9889

This Evidence will be published on 1927. The subject matter of the Volume should be kept strictly confidential until



6386

Dhananjayarao Gadgil Library

GIPE-PUNE-006386

# ROYAL COMMISSION ON AGRICULTURE IN INDIA

Volume VI

# **EVIDENCE**

TAKEN IN THE

CENTRAL PROVINCES AND BERAR



CALCUTTA: GOVERNMENT OF INDIA CENTRAL PUBLICATION BRANCH

1927

Government of India Publications are obtainable from the Government of India Central Publication Branch, Imperial Secretariat Building, 3, Government Place, West, Calcutta, and from the following Agents:-

> EUROPE.-OFFICE OF THE HIGH COMMISSIONER FOR INDIA. 42. GROSVENOR GARDENS, LONDON, S.W. 1.

And at all Booksellers. INDIA AND CEYLON.-PROVINCIAL BOOK DEPOTS:

MADRAS: —Office of the Superintendent, Government Press, Mount Road, Madras. BOMBAY: —Superintendent, Government Book Depôt, Town Hall, Bombay.

SIND:—Library attached to the Office of the Commissioner in Sind, Karachi.

BENGAL:—Office of the Bengal Secretariat Book Depôt, Writers' Buildings, Room No. 1,

Ground Floor, Calcutta.

United Provinces Of Agra and Oudh :- Office of the Superintendent of Government Press,

United Provinces of Agra and Oudh, Allahabad.

Punjab:—Office of the Superintendent, Government Printing, Punjab, Lahore.

BURMA:—Office of the Superintendent, Government Printing, Burma, Rangoon.
CENTRAL PROVINCES AND BERAR:—Office of the Central Provinces Secretariat, Nagpur.

ASSAM :- Office of the Superintendent, Assam Secretariat Press.

BIHAR AND ORRISA: --Office of the Superintendent, Government Printing, Bihar and Orrisa, P. O. Gulzarbagh, Patna.

COORG :- Office of the Chief Commissioner of Coorg, Bangalore,

NORTH-WEST FRONTIER PROVINGE:—Office of the Manager, Government Printing and Stationery, Peshawar.

Thacker, Spink & Co., Calcutta and Simla. W. Newman & Co., Ltd., Calcutta. R. Cambray & Co., Calcutta. S. K. Lahir & Co., Calcutta. The Indian School Supply Dep6t, 309, Bow Bazar Street, Calcutta, and 226, Nawabpur, Dacca.
Butterworth & Co. (India), Ltd., Calcutta. Rai M. C. Sarcar Bahadur & Sons, 90-2A, Harrison Road, Calcutta. The Weldon Library, 17, Park Street, Calcutta, The Wenus Calcutta, Calcutta Literature Calcutta,
Standard Literature Company, Limited,
Calcutta.
Association Press Calcutta.
Chakervertty, Chatterjee & Co., Ltd., 13,
College Scuare, Calcutta.
The Book Company, Calcutta.
The Book Company, Calcutta.
James Murray & Co., 12, Government Place,
Calcutta. (For Meteorological publications only.)
Ray Chaudhury & Co., 68/5, Russa Road,
North Calcutta.
Higginbotham & Co., Madras.
V. Kalyanarama Iyer & Co., Madras.
P. R. Rama Iyer & Co., Madras.
P. R. Rama Iyer & Co., Madras.
G. A. Nateson & Co., Publishers, George
Town, Madras.
The Modern Stores, Salem, Madras.
Bright & Co., Trivandrum.
The Booklover's Resort, Taikad, Trivandrum,
South India.
V. S. Swaminathan, Bookseller, West Tower
Street, Madura.
E. M. Gopalakrishna Kone, Pudumandapam,
Madura.
Visanur & Co., Vizaganatam. Standard Company, Limited,

E. M. Gopalakrisuna Madura.

Vijapur & Co., Vizagapatam.

Thacker & Co., Ltd., Bombay.
D. B. Taraporevala, Sons & Co., Bombay.
Sunder Pandurang, Bombay.
Ram Chandra Govind & Sons, Kalbadevi,

Rombay.

Bombay.

N. M. Tripathi & Co., Booksellers, Princess
Street, Kalbadevi Road, Bombay.

R. B. Umadikar & Co., The Bharat Book
Depôt, Oharwar.
Proprietor, New Kitabkhana, Poona.
The Manager, Oriental Book Supplying
Agency, 15, Shukrawar, Poona City.

R. S. Gondhalckar's Book Depôt, Publisher
and Bookseller, Budhwar Chawk, Poona
City.
Managing Director. Co-operative Bookstall,

City.

Managing Director, Co-operative Bookstall,
Booksellers and Publishers, Poona City.
The Standard Bookstall, Karachi, Quetta,
Delhi, Murree and Rawapindi.
J. Ray & Sons. 43, K. & L. Edwardes
Road, Rawapindi.
The Standard Bookstall, Quetta.
The Standard Book Depôt, Lahore,
Lucknow, Nainital, Mussoorie,
Dalhousie and Ambala Cantonment.

Karsandas Narandas & Sons, Surat.
Mangaldas & Sons, Booksellers and Pub-lishers, Bhaga Talao, Surat.
Mrs. Radhabai Atmaram Sagoon, Kalbadevi Road, Bombay.
A. H. Wheeler & Co., Allahabad, Calcutta and Bombay.

and Bombay.
The Karachi Book Depôt, Karachi.
N. B. Mathur, Supdt., Nazir Kanun Hind
Press, Althabad.
The North Irdia Christian Tract and Book
Society, 18 Clive Road, Allahabad.
Ram Dayal Agarwala, 184, Katra, Allahabad.
Manager, Newal Kishore Press, Lucknow.
The Upper India Publishing House, Ltd.,
41, Aminabad Park, Lucknow.
Munshi Sceta Ram, Managing Proprietor,
Indian Army Book Depôt, Juhi,
Cawnogre.

Munshi Seeta ... Book — Indian Army Book — Cawnpore.
Rai Sabib M. Gulab Singh & Sons, Mufd-i-Am Press, Lahore and Allahabad.
Rama Krishna & Sons, Booksellers, Anarkali. Lahore.
Brothers, Booksellers and Publishers,

kali. Lahore.
Puri Brothers, Booksellers and Publishers,
Katcheri Road, Lahore.
The Filak School Bookshop, Lahore.
The Standard Bookstall, Lahore.
Manager of the Imperial Book Depôt, 63,
Chandney Chawk Street, Delhi.
Oxford Book and Stationery Company,
Delhi.

Supdt., American Baptist Mission Press, Rangoon. Proprietor, Rangoon Times Press, Rangoon.

The Modern Publishing House, Ltd., 30, Phayre Street, Rangoon. The International Buddhist Book Depôt, Post Box No. 971, Rangoon.

Burma Book Club, Ltd., Rangoon.
Manager, the "Hitavada," Nagpur.
Bhisey-Brothers, Booksellers and Stationers,
Sitabaldi, Nagpur
S. C. Talukdar, Proprietor, Students & Co.,
Cooch Behar.

Cooch Behar.

Times of Ceylon Co., Ltd., Colombo.

The Manager, Ceylon Observer, Colombo.

The Manager, The Indian Book Shop,
Benares City.

B. C. Basak, Esq., Proprietor, Albert
Library, Dacca:

The Srivilliputtur Co-operative
Union, Ltd. Srivilliputtur (Satur

Library

The Srivilipua.

Union, Ltd.
S. I. R.).

Banwari Lall, Esq., Pakariya

Pilibhit, United Provinces.

The Manager, Educational Book Depôt,

The Manager, Educational Book Depôt,

The City.

Chaderghat

Raghunath Prasad & Sons, Patns City. Dandekar Brothers, Indore City. The Hyderabid Book Depôt, Chaderghat, Hyderabad (Deccan).

# ×9(1).2. N2+ F7.6 INTERIM REPORT

6886

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 29th of January 1927 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. ( ,, ) J. MACKENNA. ( ,, ) H. CALVERT. ( ,, ) N. GANGULEE. ( ,, ) L. K. HYDER. ( ,, ) B. S. KAMAT.

(Signed) J. A. MADAN,

( ,, ) F. W. H. SMITH,

Joint Secretaries.

21st July 1927.

#### CONTENTS

									PAGES
[erms	of Reference	e ´.					•		fii.
Questi	onnaire			•	•	• ,	•	-	ip-xiii
Evider	nce of—	٠							
1.	Mr. F. J. P Director	lymen, I.A of Agricult				•	•	•	1-88 (ii)
2.	Rai Bahadur Deputy Di	Tundi Lal				Circle	, Raipı	ır .	89- <b>99</b>
3.	Mr. Ramcha Waraseoni	ran Lal Di Balaghat	'	t	• .		•		100-124
4	Mr. Purusho Malguzar,	ttam Prasac Balpur, Bi			t .				125-130
5.	Col. H. de l Chief Eng	L. Pollard-l ineer, Irrje		, C.M	.G., C	C.I.E.,	D.S.O	٠.,	131-151
6.	Mr. Chhotele Extra-Assi	al, stant Com	missione	ر er, and					152-167
7	Mr. G. P. Be Deputy C	orton, I.C.S		pur	1.	•	•	•	152-107
8.	Mr. C. M. C. Registrar	Trivedi, I.O of Co-opera	-	ocietie	٠.	•		•	168-195
9.	Mr. R. G. A	Allan, M.A. Agriculture		ege, N	lagpur	•			196-240 (ii)
10.	Rao Bahadur President,	K. V. Bra Berar Co-o <sub>l</sub>						oti .	241-270
11.	Mr. D. O. V Chief Cons		Forests	١.					271- <b>2</b> 95
12.	Rao Bahadui	м. <b>G</b> . I	Deshpan	de, N	agpur		•	-	296-316
13.	Rao Sahib T Landlord,						•		317-331
14.	Mr. C. W. Veterinary					tral Pr	ovince		332-341
	Mr. C. J. Irv					-		•	342-367
16.	Mr. R. H R	eckett							; -

ii(a)	
	Pages
Evidence of—	
17. Mr. Amanat Ali, Burhanpur, Khandwa District	386-398
18. Mr. B. G. Khaparde, B.A., LL.B., M.L.C., Amraoti	399-410
19. Lieut. Col. H. G. Stiles Webb, D.P.H., D.T.M.&H. (Camb.), I.M.S.,	
Officiating Director of Public Health	411-426
20. Mr. Shyam Sundar Bhargava, Managing Proprietor, Messrs. Chandrabhan Behari Lali, Jubbulpore	427-441
21. Mr. H. H. Peterson, B.A., Secretary, Y. M. C. A., and President, The Empress Mills Co-operative Stores, Limited, Nagpur	442-451
22. Rao Sahib G. N. Sahasrabudhe, Pleader, Ellichpur, Amraoti District	452-477
23. Mr. M. R. Dókras, Pleader, Chandur, Amraoti District	478-495
24. Rai Sahib Dadu Dwarkanath Singh, Talukdar, Seoni	496-515
25. Mr. Kaluram Pochory, Representing the Agricultural Association, Gadarwara	516-528
26. Mr. K. P. Pande, LL.B., M.L.C.,  Representing the Tahsil Agricultural Association, Sihore,	
Jubbulpore . •	529-557
Index	i cxxxii
	xiii-cxxxvii

#### 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.

### ii(a)

	Pages
Evidence of—	
17. Mr. Amanat Ali, Burhanpur, Khandwa District	386-39 8
18. Mr. B. G. Khaparde, B.A., LL.B., M.L.C., Amraoti	399-41 (
19. LieutCol. H. G. Stiles Webb, D.P.H., D.T.M.&H. (Camb.), I.M.S., Officiating Director of Public Health	411-426
20. Mr. Shyam Sundar Bhargava, Managing Proprietor, Messrs. Chandrabhan Behari Lall, Jubbulpore	427-441
21. Mr. H. H. Peterson, B.A., Secretary, Y. M. C. A., and President, The Empress Mills Co-operative Stores, Limited, Nagpur	442-451
22. 'Rao Sahib G. N. Sahasrabudhe, Pleader, Ellichpur, Amraoti District	452-477
23. Mr. M. R. Dokras, Pleader, Chandur, Amraoti District	478-495
24. Rai Sahib Dadu Dwarkanath Singh, Talukdar, Seoni	496-515
25. Mr. Kaluram Pochory, Representing the Agricultural Association, Gadarwara.	516-528
26. Mr. K. P. Pande, LL.B., M.L.C., Representing the Tahsil Agricultural Association, Sihore,	500 557
Jubbulpore	529-557
Index	i-cxxxii
Closeary	rriii.crrrvii

#### 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?

 $(\bar{d})$  If you are aware of any striking instances of the success or the failure of demonstration and propaganda work, please give particular 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 service 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 Service 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 shor 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 carcases, 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?

#### INDEX.

#### (Figures in brackets refer to pages, other figures to questions.)

#### Administration:

Agricultural Department, see that title.

Agriculture and education should be under same Minister, Dokras

oard of Agriculture, Central, no force behind recommendations, Board of

Board of Agriculture, Provincial, Plymen (27), 27,558-61, 27,580-1, 27,608-9, 27,858, 27,915-6.

Co-operation Department, see under Co-operation.

#### Co-ordination of activities of various Governments:

Bureau for summarizing of work, to be maintained by Central Government, proposal, Plymen (27), 27,547-50, 28,182-4. by Financing of certain schemes by Central Government, proposal, Plymen (27).

Fuller exchange of experience and opinions between officers of Provincial Agricultural Departments advocated, Deshpande (298). Co-ordination between provinces on common subjects advocated, Korde (317-8).

District Boards, see that title. Education, see that title.

Forest Department, see under Forests.

GOVERNMENT OF INDIA:

should only Deal with activities beneficial to whole of India, Pande (529-30).

Functions of, should be mainly advisory, Korde (318). Relations with Local Governments, Khaparde (400).

Industries, Department of, close co-operation with other departments necessary, Deshpande (302).

Industries, Advisory Board of, functions, Irwin 31,324-5.

Irrigation, see that title.

#### METBOROLOGICAL DEPARTMENT:

Existence of, little known to agriculturists, Pande (530).

Good work done by, Deshpande (298).

Increased use should be made of, by Department of Agriculture and information published to agriculturists, Sahasrabudhe (458). Information, improved methods would be welcomed, Plymen (27), 28,185-7.

Information to Berar agriculturists desirable, Khaparde (400). reliable Monsoon reports, would be advantageous, Irwin (343).

Research on reduction in rainfall and its uncertainty, need for, and for wide and regular publication of results, Korde (318). of no Service to general body of agriculturists and proposals re, Dokras (480).

Services satisfactory, but not used by villagers, Bhargava (427). Meteorology, lectures on relation of agriculture and, suggestion, Sahasrabudhe (458).

Minister for Agriculture, proposal, Allan (197), 29,723-4, 29,802-6. Post Office Savings Banks, available but not used by agriculturists, money hoarded as silver ornaments, Dokras 32,663-5.

POSTAL PACILITIES:

Fair, Bhargava (427). in Rural areas, inadequacy of, and need for improvement, Desh-pands (298); Korde (318), 30,828; Khaparde (401). Satisfactory, Sahasrabudhe (458). fairly Satisfactory, Dokras 32,662.

Adequacy of, Allan (202).

better Facilities for transport of cattle advocated, Dokras (480). 62797

#### Administration-contd.

RAILWAYS-contd.

Facilities for transport of grass supply, suggestion for improvement, Korde (319).

Feeder roads, need for, Irwin 31,141-4, 31,148-50.

Freight rates:

for Agricultural produce should be lower than common rates, Dokras (480), 32,514-6.

Anomalies should be attended to, Allan (202). Concession rates to farmers advocated, Deshpande (298).

Concessions for agricultural produce and live stock, suggestion, Pande (530).

Cultivators' prosperity, injured by, and change advocated, Bhargava (430).

Examination of, desirable, Plymen (27), 27,551-61.

on Implements, concessions advocated, Deshpande (301); Dokras (483); Dwarkanath Singh (502).
on Inferior kinds of coal, reduction to minimum advocated,

Pande (531).

Opening of branch railways advocated, Sahasrabudhe (457). Pilfering and damage during transit, Deshyande (298). Provision considered satisfactory, Plymen 27,562. Reduced inland rates for rural produce advocated, Sahasrabudhe

(457).

Restraint on export of certain agricultural necessities might be necessary in some cases, *Pande* (530).

Special facilities for anti-rinderpest serum suggested, *Wilson* (333).

Special facilities and concession rates for transport of raw produce and fodder advocated, Korde (318), 30,884-5.
Waggons, inadequate supply in harvest season, Deshpande (298).
Research, see that title.

#### ROADS:

Baluta system, return to, desired, Korde 30,818-9. Construction of, from loans, proposal, Irwin 31,068-70, 31,096-100, 31,151-6.

Construction and maintenance by Government and by District Council, defined policy advocated, Brahma (242-3).

Control of, Irwin 31,170-3, 31,302-4.

District Boards' attitude, Irwin 31,121-2, 31,253-9, 31,328. under District Boards, funds insufficient for maintenance, Pandeya 28,795; Bruhma 30,010-15.

Facilities Allor, (202)

Facilities, Allan (202). Feeders to railways, need for, Irwin 31,141-4, 31,148-50.

Construction advocated, Pande (537). Construction, particulars re, expenditure on, etc., Witt (276). Nature of, Witt 30,408.

Use of, by general public, Witt (276), 30,340-1. Importance of, for agriculturists, Korde (318); Irwin (343), 31,092-5. Improvement and extension needed, Bhargava (427).

Inadequacy of, in Berar, Brahma (242); Khaparde (400). Lack of, in Jubbulpore district, due to lack of money, Irwin (343), 31,252-9.

Metalled, increased number advocated, Dokras (480)

few Metalled roads, Jubbulpore district, Bhargava 32,289. in Paddy tracts, condition of, Plymen 27,776-8.

in Rural areas:

Importance of, Pande (530). Provision of, with light railways, proposal, Pande (537). Secondary feeder roads, need for, Allan (202). Toll system not in force, Irwin 31,155-6.

Village:

Bad condition, Irwin 31,135.

Condition of, under District Councils not satisfactory, Sahasrabudhe (457).

#### Administration-contd.

Roads—contd.

Village-contd.

Difference between wheat growing tract and rice and cotton

growing tracts, Irwin 31,243-4.

Fair weather, need for improvement and Government must undertake, Korde 30,747-50, 30,780-3, 30,811-7.

Neglect of, and proposed remedies, Brahma (242-3).

Repair, compulsory supply by every adult of one day's labour for, proposal, Brahma (242), 30,016-9. Suggestions for improvement, Sahasrabudhe (457).

#### TELEGRAPH SERVICE:

Facilities fair, Bhargava (427).

Inadequacy of, and need for development in rural areas, Desh-pande (298); Korde (318); Khaparde (401). Satisfactory, Sahasrabudhe (458).

Transport, improved facilities needed, Deshpande (298), 30,459-63. Veterinary, see that title.

#### Agricultural Department:

Agricultural Bacteriology section, proposal for expansion, Plymen (25).

AGRICULTURAL ENGINEER:

Functions, Plymen 27,948-58, 27,962.

Post at present vacant, Plymen 27,457, 27,944; Allan 29,738-9. proposed Status and functions, Plymen (30)

Status should be improved, Allan 29,754-5.

Assistance from Revenue officers, Allan 29,674.
Assistants, relations to Deputy Commissioner, and proposal, Irwin 31,270-1.

Attention concentrated mainly on export crops, Allan 29,829-36.

BUDGET:

Amount and increased sum that could be spent, Plymen 28,216.21. Cut in, after report of Co-operation Committee, Pande 33,358-67. Procedure, Plymen 27,606-9.

Control of animal husbandry operations by Civil Veterinary Department rather than by desirable, but not suitable in Central Provinces, Wilson 30,929-36, 31,031-8.
Co-operation with co-operative societies for sale of produce or stock,

necessity for, Trivedi (171). close Co-operation with Co-operative, Veterinary and Industrial De-

partments necessary, Deshpande (302).
Cotton paid more attention to than other crops, Plymen 27,861-5.
Demand for services of, by cultivators, increasing, Plymen 27,658-9.

#### DIRECTOR OF AGRICULTURE:

Control of Civil Veterinary Department by, see under Veterinary. Indian as, advocated, Pande (533).

Proposed Position, etc., Pande (533).
Qualifications required, Plymen 28,130-2.
Relations with Civil Veterinary Department, Plymen (30).

Relations with Civil Veterinary Department, Plymen (30). Distribution of work, Plymen (9-10). Expansion necessary, Dubey (102). increased Expenditure on, advocated, by decreasing number of excise officers, Dokras 32,608-9, 32,575-80, 32,619-21. Extra Assistant Directors, functions, etc., Plymen 27,458. Increased funds necessary and question of source of, Pande 33,541-55. Horticultural section, proposed strengthening of, Plymen (32). Improvement in service since introduction of Reform scheme, Pande (530), 33,369-77.

(530), 33,368-77.

Lectures to young officers of various departments on rural economy, Plymen 27,725-9.

Men desirous of carrying on private farming should be allowed to retire on proportionate pension and assisted by subsidy or loan, Dubey (101), 28,486, 28,660-4, 28,731-3.

(Organisation, Plymen 27,457-60, 27,897-8, 28,115-20.

iii

62797

#### INDEX.

#### Agricultural Department—contd.

People have little faith in activities of, Pande (529), 33,387-92.

Policy, Sahasrabudhe (452), 32,441-2, 32,478.
Provincial organisation, proposal, Korde (317).
Relations with Forest Department, Plymen 27,718; Witt 30,211-2, 30,349.

Relations with Irrigation Department, Plymen 27,578-82, 27,586, 27,827-9; Pollard-Lowsley 28,875-6.
Results of work, Plymen 27,866-70.
Ryots in Burhanpur area not aware of existence of, Amanat Ali 31,710, 31,784-6.

Services fair, Dubey (102); Bhargava (427). Service not satisfactory, Korde (318).

Services satisfactory, with resources at disposal, Irwin (343).

Shortening of period of service for pension suggested in order to induce men to take up farming, proposal, Allan (210), 29,716-20.

#### STAFF:

Attitude towards farmers, recommendations re, Sahasrabudhe (456-7).

Inadequacy of, Dubey (102). Increase advocated, Dokras (479). Indians advocated, Khaparde (399).

Greater insight into working of Revenue Department would be useful, Allan 29,730-2.

Interchange with officers of Revenue Department would be advantageous, Dubey 28,772-4.

Junior officers, transfer between wheat and cotton tracts undesirable, Dokras (479), 32,647-8.

Suitable men should be sent for training to more advanced coun-

tries, Dubey (102). Subordinate:

Attitude of, Deshpande (298).

Increased travelling allowances advocated, Dubey (102).

Superior Service, opinion re training, Plymen 27,845-6.

Upper and Lower Subordinate services, initial pay, Plymen 28,176, 28,179.

Special Statistical Officer and Economist should be added to staff, and proposals re status, &c., Plymen (25), 27,500-3, 27,537.
Subordinate Service, organisation, Plymen 27,459-60.
Unirrigated areas attended to equally with irrigated, Plymen

27,528-30.

#### Agricultural Indebtedness:

Advances by landowners to tenants, Khaparde 31,883-7; Bhargava 32,176-7, 32,307-11; Pochory 32,920-2; Pande 33,240-1.

Assistance to cultivators through agencies such as Land Mortgage Banks,

scope for, Plymen (28), 27,564.

Bank for advancing money to cultivators advocated, Dubey (103), 28,650.

Zo,630. Causes of, Plymen (6); Powar (90); Dubey (103); Pandeya (125); Allan (202); 29,849-54; Brahma (243-4), 29,945-7, 30,066-7; Deshpande 30,677-8; Korde (318); Irwin (343), 31,350-2; Amanat Ali (386); Khaparde (401); Bhargava (427); Sahasrabudhe (459), (459-60); Dokras (480); Dwarkanath Singh (497-8); Pochory (517), 33,166-9; Pande (530).

#### CONCILIATION BOARDS:

Considerations re, and trial of, advocated, Dwarkanath Singh (499), 32,734-9. Formerly, Irwin 31,343-5; Pande 33,411-4.

see also under Finance. Effects of system of obtaining, Plymen (8).

```
Agricultural Indebtedness-contd.
       CREDIT—contd.
              Restriction:
                     not Advocated, Dokras (480).
      not Desirable at present, Powar (91).

Sources of, Plymen (6-7); Powar (90); Dubey (103); Brahma (244), 30,084-6; Korde (318); Irwin (343); Amanat Ali (386); Khaparde (401); Bhargava (427); Sahasrabudhe (458), (460); Dokras (480); Dwarkanath Singh (498); Pochory (517); Pande (530).

Dandopat, Dokras 32,562; Pande 33,286-8.

Bula should be prolimble to recrease and in all cases. Brahma
       Rule should be applicable to persons and in all cases, Brahma (243), 29,939-44, 30,045, 30,048, 30,164-8.

Debt per head, increasing, Pande (539), 33,348-52.

Deccan Agriculturists' Relief Act, an unnatural measure and failure
           of, Brahma 30,046-7.
       Education the only remedy, Sahasrabudhe (460).
Gambling, connection with indebtedness and evil of, and need for remedy, Dokras (480), 32,551-9, 32,564, 32,611-4.
Government Central Banks on lines of Co-operative Banks, proposal
       for, Korde (318), 30,874-8.
Increase, Powar 28,431; Brahma 30,027, 30,036-7; Khaparde (401).
       Inherited debt, insolvency question, Pande 33,449-54.

Insolvency Acts, should be more applicable to farmers than to mer-
          chants, Amanat Ali (386).
       Interest, rate of, question of restriction, Pandeya 28,826-7.
      among Kunbis, Sahasrabudhe 32,428.

Legislation on lines of Deccan Agriculturists' Relief Act advocated, Plymen (28); Allan (203).

Legislation on lines of Punjab Alienation of Land Act, not advocated,
           Dokras 32,552.
      proposed Messures for lightening burden of debt, Powar (90-1); Allan (203); Deshpande (298-9); Korde (318), 30,870-5; Irwin (344); Amanat Ali (386); Khaparde (411); Bhargava (427); Sahasrabudhe (460); Dokras (480), 32,649; Dwarkanath Singh (499); Pande (530).
      proposed Measures for preventing, Brahma (243), (244).
       Money Lenders:
             should be Bound to give loans at not more than settled rate of interest, Pochory (517), 32,926-9.
              Dealings with, should be stopped, Dubey (103).
              Desire to remain on books of, Irwin (343), 31,072-4.
              Doubling of loan in one season, Korde (318), 30,864-9.
             Keeping of accurate accounts on paged books, compulsion would not be objected to, Brahma 30,087-8.
              Necessary until co-operative societies able to meet whole demand,
                 Deshpande 30,654-7
             Passing of land into hands of, Dubey (103), 28,624; Dokras (480), 32,550-1; Dwarkanath Singh 32,791-2.
             Rates of interest charged by , Korde (318). Effect of Credit Societies, Brahma 30,140-2; Trivedi 29,550-2.
              Reason for cultivators borrowing from, rather than from credit
             societies, Khaparde (401).
Restrictions on, advocated, Pandeya (125).
System, Khaparde (401).
             System and evils of, Amanat Ali (386), 31,777-80; Sahasrabudhe (459), (460); Dwarkanath Singh (498), 32,728-33.
      Moneylenders' Act, passing of, as in the Punjab proposed, Sahasrabudhe (460).
      Money lending, by Brahmins, Dokras 32,560-2.
             of Absolute occupancy land, proposed restriction, Pochory (517). Limitation of right of, not desirable at present, Powar (91).
```

Long-term, advantages over short-term, Sahasrabudhe (459).

62797

Non-terminable:

Objected to, Pande (530).

```
INDEX.
Agricultural Indebtedness—contd.
        MORTGAGES—contd.
                   Non-terminable—contd.
                            Prohibition:
                                    Advocated, Powar (91); Dubey (103). not Advocated, Dokras (450).
                   Property should not be allowed to lapse to money-lenders, Pander
                        (125).
                   Redemption:
                            Advocated, Pande (530).
                            Facilitation of:
                                     not Advocated, Dwarkanath Singh (499).
Proposal for, Khaparde (401).
                            Proposal for, Khaparde (401).
         MORTGAGE AND SALE OF, RIGHT OF, RESTRICTION: Advocated, Dubey (103).
         not Advocated as long as better facilities not provided, Pande (530 would be Approved, Pandeya 28,836-7.
Objections to, Khaparde (401); Bhargava (427).
Proposal, Allan (203), 29,649-51.
Passing of land from cultivators, Plymen 27,757-60, 28,295-7; Power 28,343-5.
        28,343-5.
Rate of interest, lowering of, and prohibition of compound interest l legislation proposed, Sahasrabudhe (460).
Removal of, possibility of, by steady thrift, Irwin 31,346-7.
Repayment, causes preventing, Powar (90); Dubey (103); Pander (125); Allan (202-3); Brahma (244); Korde (318); Irwin (343); Aman Ali (386); Khaparde (401); Bhargava (427); Dokras (480), 32,541 Dwarkanath Singh (498); Pochory (517); Pande (530).
Rise in value of land, effect of, Dwarkanath Singh (499), 32,741-3, (497), Rural insolvency, measures for dealing with, advocated, Pandeya (125) not Serious on witness' estates, Bhargava 32,186.

Transfer of Lands, restrictions:
        Transfer of Lands, restrictions:
not Advocated, Sahasrabudhe (460).
not Advocated except in very backward tracts, Irwin (344)
                       31,348-50.
                  Suggestion for, Dwarkanath Singh (499).
         Types of loan and rates of interest, Plymen (7).
         Usurious Loans Act:
                  not Applicable to Berar, Dokras 32,563, 32,565. Difficulty of operating, Brahma 30,048.
        Enforcement, proposals for, Pandeya (125), 28,828; Irwin (344 Amanat Ali (386); Khaparde (401), 31,890-5; Bhargava (427 32,330; Dwarkanath Singh (499), 32,740.

Existence not known of, in province, Pande 33,283-5.

Need for, and proposals re, Korde (318), 30,870-3.

of little Value, Pande (530).

Whole time officer, appointment proposed, for dealing with, Plymen (28 27.564-9, 28.106)
             27,564-9, 28,106.
Agricultural Industries:
        Basket making: Dubey (106); Khaparde (406).
Burads, caste making baskets, etc., formerly, and revival desirable
                       Khaparde (406).
                  Obstacles to development, Bhargava (430); Dwarkanath Singh (502)
                 Prejudice against, Irwin 31,242.
Proposal, Khaparde (405).
         BEE-KEEPING:
```

Advantageous if introduced successfully and managed by local mer Pandeya (127), 28,806.
Caste objections, Irwin (345); Bhargava (430).
no Future for, Dubey (106).
practically Unknown in Berar, Khaparde (405).

practically Unknown in Berar, Khaparae (405).

