the registered holder of land on ryotwari tenure.
Jatka pony	Pony for light vehicle.
Kadim	A system of land tenure in Mysore.
Kalam	A local measure for grains which varies from district to district.
Kanam	A tenure in Malabar partaking of the nature of both a mortgage and a lease.
Kanamdar	A person who holds land under a janmi or Kanam tenure.
Kangani	A labour recruiter.
Karnam	A village accountant.
Kichilisamba	A variety of paddy.
Kist	Land revenue assessment.
Koduval	Indigenous chaff cutter.
Koran	Mahomedan Scripture.
Kudimaramat Act	An Irrigation Act providing for the repair of irrigation works by villagers themselves.
Kudivaram	Popularly used to denote the share of the produce of land to which the tenant who cultivates it is entitled as against the landholder.
Kudivaram right	Occupancy right in land.
Lanka	Island.
Manawari	Dependent on rains.
Mariama	A Hindu Goddess.
Maulvi	A person learned in Mahomedan Law.
Measure (Padi)	A measure of capacity varying from district to district.
Melwaram	Popularly used to denote the share of the produce of land due to a landholder from his tenant who cultivates the land.

Mirasidar . . .	Historically denotes an inhabitant of a village who has a preferential right to waste land in it. Now generally used to denote any landholder in a ryotwari village.
Mote . . .	An indigenous water lift.
Munsif . . .	Judge of the lowest court with civil jurisdiction.
Nayudu . . .	A farming class.
Panchangamdar . . .	Hindu Priest.
Panchamas . . .	A class of outcasts.
Panchayat . . .	Literally a Committee of five. Used to describe an association of any number of persons instituted for objects of an administrative or judicial nature.
Panchayatdar . . .	Member of the Panchayat.
Pandit . . .	Hindu title, strictly speaking applied to a person versed in the Hindu Scriptures.
Pariah (<i>see</i> Panchamas)	
Patta . . .	The written demand issued annually for the land revenue due in respect of ryotwari land (or for the rent due to a landholder from certain of his tenants under Madras Act I of 1908).
Pattadar . . .	Registered holder of ryotwari land.
Pattagar . . .	Honorific title given to the chief by the tribesmen.
Peishcush . . .	Permanent assessment of revenue payable to Government by zamindars or other landholders holding under a sanad-i-milkiyat-i-istimrar issued under the Madras Permanent Settlement Regulation, XXV of 1802.
Peth . . .	Large village.
Picottah (<i>see</i> Mote).	
Podu . . .	Land cleared from thicket and prepared for shifting cultivation.
Pongal . . .	Hindu festival.
Poonac . . .	Oil-seed cake.
Peramboke . . .	Land at the disposal of the Government set apart for any Government or other public purpose.
	A measure of capacity varying from district to district.

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