Bidi making, diversion of labour from agriculture, Dubey (106).

Brick and tile-making, government provision of experts and machine desirable, Sahasrabudhe (465).

vi

#### Agricultural Industries—contd.

Carpentry, suggestions for assistance, Sahasrabudhe (466).
Caste objections to certain, Irwin (345), 31,088, 31,101-9, 31,236-42.

31,326-7; Bhargava (430).

Charka, importance of, and suggestions re supply of cotton, Pandeya (126-7).

Dwarkanath Singh (502).

Co-operative Industrial Societies, formation suggested, Sahasrabudhe (465)

Cotton gins worked with oil engine, establishment of, in villages, proposal, Brahma (245).

Cultivators have large amount of spare time, Irwin 31,192-5.

Dehydrogenation, or industry of drying vegetables, proposal re, Sahasrabudhe (164), 32,434-6. Embroidery and hand work, encouragement, suggestion for,

work, encouragement, suggestion Dwarkanath Singh (502).

Encouragement of, a means of checking flow of labour to industrial centres, Powar (93).

Exhibitions, proposal, Pande (535-6).

Experimental work in connection with, should be carried out by Government, Pande (535).

Factories for oil pressing, sugar making, cotton ginning and rice hulling, establishment by Government not advocated, Dubey (107). Factories in every tract controlled by Co-operative Banks advocated, Pandeya (127).

Factors necessary for success, Dwarkanath Singh (502).

Fish culture. Kunbis would not take up, Sahasrabudhe 32,468.

Fishing, Irwin 31,111.

Fruit canning, proposal re, Sahasrabudhe (464)

Fruit growing, see that title.

Government establishment not advocated, Powar (92).

Government must start small industries, Sahasrabudhe (466). Handicraft teaching in vernacular middle schools, scheme, Brahma (245). Improvement of wells and lifts needed, Dubey (107).

INDUSTRIAL CONCERNS, removal to rural areas:
Advantages to be derived, Brahma (245).

Advantages and disadvantages, Plymen (32).

not Advocated, Powar (92); Bhargava (430).
Objections to, Dwarkanath Singh (502); Pande (535).
Spare time work only on agriculture, suggestion not approved, Irwin (346).

Instruction of rural people, in, scheme, Sahasrabudhe (464).

INTENSIVE STUDY OF RUBAL INDUSTRIES:

Advocated, Powar (92); Dubey (107); Korde (319); Khaparde (406), 31.880; Bhargara (430); Dwarkanath Singh (502); Pande (535-6). no Industry in Central Provinces known of, which would repay. Irwin (346).

Necessary before steps taken for improvement, Plymen (32), 27,704.

Introduction advocated, Pands 33,299.

LAC CULTURE: Plymen (32), 27,702-3, 28,051; Dubey (106); Khaparde (408).

Advantageous if introduced successfully and managed by local men, Pandeya (127), 28,860.

Caste objections to, Irwin 31,101-6; Bhargava (430).

Particulars re, Witt (275), 30,216-25, 30,272, 30,323-5, 30,368-9, 30,379.

Prospects, Dwarkanath Singh (502).

Mango trade, recommendation by Committee of enquiry appointed by

Bombay Government, Sahasrabudhe (464).

Measures proposed for encouragement, Brahma (245); Dwarkanath Singh (502); Pands (535).

Need for, Sahasrabudhe (463).

#### INDEX.

#### Agricultural Industries—contd.

Obstacles to development of small industries, and proposed remedies. Sahasrabudhe (465).

Obstacles in way of expansion, Powar (92).

Paper pulp and paper making from cotton stalks, experiments and proposal re, Sahasrabudhe (463-4), (466), 32,431-3.

Poultry Keeping: Plymen (32); Khaparde (405). Caste objections, Brahma 29,951; Irwin (345), 31,107, 31,109, 31,236-31,240; Bhargava (430)

Encouragement as subsidiary industry advocated and proposed measures for, *Dokras* (484), 32,531.

Kunbis would not take up, *Sahasrabudhe* 32,458.

Prospects, *Dubey* (106); *Khaparde* (405).

Prospects of, and obstacle of religious sentiment of Hindus,

Dwarkanath Singh (502).

#### PREPARATION OF AGRICULTURAL PRODUCE FOR CONSUMPTION:

Government measures for establishment:

Desirable, Korde (319); Khaparde (406); Bhargava (430).

Objections to, Irwin (345-6).

a Matter for private enterprise, Plymen (32).

Previous enquiries into, Sahasrabudhe (465).

Requirements for successful taking up of, Powar (92).

ROPE MAKING: Khaparde (406); Sahasrabudhe (465).

Advantageous if introduced successfully and managed by local men, Pandeya (127), 28,806.

for Home use mainly, Irwin 3112-3, 31,189-91.

Obstacles to development, Dwarkanath Singh (502). no Prejudice against, Brahma 29,950. Proposal, Khaparde (405).

Prospects, Plymen (32).

Rural employment, increase of, improvement of whole agricultural position only measure necessary, *Plymen* (32).

Scope for, and irrigation facilities and financial help would be required, *Powar* 28,421-4.

#### Sericulture:

Caste objections, Irwin (345); Bhargava (430). in Forests, position, Witt 30,226-31, 30,368-9. Unsatisfactory results, Plymen (32).

Smithy, suggestions for assistance, Sahasrabudhe (466). Spinning, proposal, Bhargava (430); Sahasrabudhe (466).

Subsidiary industries, other than agricultural, objections to establishment, Dubey (106).

ment, Dubey (106). Subsidiary industries, suggestions as to suitable industries, Brahma (245), 29,949-51; Khaparde (405); Bhargava (430); Pande (535). Subsidiary industry, agriculture as, Dubey (107). Time spent by average cultivators on holdings, Powar (92); Dubey (106); Pandeya (126), 28,362-74; Brahma (245), 30,137-9; Korde (319); Khaparde (405); Bhargava (430); Sahasrabudhe (464-5); Dwarkanath Singh (501-2), 32,863-74, 32,877-8; Pande (535).

Vegetable growing, encouragement proposals, &c., Plymen (32), 27,697-27,701; Dubey (106); Pandeya (125), 28,778-80, 28,831.

Weaving: Sahasrabudhe (466).

Proposal, Bhargava (430).

School, suggestion re opening of, Sahasrabudhe (466).

for Women, need for, Sahasrabudhe (465).

#### Agricultural Labour:

Berar, training of existing labour preferable to importation, Khaparde (407).

Binding of labour to villages, proposal, Pochory (517), 32,967-73, 33,010-33,020, 33,182-4.

Emigration, Plymen (4), 28,073.

Employment, extent of, and amount of idle time, Powar 28,360, 28,365-6. 28,369-74,

#### INDEX.

```
Agricultural Labour-contd.
```

Extension of cultivation in ryotwari lands in Baihar Tahsil, suggestion

for, Dubey (107).

Hours of work, regulation by sunrise and sunset and need for alteration, Khaparde (407).

Labour-saving machines, results of introduction, Pande (537).

MIGRATION: Powar (93).

to Cotton tract, Plymen (5).

Permanent, reluctance of labourer to leave native place, Khaparde (497).

Seasonal, Plymen (32): Dubey (107); Allan (208); Irwin (346). to Wheat area, Plymen (4-5).

Mobility of, Pande (536).
Moving of, from one place to another, objections to system of, Pande (536, 537).

Proportion of cultivators and labourers, variation in, Irwin 31,211-8. Returned after migrating, change in standard of living, Powar 28,425-8. Ryotwari villages, Plymen (33).

SHORTAGE: Amanat Ali 31,631-4.

Causes: Plyman 3-4, 5), (33), 28,069-72; Powar (93); Dubey (107); Allan (208); Khaparde (407); Pochory (517), 32,964-6; Pande (532), (536), 33,295-8.

Eastern Circle, Powar 28,346, 28,359.

owing to Epidemics, and poverty owing to uneven employment on agricultural operations, Bhargava (430).

Means of overcoming, Plymen (33); Powar (93); Khaparde (407);

Pochory (517). in certain Tracts, Allan (208).

little Surplus of, Pande (536).

no Surplus, Irwin (346).

Surplus in rice and plateau tracts, Allan (208).

Taking up of work under other departments at times, Powar 28,360-2, 28,368.

UNCULTIVATED LAND:

better Dealt with by settlement with cultivators than by importation of labour to work under local capitalist, Irwin (346). Leasing out of, scheme, Pande (536).

Question of encouraging settlement on, Plymen 27,806-9. Settlement on, scheme for, Khaparde (407).

Wages, Plymen (4); Bhargava 32,317-21; Dokras 32,549; Pochory 32,969-73. 33,080-3, 33,147-8.

ALLAN, R. G., Principal, Agricultural College, Nagpur: (196-219), 29,620-29,905, (238-24011).

Training and past appointments, 29,622.

ADMINISTRATION:

Minister for Agriculture, proposal, (197), 29,723-4, 29,802-6.

Railways:

Adequacy of, (202).

Freight rates, anomalies should be attended to, (202).

Roads:

Facilities, (202). Secondary feeder roads, need for, (202).

AGRICULTURAL DEPARTMENT:

Agricultural Engineer:

Post in abeyance, 29,738-9. Status should be improved, 297.

Assistance from Revenue officers, 29,674.

Attention concentrated mainly on export crops, 29,829-36.

greater Insight into working of Revenue Department would be useful, 29,730-2.

Shortening of period of service for pension suggested in order to induce men to take up farming, (210), 29,716-20.

#### ALLAN, R. G.—contd.

AGRICULTURAL INDEBTEDNESS:

Causes, (202), 29,849-54.

Legislation on lines of Deccan Agriculturist Relief Act advocated, (203).

Lightening of burden of debt, measures for, (203). Mortgages, restriction of right, proposal, (203), 29,649-51. Repayment, reasons preventing, (202-3).

AGRICULTURAL LABOUR:

Seasonal migration, (208). Shortage in certain tracts, (208).

Surplus in rice and plateau tracts, (208).

ANIMAL HUSBANDRY:

Cows, well fed when giving good milk, 29,654, 29,697.

Dairying industry:

Betterment:

Importance of betterment of stock for, (207).

Proposals for, (207).

Consumption of milk and milk product by vegetarian population, importance of, 29,655-6.

Baled grass from forests:

Large amount possible but difficulty of transport, (208). no Sale for, 29,707.

Dry, supply sufficient but for use by valueless cattle, (207). Grass, no lack of, 29,708.

absence of, in dry seasons, difficulty of remedying (207-8).

Increase of area under juari, suggestion, (207).

Silage:

Demonstration at Nagpur college dairy farm, 29,904-5.

Possibilities, 29,709-13. Stall feeding, 29,698-9.

Future cattle breeding development in Central Provinces and Berar, (211-219).

Government stock-breeding, defects of, in the past, (206).

Grazing:

Forest areas, scheme for, 29,700,

Grass borders, reduction of area (207).
Overstocking of common pastures, (207).
Improvement of breeds:
Breeding of bullocks rather than bulls, proposal, 29,653.
Financing of, suggestion, 29,652.
Food supply the limiting factor, 29,702-4.

proposed Policy, (206-7).

Interest of landowners in, extent of, and question of extending, (208).

CAPITAL, ATTRACTING OF:

Factors preventing men with capital from taking up farming, (209). Means proposed, (210).

CROPS:

Cassava, suggestion, but no great scope for, (205), 29,814-8.

Cultivation, particulars re system, costs, income, etc., (240i-240ii).

Financial results, question of, 29,870-4.

Damage by wild animals and measures taken to prevent, (204-5). Deterrent of cost of seed to expansion of certain, 29,860-4.

Groundnut, area under, and prospects, 29,725-9, 29,819-20. Improvement:

Staff, increase required, (204).

Work on, (204).

Introduction of new crops, progress in, (204).

```
ALLAN, R. G.—contd.
```

CROPS-contd.

Seeds, distribution of:

Central seed farms belonging to each circle agricultural association, scheme, (204). new Cotton, proposal re, (204). Roseum seed unions, (204).

CULTIVATION:

Deeper cultivation and use of inversion plough in cotton tract, success in introducing, (201), 29,756.

Line sowing of kharif crops, success in introducing, (201).

Rotation, non-application of, reasons for, in certain cases, (205).

Tillage system, improvement:
"Bakhar" cultivation for kharif crop, defect of, (205). greater Depth of primary cultivation desirable in certain crops,

DEMONSTRATION AND PROPAGANDA

Agricultural Associations, 29,810-3.
small Circle associations, formation of, scheme, (201).

Class towards which work directed, 29,865-9.

Failure of for transplantation of paddy in Chhattisgarh, (201). Field demonstrations, staff, number &c., and need for increase, 29,746-9.

Inducing of cultivators to accept advice, means for, (201).

Public attitude re, 29,761-5. Success, examples of, (201), 29,756-8. Village demonstration plots, value of, (201)

EDUCATION:

Adult, proposals, (200, 201), 29,668-70. Agricultural:

Colleges, groups to be catered for, and course required, (208-9), 29.657-62.

Collegiate or advanced, demand for, (198).

Demand for, means of encouraging, (198). Home farm managers, difficulty of meeting applications for, (200).

Hoshangabad, (198), 29,643-8.

Importance of actual demonstration and propaganda in connection with, (198), 29,759-60.

Incentives, (199).

Inclusion in school curriculum as class room or examination subject not advocated, (209).

Institutions, supply of, sufficient for present demands (198). Nagpur Agricultural College:

Admission:

Demand for, increase, (199).

Selection of candidates for, (199).
Affiliation with University, (208) 29,766-7.
Animal husbandry teaching, 29,903-5.

Assistants, no time for research, 29,633-5, 29,821-3. Cost per student per annum, 29,837-8. Courses, (209), 29,660, 29,689, 29,774-89, 29,881. Extension will be necessary, (198). Farm, visits to, by teachers, 29,794.

Intermediate stage as entrance standard, objection to. 29,689.

Lectures for revenue officers at, and question of extension occasionally, 29,676-83, 29,790-7. Principal, work of, 29,629-32.

Research work, nature of, and close collaboration of research Staff officers, 29,624-8, 29,800.

Students:

After Careers, (200), 29,807-9, 29,846-8.

Initial pay in Government service and prospects, 29,876-9.

Prospects of those taking up farming, 29-870-94.

Quality of, 29,685-8.

Small number taking to farming, reason, 29,839-45.

```
ALLAN, R. G.—contd.
```

EDUCATION—contd.

Agricultural—contd.

Pre-vocational or conducted as part of rural school general education, extent or demand for, etc., (198).

in Schools, type advocated, (199).

Short course or specialized adult training, facilities, (198).

Teachers:

from Rural areas generally preferable to town bred men, (198).

Supply of, sufficient for present demand, (198).

Students:

Source of, (199). subsequent Technical training:

Difficulty, (200).

Probationary posts, increased number suggested, as

means of providing, (200).
in Village schools, cash return to children for output, proposal, (200-1)

 ${f V}$ ocational:

Demand anticipated, (198-9), 29,646.

Extent of demand for, (198).

Failure of schools to attract class for which organized (198-9), 29,643.

Agriculture as matriculation subject, objection to, 29,691-3.

Higher or collegiate, importance of, as means of extending interest of landlords in agriculture, (208).

Nature study:

Teaching of, difficulty of finding men for, and proposal, 29,740-5. Value, extent of, (199).

greater Attention to training of hand and eye, utilizing rural industries and rural life advocated, (209).

Improvement of ability and culture of agriculturists, proposals

for, (209). Teachers, the difficulty, importance of right type, 29,663-7.

School farms:

should be Associated with places giving vocational training, (199).

Unsuitability to rural school needs and conditions, (199).

School plots:

in Middle Schools, proposal for, (209).

at Rajnandgaon, (199). Requirements for success, (199).

University, Faculty of Agriculture, 29,768-73.

FERTILISERS:

Ammonium sulphate, increased use of, (203).

Artificial, increased use, scope for, (203). Cakes, increased use of, (203).

Natural, increased use, scope for, (203).

New, importance of keeping prices as low as possible, (203).

Phosphates, etc.:

Investigation, increase needed, (204).

Results, (204). Popularisation, means, (203).

FINANCE:

Cheap credit, cultivators not educated to use of, (202).

Taccavi advances:

Extension, special officer to deal with, in each district, proposal, (202).

Objections to, (202).

IMPLEMENTS:

Adoption of improved, expansion of taccavi proposed, (206).

Improvements:

Lines on which desirable, (206), 29,900-2.

#### ALLAN, R. G.—contd.

#### IMPLEMENTS—contd.

Improvements—contd.
Unsuitability of implements of western manufacture to Indian needs, (206), 29,895-9.

Introduction of, measures taken to encourage, (206).

Indian Central Cotton Committee, value of, (197), 29,642.

LAND SYSTEM, Malguzar system of tenure, evils of, (203).

#### LANDOWNERS:

Education of, to sense of responsibilities, importance of, (208), 29,714-6.

Improvements by, difficulties owing to fragmented holdings and tenant rights, (210).

MIDDLE-CLASS YOUTHS, reasons for unattractiveness of agriculture to, (200).

Large number have no interest in agriculture, 29,865-6.

#### RESEARCH:

Agricultural Engineering and implement design, need for, but difficulty of carrying out, (197), (198).

Crop Committees, scheme, (197), 29,640-2.

Financing, small cess on exports of agricultural produce, scheme,

(197), 29,636, 29,750-3, 29,824-8, (238-40).

Fruit growing, need for expert for, 29,734-7.

General, financing of, mainly by Central Government advocated, (196), (201-2), 29,694-6, 29,721-4.

Horticultural, lack of expert assistance, proposal, (197), 29,733-7.

Lines on which required, (197-8).

Local, financing of, by Local Governments advocated, (196).

Oilseed crops, need for, (198).

Organisation, central body, scheme for, (197), 29,639-42, 29,802-5,

Plant breeding and botanical research, hampered until lately by lack of expert staff, (197).
Soil investigation, lack of staff and equipment, (197).
Soil physics, need for, (198).

Soils, better drainage during monsoon desirable in certain cases, (203).

#### SUGARCANE:

Coimbatore station, value of, (197). Manuring, (203), (204).

#### AMANAT ALI, Mr., Burhanpur: (386-388), 31,620-31,868.

Agricultural operations, 31,623-45, 31,693-700, 31,704-9, 31,726-37, 31,741-69, 31,787-805, 31,818-68.

AGRICULTURAL DEPARTMENT, Ryots in Burhanpur area not aware of existence of, 31,710, 31,784-6.

## AGRICULTURAL INDEBTEDNESS: Causes of, (386).

Credit, sources of, (386).

Insolvency Acts, should be more applicable to farmers than to merchants, (386).

proposed Measures for lightening burden of debt, (386). Moneylenders, system, interest charged, etc., (386), 31,777-80.

Repayment, reasons preventing, (386).

Usurious Loans Act, enforcement advocated, (386).

AGRICULTURAL LABOUR, shortage, 31,631-4.

#### ANIMAL HUSBANDRY:

Bullocks, feeding and condition of, 31,684-91. Cows, feeding of, 31,856-62.

Grazing, rate paid to Forest Department, 31,859-62.

Silage, approved, 21,689-90.

#### AMANAT ALI, Mr.-contd.

CROPS:

Cotton:

Buri, (386), 31,727-31, 31,771-2.
Capable of resisting "wilt," introduction desirable, (386).
Personal experience, manuring, yield, etc., 31,763-9.
Roseum, results of (386), 31,732-4, 31,757, 31,863.
Damage by wild animals, means of preventing, (387), 31,773-6, 31,806-14.

Improvement of existing crops:

by Agricultural Department, (386).

Wheat capable of resisting rust, introduction desirable, (387). Wheat farm in Melghat taluq of Amraoti district should be

established, (387). Lucerne, personal experience of, 31,704-6.

Lucerne and clover, suggestions for, (387).

Seeds, distribution of:
to Local growers personally, 31,696-8, 31,789-91, 31,825.
Seed depots, suggestion re establishment of, (387).
through Seed farmers who obtain seed from Government farms,

approval of system and extension advocated, (387).

Beardless varieties damaged by wild animals, 31,723. Personal experience, 31,693-5, 31,725.

Cultivation, ploughing system, 31,864-8.

DEMONSTRATION:

growing Demand for advice and help on part of cultivators, 31,710. to Groups of small cultivators the best method, 31,849. Inadequate number of demonstrators, 31,701-3.

EDUCATION, AGRICULTURAL:

Demand for, among educated men, 31,815-7. Poona College, experience of, and opinion re, 31,646-55, 31,714-6.

Fertilisers:

Artificial, in dry farming, cost not compensated for by increase in yield, (386), 31,832-8.

Cowdung:

Plastering of walls with, 31,794.

Use as fuel, proposed measures for discouragement, (386), 31,770.

Popularisation of new and improved fertilisers, proposals, (386).

FINANCE, Taccavi loans, proposed modifications of system, (386), 31,692.

FUEL, obtaining of, from Forest Department, 31,795-9.

IRRIGATION by wells, personal experience, 31,638-42, 31,717-22.

MARKETING: Cotton, 31,656-69, 31,754-6. Gram, 31,674-5.

Vegetables, 31,678-83.

Wheat, 31,670-3.

MIDDLE CLASS AND EDUCATED MEN, scope for training of apprentices by, 31,850-1.

STATISTICS, COLLECTION:
trained Agriculturists should be appointed as Patwaris or duties transferred to Agricultural Assistants, (388). by Patwaris, defects of system, (388), 31,738-40.

Assistants, demanding of fees by, (387), 31,844-7.
Civil Veterinary Department, control by Agricultural Department advocated, (387).

#### AMANAT ALI, Mr.—contd.

VETERINARY-contd.

Contagious diseases, trained agriculturists should be appointed as Patwaris and Revenue Inspectors, (387-8).

Staff, suggestion re. (387).
full Use not made of, and reasons, (387), 31,713.

#### Animal Husbandry

Brahmani bulls should not be discouraged, Pande (534), 33,498-9.

Buffalo:

Cow preferred by small cultivators, Dwarkanath Singh 32,880-1. Cultivation with, difficulty in connection with, Dubey 28,549-51. Bullocks, working and trotting, proposed development, Khaparde (404). BULLS:

Castration:

Difficulty with castes accustomed to carry out work, Wilson 31,029-30.

Increase in number largely due to introduction of Italian method, Irwin 31,316-7.

Legislation, proposal, *Dubey* (106), 28,680. People should be trained to carry out, *Dubey* 28,681-2.

Progress, Wilson 31,027.

Purchase of, at high cost from foreign countries, objections to, Sahasrabudhe (463).

Reared on Government farms, insufficient number and expansion

of work needed, Dubey (106).

Camels, province not suitable for, Witt 30,404-7.

Condition of cattle, Powar 28,409-13; Dubey 28,495, 28,741-3; Wilson 30,954; Irwin 31,117-8, 31,231.

Conditions in Jubbulpore and Hoshangabad as regards fodder and

pasture, Pande 33,464-9.
Control by Civil Veterinary Department rather than Agricultural Department desirable, but not suitable in Central Provinces, Wilson 30,929-36, 31,031-8. Cows:

well Fed when giving good quantity of milk, Allan 29,654, 29,697.
Feeding of, Pandeya 28,817-24; Amanat Ali 31,856-62; Bhargava 32,334-44; Pochory 32,949-55.
Number decreasing, Pandeya (126), 28,798-800.
Prohibition of slaughter of, advocated, Pande (534).

DAIRY INDUSTRY:

Breeds used, Plymen 27,676-8.

Dairies in each district, proposal for, Khaparde (405).
under Deputy Director in charge of Animal Husbandry and
Principal of Agricultural College, Plymen 27,671.
Encouragement, proposed measures, Bhargava (429).

Import and adulteration of, must be stopped, Pande (534). Shortage of, Pandeya (126).

Improvement:

Desirable and possible on co-operative lines, Plymen (31). Importance of betterment of stock for, Plymen (31); Allan (207). Need for, and suggestions, Korde (319); Khaparde (404-5). Proposals for, Allan (207).

Milk:

Adulteration of, with water must be stopped, Pande (534). from Buffalo v. cow, Plymen 27,673-5.

Consumption of, and products, by vegetarian population, importance of, Allan 29,655-6.
Shortage of, Pandeya (126).
Supply, Nagpur, system, Plymen 27,672-3.

Opening of farms for every group of 40 or 50 villages, suggestion. Fandeya (126).

Produce, consumption by cultivators, and physical effects, Plymen 27,687-94.

Deterioration of cattle, causes, Pandeya 28,825 Excessive number of inferior cattle, Plymen 27,934; Irwin 31,231.

```
Animal Husbandry-contd.
```

FEEDING:

Conditions, Dubey 28,491-4. Cows, see that title above.

Inadequacy of, owing to apathy, Irwin 31,232-5.

FODDER:

Analysis of, and determination of nutritive constituents, proposal, Dokras (483), 32,652-9.

Baled grass from forests, see under Forests Cakes, use of, Plymen 27,817-21.

Combination of feeds, proposal, Dokras (483-4), 32,652-9.

Dry

Deficiency in cotton country sometimes, Plymen (31). Dry grass, shortage, Bhargava (429). Export, prohibition advocated, Pande (534) 33,519-29.

Grass supply, suggestion for improvement of railway facilities, \_Korde (319).

Hay from Government forests, supply available and need for utilisation of *Irwin* (345).

Insufficiency\_of, Korde (319).

Storage of, Dokras 32,523-5.
Straw supply would increase with increase in out-turns of crops, Dubey (106).

Sufficiency in tracts where wheat and rice main crops, Plymen (31).

Sufficient but for use by valueless cattle, Allan (207). Wheat chaff, export to United Provinces, Bhargava (429). Feeding of cattle during periods of scarcity, Plymen 28,192-5. Grass, no lack of, Allan 29,708.

Green: Absence of, in dry seasons, Plymen (31); Khaparde (405), Difficulty of remedying, Dubey (106); Allan (207-8).

Encouragement of cultivation:

Irrigation tanks, proposal, Bhargava (429), (430).

Needed, Pande (535).

Preservation of, in pits, suggestion, Khaparde (405).
Shortage in dry seasons, Bhargava (429).
Growing of: Plymen (29); Bhargava 32,334-6.
Cultivation of better fodder crops on systematic lines advocated, Pande (537).

Cultivators might be persuaded to take up, if economically sound, Plymen 27,683, 28,199-200, 28,202.

Difficulties in connection with, Pande (532), 33,415-6. Experiments with, Plymen 27,935-6. Introduction of new fodder crops, need for, Bhargava (428).

Personal experience, Bhargava 32,212-7. Remission or reduction of revenue for, question not considered, Plymen 27,695.

Trials of, on Government experimental and demonstration

farms advocated, Dubey (104).
Improvement of supply, proposed means, Plymen (20); Dubey (106); Khaparde (405); Bhargava (430); Pande (535). Juar:

Increase of area under, suggestion, Allan (207).
Reservation of part of land for growing, and storing of, in pits, proposal, Khaparde (405).
Tried but unable to withstand rainfall, Pande 33,235.

Use of, Pochory 33,109-12.

Lucerne, not profitable for draught cattle, Pande 33,236.

Mineral constituents:

Absence of, deterioration of cattle owing to, Khaparde (405).

Absence of, research in central institute and provinces desirable, Plymen (31).

Insufficient and salt tax should be abolished, Pande (535).

Insufficient and salt tax should be abolished, Pande (536).

Manufacture of local salts should not be discouraged, Pande (535).

## Animal Husbandry—contd.

```
FODDER-contd.
```

Mineral constituents-contd.

Salt duty a discouragement of feeding with salt, Khaparde (405).

Position re, Plyman (18). Problem of, Plyman (20).

Reserves, system, Powar 28,439-40.

Sann hemp, special concessions proposed to encourage growing of, Pande (535).

no Scarcity except in Berar, Witt (278).

no Scarcity in Jubbulpore Division, Irwin 31,166-9.

Shortage, Pande 33,233; Pandeya (126), 28,800-5; Pochory 32,934-5. Seasons of, Plymen (31); Dubey (106); Korde (319); Pande (535); Khaparde (405); Bhargara (429); Dwarkanath Singh 32.875-6.

## Silage:

Approved, Amanat Ali 31,689-90. no Belief in system, Deshpande 30,502-4.

Better than dry grass in relation to milk-yield, Bhargava 32,255.

Compulsory use of, at Government farms advocated to demonstrate advantages of, Dokras (484), 32,526.

Demonstration at Nagpur college dairy farm, Allan 29,904-5. Engine needed for making, Dokras 32,527. Experience with Bhargava 32,240-3.

careful Investigation, need for, Plymen 27,684-6. Making of, never tried in forests, Witt 30,296.

Obstacles in way of general adoption, Plymen (88 ii). Operations, results and prospects, Plymen (88 i-88 ii). Personal experience, Pochory 32,936-42, 33,021-7; 33,304-16.

Possibilities, Allan 29,709-13.

Stall feeding, Allan 29,698-9.

Question of extension, Witt 30,363-4.

the Remedy for excessive grazing, Witt (277).

Supply, see also under Forests.

Thornless cactus, growing of, proposed, Khaparde (405).
Transport of, special facilities and concession rates advocated, Korde (318), 30,884-5.

Wheat straw, export to United Provinces, Pande (534).

Forest areas for cattle breeding, proposal, Plymen (33), 27,718, 28,201. Gaurakshans, Wilson 31,013-8. Government stock-breeding, defects of, in the past, Allan (206).

### GRAZING :

Area available, statistics, Plymen (31). Conversion of good pastures into fields, Pande (534).

Encroachment on village pastures should be severely dealt with, Pande (535), 33,526. Exemption of land from land revenue proposed, Pande (535).

Excessive, stall feeding the remedy, Witt (277).

in Forests, see under Forests. Grass borders in tilled fields:

Care of, should be left to cultivator, Dubey (106). Cutting down of area, Plymen (31), 29,196-8; Allan (207); Pande (534).

Generally negligible, Irwin (345).

Other means of maintaining cattle needed, Khaparde (405). Grass should be grown for, Pandeya (126).

# Animal Husbandry-contd.

GRAZING—contd.

no Land reserved for pasture by cultivators, Pochory 33,050-3,

Overstocking of common pastures: Plymen (31); Allan (207); Irwin (345); Khaparde (405); Bhargava (429).
Position re, Pande (534), 33,470-2.
Prevention, suggestions for, Dubey (106).

Remedy prevented by prejudice against elimination of unfit cattle, Irwin (345).

State action necessary to prevent, Allan (207).

Pasture land, proposals for maintenance in villages, Pande (535). Reservation of pasture lands for, advocated, Pandeya (126). Importation of cattle, Irwin 31,116.

## IMPROVEMENT OF BREEDS:

Breeding of bullocks rather than bulls, proposal, Allan 29,653.
Breeding farms: Sahasrabudhe (455), (463).
Opening of, for every group of 40 or 50 villages, suggestion, Pandeya (126).

not Paying, Pande 33,462.

should be Started by Agricultural Department in every district and bulls be supplied to cultivators on premium system, Pochory (517).

Buffalo, importance of, Khaparde (404). Cattle-breeding and dairy farm, forthcoming establishment at Ellichpur, Sahasrabudhe (463).

Cattle breeding industry in Mandla formerly, Irwin, 3116, 31,223-5. Cattle breeding co-operative societies, see under Co-operation.

Extension of work, need for, and proposals, *Plymen* (19-20). Financing of, suggestion, *Allan* 29,652. Food supply the limiting factor, *Allan* 29,702-4.

Importance of, Plymen (18); Pande (534).

Large scale pure breeding at five centres, proposed policy, Allan (206).

Measures to be undertaken by Department, Plymen 27,794-800.

Milch cows, need for, Khaparde (404).

Need for, and suggestion, Bhargava (429).

Particulars re operations and present position, Plymen (19), 27,679-82; Allan (211-5).

proposed Policy, Allan (206-7), (211-9). Proposals framed for, Plymen (30). Scope for, and suggestions, Khaparde (404).

by Selective breeding, Dubey (106).

Services of bulls of good breed in group of 50 villages, proposal, Pande (534).

Stud bulls from Government farms, increased number needed, Dubey (102), 28,487-90.

Suggestions, Dubey (106).

Improvement in cultivation dependent on improved cattle, Plymen (18). Improvement of existing practice, need for, Bhargava (429).

# INTEREST OF LANDOWNERS IN:

Extent of, and question of extending, Allan (208). Means of encouraging, Plymen (32); Khaparde (405); Pande (535). Interest of landowners and cultivators in will only result if profit to be made, Irwin (345).

Jubbulpore Division, position as regards cattle, Irwin 31,219-25.

Lack of interest in, on the whole, Irwin 31,114-9

Limitation as to number of extra cattle kept by cultivator, proposal.

Dubey (106), 28,651-9.

Meetings of cultivators, proposal, Dubey (106).

Operations, Dwarkanath Singh 32,805-12.

Prizes to cattle breeders, continuance and development of system advocated, Sahasrabudhe (463). Professional cattle breeders, Dubey 28,745-8.

```
Animal Husbandry-contd.
```

Slaughter of milch cattle and other agricultural cattle should be prohibited, Pande (537). Statistics, Plymen (18).

# Basket Making, see under Agricultural Industries.

BECKETT, R. H., Officiating Director of Public Instruction, Central Provinces: (368-372), 31,401-31,619.

### EDUCATION:

Adult:

little Demand for, 31,404, 31,405, 31,409, 31,518-26. Demand should be created if possible, 31,409.

Experiments made in connection with, and failure of, but education of children of more importance, 31,404-5, 31,409, 31,496-8, 31,518-26.

in Jails, extension of, experiment under consideration, 31,527.

Agricultural:

in High schools in towns, undesirable, (369). as Matriculation subject, failure of experiment, and disapproval of, 32,600-3.

in Ordinary schools, considerations in connection with, (368). Powerkhera school, Hoshangabad, vocational course, 31,420. in Vernacular middle schools, suggestions for introduction of, 31,453-4.

Vocational, must be in specialized institutions, (368), 31,422. Agricultural mottoes might be introduced into rural schools, 31,554-7.

Board composed of Directors of Public Instruction, Co-operative Credit, Public Health and Agriculture, might be useful, 31,492. Chemistry and physics, provision of equipment, 31,595-9. Demand for, 31,433-6, 31,447-8.

Depressed class boys, treatment of, in schools, 31,563-6.
Depressed classes, attitude of, 31,503-4.
Director of Public Instruction, also Secretary to Government in the Education Department, and advantages of, 31,455-60. Female:

Government schools, 31,589. Literacy, low percentage, 31,583-5.

Primary, slowness of progress and steps being taken to encourage, 31,410-4.

Secondary, progressing, 31,410.

Teachers, problem of, and supply, 31,586.

Garden plots in rural middle schools, suggestions re, (369).

High School Education Board, composition, and functions, 31,493, 31,495.

High Schools:

Manual instruction, 31,561-2. Scale drawing, 31,558-60. Situation in towns, 31,616-9.

Higher or collegiate, influence on agricultural efficiency, (369).

Illiteracy, lapse into, and importance of suitable village libraries and propaganda work, (369), 31,408-8.
Indian boys, powers of observation, question of, 31,516, 31,604-5 Middle schools, influence on agricultural efficiency, (369).

Nature study:

in Rural middle schools, (368).

Teachers, difficulty of obtaining right type, 31,415-8. Normal schools, 31,419, 31,485-91.

Primary :

Classes of schools, 31,588-91.

Compulsory:

Extent of, method of working and results, (369-70), 31,425-6, 31,429-32, 31,470-2, 31,505-11, 31,537-46.
entirely Free, small fee charged for optional education, 31,437-42.

# BECKETT, R. H.—contd.

EDUCATION-contd.

Primary-contd.

Importance of, 31,425-32.

Management and inspection of schools, 31,478-81, 31,611-2.

in Municipalities, 31,425, 31,609-10.
Establishment, survey made of needs and policy re. 31,499-500.
Financing of, 31,449-52, 31,515, 31,591-4.

Free compulsory education, definite policy of, 31,468-9. Functions of, and removal of illiteracy must be chief aim, (368).

Holidays, coincidence with busy season in fields in many areas, 31,606-8.

Influence on agricultural efficiency, (369). Leakage between second and fourth classes, (370), 31,511-4. Teachers:

Class of, and qualifications, 31,533, 31,534-6.
Pay, 31,416-8, 31,474-5.
Pension or provident fund, 31,482.
Training of, 31,483-91, 31,530-2.
Vernacular primers, 31,613-5.
Scholarships for special training in England and results, 31,567-74.
School plots in rural middle schools, (368), 31,548-53.
Sciences extent of 21,462.7

Sciences, extent of, 31,463-7.

Secondary teachers, qualifications, 31,533. University, graduates, after careers, 31,578-82. Vernacular middle schools:

Financing and control of, 31,449-52, 31,495.

Number increasing, 31,494.

# Bee-keeping, see under Agricultural Industries.

Berar, agricultural conditions in, (460-1), 32,428.

BHARGAVA, Shyam Sundar, Managing Proprietor, Messrs. Chandrabhan Behari Lall, Jubbulpore: (427-430), 32,123-32,354.

### ADMINISTRATION:

Meteorological Department, services satisfactory, but not used

by villagers, (427).

Posts, facilities fair, (427).

Railway freights, cultivators' prosperity injured by, and change advocated, (430).

# Roads:

Improvement and extension needed, (427). few Metalled roads, Jubbulpore district, 32,289. Telegraphs, facilities fair, (427).

AGRICULTURAL DEPARTMENT, Services fair, (427).

## AGRICULTURAL INDEBTEDNESS:

Causes, (427).

Credit, sources of, (427). Lending of money to own cultivators, 32,176-7, 32,307-11.

Measures for lightening burden of debt, (427).

Mortgage and sale, objection to restriction of right of, (427). Repayment, causes preventing, (427). not Serious on witness' estates, 32,186.

Usurious Loans Act, application advocated, (427), 32,330.

# AGRICULTURAL INDUSTRIES:

Bee-keeping, poultry, sericulture and lac culture and basket

making, caste prejudice an obstacle, (430).

Fruit growing, difficulty for lack of roads, water supply and unsuitable climatic conditions, (430).

Intensive study of rural industries advocated, (430).

Preparation of agricultural produce for consumption, establishment by Government desirable, (430).

#### INDRX.

## BHARGAVA, Shyam Sundar—contd.

AGRICULTURAL INDUSTRIES-contd.

Removal of industrial concerns to rural areas, not advocated,

Subsidiary industries proposed, (430). Time spent by cultivators on holdings, (430).

# AGRICULTURAL LABOUR:

Shortage owing to epidemics, and poverty owing to uneven employment on agricultural operations, (430). Wages in cash and in kind, rates, 32,317-21.

# ANIMAL HUSBANDRY:

Cows, feeding of, 32,334-44.

Dairving industry, proposed measures for encouraging, (429).

Fodder:

Dry grass, shortage, (429). Wheat chaff, export to United Provinces, (429).

Green:

Encouragement of cultivation under irrigation tanks, proposal, (429). Shortage in dry seasons, (429). Growing of, 32,334-6.

Improvement of supply, proposed means, (430). Shortage, season of, (429).

Silage: Better than dry grass in relation to milk-yield, 32,255. Experience with, 32,240-3.

Grazing, overstocking of common pastures, (429).

Improvement of breeds, need for, and suggestion, (429). Improvement of existing practice, need for, (429).

CAPITAL, means of attracting, (430).

Chandrabhan Behari Lall, Messes.: Animal husbandry operations, 32,240-60, 32,334-46.

Experimental farm run by, particulars re work, staff, etc., 32,143, 32,146-56.

Particulars re farming operations of, and conditions on estate. 32,125-268, 32,282-6, 52,301-54.

Co-operative Credit Societies, closing down of, on witness' estates, 32,178-84, 32,310.

## Chops:

Damage by wild animals, proposed methods of prevention, (428).

Fodder, personal experience, 32,212-7.

Improvement of existing crops, by selection and importation of better varieties proposed, (428).

Introduction of new fodder crops, need for, (428).

Rice, personal experience, 32,168.

Seeds

Distribution, importance of work, (428). Improved, lending of, to cultivators on sawai system, 32,173-5, 32,196-7.

Successful introduction of, examples, (429).

Sugarcane, CO. 210, experience of, 32,301-3.

#### Wheat:

Bearded v. unbearded, 32,261-2, 32,266-7.

Cost of cultivation per acre, 32,324-8. no Fertilisers used by witness, 32,157-8. Personal experience, 32,142-67, 32,353-4.

Pusa, results compared with local varieties, 32,304-6.

Rotation with, 32,159-65. average Yield per acre, 32,166.

## CULTIVATION:

Rotation of wheat with masur, peas or gram, desirable, Jubbulpore district, (429).

# BHARGAVA, Shyam Sundar-contd.

CULTIVATION-contd.

Tillage systems, improvement, need for, and proposed methods, (428).

DEMONSTRATION AND PROPAGANDA:

Field demonstrations, proposed measures for increasing effectiveness of, (427), 32,268.

Measures for inducing cultivators to adopt expert advice, (427). Measures found successful in influencing and improving the practice of cultivators, (427).

EDUCATION:

Nature study, agriculture and gardening should be taught from beginning, (430).

Primary, teachers, pay and qualifications and method of appointment, 32,292-7.

Fertilisers:

Ammonium sulphate, successful use on sugarcane, (423). Cattle urine, pits round villages for collection of, should be compulsory, (428).

Cowdung:

Pits round villages for collection of, should be compulsory, (428).Use as fuel to small extent only in Jubbulpore district, (428).

Natural manures:

Increased use of, scope for, (428).

Pits round villages for collection of cowdung, rubbish and cattle urine should be compulsory, (428).

Popularisation of new and improved fertilisers, free demonstration

on cultivators' fields proposed, (428).

Agricultural (land mortgage) banks on co-operative lines, establishment advocated, (427). 32,223-9.
Government should give loans more freely, (427).

Taccavi loans:

Advisory Committee appointed in each district or Tahsil to advise at time of giving and realising would increase popularity of, (327). Unpopular, (427).

FORESTS:

Fuel, supply, 32,218-22.

Grazing:

Concessions should be increased, (430). Cultivators should be allowed to cut grass free where grazing not allowed, (430).

HOLDINGS.

Consolidation, revenue officers should have instructions and power to compel, by exchange, (428).

Fragmentation:

Drawback of, 32,349.

Stopping of, no suggestion for, (428).

Legislation dealing with minors, etc., not possible, (428).

IMPLEMENTS:

Distribution, obstacles in way of, (429).

Improved, methods for hastening adoption:

Demonstration of implements and sale on hire purchase system, (429).

Repair centres, (429).

New. proposed introduction:

Light harrow for work in beginning of monsoon, (429). Seed drills, (429).

Reapers, (429).

Threshing machine, (429).

Steam tackle outfit for ploughing, use of, and results, 32,269-75. Tractors, non-success with, 32,272, 32,286.

## BHARGAVA, Shyam Sundar—contd.

IRRIGATION:

Canal, Pariat irrigation scheme, irrigation of sugarcane from, personal experience, 32,134-8.

Obstacles to extension of, slackness on part of Government to sanction schemes, (428).

Perennial and non-perennial canals in wheat and rice tracts, extension advocated, (428).

Inefficiency of, in Jubbulpore district for wheat irrigation,

in Wheat and rice tracts, extension advocated, (428).

LAND TENURE:

Occupancy rights, should be transferable after certain period, 32,226, 32,316. Rent, system of fixing by settlement officer, 32,332.

LANDOWNERS, discouragement of, from carrying out improvements, (430).

LEGISLATIVE COUNCIL, attitude towards agriculture, 32,312-6.

LOCAL BOARD, Jubbulpore, revenue, and expenditure mainly on education, 32,288-90.

MARKETING:

Grain, 32,187-210.

Information to cultivators, merchants and traders as to market conditions, etc., through Agriculture Magazine or weekly papers, suggestion, (430).

RESEARCH:

Government of India should send experts to study conditions in each Province, (427). Scientific staff of Government of India, increase, would be useful,

(427).

SEA FREIGHTS, prosperity of cultivators injured by, and change advocated, (430).

Soils:

Cultivable land gone out of cultivation, proposed measures for reclamation, (428). Improvement by Bhandhwas system, with subsequent deterioration

after about thirty years, (428).

VETERINARY:

Civil Veterinary Department, control by Director of Agriculture advocated, (429). Contagious diseases:

Propaganda recommended, and failing success, legislation, (429).

Serum, no shortage, (429).

Dispensaries:

under Control of District Boards nominally but Board has insufficient control, (429).

Expansion not adequate, (429). too Far from villages, (429), 32,234-7, 32,278. Transfer to Provincial authority not advocated, (429).

Treatment and medicines too expensive, (429).
Used generally only for inoculation and castration, 32,236.
Indigenous methods, use of, 32,233-4, 32,230-2.

Preventive inoculation

no Fee charged, (429).

becoming Popular with people, 32,238-9. Propaganda necessary, (429).

Service, control by Agricultural Department should be increased, (427), 32,278. Simpler methods and medicines should be used, (427).

# ÍNDEX.

BRAHMA, Rao Bahadur K.V., B.A., LL.B., M.B.E., President, Berar Co-operative Institute, Ltd., Amraoti: (241-50), 29,906-30,169. AGRICULTURAL INDEBTEDNESS: Average indebtedness per acre, etc., 30,028-33.

Causes of, (243-4), 29,945-7, 30,066-7.

Credit, sources of, (244), 30,084-6.

"Damdopat" rule should be applicable to persons and in all cases, (243), 29,939-44, 30,045, 30,048, 30,164-8.

Deccan Agriculturists' Relief an unnatural measure and failure of, 20,046-7 30,046-7. Increasing, 30,027, 30,036-7. proposed Measures for preventing, (243), (244). Moneylenders, keeping of accurate accounts on paged books, compusion would not be objected to, 30,087-8. Repayment, causes preventing, (244). Usurious Loans Act, difficulty of operating, 30,048. AGRICULTURAL INDUSTRIES: on Co-operative basis, possibility, 30,000.
Cotton gins, worked with oil engine, establishment of, in villages, proposal, (245).
Hours of work by average cultivator during year, (245), 30,137-9. Industrial concerns, removal to rural areas, advantages to be Poultry farming, prejudice against, among Hindus, 29,951. Rope making, no prejudice against, 29,950. Subsidiary industries, suggestions, (245), 29,949-51. CO-OPERATION: Advantages of, (245). All-India Co-operative State Apex Bank, proposal, (246), 30,020. Assistance of movement by District Boards, extent to which possible. 30,008-9. Banks, need for, facilities for re-discount to, (246), 30,094. Investigation of economic condition of societies by, 30,022-6, 30,119-20. Berar Co-operative Institute: Working of, (247), 29,956-7. Board of Co-operation for advice to Minister, scheme, (246), 29,953. Central Banks: Concentration of attention on making a few societies model societies, proposal, (247). Development of work, proposals for, (247). Management of work, proposals for, (247).

Management of, and position of shareholders, 29,985-7.

Power of recommending suspensions and remissions of land revenue advocated, (247), 29,954-5.

Staff, proposal re, (247).

Use of money for financing purchase of cotton by big firms, proposal, (249), 29,966-7. Circle auditors, recruitment, 30,061-2. Comparison of position with Punjab, 30,038-9. Credit Societies: Applications for, and issue of, loans, procedure, 29,988-9.

Development of work, proposals for, (248-9), 29,965, 30,099-101.

Distribution of seeds through, proposal, (244). Effect on moneylenders' rate of interest, 30,140-2. Members: no Case of expulsion known, 30,005-7. Class of, 30,059-60, 30,133-4. Rate of interest, approved, 29,993. Results, (250). Supervision by Central Banks, not objected to at present, Use of loan for non-productive purposes, occasional cases, 30,004. Working of, (247-8).

Education of members in principles of co-operation, 30,001-2,

Development associations for taluks scheme, (247).

30,095-7.

## BRAHMA, Rao Bahadur-contd.

CO-OPERATION—contd.

Education and propaganda, proposed measures, (247).

Encouragement of growth of, steps proposed for, (245), (247), 30,056-8.

Government assistance in crisis of 1920-21, 30,020-1.

larger Government expenditure desirable on, (245).

Imperial Banks should be enabled to place money at disposal of, (246).

Joint farming societies:

Proposals for, (249).

Want of mutual confidence an obstacle, (249)

Lessons on, in schools and colleges, advocated, (247). Non-official agencies:

Extent of assistance received from, 30,053-8.

Grants-in-aid advocated, (246).

Propaganda and demonstration might be more carried out through, 29,995-6.

Registrars and Assistants:

Assistant Registrar in charge of Berar, proposal, (245).

Indians advocated as, (245), 30,090.

Leading of deputations of non-officials to sister provinces, proposal, (246).

Study leave to gain acquaintance of movement in foreign

countries, proposal, (246).

Sympathy and help of officers of Department of Agriculture and Department of Revenue, desirability of, (246).

Whole-time Registrar advocated, without frequent change, (245).

Savings Banks, proposed experiment of, (246).

Scholarships to students to study movement abroad, proposal, (247). Societies:

for the Co-operative use of machinery:

Essentials of success, (249). Scope for, (249).

to Decide disputes, formation suggested, (249), 30,089.

for Reducing ceremonial expenditure or abandoning expensive social customs, proposal, (243), (247), (249), 30,042-4, 30,114. for the Sale of produce:

Steps necessary to meet competition of "Adtyas" or commission agents, (249), 29,968-84, 30,143-4. Working of, (249), 29,968-84, 30,143-4.

Staff, training and refresher courses, importance of, and proposals, (246).

Subordinate officers, training of, 30,049-52.

Taluq Development Associations, proposal, (247), 30,121-5.

Village societies, annual meetings advocated, (247), 29,953-64.

Crops, distribution of Seeds:

through Co-operative credit societies, proposal, (244).

Department should establish licensed sellers for sale of good seed at fixed rates, (244).

Stores on co-operative basis should be organised as far as possible, (244).

Cultivation, of fields on leases, reckless, (244), 29,945.

DEMONSTRATION AND PROPAGANDA:

Field demonstrations, department should undertake work with motor tractors at cheaper rates than with old methods to demonstrate

advantage of. (242).

Methods of inducing cultivators to accept expert advice, (242), 30,110-13.

Popularisation of use of machinery through demonstrations and shows, etc., (242).

EDUCATION:

Adult, Mr. Manday's method, 29,920-3.

Means of popularising, (242).

# BRAHMA, Rao Bahadur—contd.

EDUCATION—contd.

Agricultural:

Development of, in village schools, scheme for, and probable cost, (242).

Extension of facilities in Berar advocated, (241).

Incentive, Government service, (241). in Primary and vernacular middle schools, possibility, (241). no Schools for agricultural teaching in the moffusil, (241).

Short courses in, where experimental or demonstration farms available, advocated, (241).

Teachers:

for Boys, inadequate supply, (241).

Class, (241).

Course of agricultural education before appointment in rural areas, proposed in some cases, (241), 30,108-9. Drawing of, from rural classes, desirable, should not be insisted on, 30,063-5.

among Villagers, of main importance at present, (241).

Criticism of, by parents, (250), 30,145-6.

Nature study:

in Fields desirable, and school plots and farms desirable, (241), 30,151-2.

in Schools, of little value, (241), 29,916, 30,151.

Primary:

Agricultural operations, experiment tried, but failure owing to lack of proper type of teachers, (241), 29,910-4.

Compulsory, extent to which put into force and reasons for slow progress in Berar, (250), 30,128-32, 30,147-9.

Education not designed to fit boys for work in fields or create agricultural bias, (241).

Small proportion of boys passing through fourth class, reasons,

Rural economics should be studied in University and results taught in primary and secondary schools, (247).

FERTILISERS:

Cattle urine, preservation of, for manurial purposes, proposal for regular and continuous propaganda to encourage, (244). Cowdung, use as fuel and means of prevention, (244), 30,135-6,

Natural manures, scheme for conservation of, (244).

#### FINANCE:

Advances:

through Co-operative Societies and realisation of amount so advanced as arrears of land-revenue scheme, (243). from Government treasuries, scheme, (243).

cheap Credit, dangerous without proper supervision, 29,994. Imperial Bank Act, proposed amendment, (243), 29,927-31. Indian Trust Act, proposed amendment, (243). Interest on advances, fixing of statutory maximum rate, proposal, (243), 30,083, 30,117-9.

Land Mortgage Banks:

Establishment advocated, (243), 29,924-6. Government assistance, proposal, (243), 29,927-31,

Resolution of Conference of Registrars of Co-operative Societies, January 1926, should be given effect to, (243), 30,040-1. Short term loans, establishment of village Co-operative Societies

advocated, (243).

Taccavi loans, to Co-operative Societies' members, agency of Co-operative Central Bank and Societies should be employed, (246). Village banks, formation of, and exemption from Indian Companies Act under certain circumstances, proposal, (243), 29,932-8, 30,068-82, 30,115-6, 30,153-7.

## BRAHMA, Rao Bahadur—contd.

## HOLDINGS:

Consolidation:

Arbitration Societies, establishment of, as in the Punjab, advocated, (244).

through Co-operative movement might be possible, 29,997-9. Judicial Village Panchayats for settlement of money claims and leasing of money suits, proposal, (244).

for Keeping disputes out of court, advocated, (244).

in Respect of widows with life interest, advocated, (244).
Suits filed after 12 years by reversioners claiming estate after widow's death should be barred, (244).

#### IMPLEMENTS:

Improved:

Ploughs, introduction, 30,112-3. Popularisation of, (244), 30,157-61.

Obstacles to introduction, repair difficulty and need for establishment of centres for supply of spare parts and repair work, (242).

JUDICIAL ADMINISTRATION, difficulty in cases of auctions of lands, 30,106.

LAND REVENUE, Berar Land Revenue Code, proposed amendment, (248), 29,965, 30,102.

# MARKETING:

Cotton, (249), 29,968-84, 30,143-4.
Weights and measures, cotton, platform scales should be insisted on, (249), 29,968-70.

MIDDLE CLASS YOUTHS, means of making agriculture attractive to, (241), 30,150-2.

## ROADS:

Construction and maintenance by Government and by District Councils, defined policy advocated, (242-3). under District Boards, funds insufficient for maintenance, 30,010-15. Inadequacy of, in Berar, (242). Village:

Neglect of, and proposed remedies, (242-3). Repair, compulsory supply by every adult of one day's labour for, proposal, (242), 30,016-9.

### WELFARE OF RUBAL POPULATION:

Economic survey in typical villages, necessity of, and proposal for,

Suggestions for improvement, (250), 30,162.

Buffalo, see under Animal Husbandry.

Bullocks, see under Animal Husbandry and Cultivation.

BURTON, G. P., I.C.S., Deputy Commissioner, Raipur, see CHHOTELAL, Mr., and BURTON, G. P., I.C.S., 29,094-29,201.

#### Capital, attracting of, to agriculture:

see also Landowners.

Factors preventing men with capital from taking up farming, Allan (209).

Profession must be made more profitable, Plymen (35); Irwin (346); Khaparde (407); Bhargava (430); Pande (538).

Size of holdings not a serious bar in Berar but is in parts of Central Provinces, Korde 30,732-5.

Steps necessary, Allan (210); Korde (320); Dwarkanath Singh (505).

#### Cassava, see under Crops.

Cattle Breeding, see under Animal Husbandry.

# Chandrabhan Behari Lall, Messrs.:

Animal husbandry operations, Bhargava 32,240-60, 32,334-46. Evidence on behalf of, see Bhargava, Shyam Sundar, (427-430), 32,123-32,354.

Experimental farm run by, particulars re work, staff, &c., Bhargava 32,143, 32,146-56.

Particulars re farming operations of, and conditions on estate, Bhargava 32,125-268, 32,282-6, 52,301-54.

CHHOTELAL, Mr., Extra-Assistant Commissioner, and BURTON, Mr. G. P. Deputy Commissioner, Raipur, 29,094-29,201.

HOLDINGS, CONSOLIDATION OF:

previous Attempts, particulars of, 29,100-2, 29,104-5, 29,108-11. through Co-operative Societies, not considered likely, 29,129-30, 29,166-7.

Demand of cultivators for, 29,119-21.

Legislation necessary to compel obstructive minority to join, and proposal re, 29,114-6, 29,947, 29,175-8. Obstacles in way of, 29,136. Particulars re work, 29,137-49, 29,153-4, 29,157-60. Proposals, 29,150-201.

in Ryotwari villages, proposal, and application of, water-course system of irrigation, 29,123-8. Transfer of rights, proposed legislation, 29,112-3, 29,131-5.

Clover, see under Crops.

Contagious Diseases, see under Veterinary.

### Co-operation:

Advantages of, Brahma (245). Agricultural Associations, Trivedi 29,263-7.

Suggestion for, Korde (320).

Average indebtedness per acre, etc., Brahma 30,028-33.
All-India Co-operative State Apex Bank, proposal, Brahma (246), 30,020.

Assistance of movement by District Boards, extent to which possible, Brahma 30,008-9.

Association of growers of each crop, proposal, Dokras (480). Banking crisis of 1921 and causes of, Trivedi 29,446-9.

Banks, facilities for re-discount to, need for, Brahma (246), 30,094. BERAR CO-OPERATIVE INSTITUTE:

Investigation of economic condition of societies by, Brahma 30,022-6, 30,119-20.
Working of, Trivedi (170); Brahma (247), 29,956-7.
Better standard of living societies, formation proposed, Dwarkanath

Singh (505).

FOR BETTERMENT OF VILLAGE LIFE:

Need for, and suggestions, Plymen (34).

Scope for, Trivedi (172). Board of Co-operation for advice to Minister, scheme, Brahma (246), 29,953.

# CATTLE-BREEDING SOCIETIES:

Establishment of, proposals for, Dwarkanath Singh (504-5).

Failure of, Deshpande (303).
Failure in Central Provinces but should be tried again, and sug-

gestion re, Pande (537).
in Raipur district formerly, but closure owing to lack of interest,
Trivedi (172), 29,334-5, 29,575-8.
little Scope for, Plymen (34), 28,110.

# CENTRAL BANK:

Activities should be confined to education, training and propaganda, Pande 33,403.

Akola, crisis owing to want of funds as result of bad years, Korde 30,704-11, 30,777-9, 30,802-4.

```
Co-operation—contd.
```

CENTRAL BANK-contd.

Concentration of attention on making a few societies model societies, proposal, Brahma (247). Control over, extent of, Trivedi 29,349-57, 29,359-62. Deposits, Trivedi (172). Development of work, proposals for, Brahma (247). Directors, Trivedi 29,530-2, 29,568-9. Dividend, Trivedi 29,497. Inspector, class of man, etc., Trivedi 29,457-61. Loans by, no supervision over use of, Sahasrabudhe (468). Local bodies should be allowed to keep money in, Pande (537). Management of, and position of shareholders, Brahma 29,985-7. Managers, class of men, etc., Trivedi 29,454-6. Number, Trivedi (168). Particulars re, working of, etc., Trivedi 29,336-57. Power of recommending suspensions and remissions of land revenue advocated, Brahma (247), 29,954.5

Rate at which loans lent to primary societies, Sahasrabudhe 32,463. Relations with Provincial Bank, Trivedi 29,359-61. Results, Trivedi (172). Staff, proposal re, Brahma (247). Supervision of credit societies by, see under Credit Societies below. Supervision of, by staff not satisfactory, Dwarkanath Singh (504). Use of money for financing purchase of cotton by big firms, proposal, Brahma (249), 29,966-7. Circle auditors, recruitment, Brahma 30,061-2 Comparison of position with Punjab, Brahma 30,038-9. Compulsory education, formation of societies desirable Trivedi (172), 29,436-7 Consolidation of holdings, see under Holdings. Consumers' societies, suggestion re linking up with producers' societies, Peterson (445-6), 32,397-8.

Control of Co-operative Department by specially trained whole-time officer, proposal, Plymen (34), 27,745-8. Co-operative Institute for Jubbulpore and Nerbudda Divisions, working of, Trivedi (169). Credit movement, desirability of extension, Korde 30.715. CREDIT SOCIETIES : Accounting and audit, Trivedi (169), 29,270-9, 29,285-6, 29,469; Pande 33.402. Advances through, and realisation of amount so advanced as arrears of land revenue, scheme, Brahma (243).
more Auditors should be appointed and Central Bank not be asked to bear expense, Pande 33,403. Bye-law that members should send boys to school, one case of, Trivedi 29,616. Olosing down of, on witness' estates, Bhargava 32,178-84, 32,310. Consolidation of movement, concentration of efforts on, advocated, Trivedi (171), 29,262.
Contribution by one society for purchase of quinine, Trivedi 29,617. Defects of present system, *Deshponde* (302-3).

Deficit, meeting of, by Government, proposal, *Trivedi* (169).

Degeneration into money-lending businesses, *Dokras* 32,517, 32,566. Deposits, Trivedi (172). Development and improvement of work, proposals for, Trivedi (171);
Brahma (248-9), 29,965, 30,099-101. Difficulties of, owing to tenancy system, Pande 33,326-38, 33,455-61. Distribution of seeds through, proposal, Brahma (244). more Education of, required, Pande (537). Effect on rates charged by moneylenders, Trivedi 29,550-2; Brahma 30,140-2. Extension, scope for, Dwarkanath Singh (498). Failure, statistics, Trivedi 29,216-7. Federation subscription levied from members, proposed abolition.

Trivedi (169).

```
Co-operation—contd.
```

(343).

```
CREDIT SOCIETIES—contd.
         Fixing of credit limit, power to Government Auditor proposed,

Dwarkanath Singh (504).
         Joint liability, enforcement:
                  in Certain cases and effect on reputation of movement, Trivedi
         29,218-20, 29,237-8.
Policy re, Trivedi 29,221-5.
under Liquidation, number, Trivedi (168).
         Liquidations:
                  Effect on confidence in movement, question of, Trivedi 29,392-4. Policy and procedure, Trivedi 29,226-39, 29,374-85, 29,499-504, 29,533-6, 29,588-91.
                  Applications for, and issue of, procedure, Trivedi 29,244-61, 29,450-3; Brahma 29,988-91; Pande 33,331-8; Deshpande 39,476-7.
                  for Purchase of implements, and joint purchase in one case,
                      Trivedi 29,618.
                  Rates of interest, Trivedi 29,397, 29,493-4.
Approved, Brahma 29,993.
too High, Khaparde (401); Sahasrabudhe (459), (460).
no Supervision over purpose of, Dokras 32,517; Sahasrabudhe
                      (468).
                  Supervision over use of money advanced, need for, Sahasrabudhe
                  (459). Use of, for non-productive purposes, occasional cases, Brahms. 30,004.
                  should be Used for productive purposes, Dwarkanath Singh
                       (504).
         Value of, Sahasrabudhe (460); Dwarkonath Singh (496).
Loans from Central Banks, system, Trivedi 29,420-2.
Member, no case of expulsion known, Brahma 30,005-7.
Members borrowing both from, and from moneylenders, etc., Trivedi
             29,287-8, 29,408-10.
        Members, class of, Brahma 30,059-60, 30,133-4.

Number, increase desirable, Dwarkanath Singh (496).

Organisation, procedure, Trivedi 29,398-9.

Position of, in Berar, Khaparde 31,879.

Problem of agricultural indebtedness cannot be solved by, alone,
             Dwarkanath Singh (499).
         Reasons for cultivators borrowing from moneylenders rather than
             from, Khaparde (401).
        Reasons for greater success not resulting from, Pande (538).
Reserve funds, policy re, Trivedi 29,397, 29,490-5.
Results, Plymen (34); Trivedi (172); Brahma (250); Dwarkanati Singh (505), 32,762-6.
Sanitation not taken up by, Trivedi 29,616-7.
Statistics, Trivedi (170-1), 29,485-8.
Success of movement in Berar as compared with Central Provinces,
              Trivedi 29,404-6.
         Successful society, features of, and results, Trivedi 29,400-3. Supervision and education:
                 by Central Banks, and drawbacks of system, Trivedi (169), 29,243-61, 29,363-5, 29,425-7.
by Central Banks, not objected to at present, Brahma 30,003
                  by Government auditors desired, Trivedi 29,428-9.
by Government auditors desired, Trivedi 29,425-9.

Reorganisation of system, proposals for, and measures taken, Trivedi (169-70), 29,270-82, 29,407, 29,489.

Taccavi advances through, see under Taccavi under Finance.
Tendency of officials to consider profits rather than welfare of people, Plymen (34); Pandeya (127), 28,807-9.

Useful and proposal for improvement, Plymen 27,749-50.

Working of, Trivedi (171); Brahma (247-8).

Working of, proposals re, Powar (890).

Credit system, development of, desirable for smaller cultivators, Irwin (343)
```

```
Co-operation-contd.
```

Debt per head, increasing, Pande (539), 33,348-52. Defective organisation and defective education of members, Trived. 29,579.

DEPARTMENT:

Assistance by officers of Revenue, Excise and Education Departments, suggestions for, Deshpande (302), 30,581.
Circles, increase to five, desirability of, Trivedi (168-9).
Co-operation with demonstration work, Plymen 27,650-1.
no Co-operation with Education Department, Trivedi 29,505-7.

close Co-operation with certain other departments necessary,

Deshpande (302).

Heads, Indians as, necessary, Deshpande (302).

Men of Provincial Service with long and varied experience should be absorbed in, as far as possible, Deshpande (304).

Organisation of, Trivedi (168).

Staff must be desum from Agricultural and Industrial Departments.

Staff must be drawn from Agricultural and Industrial Departments,

Deshpande (302).

Development associations for taluks, scheme, Brahma (247), 30,121-7. Development must not be too quick, Irwin (346).

Education of members in principles of co-operation, Brahma 30,001-2, 30,095-7.

Education and propaganda, proposed measures, Brahma (247).

ENCOURAGEMENT OF GROWTH OF, steps proposed for:

by Government, Brahma (245); Deshpande (302); Dwarkanath Singh (504); Pande (537).

Material advantages must be made clear to people, Trivedi 29,390-1. by Non-official agencies, Brahma (24), 30,056-8; Deshpande (302), 30,582-4; Dwarkanath Singh (504); Pande 33,480-1. Expenditure on, and need for increase, Trivedi 29,411-2, 29,508.

Extension of movement, scope for, Dwarkanath Singh (503).
Federation Auditors, class of men, Trivedi 29,467-8.

Federation of Co-operative Societies, position, Pande 33,393-98.

Gond Societies, Trivedi 29,594.

GOVERNMENT ASSISTANCE:

in Crisis of 1920-21, Trivedi 29,366-8; Brahma 30,020-1.

Extent of, etc., Trivedi 29,509-12, 29,537-40. larger Government expenditure desirable on, Brahma (245).

History of movement, Trived 29,209-13.

Honorary workers and non-official agencies, value of, and scope for, work by, Trivedi (170).

Housing societies, State aid advocated, Pande (537).

Imperial Banks should be enabled to place money at disposal of, Brahma (246).

IMPROVEMENTS, SOCIETIES FOR:
Advance of money to, at low rates and liberal number of instalments advocated, Pande (537).
Need for, Dwarkanath Singh (504).

Scope for, and method of organisation, Deshpande (303). Impulse must come from within, not from the State, Trivedi 29,598-9. Insolvency Act, amendment advocated, in order to protect, Pande

33,339-41.

Joint Farming Societies:

Proposals for, Brahma (249); Pande (536).
Question of, Trivedi (172).
Scope for, extent of, Plymen (34); Deshpande (303).

Want of mutual confidence an obstacle, Brahma (249).

JOINT IMPROVEMENT schemes, compulsion on minority to ioin:
Advocated, Plymen (34); Dwarkanath Singh (505); Pande (538).

Objection to, Trivedi (172).

Lectures in normal schools by inspector of Berar Co-operative Central Institute, Trivedi 29,506.

Lessons on, in schools and colleges, advocated, Brahma (247).

Local instructors, recruitment method and salaries. Trivedi 29,595-7.

Non-co-operation movement, effect of, Trivedi 29,395-6.

## Co-operation-contd.

Non-credit societies, loan from Central Bank to agricultural association, Trivedi 29,423.

NON-OFFICIAL AGENCIES:

Extent of assistance received from, and scope for, Trivedi 29,413-8, 29,475-84, 29,541-9; Brahma 30,053-8.

Grants-in-aid advocated, Brahma (246).
Objects attained by limited number of societies only, Deshpands (304), 30,514-6.

Obstacle to growth of movement, land tenure system, Trivedi (170), 29,470.

Organisation by Government officers, proposal, Dwarkanath Singh (503-4).

Pig-hunting clubs, malaria prevention clubs, village sanitation pre-servation societies, co-operative stores, scope for, *Deshpande* (304). Position of Provincial and Central Banks and primary societies, Trivedi

29,496.

Position more satisfactory than two years ago, Trivedi 29,268. Propaganda and demonstration might be more carried out through, Brahma 29,995-6.

Primary Societies, number, Trivedi (168). little Propaganda for education of public in principles of co-operation in villages, Trivedi 29,240-2.

PROVINCIAL BANK:

Cash credit with Imperial Bank, Trivedi 29,369-72, 29,561-7. Deposits, Trivedi (172).
Dividend, Trivedi 29,497.
Relations with Central Banks, Trivedi 29,359-61.
Results, Trivedi (172).

Working of, Deshpande (299-300), 30,637-51.

PURCHASE SOCIETIES:

Combination with credit and sale societies proposed, Plymen (34). Establishment advocated, Powar (93); Pande (537); Dwarkanath Singh (504).

Importance of, and need for organisation of, Deshpande (303).

Object attained by many, but constant and detailed supervision necessary, Plymen (34).

Tendency to attach excessive importance to making of large profits, Plumen (34).

Purchase and supply of seed by, proposal, Powar (92).

REGISTRARS: Assistant Registrar in charge of Berar, proposal, Brahma (245).

and Assistants:
Leading of deputations of non-officials to sister provinces, proposal, Brahma (246).
Study leave to gain acquaintance of movement in foreign countries, proposal, Brahma (246).
frequent Changes, Pande 33,342.
Indians advocated as, Brahma (245), 30,090.
Powers recommended by Committees, objection to, Pande 33,366-7, 33,417-9. and Assistants:

Sympathy and help of officers of Department of Agriculture and Department of Revenue, desirability of, Brahma (246).

Whole-time officer:

Advocated, without frequent change, Brahma (245). would be Desirable, and necessary if work of Industries Department expands, Trivedi 29,438-9.

SALE SOCIETIES:

Combination with credit and purchase societies proposed, Plymen

Co-operation of Agricultural Department, necessity for, Trivedi (171).

Cotton sale societies, Trivedi (171), 29,289-330, 29,515-29, 29,573-4; Brahma (249), 29,968-84, 30.143-4.
Desirability of, Dwarkanath Singh (504).

Development desirable, Plymen (34).

```
INDEX.
· Co-operation—contd.
        SALE SOCIETIES—contd.
             Establishment advocated, Powar (93); Dwarkanath Singh (500);
                Pande (537).
             Grain, scheme, Peterson (445-6), 32,397-8.
Importance of, and need for organisation of, Deshpande (303).
Marketing societies advocated, Dokras (480), (484).
Rice sale societies, formation in Bilaspur district to be considered,
                Trivedi (171).
             Steps necessary to meet competition of "Adtyas" or commission agents, Brahma (249), 29,968-84, 30,143-4.
        Working of, Brahma (249).
Savings Banks, proposed experiment of, Brahma (246).
        Scholarships to students to study movement abroad, proposal, Brahma
          (247).
        Seed societies, Trivedi 29,619.
        Seed unions, proposed establishment of, Dwarkanath Singh (501).
Societies for reducing ceremonal expenditure or abandoning expensive
           social customs, proposal, Brahma (243), (247), (249), 30,042-4, 30,114.
        SOCIETIES FOR THE CO-OPERATIVE USE OF MACHINERY
             Essentials of success, Trivedi (172); Brahma (249).
Scope for, Plymen (34); Brahma (249); Deshpande (303); Pande
                (537).
              Scope for, and consideration advocated, Trivedi (172)
        Working of, at Jalgaon, Deshpande (303).
Societies to decide disputes, formation suggested, Brahma (249), 30,089.
        Societies for fighting diseases, establishment advocated, Pande (537).
        DIATE:
              Clerks and auditors, pay considered adequate to secure honesty,
                Trivedi 29,614-5.
              Courses at Agricultural College under consideration, Trivedi 29,514.
              Knowledge of "Law and Principles of Co-operation," question of,
                Trivedi 29,462-6.
              Recruitment from Nagpur Agricultural College graduates under
             consideration, Trivedi 29,586-7.
Subordinate officers, training of, Brahma 30,049-52.
Training, Trivedi 29,580-7.
              Training and refresher courses, importance of, and proposals,
        Brahma (246).
Sweepers' societies, Trivedi 29,473-4.
        Transmission of money between central Banks and societies, refund of
           three-fourths of money order commission advocated, Trivedi (170).
        Unlimited liability, sale or encumbering of land in order to pay contribution, a few cases of, Trivedi 29,600-13.

Urban banks, proposed formation of, Deshpande (303).

Value of, if properly run, Pandera (127).
```

Village societies, annual meetings advocated, Brahma (247), 29,958-64.

Cotton, see under Crops.

Credit, see under Agricultural Indebtedness and under Finance.

Crops and Crop Protection:

Berseem, cost of seed a deterrent on expansion, Allan 29,860-4. Cassava, suggestion, but no great scope for, Allan (205), 29,814-8. Change to more valuable crops, Eastern Circle, Powar 28,382-7.

CLOVER:

Encouragement of cultivation by supply of seed free and then at concession rates until value realised, advocated, Dubey (104). Rotation with rice, proposal, Dubey (105).

Suggestion re, Amanat Ali (387).

Combination of, in America, advantage of, Sahasrabudhe (462).

COTTON:

Ammonium sulphate, increased use of, at Hoshangabad, Plymen Buri, Amanat Ali (386), 31,727-31, 31,771-2.
Capable of resisting "wilt," introduction desirable, Amanat Ali (336).

```
COTTON—contd.
```

Cost of cultivation and income from, Allan (240i-240ii).

Cultivation, particulars re system, &c., Allan (240i). increased Cultivation, Sahasrabudhe 32,453.

Financial results, question of Allan 29,870-4. Improvement of, by scientific sowing, Khaparde (403).

Increase in acreage during last few years, but tendency to decrease owing to drop in price, *Plymen* 27,629-42.

Introduction of improved varieties, particulars re, *Plymen* (16).

Local mixed variety: *Dokras* 32,608-9, 32,660-1.

Investigation by Agricultural Department desired, *Dokras* (481),

Yield, Dokras 32,601-10.

Loss on, during present year, Korde 30,886-901.

Marketing, see that title. Personal experience, Amanat Ali 31,763-9; Pochory 33,116-21,

33.133-5 Increased Production per acre should be considered, Sahasrabudhe (462), 32,465.

Roseum:

Deterioration, Dokras 32,513, 32,541-2, 32,544, 32,600. Experience with, and results of, Korde 30,792-6, 30,902-7; Khaparde 31,876-8.

Results, Plymen (16); Amanat Ali (386), 31,732-4, 31,757, 31,863. Success of, until affected by wilt owing to rainfall, Deshpande 30,633-6.

Seed, pure, difficulty of maintaining, Plymen (15). new Seeds, proposal re distribution of, Allan (204).

Yield, Pochory 33,042-3. Damage by stray cattle, Khaparde (403).

DAMAGE BY WILD ANIMALS: Plymen (29); Allan (204-5).

Deer, Deshpande (301).

Jackals, Pochory 33,044-8.

Measures taken to prevent, Allan (204-5).
Pigs, Powar (92); Deshpande (301); Khaparde (403); Irwin 31,355-6;
Sahasrabudhe (462); Dwarkanath Singh (501).
Prevention, proposed measures for:

Clubs for killing animals, establishment in all affected areas, Pande (532).

Contribution from Forest Department towards fences in cer-tain cases, Bhargava (428).

Extermination the only real means of prevention, Irwin (344). Extermination of wild boar should be possible with proper organisation, Irwin (344), 31,077-81.

Fencing:

Inadequacy of, Sahasrabudhe (462).
Long term loans for, Bhargava (428).
an Uneconomic palliative only, Urwin (344).
Formation of parties of hunters, Khaparde (403).

Free-shooting permits in Government forests to bona fide agriculturists, Amanat Ali (387), 31,806-14.

Government forests should not continue as breeding farms,

Pande (532).

Growing rows of crops disliked by wild animals along border of fields, Amanat Ali (387).

Growing of similar crops in fields close to each other, by arrangement between neighbouring cultivators, Amanat Ali (387).

Gun licences:

Issue to cultivators, Sahasrabudhe (462).

more Liberal grant of, Deshpande (301); Amanat Ali (387); Khaparde (403); Bhargava (428); Dokras (482); Pande (532).

Non-success, Dwarkanath Singh (501).

DAMAGE BY WILD ANIMALS—contd.

Prevention, proposed measures for-contd.

Joint fencing advocated, Dubey (105).

Pig Hunting Clubs, formation of, Bhargava (428).
Pig proof wire fencing should be popularised, Dwarkanath

Singh (501).

Pigs, killing of certain number as condition of renewal of licence, Plymen 31,355-6.

Removal of restrictions on cutting of trees and shrubs on banks of streams and nalas acting as breeding places, Amanat Ali (387), 31,773-6.
Rewards for destruction, Pande (532).

Shooting clubs, non success, Dwarkanath Singh (501).

near Reserved forests only, Dokras (482).

Dangerous plants, compulsory destruction of, proposal, Plymen (30).

Eastern Circle, nature of, Powar 28,351-6.

increased Fertility of the soils, need for, and methods, Pande (531-2). Fodder, see under Animal Husbandry. Food, Irwin 31,161-5.

Securing of better prices or increase in yield, need for, Pande (532).

Gardens and orchards, Berar, but reduction latterly, Sahasrabudhe (461).

Grain, marketing, see that title.

GRAM:

Marketing, see that title.

Personal experience, Pande 33,214-5.

#### GROUNDNUT:

Advantages of, and encouragement by Department advocated, Dokras (481-2).

Area under, and prospects, Allan 29,725-9, 29,819-20.
Discontinued owing to trouble with jackals, Pochory 33,044-8.
Proposal re, Khaparde (403).
Introduction of, and results, Plymen (16).
Use of, Plymen 28,040-41.

Heavy yielding food crops, proposals, Pande (532). Hemp, growing of, but prejudice of some cultivators against, Plymen 28,273-7.

High yielding varieties, continuance doubted owing to soil, Pande (531), 33,294.

#### IMPROVEMENT OF EXISTING CROPS:

by Agricultural Department, Amanat Ali (386).

Examples of, Dubey (105).

Methods:

Irrigation facilities, widening of, Deshpande (301).
Rotation of groundnut crops, Khaparde (403).
by Selection and breeding, ecope for, Powar (91).
by Selection and crossing on Government Farms and extension of work desirable, Dubey (104).

more Scientific method of sowing, Khaparde (403).
Seed selection, good manuring and due spacing, Dokras (481).
Selection and importation of better varieties, Bhargava (428).
Use of natural manures and proper rotation, Deshpande (301).

Staff, increase required, Allan (204).

Work on, *Allan* (204).

Consideration of problem from all aspects, Plymen 27,937-8. Introduction of, by Malguzar among tenants, Pochory 32,913.

# INTRODUCTION OF NEW CROPS AND VARIETIES:

Eastern Circle, Powar 28,430.

Government should advance money free of interest for three years to approved and bona fide cultivators, Pande (532). Improvement from, but conditions required for, Plymen (15).

```
Crops and Crop Protection—contd.
```

Introduction of New Crops and Varieties—contd. Particulars re, Plymen (16).
Progress in, Allan (204).

Requirements for success, Plymen (29); Powar (91).

Suggestion, crops like Alfalfa, where irrigation possible, Deshpande  $(3\bar{0}1).$ 

#### Juar:

Diseases, see Pests and Diseases below.

Diversion to rice hoped for in time, Pollard-Lowsley 29,009-10.

Improvement, Khaparde (403). Introduction of improved variety, Plymen (16).

Personal experience, Amanat Ali 31,704-6.

Suggestion, Amanat Ali (387).

Money crops, change to, from food crops: Effects, Trivedi 29,559-60, 29,571-2.

but Tendency again to revert, Plymen 27,629-42.

#### OTLSEEDS:

Nature of, and question of acreage under, Plymen 27,810-5, 28,040-4.

Research, need for, Allan (198). Onions, Plymen 28,054-7.

# Pests and diseases:

Boll-rot, no protection measures, *Dokras* (482).
Cotton caterpillar, need for remedy, *Dokras* (481-2).

Juar, soaking of, with mixture of copper sulphate, *Khaparde* (404).

Juar, smut in, means of controlling, *Plymen* (14); *Dokras* (482).

Research, proposed lines of Khaparde (399).
Root-rot, means of controlling, Dokras (482).
Taloop, no means of controlling, known, Dokras (482).
Water hyacinth, destruction should be made compulsory, Plymen (30), 27,665-8. POTATOES, Plymen 28,054-5.

Seed, source of, Dubey 28,503-6.

### PROTECTION:

from External infection, pests and diseases:

no Efficacious methods adopted, Khaparde (403).

Imported plants might be allowed in without investigation or fumigation on recommendation of Director of Agriculture, Plymen (30), 27,663-4.

Local Departments should have more power and responsibility, Plymen (30).

Measures not satisfactory, Deshpande (301).

Procedure, not always efficient and takes too long. Plymen (30), 27,660-2.

Internal measures against infection:

Active action desirable, Deshpande (301).

Cheap methods necessary, and provision to compel owners of neighbouring fields to co-operate advocated, Pande (533). Desirability of, Khaparde (404).

Methods suggested by Department generally too expensive, Pande (533).

#### RICE:

Bone-meal satisfactory for, but caste prejudice a difficulty, Powar

Cost of cultivation per acre, Dubey 28,574.

Cultivation system, Powar (92).

Improved varieties:

Advantages of, Plymen (17); Dubey 28,599-605.

Particulars re, Plymen (16).

Rica-contd.

Introduction of improved ploughs, and means of distribution from depots, Plymen 27.780-8.

Irrigation: Dubey (103-4), 28,557-9, 28,610-11.

Agreement system, Pollard-Lowsley 28,891-5, 28,959-61.

Relaxation of rules advocated in certain cases, Dubey (104).

Delta required. Pollard-Lowsley 29,011-3.

Statement of extent to which rice grown and irrigated in more important rice-growing districts, Pollard-Lousley (131-2).

little Manuring of, Plymen 27,763-4. Marketing, see that title.

Personal experience, Dubey 28,499, 23,507-32, 23,574, 28,577-85; Bhargava 32,168-72, 32,352; Pande 33,208-9, 33,228-31.

Profit per acre, Dubey 28,577.

Subdivision of holding beyond limit of four acres should be prohibited, Dubey (103), 28,615.

Transplantation, Plymen (14), 27,906; Dubey 28,527-30, 28,606-8. Known about before propagated by department, Pande 33,371. Prevention by fragmentation of holdings, Dyer (152).

in Waingunga Canal areas, proposals, Dubey (105).

Yield from Department seed and ordinary seed, comparison, Plymen 27.882-8.

#### SANN HEMP:

for Fodder and manure, special concessions for growing of, under irrigation, proposal, Pande (535), 33,317-8. Religious prejudice against, disappearing, Dwarkanath Singh 32,767-9.

Cost of, a deterrent to expansion of certain crops Allan 29,860-1. Distribution: Plymen (10-11), (15), 27,871-81, 28,034-9; Irwin 31,267-8.

through Agricultural Association, Pande (532).

through Agricultural Associations advocated, Dokras (482). Central seed farms belonging to each circle agricultural asso-

ciation, scheme, Allan (204).

Certified seed farmers, suggestion re supply of seed to, by Government, Pande (531).

through Co-operative credit societies, proposal, Brahma (244). combined Co-operative and seed producing agencies, Plymen

Co-operative seed unions, proposed establishment of, Dwarkanath Singh (501).

by Co-operative Societies, suggestion, Powar (92).
Department should establish licensed sellers for sale of good seed at fixed rates, Brahma (244).

through Government, Court of Wards and certified farms advocated, Pande (532).

supply from Government farms and seed farms advocated, Dubey (102).

Importance of work, Bhargava (428).

Local Boards should be encouraged to maintain stores, Deshpands (301), 30,579-80.

to Local growers personally, Amanat Ali 31,696-8, 31,789-91, 31,825.

Maintenance of stores at Tahsil headquarters, proposal, Deshpande (301).

Measures for, Powar (91-2).

Roseum seed unions, Allan (204).

Seed depots, suggestion re establishment of, Amanat Ali (387). through Seed farms or arrangements with large cultivators to grow pure seed in Jubbulpore Division, and extension of methods desirable, Irwin (344).

SEEDS-contd.

Distribution—contd.

through Seed farmers, approval of system and extension advo-

cated, Amanat Ali (387). through Seed farmers and question of extension on commercial basis, Plymen 27,643-9.

through Selling agencies in every Tahsil under supervision of Department of Agriculture, proposed, Deshpande (301). Stores on co-operative basis should be organised as far as

possible, Brahma (244).

to Tenants, practice re, and rate of interest, Deshvande 30,495-7, 30,572-5, 30,617-22, 30,660-71; Korde 30,854-7; Dwarkanath Singh 32,725-7; Pochory 32,914-6; Paule 33,243-7.

Unsatisfactory nature of present method, Dwarkanath Singh (501), 32,774-81.

Farms: Plymen 27,879-81.

at Boregaon, Sahasrabudhe (455).

Percentage of total requirements supplied by, Plymen 27,905, 28,091-2.

Success of, Powar (89). Improved, lending of, to cultivators on sawai system, Bhargava 32,173-5, 32,196-7.

Improvement, good work being done by department, Irwin 31,266. Introduction of selected seed, good results, Pande (531). Loans of pure seed, system, Irwin 31,268-9.

Difficulty of maintaining, Plymen (15).

Measures taken by recognition of seed growers, Plymen 28,283-5.
Unions, results, Plymen 28,286-7.
Sesamum, Plymen (16).
Species found most profitable, Powar (92).

Successful introduction of, examples, Bhargava (428).

Sugarcane, see that title.

Tur, improvement, Khaparde (403).

#### WHEAT:

Bearded v. unbearded, Bhargava 32,261-2, 32,266-7.

Beardless varieties damaged by wild animals, Amanat Ali 31,723. Cost of cultivation, Bhargava 32,324-8; Pande 33,237-9. Decrease in area under, Plymen 28,066-8, 28,252-9. Farm in Melghat taluq of Amraoti district should be established, Amanat Ali (387).

no Fertilisers used by witness, Bhargava 32,157-8. Importation, Plymen 28,255-6. Impracticability of manuring dry wheat, Plymen 28,088-90.

Improved varieties:

Extra profit on, Plymen (17). Introduction of, Plymen (16).

Irrigation not anticipated, Pollard-Lowsley 28,846-7.

Marketing, see that title.

31,693-5, 31,723, 32,696-9; Personal experience, Amanat Ali 31,693-5, 31,725; 32,142-67, 32,353-4; Dwarkanath Singh 32,696-9; 33,136-42; Pande 33,211-3, 33,216-7, 33,237-9, 33,494-7. Pissi, Dwarkanath Singh 32,788. 31,725; Bhargava Pochoru

Ploughings, number, Plymen 28,247-8.

Pusa:

Advantage over local wheat, Dubey 28,560-3. Grown to some extent only, own wheats preferred as a whole,

Plymen 27,475-7, 27,838.
Results compared with local varieties, Bhargava 32,304-6. Pusa 100, introduction of, Chhattisgarh Division, and advantages of, Powar 28,414-20.

Rotation with and proposal, Bhargaa (429), 32,159-65.

WHEAT-contd.

Rust-resisting variety:

Introduction desirable, Amanat Ali (387). Produced, Pande (533).

Seed, cost of, a deterrent on expansion, Allan 29,560-1. Varieties grown, Plymen 27,999-8004.
Yield, Bhargava 32,166; Pochory 33,040-1; Pande 33,216.

## Cultivated land, value of, Irwin 31,280-2.

with Buffaloes, difficulty in connection with, Dubey 28,549-51.

Bullocks:

Feeding of, Dwarkanath Singh 32,690-4. Poor quality of, Deshpande 30,498-501.

Shortage of, Dwarkanath Singh 32,802-3.

Double cropping, Plymen 27,770-2.

Dry farming, Plymen 28,272.

Fertilisers, cost not compensated for in dry farming, by increase in yield, Amanat Ali (386), 31,832-8.

of Fields on leases, reckless cultivation, Brahma (244), 29,945. Harrowing, proposal re, Dokras (482).

Improvements, in Balaghat District, nature of, Dubey 28,586-91. Inefficiency of cultivators an obstacle to extension of Government irrigation, Pollard-Lowsley (133).

INTENSIVE:

Desirability of on small holdings, Dwarkanath Singh (500). Experiments carried out by witness, Korde 30,683-9.

Line sowing of kharif crops, success in introduction, Allan (201).

Improvement, extent of scope for, Plymen (30). of Juar and urid and juar-mung, proposal, Dokras (482), 32,518-9. Practice re, Pande (533).

by Brahmins, no caste difficulty but not usually done, Dokras 32,668. Consolidation of land after, need for, and suggestion re use of cultipacker, Dokras (483), 32,521, 32,625.

Mechanical, experience with, Dokras 32,520-1.

System, Amanat Ali 31,864-8.
Productive power of land, not increased with increased expenditure, Sahasrarbudhe 32,451-3.

Quality, variation in, in different districts, and question of reasons, Irucia 31,196-210, 31,245-6.
Raising of standard of, a means of checking flow of labour to industrial

centres, Powar (93).

#### ROTATIONS:

in Berar, Sahasrabudhe (462).

Improvement, extent of scope for, Plymen (30).

Non-application of, reasons for, in certain cases, Allan (205).

Proposals, Plymen 28,013-6; Dubey (105); Bhargava (429); Dokras

(482).

Second crop giving as good return as wheat without affecting fertility of the soil needed for, Pande (533).

System of, and suggestions, Khaparde (403).

in Byotwari villages, conferring of proprietory rights suggested in order

to encourage, Dubey (107).

TILLAGE SYSTEMS, IMPROVEMENTS: Plymen (30).
"Bakhar" cultivation for kharif crop, defect of, Allan (205). Deeper cultivation and use of inversion plough in cotton tract, success in introducing, Allan (201), 29,756.

Jat plough, use of, for sugarcane and garden cultivation, demonstrations on larger scale advocated, *Dubey* (105).

Line sowing instead of broadcasting of seed, *Plymen* (14).

M.S.N. plough, introduction of, Dubey (105).

```
Cultivation-contd.
```

```
TILLAGE SYSTEMS, IMPROVEMENTS—contd. proposed Methods:
                 greater Depth of primary cultivation in certain crops, Allan
                  Better implements for hot weather tillage and light harrowing.
                  Bhargava (428).
Improvement of existing implements preferable to introduction
                  of new types, Deshpande (301).
Plough, judicious use of, Khaparde (403).
                 Ploughs and Bakhars worked by power, supply by Government on contract system, Pande (532), 33,300-3.
           Small iron ploughs, reintroduction, Bhargava (428).
Need for, Bhargava (428).
little Progress made, Sahasrabudhe (457).
           as Result of extended use of inversion plough, Plymen (Mem. 14).
     Traditional methods, gradual transformation into modern methods needed, Khaparde (399).
Dairying Industry, see under Animal Husbandry.
Demonstration and Propaganda:
      Adoption of expert advice, means of inducing, Powar (90); Allan (201);
         Brahma (242), 30,110-13; Deshpande (298); Irwin (343); Khaparde
         (400); Bhargava (427).
     AGRICULTURAL ASSOCIATIONS: Plymen (11), 27,705-13; Allan 29,810-3.
            Nagpur, exist only in name, Deshpande 30,579-80.
           Proposals re, value of, and payment of travelling, etc., allowances to members, Dubey (101), (104), (105), 28,594-8, 28,665-8.

Value of, Powar (89).
     Agricultural Conferences, resolutions passed by, but not translated into
     vernacular and no action taken on, Sahasrabudhe (456), 32,439. Agricultural shows on farms and in fairs, value of, Dubey (101). Agricultural shows, suggestion for, Khaparde (400). American methods, and tribute to, Sahasrabudhe (456, 457).
     Assistance from District Associations, etc., Plymen 27,911-4, 27,904. Attention paid to, equally with research, Plymen 27,526-7.
     by Cinema Films: Plymen (27), 27,651-7.

Value of, Powar (90); Deshpande (298).

small Circle associations, scheme for formation of, Allan (201).

Class towards which work directed, Allan 29,865-9.
      Conservatism of Berar peasants and slowness to take in new ideas,
         Khaparde (400).
     Co-operation with Co-operative Department, Plymen 27,650-1.
Co-operation between farmers and staff of Agricultural Department necessary, Deshpande (298).
through leading Cultivators advocated, Dubey 28,477-8, 26,637-49.
         28,637-49.
      Cultivators must be persuaded that improvement will be advantageous,
         Dubey 28,479-82.
      growing Demand for advice and help on part of cultivators, Amanat Ali 31,710.
      DEMONSTRATION FARMS:
            Carrying on of, on commercial basis, desirability and possibility of.
               Sahasrabudhe (455), 32,426-7.
            Effectiveness of, question of, Sahasrabudhe (455). satisfactory Financial results desirable, Plymen 28,077-81.
            Increase in number advocated, Dubey (101).
System, success of, Powar (89); Plymen 27,892-6.
in each Tahsil advocated, Dubey (101).
            Value of, Dubey (101).
            at Yeotmal and Basim, Sahasrabudhe (455).
      Demonstration lorries, proposal, Deshpande (297).
      DEMONSTRATION PLOTS:
            Importance of, Plymen (27).
Inadequacy of number, Dwarkanath Singh (496).
```

## Demonstration, and Propaganda—contd.

DEMONSTRATION PLOTS—contd.

Increase in number desirable, Powar 28,436.

One for group of 50 villages advocated, Pande (529).

Organisation of, proposals, Plymen (27), 28,289-91.

System and success, Powar (89), 28,434-5.

Two or three in each Revenue Inspector's Circle advocated, Dubey (101).

Value of, Dubey (101); Allan (201).

Work carried on and satisfactory results, Plymen (14-5), 27,892, 27,896, 27,899, 28,080-1, 28,144-8.

DEMONSTRATORS:

Class of, training, etc., Plymen 27,531-6, 27,889, 28,093. Inadequate number, Amanat Ali 31,701-3.

Payment of allowances to leading cultivators to attend meetings, etc., of, suggestion, Dubey (102), 28,594-8.

Departmental resolutions, etc., increased translation of, into vernacular and free distribution necessary, Sahasrabudhe (456), 32,439. increased Expenditure on, needed, Deshpande (298). increased Expenditure on, needed, but not at expense of research,

Powar 28,322-5.

Expenditure on propaganda and research, comparison, Plymen 23,298-300.

EXPERIMENTAL FARMS:

Akola, Sahasrabudhe (455)

in each District, advocated, Dubey (101).

Profitable carrying on of, not possible, Sahasrabudhe (455). Experiments by cultivators not encouraged, Powar 28,327.

Factors influencing cultivators to improve practice, Dwarkanath Singk (496).

FAILURE OF:

Chhattisgarh, transplantation of paddy, Allan (201).

in Most cases, and reasons, Deshpande (298).

FIELD DEMONSTRATIONS:

Co-operation between officials of Agriculture and Revenue Departments, importance of, Irwin (342-3), 31,066, 31,292-5.

Department should undertake work with motor tractors at cheaper rates than with old methods to demonstrate advantage of, Brahma (242).

Effectiveness, proposals for increasing, Plymen (27); Irwin (342-3);

Khaparde (400); Bhargava (427).
must be Free of cost to cultivator, Bhargava (427), 32,268.
Method of carrying out, proposal, Dubey (101).

Staff, number, etc., and need for increase, Allan 29,746-9. Value of, Dubey (101).

Government subsidy to men desirous of farming on improved lines, proposal, Dubey (101). to Groups of small cultivators the best method, Amanat Ali 31,849.

Lantern slides and cinema films useful, Deshpande (298).

Measures adopted and results of, Eastern Circle, Raipur, Powar (89-90). proposed Measures for influencing and improving agricultural practice,

Deshpande (297).
Measures for influencing and improving the practice of cultivators, Khaparde (400); Bhargava (427).

Methods adopted, and need for improvement, Plymen 27,525, 27,768, 27,890-6, 27,899-903, 28,094-8.
Policy advocated and American and English ideals should be followed,

Sahasrabudhe (456).

Poona Agricultural Show, steps should be taken to bring results before

people, Sahasrabudhe (461), 32,439.

Popularisation of use of machinery through demonstrations and shows, etc., Brahma (242).

Propaganda work, importance of, Sahasrabudhe (456).

Proposal re, Korde (317).

Public attitude re, Allan 29,761-5.

Records of experiences, extent to which kept, and importance of, Plymen 27,537-45.

# Demonstration and Propaganda-contd.

Results of propaganda, Plymen 28,092.

Results, suggestions re publication of, Pande (529), 33,374.

Single purpose demonstration, effective in certain cases, Powar 28,328-9. Staff, qualities required, Deshpande 30,510-3.

Success, examples of, Powar (90); Dubey (102); Allan (201), 29,756-8. Success of, in influencing and improving agriculture, Pande (529). Success as result of propaganda for selected seed in Sihora tahsil, Pande (529).

Touring lecturers, value of, Khaparde (400).

Well organised intensive propaganda, necessary, Powar (90).

Well-to-do men should be encouraged to adopt new methods and might be rewarded by prizes, Brahma (242). Work, Plymen (10, 11).

Work easier in cotton tracts and opening of demonstration plots there unnecessary, Plymen 27,907.

Work not satisfactory as staff and funds inadequate, Deshpande 20,451-2, 30,509, 30,549-50.

# DESHPANDE, Rao Bahadur M. G., Nagpur: (296-304), 30,430-20,678.

Agricultural operations, 30,431-42, 30,493-7, 30,530-7, 30,604-8, 30,612-22. Distribution of seed to tenants, 30,495-7, 30,572-5, 30,617-22, 30,660-9. Moneylending by, to cultivators, 30,488-92, 30,653-71. Position as landowner, system of letting out land, etc., 30,478-87.

# Administration:

close Co-operation between Agricultural Co-operative, Veterinary and Industrial Departments necessary, (302).

Co-ordination of activities of Governments, fuller exchange of experience and opinions between officers of Provincial Agricultural Cooperation (2020).

tural Departments advocated, (298). Meteorological Department, good work done by, (298).

Post and telegraph offices, increase in rural areas advocated, (298). Railways:

Concession rates to farmers advocated, (298), (301). Pilfering and damage during transit, (298).

Waggons, inadequate supply in harvest season,

Transport, improved facilities needed, (298), 30,459-63.

## AGRICULTURAL INDEBTEDNESS:

Development of land mortgage credit on co-operative lines, proposal (298-9).

Moneylenders, necessary until co-operative societies able to meet whole demand, 30,654-7.

Nazarana not considered to be a cause of, 30,677-8.

AGRICULTURAL SERVICE, attitude of subordinates of, (298).

Animal Husbandry, silage making not believed in, 30,502-4.

Cattle breeding societies, failure of, (303).

Central Provinces and Berar Provincial Bank, working of, (299-300), 30,637-51.

Credit Societies:

Applications for, and issues of loans, procedure, 39,476-7. Defects of present system, (302-3).

Department:

Assistance by officers of Revenue, Excise and Education Departments, suggestions for, (302), 30,581.

Heads, Indians as, necessary, (302).

Men of Provincial experience with long and varied Service should be absorbed in, as far as possible, (304).

Staff must be drawn from Agricultural and Industrial Departments. (202)

ments, (302).

Encouragement of growth of, proposals for, (302), 30,582-4. Improvement societies, scope for, and method of organisation, (303). Joint farming societies, scope for, only where waste land available or forest land needing to be reclaimed, (303).

# DESHPANDE, Rao Bahadur M. G.-contd.

CO-OPERATION—contd.

Objects attained by limited number of societies only, (304), 30,514-6. Pig-hunting clubs, malaria prevention clubs, village sanitation, preservation societies, co-operative stores, scope for, (304). Purchase societies, importance of, and need for organisation, (303). Sale societies, importance of, and need for organisation of, (303). Societies for use of agricultural machinery, scope for, and working of, at Jalgaon, (303).

Urban banks, proposed formation of, (303).

Cotton, Roseum, success of, until affected by wilt owing to rainfall, 30,633-6.

Damage by wild animals and prevention methods, (301).

Improvement of existing crops, methods: Irrigation facilities, widening of, (301).

Use of natural manures and proper rotation, (301). Internal measures against infection, active action desirable, (301). Introduction of Crops like Alfalfa suggested where irrigation

possible, (301).

Protection from external infection, measures not satisfactory, (301).

Seeds, distribution of:

Local Boards should be encouraged to maintain stores, (301),

Maintenance of stores at Tahsil headquarters, proposal, (301). by Malguzar, 30,495-7, 30,572-5, 30,617-22, 30,660-71. through Selling agencies in every Tahsil under supervision of Department of Agriculture, proposal (301).

CULTIVATION, poor quality of bullocks, 30,498-501.

DEMONSTRATION AND PROPAGANDA:

Adoption of expert advice, means of inducing, (298).
Agricultural Associations, Nagpur, exist only in name, 30,579-80.
Co-operation between farmers and staff of Agricultural Department

necessary, (298).

Demonstration lorries, proposal, (297). Failure of, in most cases, and reasons, (298).

Failure of, in most cases, and reasons, (298).

Lantern slides and cinema films useful, (298).

proposed Measures for influencing and improving agricultural

practice, (297).
Staff, qualities required, 30,510-3.
Work not satisfactory as staff and funds inadequate, 20,451-2, 30,509, 30,549-50.

DISTRICT BOARDS, demand for better education and for better communications, 30,461-6.

EDUCATION:

Adult, deficiency of facilities, and suggestions, (297), 30,568, 30,455-8.

Agricultural:

Attendance, (296).

Clubs, scheme for establishment in Vernacular and Anglo-Vernacular schools, (297), 30,453-4, 30,560-3. College, opportunities for practical work, needed, (297).

Facilities, need for extension, (296). in High Schools, as optional subject, proposal, (297), 30,454. Institutions and teachers, inadequate supply, (296). in Normal schools, proposal, (297), 30,564-6. Objects to be aimed at, (296).

Students:

After-careers, (297), 30,609-11.
Source of, (297), 30,505-8.
Technical knowledge, improvement of, no movement for,

(297), 30,538-41.

Teachers in rural areas, advantage of drawing from agricultural classes, (296).

# DESHPANDE, Rao Bahadur M. G.—contd.

EDUCATION—contd.

Demand for, 30,464-6, 30,569-71.

Nature study, approved, (297). School farms, approved, (297). School plots, approved, (297).

Adulteration, sale through licensed sellers under control of Department of Agriculture, proposed, (301).

Artificial, drawback of, as compared with natural manures in India,

Cowdung, methods of discouraging use of as fuel, (301). Effect of manuring with phosphates, nitrates, sulphate of ammonia and potash manures not properly investigated, (301). Natural manures:

Advantages of, over artificial, (300-1).

Improvement of cattle industry desirable, (300-1), 30,576-7. Popularisation of new and improved fertilisers, methods, (301).

# FINANCE:

Land Mortgage Banks:

Development of, on large scale necessary, and suggestion for, (298-9), 30,467-74, 30,624-30.

Essentials for success, (299).

State assistance advocated, and proposals, (299).

Money must be provided at cheaper rate in order to make farming pay, 30,536-7.

Holdings, importance of aggregation, (303),

Improved, measures for hastening adoption of, easy terms for payment in instalments, (301).

Improvement of existing implements preferable to introduction of new types, (301).

Manufacture of, measures for encouragement of, (301-2).

Railway rates, concessions advocated, (301).

LAND TENURE SYSTEM, need for change, (303), 30,551-6.

# LOCAL BOARDS:

Cess on malguzars, 30.586-92.

Nagpur:

special Educational cess authorised, but not levied, 30,593-6.

Market and other dues, levy authorised, but not carried out,

MIDDLE-CLASS YOUTHS, selection of students for scientific training abroad, proposal, (297).

## RESEARCH:

on Cotton breeding, physical mycology, suggested, (296). physiology, technology, entomology

District research, increased facilities and funds needed, (296).

Financing of:

Contributions from landholders, might be received if research profitable to their cultivation, 30,447.

Government should provide funds, 30,445. Taxation would not be favoured, 20,675-6.

Non-official gentlemen, suggestion for encouragement, (296), 30,529.

Organisation of, criticism, (296), 30,509, 30,520-6.

Provincial Research Committee, scheme for formation of, at Nagpur under chairmanship of Director of Agricultura, (296), 30,443-7.

Results must be brought to notice of cultivators, (296).

Scientific staff of Government of India, increase, increased propaganda work advocated in preference, (298).

Workers, Indians should be trained as, (296), (297), 30,527-8.

VETERINARY SERVICE, attitude of subordinates of, (298).

### District or Local Boards or Councils:

#### AKOLA:

Cess levied for educational purposes and increase in, Korde 30,737-30,746, 30,785-9.

Expenditure on wells, Korde 30,851-3.

Improvement of fair weather roads, work re, but need for funds. Korde 30.747-50.

Insufficient funds, Korde 30,725, 30,736.

Public demand for better educational facilities and better roads, Korde 30,726-9.

Apathy of, re veterinary matters, Irwin 31,310-9.

Assistance of co-operative movement by, extent to which possible, Brahma 30,008-9.

Attitude re rural sanitation, Stiles Webb 32,079-82.

Amalgamation of, in Central Provinces, Irwin 31,121-2, 31,175-7. Extra levied in some districts, Irwin 31,123-9.

on Malguzars, Deshpande 30,586-92.

Demand for better education and for better communications, Deshpande 30,461-6.

Dispensaries under, see under Veterinary.

Expenditure on schools greater than on roads, and roads considered of first importance, Irwin 31,091-5, 31,120.

Interest in rural matters, extent of, *Irwin* 31,329. Interests mainly schools, *Pande* 33,404-7.

Jubbulpore, revenue, and expenditure mainly on education, Bhargava 32,288-90.

Maintenance of seed stores by, should be encouraged, Deshpande (301), 30,579-80.

#### NAGPUR:

special Educational cess authorised, but not levied, Despande 30,593-6.

Market and other dues, levy authorised, but not carried out. Deshpande 30,596-603.

Revenue, proportion given to, Irwin 31,174. Roads under, see that title.

DOKRAS, M. R., Pleader, Chandur, Amroati district: (478-485), 32,491-32,673.

Agricultural operations, 32,493-502, 32,586-99, 32,646. Bullocks bred by, and sale for racing, 32,528-30. Poultry keeping, 32,531-4, 32,629-39. Seed, source of, 32,543-5.

### ADMINISTRATION:

Agriculture and education should be under same Minister, 32,492. Meteorological Department, of no service to general body of agri-culturalists and proposal re, (480).

Post Office Savings Banks, available, but not used by agriculturists, money hoarded as silver ornaments, 32,663-5. Postal facilities, fairly satisfactory, 32,662.

Railways:

better Facilities for transport of cattle advocated, (480).
Freight rates for agricultural produce should be lower than common rates, (480), 32,514-6.

Roads, metalled, increased number advocated, (480).

# AGRICULTURAL DEPARTMENT:

increased Expenditure on, advocated by decreasing number of excise officers, 32,606-9, 32,575-80, 32,619-21. Staff:

Increase advocated, (479).

Junior officers, transfer between wheat and cotton tracts un desirable, (479), 32,647-8.

## DOKRAS, M. R.—contd.

# AGRICULTURAL INDEBTEDNESS:

Causes, (480).

Credit, sources of, (480).

Damdopat, 32,562.

Gambling, connection with indebtedness and evil of, and need for

remedy, (480), 32,551-9, 32,564, 32,611-4.
Legislation on lines of Punjab Alienation of Land Act, not advocated, 32,552.
Measures for lightening burden of debt, spread of education, (480),

Moneylenders, passing of land into hands of, (480), 32,550-1.

Moneylending by Brahmins, 32,560-2.

Repayment, causes preventing, (480), 32,546.

Restriction of credit and prohibition of non-terminable mortgages not advocated, (480).

Usurious Loans Act, not applicable to Berar, 32,563, 32,565.

AGRICULTURE LABOUR, wages, 32,549.

# ANIMAL HUSBANDRY:

### Fodder:

Analysis of, and determination of nutritive constituents, proposal, (483), 32,652-9.

Combination of feeds, proposal, (483-4), 32,652-9.

Dry, storage of, 32,523-5.

Silage:

Compulsory use of, at Government farms advocated to demonstrate advantages of, (484), 32,526. Engine needed for making, 32,527.

#### Co-operation:

Association of growers of each crop, proposal, (480), (484).

Credit societies:

Criticism of, and degeneration into moneylending businesses, 32,517, 32,566.

no Supervision over purpose of loans, 32,517.

# CROPS:

# Cotton:

Local mixed variety, (481), 32,513, 32,601-10, 32,608-9, 32,660-1. Roseum, deterioration, 32,513, 32,541-2, 32,544, 32,600.

Damage by wild animals:

Generous grant of licenses for firearms, proposed, (482).

near Reserved forests only, (482).

Groundnut, advantages of, and encouragement by Department advocated, (481-2).

Improvement by seed selection, good manuring and due spacing

advocated, (481).

# Pests and diseases:

Boll-rot, no protective measures, (482).

Cotton caterpillar, need for remedy, (481-2). Juar, smut in, means of controlling, (482).

Root-rot, means of controlling, (482).

Taloop, no means of controlling, known, (482). Seeds, distribution through Agricultural Associations advocated, (482).

#### CULTIVATION:

Harrowing, proposal re, (482). Mixture of juar and urid, and juar-mung, proposal, (482), 32,518-9.

# INDEX. DOKRAS, M. R.—contd. CULTIVATION—contd. Ploughing: by Brahmins, no caste difficulty but not usually done, 32,668. Consolidation of land after, need for, and suggestion re use of cultipacker, (483), 32,521, 32,625. Mechanical, experience with, 32,520-1. Popularisation, proposal for, (483). Rotation proposed, (482). EDUCATION: Adult, means of popularising in rural tracts, (479). Agricultural: Attendances not satisfactory and reasons, (478). College graduates as managers of estates would be welcomed and question of pay, 32,536-40, 32,594-9. Facilities, inadequacy and urgent need for extension, (478). Incentive, (479). in Middle schools, proposal, (484-5). in Primary schools, proposal, (478), (479), (485), 32,510-2. Proposals, (478-9), (484-5). Schools in every big town advocated, (478). Students: After careers, (479). Source of, (479). Technical knowledge, no movement for improvement known of, (479). Teachers should be drawn from agricultural classes, (478). Defects of system in that indifference and sometimes aversion to agriculture created, (484). one Minister for agriculture and, advocated, 32,492. Nature study, advocated and proposal re, (479). Compulsory, not satisfactory as agriculture not included, (485). Depressed classes, question of sitting in same school as others, 32,530-2. Small proportion of boys in fourth class, reason, (485). School farms, advocated, (479). School plots, advocated, (479). Exciss, total prohibition of alcohol advocated, 32,570-80, 32,615-7. FERTILISERS: Adulteration, guarantee of proportion of plant foods in, proposal, (481).free or cheap Analysis of soil for cultivators, proposal, (481). Dry earth system of urine conservation, use of, even in rainy season should be induced, (481). Effect of phosphates, etc., not sufficiently investigated, (481). Natural, increased use of, (481). Popularisation of new and improved proposed measures for, (481). Soil surveys, proposal, (481). Trials of, on Government farms and Association demonstration plots, proposal, (481).

HOLDINGS:

Consolidation, attempt not advocated, (481), 32,567-9. Fragmentation below 5 acres should be prohibited (481), 32,569. Legislation re minors, etc., not advocated, (481).

Legislation re minors, etc., not advocated, (481)

Distribution, high railway freight a difficulty and reduction advocated, (483).

Improved, means for hastening adoption of, (483).

Repair, mechanical schools, training of mechanics, proposal, (483).

## DOKRAS, M. R.—contd.

MARKETING:

Co-operative associations, proposal, (480), (484).

Cotton:

Berar system and defects, (484).
Distance of cultivators from markets, 32,626-8.
Exhibition of Bombay rates, opposition by merchants, 32,505.
Facilities not satisfactory, (484).
Information to cultivators, etc., of market conditions, etc., neces-

sary, (484).

Market Committee, representation of cultivators advocated, but if impossible, representative of Agricultural Department would be improvement, (484), 32,503-5.

MIDDLE-CLASS YOUTHS, means of making agriculture attractive to, Demonstration farms at every big town, (479).

POULTRY BREEDING:

Encouragement as subsidiary industry advocated and proposed measures for, (484), 32,531.

Keeping of poultry to avoid tick trouble in cattle, 32,531-4, 32,629.

RATE OF EXCHANGE, opinion re, 32,666.

Soms:

Erosion, means of preventing, (481), 32,650-1. Improvement by levelling and bunding, example, (481).

Improvement, means of, (481).

#### VETERINARY:

Contagious Diseases, legislation not advocated, (483). Department, control by Director of Agriculture approved, (483).

under Control of District Boards and working well, (483).

Expansion will become necessary, (483).

Full use not made of, owing to ignorance, (483).

One Surgeon should be attached to each, separate from touring assistant surgeons, (479-80), (483).
no Touring, (483).
Transfer to control of provincial authorities not advocated,

Inspectors, posts should be abolished and the men appointed to take \_ charge of dispensaries at big towns, (480).

Preventive inoculation:

no Fee charged, (483). no Obstruction, (483). Serum, no difficulty in obtaining, (483). Staff, increase advocated, (479).

WELFARE OF RURAL POPULATION:

Economic surveys in typical villages desirable, and proposals re, (485).

Social Service League, establishment of institutions on lines of, proposal, (485), 32,670-3.

D'SILVA, Mr., Officiating Inspector of Schools, suggestions for introducing agriculture in vernacular middle schools (370-2).

# DUBEY, RAMCHARAN LAL: (100-8), 28,445-28,776.

Agricultural operations, 28,448-72. 28,499, 28,570-85, 28,695-706, 28,713, 28,727-30, 28,734. Service experience, 28,474-6, 28,702-3, 28,726.

AGRICULTURAL DEPARTMENT:

Expansion necessary, (102).

Men desirous of carrying on private farming should be allowed to retire on proportionate pension and assisted by subsidy or loan, (101), 28,486, 28,660-4, 28,731-3.

Services fairly satisfactory considering small staff available, (102).

```
DUBEY, RAMCHARAN LAL-contd.
    AGRICULTURAL DEPARTMENT—contd.
        Staff:
              Inadequacy of, (102).
              Interchange with officers of Revenue Department would be advantageous, 28,772-4.
              Suitable men should be sent for training to more advanced
             countries, (102).
Subordinate, increased travelling allowances advocated, (102).
    AGRICULTURAL INDEBTEDNESS:
         Bank for advancing money to cultivators advocated, (103), 28,650.
        Causes, (103).
Credit, sources of, (103).
        Moneylenders:
              Dealings with, should be stopped, (103).
              Passing of land into hands of, (103), 28,624.
        Mortgages:
              Non-terminable, should be prohibited, (103).
              Right of mortgage and sale, limitation advocated, (103).
        Repayment, reasons preventing, (103).
    AGRICULTURAL INDUSTRIES:
         Basket making, (106).
         Bee keeping, no future for, (106).
Bidi making, diversion of labour from agriculture, (106).
Factories for oil pressing, sugar making, cotton ginning and rice hulling, establishment by Government not advocated, (107).
Fruit and vegetable growing, desirable, (106).
         Intensive study of, desirable, (107).
         Lac culture, (106).
        Poultry rearing, prospects, (106). Subsidiary industry, agriculture as, (107).
         Subsidiary industries other than Agricultural, objections to estab-
           lishment, owing to risk of diversion of interest from agriculture,
           (106).
         Time spent by cultivators on holdings, (106).
    AGRICULTURAL LABOUR:
         Extension of cultivation in ryotwari lands in Baihar Tahsil, sug-
           gestion for, (107).
        Seasonal migration, (107).
         Shortage, (107).
    ANIMAL HUSBANDRY:
         Bulls, castration of:
             Legislation, proposal, (106), 28,680.
People should be trained to carry out, 28,681-2.
         Condition of cattle, 28,495, 28,741-3.
         Feeding, conditions, 28,491-4.
         Fodder:
              Dry, straw supply would increase with increase in out-turns
                of crops, (106).
              Green, absence of, in dry seasons, difficulty of remedying,
              Improvement of supply, means of, (106).
              Shortage, periods of, (106).
              Grass borders, care of, should be left to cultivator, (106).
              Overstocking of common pastures, suggestions for prevention,
                (106).
        Improvement of breeds:
             by Selective breeding, (106).
Stud bulls reared at Government cattle-breeding farms, in-
                crease in number needed, (102), (106), 28,487-90.
        Suggestions, (106).
Limitation as to number of extra cattle kept by cultivator, pro-
           posal, (106), 28,651-9.
```

Meetings of cultivators, proposal, (106). Professional cattle breeders, 28,745-8.

### DUBEY, RAMCHARAN LAL-contd.

#### CROPS:

Clover, encouragement of cultivation by supply of seed free and then at concession rates until value realised, advocated, (104). Damage by wild pigs, joint fencing advocated, (105). Fodder, trials of, on Government experimental and demonstration

farms advocated, (104).

Improvement by selection and crossing on Government Farms and

extension of work desirable, (104).

Potatoes, source of seed, 28,503-6.

Replacement of present, by late and heavy yielding varieties of rice in areas commanded by Waingunga Canal, suggestion, (105).

Cost of cultivation per acre, 28,574.
Improved varieties, advantages of, 28,599-605.
Personal experience, 28,499, 28,507-32, 28,574, 28,577-85.
Profit per acre, 28,577.
Transplanting, 28,527-30, 28,606-8.

Seeds, supply from Government farms and seed farms advocated. (102).

### Sugarcane:

Condition of cultivation in Balaghat District, 28,539-44. Coimbatore, hardness of canes and need for suitable crushing mill, (105), 28,454-7.

Personal experience, 28,450-9, 28,507, 28,544-51, 28,736-40. Manuring, personal practice, 28,470-2. Profit per acre, 28,544-5.

Wheat, Pusa, advantage over local wheat, 28,560-3.

#### CULTIVATION:

with Buffaloes, difficulty in connection with, 28,549-51. Improvements, (105), 28,586-91.

Rotation, introduction of clover as second crop after rice in irrigated areas under Waingunga Canal suggested, (105). in Ryotwari villages, conferring of proprietary rights suggested

in order to encourage, (107).

Tillage systems:

Jat plough, use of, for sugarcane and garden cultivation, demonstration on larger scale advocated, (105).

M.S.N. plough, introduction of, (105).

## DEMONSTRATION AND PROPAGANDA:

Agricultural shows on farms and in fairs, value of, (101).

Cultivators must be persuaded that improvement will be advantageous, 28,479-82.

Demonstration farm in each Tahsil advocated, (101).

Demonstration plots:

Two or three in each Revenue Inspector's Circle advocated, (101).

Value of, (101). Experimental Farm in each District, advocated, (101).

Field demonstration:

Method of carrying out, proposal, (101). Value of, (101).

### Government farms:

Increase in number advocated, (101).

Value of, (101).

Government subsidy to men desirous of farming on improved lines. proposal, (101).

Staff, payment of allowances to leading cultivators to attend meetings, etc., of, suggestion, (102), 28,594-8. Successes, examples of, (102).

Working through leading cultivators advocated, 28,477-8, 28,637-49.

## DUBEY, RAMCHARAN LAL-contd.

EDUCATION:

Adult, in rural tracts, proposed measures for popularising, (101). Agricultural:

College:

Curriculum not suitable for small farmers, 28,631.

Practical work on Government Farm after leaving, advocated, (100).

Students:

After careers, (100). Source of, (100).

in English middle or high schools, not desirable, (107).

Institutions, increased number needed, (100). in Normal schools, suggestion, (101).

Teachers:

Source of, unimportant, so long as practical training given

by, (100).
Supply sufficient, (100).
Demand for, for sons, but difficulties, 28,484-5, 28,628-30, 28,685-8.

Primary:

Compulsory, in rural areas, not desirable, (107-8).

Danger of lapse into illiteracy after leaving, and need for village libraries and suitable literature, (107).

Small proportion of boys in, reasons, Dubèy (108). no Radical change necessary, (107).

School farms:

in Middle and High Schools, of little value, (100-1). in Primary schools, valueless, (100). School Plots at Primary schools in rural areas:

Advantageous, (100). Flowers and vegetables should be grown, (100), 28,635-6.

#### Fertilisers:

Adulteration, prevention by supply from depots on Government Farms after analysis advocated, (104), 28,750.
Bones should be crushed and used as manure instead of being ex-

ported, (104).

Cowdung use as fuel and measures for discouragement of, (104). 28,671-7.

Increased use of, would result from low price, (104).

Karanja leaves, suggestion re use, (104), 28,522. Manuring of sugarcane, (104), 28,749-62.

Sann hemp, difficulty of growing, 28,515-6.

#### FINANCE:

Loans to cultivators:

Extension, suggestions, (102).

under Government control, suggestion, (102). Seed, manure and implements should be supplied through Agricultural Department on greater scale, (102), 28,767.

Taccavi advances:

Criticism of procedure and proposed modifications, (102-3).

Expansion of system, suggestion, (103).

FRUIT, watermelons, personal experience, 28,499-502.

## HOLDINGS:

Consolidation:

by Arbitration might be possible in some cases, legislation may be necessary, (103), 28,616-9. Desirable, (103).

Rice, subdivision beyond limit of four acres should be prohibited. (103), 28,615.

# IMPLEMENTS:

Improved, adoption proposed means, (105).

Sugarcane mills, suitable for small cultivators, need for, and suggestions, (105), 28,454-7.

# DUBEY, RAMCHARAN LAL-contd.

IRRIGATION:

Department, unpopularity of, (103).

Improvement of wells and lifts needed, (107).

Introduction of new crops under, lack of defined stable policy, (104). Openings in irrigation channel, improvement needed, (104). Rice, (103-4), 28,557-9, 28,610-11.

Sugarcane, (104).

by Wells:

Improvements proposed, (103). Persian wheel, personal experience, 23,462-9, 28,612-5, 28,679, 28,724-5.

Sinking of, not understood by people and work should be undertaken by Agricultural Department, 28,678, 28,717-23.

LAND TENURE, market value of tenancy land, 28,689-93.

LEGISLATIVE COUNCIL, little sympathy with agriculture, 28,565-9.

MARKETING, overflooding of markets and low prices at harvest times, change of dates of payment of land revenue and water rate suggested to avoid, (107), 28,496-8, 28,763-71.

MIDDLE-CLASS EDUCATED MEN, means of attracting, to take up agriculture, (101).

SUGAR:

Gur:

improved Boiling furnace, (102). Shortage of, and importation, (105), 28,704, 28,708-12. White, shortage of, 28,709.

SUGARCANE:

Crushing mill, introduction of improved, (102). Fertilisers, introduction of, efforts, (102). Improved varieties, introduction of, (102).

Tansil Agricultural Associations, proposal re payment of travelling allowance and daily allowance to members, and small cess might be levied on land revenue for, (101), (104), (105), 28,594-8, 28,665-8.

Contagious Diseases:

Delay in treatment and need for increased staff, 28,554-6. Isolation and disinfection necessary at present until accommo-

dation available for segregation, (105).

Department, control by Director of Agriculture not desirable, (105).

Dispensaries:

Control by District Boards, (105).

no Expansion noticeable, (105).

Placed too far from cultivators, (105).

Touring, not fully used except during outbreaks, (105).

Disposal of diseased carcases, legislation advocated, (106). Medicines:

Malguzars should have stock of, and be trained to use, (105), 28,669-70.

Patwaris should hold stock of, and be instructed in cattle diseases and their treatment, (126).

Preventive Inoculation:

Compulsory, advocated, (106). Practice of, (106).

Staff should mix more with cultivators and train people in using simple medicines and preparing medicines, (102).

Surgeons, appointment by Agricultural Department for work on

cattle farms, suggestion, (105).

DWARKANATH SINGH, Rai Sahib Dadu, Taluqdar, Seoni: (496-506), 32,674-32,895.

Animal husbandry operations, 32,805-12.

Area of villages and agricultural operations of, etc., 32,676-717, 32,788, 32,818-62.

#### INDEX.

# DWARKANATH SINGH, Rai Sahib Dadu-contd.

AGRICULTURAL INDESTEDNESS:

Causes of, (497-8).

Conciliation Boards, considerations re, and trial of, advocated, (499), 32,734-9.

Credit:

Easy obtaining of, evils of, (497), 32,743.

Sources of, (498).

Measures for lightening burden of debt, (499).

Moneylenders:

Passing of land into hands of, and evil, 32,791-2.
System, and evils of, (498), 32,728-33.
Mortgages, facilitation of redemption of, not advocated, (499).

Repayment, reasons preventing, (498).
Rise in value of land, effect, (497), (499), 32,741-3.
Transfer of land, suggestion for restriction, (499).
Usurious Loans Act, strict enforcement of, desirable, (499), 32,740.

# AGRICULTURAL INDUSTRIES:

Basket making, obstacles to development, (502). Embroidery and hand work, suggestion for encouragement, (502).

Factors necessary for success, (502).

Fruit growing, prospects, (502).
Industrial concerns, removal to rural areas, objection to, (502).

Intensive study of rural industries, necessary, (502).

Measures proposed for encouragement, (502).

Poultry rearing, prospects of, and obstacle of religious sentiment of Hindus, (502).

Rope making, obstacles to development, (502). Subsidiary industries, encouragement on Subsidiary industries, encouragement on co-operative lines advocated, (502).

Time spent by cultivators on holdings and occupation during slack

season, (501-2), 32,863-74, 32,877-8.

## ANIMAL HUSBANDRY:

Buffalo, cow preferred by small cultivators, 32,880-1.

Fodder shortage, period of, 32,875-6.

#### BULLOCKS:

Feeding of, 32,690-4. Shortage of, 32,802-3.

## CAPITAL, attracting of:

proposed Measures for, (505). Obstacles, (505).

# CO-OPERATION:

Cattle-breeding societies, proposals for establishment of, (504-5). Central Bank, supervision of staff not satisfactory, (504).

Credit Societies:

Extension, scope for, (498).

Fixing of credit limit, power to Government Auditor proposed,

Loans should be used for productive purposes, (504)

Problem of agricultural indebtedness cannot be solved by, alone,

Results, (505), 32,762-6. Encouragement of growth of, proposed measures for, (504). Extension of movement, scope for, and proposed measures for,

Improvements, societies for, need for, (504).

Joint improvement schemes, minority should be compelled to join.

Organisation by Government officials, proposal, (503-4).

Purchase Societies, desirability of, (504).

Sale societies, advocated, (500), (504).
Societies for better standard of living, formation proposed, (505).

#### INDEX.

# DWARKANATH SINGH, Rai Sahib Dadu-contd.

Damage by wild animals and methods of prevention, (501). Sann hemp, religious prejudice against, disappearing, 32,767-9. Seeds, distribution of:

Co-operative seed unions, proposed establishment of, (501). to Tenants, by witness, 32,725-7. Unsatisfactory nature of present method (501), 32,774-81.

Personal experience, 32,696-9. Pissi, 32,788.

DEMONSTRATION AND PROPAGANDA:

Demonstration plots, inadequacy of number of, (496). Factors influencing cultivators to improve practice, (496).

EDUCATION:

Agricultural College Graduates, as managers of estates would be Employed if available and pay that would be offered, 32,784-7. Rural economics, degree in, might be useful, 32,760.

EXCISE, prohibition of liquor, Kayasth community would not object, 32,888-94.

Artificial, ordinary cultivators unable to afford, 32,712-3. Green manuring not successful, in personal experience, 32,716-7.

cheap Credit, danger of (497), 32,743.

Cultivator's needs for capital, extent, 32,795-7. Land Mortgage Banks, considerations re, and establishment advocated, (496-7), 32,721-3, 32,793-4.

Loans from Co-operative credit societies: Increase in number of societies desirable, (496).

Value of system, (496).

Taccavi loans:
proposed Modifications of system, (497). System, (496), (498), 32,718-20. full Use not made of, and reasons, (497).

Fordst, Grazing:
Fees, increase not desirable unless facilities were increased, 32,813. Rates charged by malguzars, 32,798-801, 32,814-7.

#### HOLDINGS:

Consolidation:

Attitude of malguzars, 32,770-3. Compulsion may be necessary when majority has agreed, (501). through Co-operation, in Punjab, (500). possible Methods, (500-1), 32,744. Obstacles to, (500). Fragmentation of, evil of, (499-500). Intensive cultivation, desirability of introducing through co-operative represent (500).

movement, (500).

Legislation dealing with minors, widows, etc., advocated, (501).
Legislation for keeping disputes out of court, advocated, (501).

IRRIGATION, Tanks, manurial substance in water from, question of, 32,699-700.

MARKETING:

Cotton:

in Berar, system and defects, (503), 32,745-6, 32,753-8, 32,884-7. Grading, need for, (503), 32,757-8. Improvement, proposals for, (503).

Grain: in Central Provinces, system and defects, (503).

Improvement, proposals for, (503). Information to cultivators as to market conditions and rates, desirable, (503).

#### INDEX.

### DWARKANATH SINGH, Rai Sahib Dadu-contd.

RAILWAYS, reduction of freight on improved implements advocated, (502).

RUBAL ECONOMICS, ignorance of politicians and town people, (506). 32,759-61.

Son, fertility, decreasing, 32,705-9.

WELFARE OF RURAL POPULATION:

Economic survey of typical villages, importance of, and suggestions for, (505-6).

Health of cultivators, increased attention needed, (505).

Improvement of health condition by people, methods of encouraging. (503).

DYER, J. F., I.C.S., Commissioner, Chhattisgarh Division Note on Consolidation of holdings in Chhattisgarh, (152-60). Agreement with, Chhotelal 29,107; Burton 29,108.

#### Education:

#### ADULT:

in Berar, position, Khaparde (400).

Deficiency of facilities and suggestion, Deshpande (297), 30,568.

Demand should be created if possible, Beckett 31,409.

little Demand for, Beckett 31,404, 31,405, 31,409, 31,518-26.

by Demonstrators and at Government farms advocated, Deshpande 30,455-8.

Education through the eye and ear, advantage of, Brahma (242). Encouragement of village or small circle agricultural associations, proposal, Allan (201).

Experiments made in connection with, failure of, but education of children of more importance, Beckett 31,404-5, 31,409, 31.518-26.

in Jails, extension of experiment under consideration, Beckett

Libraries and reading rooms in villages, establishment with Government assistance advocated, Sahasrabudhe (455).

Mr. Mande's scheme, Brahma 29,920-3; Khaparde (400)

Means of popularising, Plymen (26); Powar (89); Dubey (101); Allan (200); Brahma (242); Deshpande (297); Irwin (342); Dokras (479).

Night schools:

Experiment tried by Schora Central Bank, Pande 33,250-5. Failure of, Beckett 31,496-8. Proposal, Pandeya (128); Pande (529), 33,250-5. Proposals, Allan 29,668-70. Tapswi Babasaheb Prajanjpe's scheme, Khaparde (400).

#### AGRICULTURAL:

Administration:

by District Councils, Co-operative Central Banks and Village Panchayats, with co-ordination by Government, advocated, Pande (529).

by Education Department, but supervising staff should be recruited partly from graduates of Agricultural College, Powar (89).

on Akola farm, failure, Plymen (23). Attendances, Plymen (26); Deshpande (296). Attendances not satisfactory and reasons, Dokras (478); Pande

Clubs, scheme for establishment in Vernacular and Anglo-Vernacular schools, Deshpande (297), 30,453-4, 30,560-3.
College, Nagpur:
Affiliation to University, and effects, Plymen (21-2); Allan (208),

29,766-7.

Animal husbandry teaching, Allan 29,903-5.

#### Education—contd.

AGRICULTURAL—contd.

College, Nagpur—contd.

Assistants, time taken up by teaching, no time for research, Allan 29,633-5, 29,821-3.

Co-operative courses under consideration, Trivedi 29,514.
Cost per student per annum, Allan 29,837-8.
Course too scientific and should be more economic, Plymen 27,517, 28,177-8.

Courses, &c., Plymen (21-22), 27,939-43, 27,951-2, 28,174-6; Allan (209), 29,660, 29,689, 29,774-89, 29,881.
Curriculum not suitable for small farmers, Dubey 28,631.

Demand for admission, increase, Allan (199).

Extension will be necessary, Allan (198). Farm, visits to, by teachers, Allan 29,794.

Intermediate stage as entrance standard, objection to, Allan 29,689.

Lectures for revenue officers, etc., and question of extension occasionally, Allan 29,676-83, 29,790-7.

Practical work after leaving. advocated. Dubeu Sahasrabudhe (453).

Practical work, opportunities for, needed, and proposal, Deshpande (297); Irwin 31,373; Sahasrabudhe (469), 32,438. Principal, work of, Allan 29,629-32. Research work, nature of, Allan 29,800.

Research workers, too great proportion of time spent on teaching, Plymen 27,504-6.

Rural Economics, Chair in, desirability, Plymen 27,515-7.

Selection of candidates for admission, Plymen (26); Allan (199).

Staff, and close collaboration of research officers, Allan 29,624-8. Students:

After careers, Plymen (21), 27,507-14, 27,854-7, 28,100-1; Dubey (100); Allan (200), 29,807-9.
Employment by Court of Wards, Allan 29,846-8.
Employment on estates or cattle farms, encouragement

desirable, *Plymen* 27,509-10.
Initial pay in Government service and prospects, *Allan* 29,876-9.

as Managers of estates, would be employed if available and pay that would be offered, Dokras 32,536-40, 32,594-9; Dwarkanath Singh 32,784-7

Prospects of those taking up farming, Allan 29,870-94. Quality of, Allan 29,685-8.

Recruitment of co-operative staff from, under consideration, Trivedi 29,586-7.

Small number taking to farming, reason, Allan 29,839-45. Source of, Dubey (100).

Veterinary lectures and first-aid demonstrations, Wilson 30,913, 30,920, 31,006-8.

#### Colleges:

Graduates, special concessions and grants of unassigned culturable land to, experiment might be tried, Irwin 31,289-91.

Groups to be catered for, and courses required, Allan (208-9), 29.657-62.

Collegiate or advanced, demand for, Allan (198).

as Compulsory subject in schools in rural areas, advocated, Pande

Courses of study, modifications:
Advocated, Pands (529).

will be Carried out when called for, Plymen (26).

Demand for:

among Educated men, Amanat Ali 31,815-7. Means of encouraging, Allan (198).

### Education—contd.

#### AGRICULTURAL—contd.

Demonstration farms attached to all Vernacular middle schools and normal schools, advocated, Pande (529).

Demonstration plots managed by Department, probable value of, Irwin (342).

Facilities, Plymen (21-3), (25-6); Pande (529).

Inadequacy of, and need for extension, Powar (89); Dubey (100); Brahma (241); Deshpande (296); Khaparde (399); Sahasrabudhe, (453); Dokras (478); Pochory (516); Pande

Farm school under construction, Plymen (26).

Farmers' attitude towards, Plymen (26).

Finance, charges should be charged on Land revenue, Pande (529). on Government farms, Plymen (23).

## in High Schools:

Advocated as compulsory subject, Pandeya (128).

not Desirable, Dubey (107).

as Optional subject, proposal, Deshpande (297), 30,454. in Towns, undesirable, Beckett (369). in Higher or collegiate education, suggestion re, as optional subject, Pande (538).

Home farm managers, difficulty of meeting applications for, Allan (200).

Importance of actual demonstration and propaganda in connection with, Allan (198), 29,759-60.

Incentives, Plymen (26); Powar (89); Allan (199); Brahma (241); Dokras (479); Pochory (516).

Inclusion in school curriculum as class room or examination subject not advocated, Allan (209).

#### Lastitutions:

Needed in Berar, Khaparde (399).

One, in each district, advocated as necessity arises, Khaparde

Sufficient for present demand, Allan (198).

Instruction of agriculturists on social economy advocated, Pandeya (125).

as Matriculation subject:

Failure of experiment, and disapproval of, Beckett 32,600-3. Objection to, Allan 29,691-3.

in Middle schools, Plymen (35).

not Desirable, Dubey (107).
Proposal, Pandeya (128); Dokras (484-5).

Normal schools, proposal, Dubey (101); Deshpande (297), 30,564-6; Pande (529).

Objects to be aimed at, Deshpande (296).

in Ordinary schools, considerations in connection with, Beckett (368).

Poons College, experience of, and opinion re, Amanat Ali 31,646-55, 31,714-8.

#### Post Graduate:

Facilities, provision not advocated until prospect of posts, Plymen 28,264-5.

Students going abroad for, Plymen 28,262-3. Powerkhera School, Hoshangabad: Allan 29,643-8.

Extension required, Allan (198). Record of students, being kept, Plymen 27,520-2. Vocational course, Beckett 31,420.

Practical training, importance of, Korde (317).

Prevocational or conducted as part of rural school general education:

Extension of demand for, Allan (198).

Extension, shortage of teachers would be difficulty, Allan (198).

```
Education—contd.
    AGRICULTURAL—contd.
         in Primary schools:
              Experiment tried, but failure owing to lack of proper type or
                teachers, Brahma (241), 29,910-4.
              Possibility, Brahma (241).
              Practical teaching advocated, Pande (538).
              Proposal, Pandeya (128); Bhargava (430); Dokras (478-9), (485),
                32,510-2; Pande (538).
        Proposals, Dokras (478-9), (484-5).
in Rural Vernacular schools, Plymen (23).
         Scholarships, suggestion for, Pande (529).
         School farms and School plots, see those titles below.
         no Schools for agricultural teaching in the moffusil, Brahma (241).
         Schools:
             little Demand for, Powar (89).
              in Every big town advocated, Dokras (478).
         in Schools, type advocated, Allan (199).
         Seasonal classes, Plymen (23).
         Short course or specialized adult training, facilities, Allan (198).
         Short courses in, where experimental or demonstration farms available, advocated, Brahma (241).
         Stimulation of demand for, means of, Khaparde (399).
              see also under College abore.
              After careers, Powar (89);
                                                  30,609-11;
                                                                 Deshpande
              Khaparde (400); Dokras (479); Pande (529).
Source of Plymen (28); Powar (89); Allan (199); Deshpande
                (297), 30,505-8; Dokras (479).
              Subsequent training, Plymen (26).
              Technical knowledge, improvement of:
              Movement for, Powar (89).

no Movement for, Deshpande (297), 30,538-41; Deshpande (479); Pande (529).

subsequent Technical training:
                   Difficulty, Allan (200).
                   Probationary posts, increased number suggested, as means
                     of providing, Allan (200).
         Teachers:
              Agricultural Training school in Berar, establishment advocated,
                 Sahasrabudhe (453).
              for Boys, inadequate supply, Brahma (241).
Class of, Brahma (241).
              Confining of, to agricultural class with special training of
                 methods advocated, Korde (317).
               Course of agricultural education should be required before
                 appointment in rural areas, in some cases, Brahma (241),
                 30,108-9.
               Difficulty of obtaining right type and need for improved train-
              ing, Korde 30,690-1.

Drawing of, from agricultural classes:
Advantage of, Deshpande (296).
                    Advocated, Dokras (478); Pochory (516).
                   Advocated, and enforcement of 25 years rules should be waived, Pande (529).
              Only, rule not advocated, Plymen (26).
Importance of. Irwin (342), 31,287.
Insufficiency, Powar (89); Deshpande (296); Pochory (516).
               Practical course necessary after leaving Agricultural College,
                 Sahasrabudhe (453).
               from Rural conditions generally preferable to town bred men,
                 Allan (199).
               Source of, unimportant, so long as practical training given by,
                 Dubey (100).
```

Supply sufficient, Dubey (100); Allan (198).

#### Education—coald.

AGRICULTURAL contd.

University, Plymen (21), (25-6), in Vernacular Middle Schools:

Baloda Basar and Champa, possible opening of demonstration plots for instruction, Power (89).

Number of, in different provinces and number of scholars, Salamabadhe (455).

Possibility, Brakme (341).

Requirements for establishment of, and proposals, Sakarrabudke (453).

Suggestions for introduction. D'Silva (370-2); Beckett 31,453-4. in Village echools:

Cash return to children for output, proposal, Allem (200-1).

Development, scheme for, and probable cost, Brahma (243).

Practical work advocated, Pandeys (128). Proposal for, Power (89), 22.388-403.

Teachers must be drawn from agricultural classes, Power (89). among Villagers, of main importance at present, Brakma (241). Vocational:

Demand for:

Anticipated, Allon (1989), 29,646. Extent of, Allon (198).

Failure of schools to attract class for which organised. Allon (198-9), 29,643.

must be in Specialised institutions, Beckett (368), 31.429. Experiments and results. Plymen (22-3), 28,301-14.

Yexmal farm, students under bond to take up employment as teachers, Plymen (26).

Agricultural mottoes might be introduced into rural schools, Beckett

Board composed of Directors of Public Instruction, Co-operative Credit, Public Health and Agriculture, might be useful, Beckett 31.492. Chemistry and physics, provision of equipment, Beckett 31,595-9.

Colleges, agriculture should be compulsory subject, Pandeya (120). Criticism of, by parents, Brahma (250), 30.145-6.

Defects of present system, Sakasrabudke (463-9).

Defects of system in that indifference and cometimes aversion to agriculture created, Dobras (484).

Demand for, Plymen, 28,313; Powar 28,341-3; Dubey 28,484-5; 28,628-30, 28,685-8; Deshpande 30,464-6, 30,569-71; Korde 30,726; Beckett 28.685-8; Deshpar 31.433-6, 31.447-8.

Demand for, must be created, Pandeya 23,796-7.

DEPARTMENT:

no Co-operation with Co-operative Department, Trivedi 29,505-7. Officers of assistance of Co-operative Department by, suggestions for, Deshpunda (302), 30,581.

DEFENSED CLASSES:

Attitude of, Beckett 31,503-4.

Question of citting in same school as others, Dokrus 32,530-2.

Treatment of in schools, Beckett 31.563-6.

Director of Public Instruction, also Secretary to Government in the Education Department, and advantages of. Beckett 31,455-60. FEMALE:

Advantages to be derived. Irwin 31.368. Government schools, Reckett 31.539.

Literacy, low percentage, Beckett 31,583-5.

Primary, slowners of progress and steps being taken to encourage, Beckett 31.410-4.

Secondary, progressing. Beckett 31.410.

Teachers, problem of, and supply, Beckett 31.586.

Forest school, Balaghat, Wift 30.346-7.

Garden plots in rural middle schools, suggestions re. Beckett (369).

Gardening, advocated, Bhorpara (430); Saharrabudhe (453, 469). High School Education Board, composition and functions. Beckett 31,493, 31,495.

## Education—contd.

HIGH SCHOOLS:

Agricultural instruction, see that title above.

Manual instruction, Beckett 31,561-2. Scale drawing, Beckett 31,558-60.

Situation in towns, Beckett 31,616-9.

HIGHER OR COLLEGIATE:

Agriculture as optional subject, suggestion re, Pande (538).

Farm economics should be studied, Pande (538).

Importance of, as means of extending interest of landlords in agriculture, Allan (208).

Influence on agricultural efficiency, Beckett (369),

no Radical change necessary, Dubey (107).

Illiteracy, relapse into, and methods of preventing, Dubey (107); Pandeya (128); Irwin 31,337-8; Beckett (369), 31,406-8. Indian boys, question of powers of observation, Beckett 31,516, 31,604-5.

Industrial and agricultural bias, importance of providing for, Sahasrabudhe (468-9).

little Influence on agricultural efficiency or desire to take up agriculture, Plymen (34-5), 27,751-4.

Interest in, by rural people, proposed measures for encouraging, Sahasrabudhe (453-4).

Low caste men, Plymen 28,228-31.

## MIDDLE SCHOOLS:

Agricultural training, see that title above.

Elementary, no radical change necessary, Dubey (107).

Garden plots in, suggestions, Beckett (369). Influence on agricultural efficiency, Beckett (369).

Nature study in, Beckett (368).

Rural, greater attention to training of hand and eye, utilizing rural industries and local life advocated, Allan (209). one Minister for agriculture and, advocated, Dokras 32,492.

### NATURE STUDY:

Advocated, Sahasrabudhe (469); Pochory (516).

Advocated and proposal re, Dokras (479).
Approved, Deshpande (297); Korde (317).
as Compulsory subject advocated, Khaparde (399).

in Fields desirable, and schools plots and farms desirable, Brahma (241), 30,151-2.

Plots attached to normal schools, *Powar* (89). in Rural middle schools, *Beckett* (368).

in Rural schools, advocated Bhargava (430). in Schools, of little value, Brahma (241), 29,916, 30,151.

present System of little practical use, Pande (529).
Teachers, difficulty of obtaining, of right type, and proposal, Allan 29,740-5; Beckett 31,415-8.

Value, extent of, Plymen (26); Allan (199). Valueless, Irwin (342).

NORMAL SCHOOLS, Beckett 31,419, 31,485-91.

Nature study plots attached to, Powar (89).

Agricultural teaching, see under Agricultural above.

greater Attention to training of hand and eye, utilizing rural industries and rural life advocated, Allan (209).

Classes of schools, Beckett 31,588-91.

Compulsory:

would be more Acceptable if subsidiary industry taught, Plymen (35).

Apathy of people towards, and means of encouraging interest, Pandeya (128).

Compulsory establishment, proposal for Government encouragement, Sahasrabudhe (453).

not Desirable in rural areas, Dubey (107-8).

Extent to which put into force, Brahma 30,147-9.

#### Education-contd.

```
PRIMARY—contd.
```

Compulsory—contd. Extent of, method of working and results, Beckett (369-70), 31,425-6, 31,429-32, 31,470-2, 31, 505-11, 31,537-46.

Failure of, in Akola, Korde (320).

Formation of co-operative societies for, desirable, Trivedi (172). 29,436-7.

Free, definite policy of, Beckett 31,468-9. entirely Free, small fee charged for optional education, Beckett 31,437-42.

Importance of, Beckett 31,425-32.

Management and inspection of schools, Beckett 31,478-81, 31,611-2.

in Municipalities, Beckett 31,425, 31,609-10.

Need for, Sahasrabudne (469)

Position re, and proposals for increase in attendance, Sahasra-

budhe (454-5), 32,454-6.
Raising of age limit to 15 advocated, Korde (320), 30,882.
Reasons for slow progress in Berar, Brahma (250), 30,128-32.
not Satisfactory as agriculture not included, Dokras (485).

not Compulsory, Jubbulpore division, Irwin 31,336. Curriculum must be such as to create agricultural and industrial

bias in minds of boys, Sahasrabudhe (453). Education not designed to fit boys for work in fields or create agricultural bias, Bruhma (241).
Establishment, survey made of needs and policy re, Beckett 31,499-

no Fees charged, Irwin 31,130-4. Financing of, Beckett 31,449-52, 31,515, 31,591-4.

Free, advocated, Korde 30,880-3-Functions of, and removal of illiteracy must be chief aim, Beckett (368).

Gardening instruction, proposal, Sahasrabudhe (453).

Holidays, coincidence with busy season in fields, in many areas, Beckett 31,606-8.

Hygiene, instruction in, Stiles Webb 31,951-3, 32,012-4.
Influence on agricultural efficiency, Beckett (369).
Leakage between lower and fourth classes, and causes of, Plymen (35); Brahma (250); Powar 28,395-400; Korde (320); Irwin 31,330-5; Beckett (370), 31,511-4; Dokras (485); Pande (538).
Literacy should be first objective, Irwin 31,062-3.
Practical teaching in agriculture advocated. Pande (538)

Practical teaching in agriculture advocated, Pande (538). Schools, sweepers and water carriers not provided in, Irwin 31,341-2.

Small proportion of boys in schools, reasons, Dubey (108).

Class of, and qualifications, Beckett 31,533, 31,534-6. Difficulty and importance of right type, Allan 29,663-7. Pay, Korde 30,801; Beckett 31,416-8, 31,474-5. Pay and qualifications and method of appointment, Bhargava

32.292-7.

Pension or provident fund, Beckett 31,482.
Time spent by, in trying to obtain attendances, Irwin 31,335.

Training of, Beckett 31,483-91, 31,530-2.

Vernacular primers, Beckett 31,613-5.

Robertson Medical School, Stiles Webb 32,116-9.

# RUBAL:

must be in Conformity with needs of agriculturists, *Pande* (538). Elasticity necessary, *Plymen* (35). Improvement of ability and culture of agriculturists, proposals for,

Allan (209).

general Policy, Plymen (22).

# Education-contd.

RUBAL ECONOMICS:

Degree in, might be useful, Dwarkanath Singh 32,760. should be Studied in University and results taught in primary and secondary schools. Brahma (247).

Scholarships for special training in England, and results, Beckett 31,567-74.

SCHOOL FARMS:

Advocated, Dokras (479); Pochory (516). Approved, Deshpunde (297).

should be Associated with places giving vocational training, Plymen

(26); Allan (199). in Middle and High Schools, of little value, Dubey (100-1).

in Primary schools, valueless, *Dubey* (100).
Unsuitability to rural school needs and conditions, *Allan* (199).

Valueless, Irwin (342). Valueless for young boys, Plymen (26).

Work on, should be optional, Khaparde (399).

SCHOOL PLOTS:

Advocated, Dokras (479); Pochory (516). Approved, Deshpande (297).

at Primary schools in rural areas:

Advantageous, Dubey (100).

Flowers and vegetables should be grown, Dubey (100), 28,635-6. at Rajnandgaon, Allan (199).

Requirements for success, Allun (199).
in Rural middle schools, Beckett (368), 31,548-53.
Proposal for, Allan (209).
on Small scale, useful, Khaparde (399).
Value of, opinion re, Plymen (26).

Valueless, Irwin (342).

Schools, boys overworked in, and course of study should be revised, Khaparde (399).

Schools started partly for agricultural instruction, control by agriculture Department and financing by fees, donations and Government grants advocated, Khaparde (400). Sciences, extent of, Beckett 31,463-7.

Secondary teachers, qualifications, Beckett 31,533.

present System, interest in agriculture not encouraged by, Pandeya (127-8).

TEACHERS:

see also under Agricultural and Primary above.
Attitude of, importance of, and requirements, Sahasrabudhe (469-70).

Drawing of, from rural classes:

Desirable, but should not be insisted on, Brahma 30,063-5. in Rural Areas, advocated, Khaparde (399).

Agriculture, Faculty of, Plymen 28,062-4; Allan 29,768-73. Graduates, after careers, Beckett 31,578-82.

VERNACULAR MIDDLE SCHOOLS:

Agricultural instruction, see that title above.

Control of, Beckett 31,495.

Financing of, Beckett 31,449-52

Number increasing, Beckett 31,494.

Veterinary Studies, Board of, need for, Wilson 30,913.

#### Empress Mills Co-operative Stores Ltd.:

Grain marketing system, Peterson (445-6), 32,395-6. Sources of grain, Peterson 32,399-401.

#### Excise:

Department, officers of, assistance of Co-operative Department by, proposals for, Deshpande (302), 30,581.

Intoxicating liquor and drugs, decreasing consumption, Irwin 31,283-5.

TOTAL PROHIBITION OF ALCOHOL:

Advocated, Dokrus 32,570-80, 32,615-7.

Kayasth community would not object, Dwarkanath Singh 32,888-94.

Famine, none for many years and reason, Plymen 27,978-81.

#### Fertilisers:

Adulteration, proposed preventive measures, Plymen (29); Dubey (104), 28,750; Deshpande (301); Dokras (481); Pande (531).

#### AMMONIUM SULPHATE:

Increased use of, Plymen (29); Allan (203).
Successful use on sugarcane, Bhargava (428).
free or cheap Analysis of soil for cultivators, proposal, Dokras (481).

## ARTIFICIAL:

ordinary Cultivators unable to afford, Dwarkanath Singh 32,712-3. Drawback of, as compared with natural manures in India, Deshpande (300).

in Dry farming, cost not compensated for by increase in yield,

Amanat Ali (386), 31,832-8.

Experiments made but price too high to be paying and irrigation necessary, Pande 33,218-27.

Increased use of, scope for, Plymen (29); Allan (203). Increased use of, scope for, and methods of encouraging, Pande

Investigations, Plymen (29). Preparation by Government and distribution at cheap rate, suggestion, Saharrabudhe (462).

Price, importance of reduction, Plymen (29).

Sale through licensed sellers under control of Department of

Agriculture, Deshpande (301). Supply from depots on Government Farms after analysis advocated, Dubey (104), 28,750. Useful for certain crops, Powar (91).

Ashes, instruction of cultivator in use of, advocated, Khaparde (402).

## BONRMRAL:

Export, Plymen 28,030-1.
Satisfactory for paddy, but caste prejudice a difficulty, Powar (91).
not Used to any large extent, Plymen 28,030-1.
Bones, grinding up of, and use in Province desired instead of export.
Plymen 27,617-22; Pubey (104).
Colors increased the of Alley (202) Cakes, increased use of, Allan (203).

# CATTLE URINE:

Instruction of cultivator in use of, proposal, Khaparde (402); Sahastabudhe (462).

Non-use of, Powar (91).

Pits round villages for collection of, should be compulsory, Bhargava (428).

Preservation of, proposal for regular and continuous propaganda to encourage, Brahma (244).

## COWDUNG:

Collection from forests, Witt 30,275-8.

Instruction of people in use of, advocated, Kharparde (402); Saharrabudhe (462).

Pits round villages for collection of, should be compulsory, Bhargava (428).

Plastering of walls with, Amanat Ali 31,794.

careful Preservation necessary, Powar (91).
Use as fuel: Powar (91); Dubey (104); Pande (531).
Attempts to encourage use of fuel in place of, Plymen (9); Witt (278).

```
Fertilisers—contd.
```

Cownune-contd.

Use as fuel—contd.

Cotton stalks instead, extent to which possible, Plymen 28,032-3.

Cotton stalks not used for fuel, Pochory 33,005-9.

Discouragement, measures for:

Demonstration of greater economical value as manure, Plymen (29); Power (91).

Difficulty owing to absence of equally or more cheap and

readily obtainable fuel, Khaparde (403). Dislike of changing method of cooking a difficulty, Irwin

31,352.

Education propaganda, Deshgunde (301). Fuel depots, establishment of, Plymen 27,624-8; Brahma (244).

Opening of forests free to agriculturists for wood, Powar

(91); Pochory (517), 32,982-7, 33,002-3. Opening of Government forests and better facilities, Pande (531).

Plantations of Kuranja trees, suggestion, Dubey (104), 28.671-7.

Proof to cultivators of advantages of firewood, Irwin (344). Railway rates on inferior kinds of coal should be reduced to minimum, Pande (531).

Regular and continuous propaganda, Bruhma (244). Supply of fuel to villages by Forest Department,

Sahasrabudhe (462). free Taking of fuel wood from Government forests by bona

fide agriculturists and labourers, Amanat Ali (386), 31,770. Trees should be planted for fuel, Dubey (104), 28,671-7. Increase in Berar owing to scarcity of wood fuel, Bruhma (244), 30,135-6.

Question very serious, Plymen 27,623.

to Small extent only in Jubbulpore district, Bhargara (428). Dry earth system of urine conservation, use of, even in rainy season should be induced, Dokras (481).

Dry leaves, suggested utilisation of, Sahasrabudhe (462).

Experiments being carried out, Plymen 27,765.

SANN HEMP:

Obstacles in way of growing, Dubey 28,515-6; Pollard-Lousley 28,906, 29,034.

not Successful, in personal experience Dwarkanuth Singh 32,716-7. Use not developing as quickly as desirable, Plymen 27,766-8. Value of, Powar (91).

INCREASED USE OF:

Economic question in connection with, Plymen 27,610, 27,614.

would Result from low price, Pubey (104).

Karanja cake, increased use of, Plymen (29); Allan (203). Karanja leaves, suggestion re use for manure, Dubey (104), 28,522.

MANUFACTURE IN INDIA:

by Government aid advocated, Pockery (517).

Need for, Pande (531).

each village or group of villages, proposal, Manure depots in Sakasrabudhe (461-2).

Manure shortage in certain areas, Pollard-Lowsley (183).

Materials usable for, export should be prohibited, Pande (531).

no Natural deposits usable as, Plymen 28,052-3.

NATURAL MANURES:

Advantages of, over artificial manures. Deshpande (300-1). Compost making experiments, Plymen 27.613, 27,615-6. Conservation of, scheme for, Bruhma (244).

Improvement of cattle industry desirable, Deshpande (300-1), 30.576-7.

```
INDEX
Fertilisers—contd.
     NATURAL MANUELES—contd.
          increased Use of: Dokras (481).
               Preferable to increased use of artificial, Khaparde (402).
               Scope for, Plymen (29); Powar (91); Allan (203); Bhargaya
          Scope for, and methods of encouraging, Pande (531).
Pits round villages for collection of cowdung, rubbish and cattle
             urine should be compulsory, Bhargaea (428).
     New, lowest possible price, importance of, Allan (203).
     NITBOGEN:
          Fixation of, from the air, Plymen 27,993-8.
          the Limiting factor, Plymen 27,611.
          Importance of, Plymen 27,617.
          Use of, Powar (91).
     Oil seeds, retention desired, Plymen 27,816.
     PHOSPHATES, ETC.:
          Investigation:
          Increase needed, Allan (204).
not Sufficient, Deshpande (301); Dokras (481).
under Investigation, Powar (91).
          Results, Allan (204).
     from Phosphatic mines, suggestion, Sahasrabudhe (462).
Popularisation of new and improved, means of, Plymen (29); Powar (91); Allan (203); Deshpande (301); Amanat Ali (386); Khaparde (403).
Bhargara (425); Dokras (481); Pande (531).
     Prices, reduction necessary, Pande (531).

Purchase by Agricultural Department and sale at cost price, proposal,
        Pochory (517).
     Soil surveys, proposal, Dokras (481).
     Sugarcane, manuring of, Dubey (104), 28,749-62.
Supply to landholders by Agricultural Department at cheap rate, need
        for, Saharrabudhe (461-2).
      Tilli cake, districts where use of, increased, Plymen (29).
      Trials of, on Government farms and Association demonstration plots,
        proposal, Dokras (481).
      Urgent need for supply, Sahasrabudhe (461).
      Banking influence, Plymen (6).
      Barki system of loans, Plymen 27,570-4.
      CREDIT:
          Cheap:
                Cultivators not educated to use of, Allan (202).
                Danger of Brahma 29,994; Dwarkanath Singh (497), 32,743.
           Provision of cheaper credit than obtainable under present system
             not advocated, Plymen (28).
      Cultivator's needs for capital, extent, Dwarkanath Singh 32,795-7.
      Government should give loans more freely, Bhargava (427).
      Imperial Bank, advances against produce, system of, Irwin (343). Imperial Bank Act, proposed amendment, Brahma (243), 29,927-31. Indian Trust Act, proposed amendment, Brahma (243).
      INTEREST. STATUTORY LIMITATION:
           would be Approved if State provided money for agriculturists,
              Pande 33,242.
           Proposal, Pandeya (125); Brahma (243), 30,083, 30,117-9.
      LAND MORTGAGE BANKS:
           Advantage doubted, Sahasrabudhe (460).
           Berar, scheme under consideration, Trivedi (170), 29,386-9.
           Considerations re, and establishment advocated, Dwarkanath Singh (496-7), 32.721-3, 32.793-4.
           Establishment advocated, Plymon (28); Brahma (243), 29,924-6;
```

Government assistance, proposal, Brahma (243), (246), 29,927-31,

Bhargara (427), 32,223-9.

30.091-3; Pande (537).

#### Finance-contd.

LAND MORTGAGE BANKS-contd.

Opinion re proposal, Sahasrabudhe (459).

Resolution of Conference of Registrars of Co-operative Societies,

January, 1926, should be given effect to, Brahma (243), 30,040-41. Land mortgage credit on co-operative basis, development of on large scale necessary, and suggestions for, Deshpande (298-9), 30,467-74, 30,624-30.

LOANS TO CULTIVATORS:

through Co-operative Societies and realisation of amount so advanced as arrears of land-revenue, scheme, Brahma (243).

Extension, suggestions, Dubey (102).

under Government control, suggestion, Dubey (102).

from Government treasuries, scheme, Brahma (243). by big Landlords on moderate or nominal interest should be encouraged, Pandeya (125).

of Money and seed to cultivators without interest by societies and farms advocated, Pandeya (125). Seed, manure and implements should be supplied through

Agricultural Department on greater scale, Dubey (102), 28,767.

LONG TERM CREDIT

Facilities should be established, Pande (530).

Government should advance loans, Pochory (516); Pande (530). Money must be provided at cheaper rate in order to make farming pay, Deshpande 30,536-7.

SHORT TERM LOANS:

Co-operative credit societies should advance, Pande (530). Establishment of village Co-operative Societies advocated, Brahma

Taccavi LOANS:

Advisory Committee appointed in each district or Tahsil to advise at time of giving and realising would increase popularity of, Bhargava (327).

Allotments, no refusal known, Irwin 31,353-4.

Applications usually granted if request reasonable, Dwarkanath Singh 32,719; Pochory 32,924-5.

Approved, Pandeya (125).

to Co-operative Societies' members, agency of Co-operative Central Banks and Societies should be employed for, Brahma (246).

through Co-operative societies:

not Desirable, Irwin 31,307, 33,426-48. Proposed, and scheme for, Pande 33,264-82, 33,353-4. Question of possibility and method, Trivedi 29,430-2.

Criticism of procedure and proposed modifications, Dubey (102-3); Korde (318); Khaparde (401); Sahasrabudhe (459).

Elastic system not possible to any extent, Irwin 31,305-6. Extension, special officer to deal with, in each district, proposal, Allan (202).

Extension of system:

Objections to, Irwin (343).
Suggestion, Dubey (103).
Failure to take up, owing to desire to remain on books of money-lender, Irwin (343), 31,072-4.
for Implements, for long terms at low rates desired, Pochory

33.056-8.

Issue:

Appointment of special officers, proposal, *Plymen* (28), 28,103. Delay, *Pande* (530), 33,262-3. little Delay, *Irwin* 31,180.

in Kind:

Extension of system desirable, Plymen (28). Proposals, Powar (90); Pochory (516), 33,069. little Leakage before reaching cultivator, Irwin 31,178-9. Method of realising, criticism, Pandeya (125).

#### Finance—contd.

Taccari LOANS-contd.

proposed Modifications of system, Korde (318); Amanat Ali (386); 31,692; Dwarkanath Singh (497); Pande (530).

Objections to, Allan (202).
Obstacles to greater use of, Pande (530), 33,408-10, 33,437.

Remission of interest on instalments when land revenue remitted. Plymen 27,576-7.

Remissions, loss on account of, not believed to be heavy, Plymen 28,105.

Speed the important thing, Plymen 28,104.

Supervision of use of loan, proposal, Khaparde (401); Pochory (516).

32,923, 33,070-3.

should be Suplementary to loans by credit societies, Powar (90). System, Dwarkanath Singh (496), (498), 32,718-20. System and statistics, Plymen (8).

Terms should be according to needs, Korde (318).

Unpopularity and reasons for, Plymen (8); Bhargava (427) full Use not made of, and reasons, Dwarkanath Singh (497).

Village banks, formation of, and exemption from Indian Companies Act under certain circumstances, proposal, Brahma (243), 29,932-8, 30,068-82, 30,115-6, 30,153-7.

Fish culture and fishing, see under Agricultural Industries.

Fodder, see under Animal Husbandry.

Food grains, difference in prices in rice or wheat tract and cotton tract, Plymen 28,292-4.

#### Forests:

#### APPORESTATION:

no Need for further operations, Pande (537).

not Needed in Central Provinces, Witt (278).
Schemes in neighbourhood of villages, opening for, where fodder and fuel supplies scarce and where waste land exists, Plymen

in Village area, expense prohibitive, Irwin (346).

Area and reduction in, for cultivation, 1908-07, 1916-17 and 1925-26, Witt (277).

Areas available for cultivation, Witt (276).

## BALED HAY FROM:

Berar, experiment made but non-success of, Irwin (346). Cost of baling, Witt 30,356-7. probable Demand for, Plymen (33), 27,719-24. Distribution, method, Witt 30,358-60.

Experiments in supply of, for stall feeding, and absence of demand, Plymen (8); Witt (273-4), 30,174-6, 30,260-8.

Large amount possible but difficulty of transport, Allan (208).

Quality, Witt 30,355.

Reserves, extension of system, suggestion, Plymen (31).

no Sale for Allan 29,707.

Storage possibilities, Witt 30,177-83, 30,290-5.

no Casuarina, Witt 30,423-5.

Cattle breading.

Control of the construction and repair of wells, tanks and anicuts, Witt (276).

Construction and repair of wells, tanks and anicuts, Witt (276).

Cowdung, collection by people, Witt 30,275-9.

Cutting and preserving fodder on large scale, Forest Department should carry out, but increased staff would be necessary, Witt 30,173.

#### DEPARTMENT:

Contact with Revenue Department, Witt 30,331-2, 30,349.

Forest guards, foresters and rangers, training and pay, Witt 30,345-8.

#### Forests-contd.

DEPARTMENT—contd.

young Officers, attachment of, to Agricultural Department, scheme not considered necessary, but not objected to, Plymen 27,726-8. Relations with Agricultural Department, Plymen 27,718; Witt 30,349, 30,211-2.

DETERIORATION :

Causes, Witt (278). from Excessive grazing doubted, in Central Provinces, Irwin (346), 31,089-90.

Floods in Central Provinces not due to, Witt (278).

no definite Investigation being carried on, Witt 30,354

will not be Serious if grazing not largely extended, Witt 30,354. Soil erosion from, not serious, Fande (537).

Extraction of minor forest produce and system of working, Witt (275),

Extraction of minor forest produce and system of working, www (210), 30,272-4, 30,319-26, 30,368-9, 30,377-80. Felling of trees within 20 yards of either bank of streams in certain areas forbidden, Witt (278), 30,371-2. Firewood and fodder supplies, Irwin (346). Fodder and thatching grass, supply, Plymen (8-9).

Forest Engineer, question as to scope for, Witt 30,381-3, 30,408. Forest produce, facilities should be allowed to villagers to make use of, Sahasrabudhe (467).

FUEL:

Cost, question of possibility of reducing, Witt 30,365-7.

Encouragement of use of, in place of cowdung, attempts and failure,

Plymen (9). Increase of areas of babul bans desirable as means of increasing supply, but tendency rather to reduce, Witt (278), 30,282-9, 30,330, 30,401-3, 30,421-2.

Karanja trees not very suitable, Witt 30,420. no Scarcity except in Berar, Witt (278).

Supply, Bhargava 32,218-22. Supply to villagers, proposal, Sahasrabudhe (467).

Fuel and other produce, methods for supply of, to cultivators, and failure of certain experiment, Plymen (9); Witt (275), 30,185-95, 30,232-6, 30,319.

GRASSES:

Quality of, Witt 30,300.

some Research carried out, but not by Department, Witt 30,350-3. Sale of fodder and thatching grass from closed coupes, Witt (274),

30,297, 30,342. Seeds of superior kinds of, should be supplied, Pande (537). Use for stall feeding, Nimar district, Witt (278).

Areas should be freely opened for, Pande (537).

Average annual value of concessions in Central Provinces, Witt

where not Allowed cultivators should be allowed to cut grass free, Bhargava (430).

Buffalo:

more Damage done by, than by bullocks, Witt 30,309-11. Tax on should be same as on cow or bullock, Pochory (517), 32,943-6.

Concessions should be increased, Bhargava (430).

Concessions should be increased, Bhargava (430).

Dear grazing and cheap fodder:

Effect of cheap fodder policy on keeping of useless cattle,
possible danger, Witt 30,312-4.

Policy advocated, Witt (277-8), 30,244-52, 30,417.

Excessive, remedies for, in Central Provinces, Witt (278).

Facilities, Witt (277), 30,342-4.

Increase advocated, Pande (537).

Facilities v. preservation of reserve of timber, Irwin (346).

```
Forests-contd.
```

```
GRAZING-contd.
```

Fees:

Fixation of, Witt (272), 30,241-3, 30,318, 30,361.

Increase not desirable u Dwarkanath Singh 32,813. unless facilities are increased,

Minimum rate should be charged, Pande 33,502. Rate paid to, Amanat Ali 31,859-62.

Reduction, undesirability of, Witt 30,196-8.

Free, for agricultural cattle proposed, Pochory 32,977-81.
Goats and sheep, restrictions, Witt 30,199.
Number of cattle grazing in Central Provinces and revenue realised, 1922-23, 1923-24, 1924-25, Witt (272-3).
Policy, Witt 30,302-11, 30,317.

Opening of additional areas for, not desirable, Plymen (31), (33). increased Provision desirable and policy advocated re, Sahasrabudhe (466-7).

facilities revision of facilities by mulguzars and rates of Dwarkanath Singh 32,798-801, 32,814-7; Pande 33,504-14.

Restriction, Witt (273).
Scheme for areas for cattle breeding, Allan 29,700.

Settlements in certain tracts and need for extension, Witt (278). Statistics of areas, revenue from fees, &c., Sahasrabudhe (467),

32,466-7.

Statistics of cattle grazed and rates paid for 1924-25, Witt 30,413-6, (295).

Hay from, supply available and need for utilisation, Irwin (345).

#### INDUSTRIES:

Development possible as result of research work being done at Dehra Dun, Witt 30,377.

Utilisation officer to be appointed for a few months, Witt 30,378. Labour, system, Witt 30,202-7, 30,333-9. Lac propagation and cultivation, and Government policy, Witt (275), 30,216-25, 30,272, 30,323-5, 30,368-9, 30,379.

Lessing of areas for cultivation, cattle breeding and dairying purposes,

proposal, Pande (537). Light railways, Witt 30,254-7, 30,315-6. Management of portion of area by Panchayats, proposal, Sahasrabudhe (467).

Match factory, question as to prospects of supply of timber for, Witt 30,393-400.

Myrobalams, revenue from, Witt 30,386-92, 30,427. Natural generation, Witt, 30,259.

Planting of shrubs or trees by cultivators, doubted, Plymen 27,730-1. Relations of forestry to agriculture, Witt (271-2), (276), 30,213-5. Revenue made by, and freer hand to spend money on useful projects desired, Witt 30,237-40, 30,258.

#### ROADS:

Construction advocated, Pande (537)

Construction, particulars re, expenditure on, &c., Witt (276). Nature of, Witt 30,408.
Use of, by general public, Witt (276), 30,340-1.

Use of, by general public, Witt (276), 30,340-1.

Sericulture, position, Witt 30,226-31, 30,368-9.

Shifting cultivation, negligible, Witt 30,172, 30,334.

Sleepers, supply, Witt 30,254-7, 30,269-71.

Slopes, working of, Witt 30,409-12.

Stray cattle in, from hilly malguzari villages, penalty and reduction advocated, Pochory (517), 32,956-63.

Tanning materials, Witt 30,426-8.

no Tea cultivation, Witt 30,280-1.

Tiger population, Witt 30,327-9.

Trees, commercial, Witt 30,253.

full Use not being made of, for agricultural purposes and proposals, Pande (537).

Pande (537).

lxix

62797

#### Forests—contd.

Villages, system, and cultivation in, Witt 30,208-10, 30,333-9.

Working, methods of, and preparation of working plans, Witt (271-2). Working plans, new establishment for drawing up and revision of, Irwin (346).

## Fruit growing:

Caste objections, Irwin (345).

Desirable, Dubey (106).

Difficulty one of capital rather than caste prejudice, Irwin 31,110.

Difficulty for lack of roads, water supply and unsuitable climatic conditions, Bhargava (430).

Encouragement, proposals for, and steps taken, Plymen (32), 27,697-701. Position re, Plymen 27,801-5.

Prospects, Plymen 28,045-50; Dwarkanath Singh (502).

Requirements for success, Khaparde (405-6).
Research, need for expert for, Allan 29,734-7.
Water supply difficulty, Khaparde (405-6); Sahasrabudhe (464).
Watermelons, personal experience, Dubey 28,499-502.

## Gadawara Agricultural Association:

Evidence on behalf of, see Pochory, Kaluram, (516-518), 32,896-33,184. Membership, objects, &c., Pochory 33,097-108, 33,125-32.

Grain, see under Marketing.

Gram, see under Crops.

Grazing, see under Animal Husbandry and Forests.

Groundnut, see under Crops. Gur, see under Sugar.

# Holdings:

## CONSOLIDATION OF:

Advantageous, Pandeya (125).

Arbitration Societies, establishment of, as in the Punjab, advocated, Brahma (244).

by Arbitration, might be possible in some cases, legislation may be necessary, Dubey (103), 28,616-9.

Attempt not advocated, Dokras (481), 32,567-9.

previous Attempts, particulars of, Dyer (152-3); Chhotelal 29,100-2; Burton 29,104-5, 29,108-11.

Complete poither rescribe nor desirable Duce (152)

Complete, neither possible nor desirable, Dyer (152). Compulsion, some power of coercion desirable, Irwin (346).

through Co-operation:

Formation of societies, possibility of in Bilaspur but not in other parts, Trivedi (171-2), 29,332-3.
might be Possible, Brahma 29,997-9.
in Punjab, Dwarkanath Singh (500).
as in Punjab not considered suitable to conditions, Powar

28,334-40.

Success doubted, Dyer (160); Burton 29,129-30: Chhotelal 29,166-7.

Suggested, Irwin (344).

Demand of cultivators for, Chhotelal 29,119-21. Desirable, Dubey (103). Difficulty greater than in Punjab, Pande 33,292-3. Mr. Dyer's proposal approved, Powar 28,333.

by Exchange:

Legal difficulties, Powar 28,376-81.

Scheme, Korde (318-9). Importance of, Plymen 27,715-7; Deshpande (303).

by Khars, necessary, Dyer (152).

Labour problem would be affected by, Plymen (4).

Legal difficulties, Dyer (155-6).

Legislation necessary, Plymen 28,214-5; Pollard-Lowsley 28,909-10; Pande (531).

# Holdings-contd.

```
CONSOLIDATION OF-contd.
     Legislation that no contingent interests should interfere with, desir-
       able, Irwin (344).
     Legislation necessary to compel obstructive minority to join and
       proposal re, Dyer (156-7); Chhotelal 29,114, 29,115, 29,164-7, 29,175-8; Burton 29,114-6; Dwarkanath Singh (501).
     Legislation to provide for free transfer of existing rights necessary, Dyer (155-6); Chhotelal 29,112-3; Burton 29,131-5.

Malguzar's attitude, Burton 29,122; Dwarkanath Singh 32,770-3.

Measures taken for, Powar (91).
     possible Methods, Dwarkanath Singh (500-1).
     Necessary for obtaining full benefit of irrigation, Pollard-Lowsley (133), 28,909.

Obstacles in way of, Plymen (2); Dyer (155-6); Burton 29,136; Irwin
        (344): Dwarkanath Singh (500); Pande (531).
     Opposed by ryot class, favoured by malguzar class, as a rule,
        Pandeya (125).
     Position re, Plymen (2), 28,208-13.

Private, particulars of, and disadvantages and advantages, Dyer (153-5).

proposed Procedure, Dyer (157-60); Burton 29,150-1; Chhotelal
        29,152-201.
     Revenue officers should have instructions and power to compel, by
        exchange, Bhargava (428).
      by Revenue staff, impossibility, Dyer (157).
     in Ryotwari villages, and application of water-course system of irrigation, proposal, Dyer (159); Burton 29,123-8. Special legislation and special staff needed, Plymen (2).
     Special staff for, proposal, Dyer (157); Chhotelal 29,118. Staff for, need for careful selection, Dyer (152).
      Steps being taken, Korde 30,858-63; Chhotelal 29,137-49, 29,153-4,
        29,157-60.
      Visit of Mr. Roughton and others to the Punjab in connection with,
        Trivedi 29,433-5, 29,440-1.
      Voluntary:
           Failure of, Pande (531), 33,289-93.
           Success doubted, Pande (537).
FRAGMENTATION OF:
      owing to Effects of practice of lakhabata, Powar (91); Dyer (152).
      Evils of, Pandeya (125): Dyer (152); Trivedi (171); Bhargava 32,349;
         Dwarkanath Singh (499-500).
      below 5 acres should be prohibited, Dokras (481), 32,569.
     Hindrance to development of irrigation, Pollard-Lowsley 29,032. Improvements by landlords hindered by, Allan (210). Judicial Village Panchayats for settlement of money claims and
        leasing of money suits, proposal, Brahma (244).
      Problem not serious in Berar, Khaparde (402).
      Remedy for, up-to-date methods on consolidated and large holdings,

Dwarkanath Singh (500), 32,744.
      Serious problem only in Chhattisgarh Division, Plymen (1-2).
      Stopping of, no suggestion for, Bhargava (428).
      Suits filed after 12 years by reversioners claiming estate after
        widow's death should be barred, Brahma (244).
Intensive culture, desirability of introducing through co-operative move-
   ment, Dwarkanath Singh (500).
 Joint farming societies, should be tried, Pande (537).
 Legislation dealing with minors, widows, &c.:
      Advocated, Pandeya (125): Brahma (244); Dwarkanath Singh (501).
      not Advocated, Dokras (481).
not Necessary in Berar, Khaparde (402).
      not Possible, Bhargava (428).
```

lxxi

## Heldings-contd.

Legislation for keeping disputes out of court, advocated, Brakma (244); Dwarkanatk Singk (501).

egislation necessary for extending right of pre-emption, Pande (531). Rice, sub-division beyond limit of four acres should be prohibited. Dubey (103), 28,615.

Small, certain advantages, Kkapards (402).

Small size of, drawback of, Plymen 27,523-4. Tenancy and Land Revenue Acts, changes needed, Panda (531).

# implements:

Agency for supply of, Plymen (17).

Agricultural Engineer, see under Agricultural Department.

Distribution, obstacles in way of, Bhargara (429); Dokras (483).

Distribution and sale by Co-operative Societies and local bodies suggested, Brakma 30,157-61; Pande (533).

### LICEROVED:

Assistance of intelligent cultivators with, suggestion, Pochory (516). Extension of use of, statistics, Plymen (17).

Means of hastening adoption of:

Convincing cultivators of usefulness, Dubey (105).

Costiy machines should be kept at convenient centres for free trial or on moderate hire, Korde (319).

Demonstration of implements and sale on hire-purchase system, Bhargara (429).

Demonstrations, Power (92); Alian (206); Plymen (307); Korde (319); Irwin (344); Khaparde (404); Dokras (483); Pochory (516); Pande (533).

Easy terms for payment in instalments, Deskponde (301).

Expansion of tuccori, Allan (206).

Importation by Government and sale at cost price, Pockery (517).

Price must be reasonable, Plymen (30); Irwin (344). Repair facilities, Irwin (344); Bhargara (429); Pande (533). Spare parts must be available and prices of parts must be reasonable, Dokras (483); Punde (533).

Training of mechanics, Dokrus (483).

Undertaking of work with, by parties organised by Agricultural Department, and sale, etc., of implements by, scheme, Brakma (244).

Ploughs, introduction, Power 28,406-8; Brahma 30,112-3.

## IMPROVEMENTS:

Lines on which improvement desirable, Allan (206), 29,900-2.

Scope for, Power (92). Unsuitability of implements of western manufacture to Indian needs, Allan (306), 29,395-9. Work carried out, Plymen (13).

Investigation, importance of, and difficulty of carrying out, Allan (197), (198).

Labour-saving machines, results of introduction, Panda (537).

Light iron ploughs, manufactured in India, material inferior, Powar 23,406.

MANUFACTURE IN INDIA: Plymen (17): Khaperde 31,558.

Encouragement desirable, Sakusrubudke (403).

Government should start workshop for, Pechery (517): Pands (533) Measures for encouragement of, Dechpands (301-3): Khapards (404). Private firms should be encouraged in. Ponde (533). Motor tractors, useful in some districts, Pochery 33,154.

Forcing of, on cultivators, objection to, Khapurde (404). Requirements, Sahasrabudke (463). Tee of, Sakasrabudke (463).

NEW AND IMPROVED, proposals for:

to enable Automatic regulation of sowing, Khapards (404).

## Implements—conid.

New and terravers, proposals for—contd.
of Indian hos, Khaparde (404).
Light harrow for work in beginning of monsoon, Bharpava (429).

Respers, Bhargare (429). Seed drills, Bhargare (429).

Tifan, Khaparde (404).

Threshing machine, Bharpara (429).

for Weeding and inter-cultivation, need for, Sakarabudke (463). Obstacles in way of increased use of machinery, Brakma (242); Pande

Railway rates, concessions advocated, Deshpunde (301); Dokras (483); Dourkanath Singh (502).

# Repaire :

Difficulty and need for establishment of centres for supply of spare parts and repair work, Brahma (242).

Facilities, need for, Irwin (344); Bharpava (429); Pande (533). Mechanical schools for training of mechanics, proposal, Dokras (453).

Steam tackle outfit for ploughing, use of, and results, Bhargava 32,269-75.

Sugarcane mills, suitable for small cultivators, need for, and suggestions, Dubey (105).

Taccavi loans for, for long terms at low rates desired, Peckery 33.056-8. Timber for, no difficulty in obtaining, by ryots, Plymen 27,789-93.

#### TRACTORS:

Non-success with, Bhargana 32,272, 32,286. Obstacles to use of, Khaperde (404). Popularisation, proposal for, Dokras (483). Types sold, Plymen (18).

Victoria Technical Institute, Amraoti, Salasrabadhe (463).

Improvements, factors discouraging landowners from carrying out, Plymen (35); Allan (210); Korde (320); Khaparde (407-8); Bhargara (430); Dwarkenath Singh (505); Pande (538), 33,482-4.

## Indian Control Cotton Committee:

Representation of cultivators on, Plymen 27,463-6. Value of work, Allen (197), 29,642; Korde 30.694-8.

Industries, Department of, see under Administration.

#### Irrigation:

#### AGREEMENTS:

Guaranteeing of supply, impossibility of, Pollard-Loudley 29.048-55. Long term system, compulsion on remainder of occupants if fourfiths agree to come under, Irwin (346).

Non-renewal if agreements expire in good year, Pollard-Lousley 28,919-21, 29,041-7.

Non-renewed, percentage, Pollard-Loursley 29,081. System, necessity for, Pollard-Loursley 29,005.

Canal Deputy Collectors, advantage of revenue officers as, Pollard-Louiser 28.936.

## Caxale:

fuller Development anticipated, Pollard-Lousley 28,962-4.

Pariat irrigation scheme, irrigation of sugarcane from, personal experience, Bharpane 32.134-8. Working expenses only just covered, Pollard-Lowsley 28,942-3.

Chattisgarh, some complaints made about rates and small supply of water, Power 28,438.

Chief Engineer, works under Revenue member and is also Secretary

to Government, Pollard-Loursley 28,940-1.
Colonisation. Chanda scheme, Pollard-Loursley (133), 28,912-17.

Connection with malaria, question of, Stiles Webb 22,083.

## Irrigation-contd.

Consolidation of holdings necessary for obtaining full benefit of, Pollard-Lowsley 28,909.

Construction of schemes in Chhattisgarh and especially in Bilaspur district, case for, Pollard-Lowsley (132).

Construction of schemes by private persons and charge of rate to cultivators, Pollard-Lowsley 28,896-9.

Cost of labour, increase since war, Pollard-Lowsley 29,023-4.

Cost of works, interest, maintenance, etc., per acre, irrigated, Pollard-Lowsley 28,931-6.

Council Committee on, Pollard-Lowsley 29,086-93. Crops for which required, Pollard-Lowsley (131).

## DEPARTMENT:

Relations with Agricultural Department, Plymen 27,578-82, 27,586.

27,827-9; Pollard-Lowsley 28,875-6. Relations of Public Health Department with, Stiles 32,038.

Staff and organisation, Pollard-Lowsley 28,840.

Unpopularity of, Dubey (103).

Statement not agreed with, generally, Pollard-Lowsley 28,918. Deterioration of irrigated land in certain cases, Pollard-Lowsley 28,887-9.

## DEVELOPMENT:

Hindered by fragmentation of holdings, Dyer (152).

Improvement of cultivation and consolidation of holdings necessary for, Pollard-Lowsley (133), 28,877-9, 28,886, 29,032.

Obstacles to, Pollard-Lowsley (133), 29,032; Bhargava (428).

Distribution of water, policy, Pollard-Lowsley 28,849, 23,852, 29,014-5.

Districts where most needed, Plymen (28); Pollard-Lowsley (132-3); Khaparde (402).

Duty allowed at outlet, Pollard-Lowsley 28,999-9004, 29,056-7.

Efficiency, extent of, Pollard-Lowsley 28,841-2, 29,006-7.

total Expenditure, and absence of direct return at present, Pollard-Lowsley 29,082-5.

Facilities, Plymen 27,824-6.

Financial position in regard to works for 1925-26, statement showing, Pollard-Lowsley (150-1).

High cost of works, Pollard-Lowsley (133).

Hydro-electric schemes, none constructed, Pollard-Lowsley 29,061-2. Introduction of new crops under, lack of defined stable policy, Duber

Irrigation Bill, Pollard-Lowsley 28,895-6.
Jubbulpore Division, question of scope for, Irwin 31,184-8, 31,273-5. little Lift irrigation, and not considered necessary, Pollard-Lowsley 28,992-8.

Mahanadi area, difficulties in connection with, Pollard-Lowsley 28,877-9.

Maintenance, high cost of, Pollard-Lowsley (133).

Manurial problems of irrigated land, and central research organisation might be useful, Pollard-Lowsley 28,889-90, 28,906-8, 29,033-6.

#### MINOR SCHEMES:

Question of scope for, Pollard-Lowsley 28,865-6.

Scope for, but difficulty in connection with, and proposal, Plymen 27,588-92, 27,594-5.

Scope for extension in Eastern Circle, but time not ripe for cooperative schemes, Powar 28,441-4.

Undertaking of, by cultivators, question of, Pollard-Lowsley 28,866-8.
Object of Government works, Pollard-Lowsley (131), 28,845.

## OFFICERS:

Extent of touch with cultivators, Pollard-Lowsley 28,924-8.

Short course in Nagpur College, not considered necessary, Pollard-Lowsley 28,929-30.

Openings in irrigation channel, improvement needed, Dubey (104). Particulars re Government works, Pollard-Lowsley (131-3), 28,841-58.

## Irrigation-contd.

#### PERENNIAL CANALS:

in Berar, proposal, Korde (319), 30,840-9, 30,879.

Narsinghpur district, advocated, Pochory (517), 32,930-32, 33,031-9.

Perennial and non-perennial canals in wheat and rice tracts, extension advocated, Bhargava (428).

Private, extent of, Pollard-Lowsley (132).

Productive projects sanctioned by Secretary of State, two will have to be relegated to unproductive list and question of power, Pollard-Lowsley 28,980-3.

Programme, Pollard-Lowsley 28,923.

Projects submitted to Secretary of State, basis of calculation, Pollard-Lowsley 28,973-9, 28,984-8.

small Proportion only of rainfall used for, Pollard-Lowsley 28,969. Protective and productive schemes, Pollard-Lowsley 28,850-8.

## RATES:

Contract method of charge, the only satisfactory one, Pollard-Lowsley 28,880-2.

Fixing of, Pollard-Lowsley 28,900-1.

Payment by occupier, not owner of land, Pollard-Lowsley 28,937-9.

Policy, Pollard-Lowsley 29,025-6.

Remission system, Pollard-Lowsley 29,060. Rice, Dubey 28,557-9, 28,610-11.

Yearly increase of, detrimental to commercial crops not fully established, *Pande* (532).

Recommendations of Irrigation Commission, extent to which carried out. Pollard-Lowsley 28,967-8.

Requirements of various crops, investigation being carried out, Plumen 27,584-5.

as Reserved subject, preferred and reasons, Pollard-Lowsley 28,948-58 Rice, see that title.

Silt in one canal only, Pollard-Lowsley 28,902.

Sub-soil water, no survey made, Pollard-Lowsley 29,070-2. Sugarcane, see that title.

Surplus water, and question of encouragement of use of, for fodder crops, Pollard-Lowsley 29,037-9, 29,052.

Bilaspur District, Pandeya (125). Extension desirable, Plymen (28); Pandeya 28,786-7. Facilities should be supplied at low rates, Pande (532).

Improvement and construction:

Difficulty of obtaining permission from Superior Proprietors or

Taluqdars, Pandeya (125-6), 28,813, 28,832-5.
Restrictions should be removed and constructors of tanks encouraged, Pandeya (126).

Manurial substance in water from, question of, Dwarkanath Singh 32,699-700.

Particulars re, Plymen 27,984-92. Repairs, carried out by Department, Pollard-Lowsley 28,902-3.

Sites, etc., Pollard-Lousley 29,016-22.
Uselessness of, in Jubbulpore district, Bhargava 32,265.
in Wheat and rice tracts, extension advocated, Bhargava (428). Tanks and embankments, assistance of cultivators, and pushing of,

considered a matter for revenue officers, Pollard-Lowsley 28,859-64.

Tanks and ponds, scope for, in Berar, extent. Korde (319).
Uncertainty of income, Pollard-Lowsley (133), 28,944-6.
Utilisation of surplus rainfall, processes demonstrated at Poons Agricultural Exhibition, 1926, should be studies by agricultural officers in Berar, Saharrabudhe (461).

Watercourses, difficulty of obtaining, Pollard-Lowsley (133).

## Irrigation—contd.

Wells: Dubey (103).

Advice to cultivators not considered necessary, Pollard-Lowsley Construction, Government assistance, proposal, Pochory (517),

33,059.

Experiments made, Sehora district, but impossibility of, on large scale owing to nature of soil, Pande 33,197-206, 33,493.

Geological survey desirable, Korde (319). Improvements proposed, Dubey (103). Investigation of subject by specialist, proposal for, Plymen (28), 27,592-3, 28,107-9. Nature of, Pollard-Lowsley 29,073-7.

Persian wheel, personal experience, Dubey 28,462-9, 28,612-5, 28,679,

Personal experience, Amanat Ali 31,638-42, 31,717-22; Pochory 32,901-2, 33,061-4, 33,067-8, 33,113-5.

Personal experience, and failure to obtain sufficient water, Korde

30,717-23, 30,751-6, 30,765-9, 30,805-8.
Position re, Plymen 27,959-77.
Provision of, in Berar, need for, and suggestions re, Sahasrabudhe

(460-1), 32,428.

Pucca:

Construction, temporary staff for advice in, could be engaged if necessary, Pollard-Lowsley 28,874.

Question of a department to deal with, Pollard-Lowsley

28,989-91.

Purchase of pump and engine on hire purchase system desired, Sahasrabudhe 32,429-30. Saline efflorescence, proposed resting of soil in areas with, Plymen

(28).

little Scope for, except in river beds, Pollard-Lowsley 28,869-73. Sinking of, not understood by people and work should be undertaken by Agricultural Department, Dubey 28,678, 28,717-23. Tube, geological conditions not suitable for, Plymen 27,963-73.

Wells and lifts, improvement needed, Dubey (107). Wheat irrigation not anticipated, Pollard-Lowsley 28,846-7.

IRWIN, C. J., C.I.E., I.C.S., Commissioner, Jubbulpore Division: (342-347), 31,053-31,400.

## Administration:

Industries, Advisory Board of, functions, 31,324-5.

Meteorological Department, reliable monsoon reports, would be advantageous, (343). Railways, need for feeder roads, 31,141-4, 31,148-50.

Roads:

Attitude of District Boards, 31,121-2, 31,253-9, 31,328. Construction of, from loans, proposal, 31,068-70, 31,096-100, 31,151-6.

Control of, 31,170-3, 31,302-4.

Feeding railways, need for, 31,141-4, 31,148-50.

Improvement of communication, importance of, for cultivators,

(343), 31,092-5. Inadequacy of facilities, Jubbulpore district, and lack of money the cause, (343), 31,252-9.
Toll system not in force, 31,155-6.

Bad condition, 31,135.

Difference between wheat growing tract and rice and cotton growing tracts, 31,243-4.

# AGRICULTURAL DEPARTMENT:

Assistants, relation to Deputy Commissioner, and proposal, 31,270-1 Services satisfactory, with resources at disposal, (343).

#### IRWIN, C. J.—contd.

AGBIOULTURAL INDESTEDNESS: Causes of, (343), 31,350-2. Credit, sources of, (343).

Measures for lightening burden of debt, (344).

Moneylender, desire to remain on books of, (343), 31,072-4.

Removal of:

by Conciliation method, previous effort, 31,343-5. Possibility of, by steady thrift, 31,346-7.

Repayment, causes preventing, (343).

Right of transfer of holdings, restriction not advocated except in very backward tracts, (344), 31,348-50.

Usurious Loans Act, more free application of, proposed. (344).

#### AGRICULTURAL INDUSTRIES:

Caste objections, (345), 31,088, 31,101-9, 31,236-42, 31,320-7 Cultivators have large amount of spare time, 31,192-5.

Fishing, 31,111.

Fruit growing, difficulty one of capital rather than caste prejudice, 31,110.

Industrial concerns, removal to rural areas, spare time work only on agriculture, suggestion not approved, (346).

Intensive study of rural industries, no industry in Central Pro-

vinces known of, which would repay, (346).

Preparation of agricultural produce for consumption, objections to establishment by Government, (345-6).

Rope making for home use mainly, 3112-3, 31,189-91.

# AGRICULTURAL LABOUR:

Proportion of cultivators and labourers, variation in, 31,211-8.

Seasonal migration, (346).

no Surplus, (346).
Uncultivated land (large areas) better dealt with by settlement with cultivators than by importation of labour to work under local capitalist, (346).

# Animal Husbandry:

Bad condition and large number of useless cattle, 31,117-8, 31,231. Castrations, increase in number largely due to introduction of Italian method, 31,316-7.

Cattle breeding industry in Mandla formerly, 3116, 31,223-5. Feeding of cattle, inadequacy of, owing to apathy, 31,232-5. Fodder, no scarcity in Jubbulpore Division, 31,166-9.

Grazing:

Grass borders in tilled fields, generally negligible, (345).

Overstocking of common pastures, (345).

Remedy prevented by prejudice against elimination of unfit cattle, (345).

from Government forests, supply available and need for utilisation of, (345). Importation of cattle, 31,116.

Interest of landowners and cultivators in, will only result if profit to be made, (345).

Jubbulpore Division, position as regards cattle, 31,219-25.

Lack of interest in, on the whole, 31,114-9.

CAPITAL, proposed measures for attracting, (346)

## CO-OPERATION:

Credit system, development of, desirable for smaller cultivators. (343).

Development must not be too quick, (346).

Damage by wild animals:

Extermination the only real means of prevention, (344).

Extermination of wild boar should be possible with proper organisation, (344), 31,077-81, 31,355-6.

Fencing, an uneconomic palliative only, (344).

Food, 31,161-5.

```
IRWIN, C. J.—contd.
```

CROPS-contd.

Seeds:

Distribution:

Methods, 31,267-8.

through Seed farms or arrangements with large cultivators to grow pure seed in Jubbulpore Division, and extension of methods desirable, (344).

Improvement, good work being done by department, 31,266. Loans of pure seed, system, 31,268-9.

CULTIVATED LAND, value of, 31,280-2.

CULTIVATION, variation in quality in different districts, and question of reasons, 31,196-210, 31,245-6.

DEMONSTRATION AND PROPAGANDA:

Adoption of expert advice by cultivators, requirements for, (343).

Field demonstrations:

Co-operation between officials of Agriculture and Revenue Departments, importance of, (342-3), 31,066, 31,292-5. Effectiveness of, suggestions for increasing, (342-3).

DISTRICT BOARDS:

Cesses:

Amalgamation of, in Central Provinces, 31,121-2, 31,175-7.

Extra levied in some districts, 31,123-9.

Expenditure on schools greater than on roads, and roads considered of first importance, 31,091-5, 31,120.

Interest in rural matters, extent of, 31,329. Revenue, proportion given to, 31,174.

Roads, attitude re, 31,121-2, 31,253-9, 31,328.

EDUCATION:

Adult, in rural areas, means for popularisation of, (342). Agricultural:

College:

Graduates, special concessions and grants of unassigned culturable land to, experiment might be tried, 31,289-91. Practical work, 31,373.

Demonstration plots managed by Department, probable value of, (342).

suitable Teachers, importance of, (342), 31,287.

Female, advantages to be derived, 31,368.

Illiteracy, relapse into, absence of suitable literature probably one cause, 31,337-8.

Nature study, valueless, (342).

Primary

not Compulsory, Jubbulpore division, 31,336. no Fees charged, 31,130-4.

Leakage between first and fourth classes, causes of, 31,330-5.

Literacy should be first objective, 31,062-3.

Sweepers and watercarriers not provided, 31,341-2. Time spent by teachers in trying to obtain attendances, 31,335. School farms, valueless, (342).

School plots, valueless, (342).

FERTILISERS, use of cowdung as fuel, methods of discouraging, (344), 31.352.

FINANCE:

Imperial Bank, system of advances against produce, (343).

Taccavi loans:

Allotments, no refusal known, 31,353-4.

through Co-operative societies not desirable, 31,307.

Elastic system not possible to any extent, 31,305-6.

Extension of system, objections to, (343).

Failure to take up, owing to desire to remain on books of moneylenders, (343), 31,072-4.

Issue, little delay, 31,180.

little Leakage before reaching cultivator, 31,178-9.

#### IRWIN. C. J.—contd.

## FORESTS:

Afforestation in village area, expense prohibitive, (346).

Baled hay from, Berar, experiment made but non-success of, (346). Deterioration from excessive grazing doubted, in Central Provinces, (346), 31,089-90.

Firewood and fodder supplies, (346).

Grazing facilities v. preservation of reserve of timber, (346). Working plans, new establishment for drawing up and revision of, (346).

#### HOLDINGS, CONSOLIDATION:

Compulsion, some power of coercion desirable, (346).

Co-operation suggested as means of, (344).

Legislation that no contingent interest should interfere with, desirable, (344). Obstacles in way of, (344).

IMPLEMENTS, measures for inducing adoption of improved. (344).

INTOXICATING LIQUOR AND DRUGS, decreasing consumption, 31,283-5.

#### TRRIGATION :

long term Agreement system, compulsion on remainder of occu-pants if four-fifths agree to come under, (346). Jubbulpore Division, question of scope for, 31,184-8, 31,273-5.

LAND TEXURE, cultivating tenure, classes of, 31,158-60.

LANDLORDS, Absentee, 31,157.

MARKETING, difficulties owing to inadequate communications, 31,137-50, 31,210.

## PUBLIC HEALTH:

Dispensaries:

Placing under Public Health Department and not under Inspector-General of Civil Hospitals, question of, 31,376-8. Touring, 31,182.

Private practitioners, subsidising of, in rural areas, 31,183.

RESEARCH as Central subject, probably desirable, (343), 31,260-1.

## REVENUE DEPARTMENT:

#### Commissioners:

Deputy, responsibilities with regard to agriculture and economic development, 31,057-8, 31,369-72.

Responsibilities with regard to agriculture and economic development, 31,055-6.

Inspectors, agricultural training, value doubted, 31,247-51, 31,297. Lower grade officers, agricultural graduates as, would be approved, 31,299-300.

Organisation under malguzari settlement, 31,060-1.

Rents, system of fixing, 31,379.

Tahsildars, short course in agriculture might be useful for, 31,297-8.

Soils, Kans grass, deterioration of land owing to, Jubbulpere Division, and measures taken, (344), 31,262-5, 31,308-9.

STATISTICS, collection methods in Central Provinces sufficiently accurate, (347).

## VETERINARY:

Apathy of District Councils, 31,310-19.

Contagious diseases:

Examination of herds coming in from Native States desirable,

further Legislation not considered possible, (345).

Department, should be independent if Director of Agriculture a technical officer, (344).

```
IRWIN, C. J .- contd.
```

VETERINARY-contd.

Dispensaries: Control by provincial authority, greater efficiency would result. (345), 31,085-7.

Expansion not adequate, (345). under Local (District) Boards, apathetic attitude of District Councils, (345), 31,085-7.
Profits from cattle-pounds should be applied to, (345).

Touring, none, but desirable, 31,181-2.

full Use not made of, (345). Local Veterinary Research Institute, need for, (342). Outside infection, difficulty of dealing with, 31,320.

Public interest increasing, 31,318. Services satisfactory, with resources at disposal, (343). Tours by Veterinary Assistants, value of, (345).

WELFARE OF RURAL POPULATION:

Conditions, variation of, in different districts, and question of reason, 31,196-210, 31,245-6.

Economic position of cultivators, (343), 31,278-9, 31,286.

Economic surveys of typical villages, results of, to show that no profit possible in cultivation of land, (347), 31,276-7. Improvement of health conditions, proposed means of encouraging, (346).

Means of improving, (346), 31,226-35, 31,362-8. Physique in rice eating and in wheat eating tract, 31,357-61.

WILD ANIMALS, tigers and panthers, people keen on killing, if possible in spite of reduction of rewards, 31,083-4.

Juar, see under Fodder, under Animal Husbandry and under Crops.

Judicial administration, difficulty in cases of auctions of lands, Brahma 30.106.

KHAPARDE, B. G., LL.B., M.L.C., Amroati: (399-408), 31,869-31,899. Agricultural operations, 31,871-2, 31,875-8, 31,896-7.

ADMINISTRATION:

Indian staff advocated, (399).

Meteorological Department, information to Berar Agriculturists desirable, (400).

Posts and telegraph services, inadequacy of, and need for develop-

ment in rural areas, (40I). Relations between Government of India and Local Governments, (400).

Roads, inadequate facilities in Berar, (400).

AGRICULTURAL INDEBTEDNESS:

Advances by landowners to tenants, 31,883-7.

Causes, (401).

Credit, sources of, (401).

Damdopat rule, working of, 31,892-3.

Increase in Berar, (401).
proposed Measures for lightening burden of debt, (401).
Moneylenders, system, (401).
Mortgage and sale, objections to restriction of right of, (401).

Mortgages, facilitation of redemption, proposal for, (401).

Repayment, causes preventing, (401).

Usurious Loans Act, application suggested, (401), 31,890-5.

AGRICULTURAL INDUSTRIES:

Basket making, (405), (406). Bee-keeping, practically unknown in Berar, (405).

Fruit growing:

Requirements for success, (405-6).

Water supply difficulty, (405-6).

Intensive study of rural industries with view to manufacture of required tools in India, would be approved, (406), 31,880. Lac culture, (406).

# KHAPARDE, B. G .- contd.

AGRICULTURAL INDUSTRIES—contd.

Poultry rearing, (405).

Preparation of agricultural produce for consumption, establishment by Government desirable, (406).

Rope making, (405), (406).

Subsidiary industries, proposals, (405).

Time spent by cultivators on holdings and occupation during slack season, (405).

## AGRICULTURAL LABOUR:

Berar, training of existing labour preferable to importation, (407). Hours of work, regulation by sunrise and sunset and need for alteration, (407).

Reluctance of labourer to leave native place, (407). Shortage, causes and proposed remedies, (407).

Uncultivated land, scheme for settlement on, (407).

# ANIMAL HUSBANDRY:

Bullocks, working and trotting, proposed development, (404). Dairying industry, need for improvement and suggestions, (404-5). Fodder:

### Green:

Absence of, in dry seasons, (405).

Preservation of, in pits, suggestion, (405).

Interest of landowners in question, means of encouraging,

Shortage, reasons of, and proposed measures for overcoming, (405).

### Grazing:

Grass borders in tilled fields, other means of maintaining cattle needed, (405).
Overstocking of common pastures, (405).
Improvement of breeds:

Buffalo, importance of, (404). Milch cows, need for, (404).

Scope for, and suggestions, (404). Mineral constituents in fodder and feeding stuffs:

Absence of, deterioration of cattle owing to, (405). Salt duty a discouragement to feeding with salt, (405).

Capital, means of attracting, agriculture must be shown to be profit-able, (407).

# CO-OPERATIVE CREDIT SOCIETIES:

Loans must be advanced by, to agriculturists at cheaper rates,

Position of, in Berar, 31,879.

Reasons for cultivators borrowing from moneylenders rather than from, (401).

Cotton, Roseum, experience with, and results of, 31,876-8. Damage by loose cattle, (403).

Damage by wild animals, and prevention measures, (403).

Improvement of existing crops, examples of, (403).

Internal measures against infection, (404).

Protection from external infection, pests and diseases, no efficacious methods adopted (403).

Replacement of crops, proposal re groundnut, (403).

#### **CULTIVATION:**

Plough, judicious use of, advocated, (403).

Rotation, systems of, and suggestions, (403).

Traditional methods, gradual transformation into modern methods needed, (399).

# DEMONSTRATION AND PROPAGANDA:

Adoption of expert advice, means of inducing, (400). Agricultural shows, suggestion for, (400).

# KHAPARDE, B. G .- contd.

DEMONSTRATION AND PROPAGANDA—contd.

Conservatism of Berar peasants and slowness to take in new ideas, (400).

Field demonstrations, effectiveness of, suggestions for increasing,

Improvement of practice of cultivators, actual demonstrations the best means, (400). Touring lecturers, value of, (400).

#### EDUCATION:

Adult, in rural tracts:
in Berar, position, (400).
Mr. Mande's scheme, (400).
Tapswi Babasaheb Prajanjpe's scheme, (400).

Agricultural: Institutions:

Needed in Berar, (399).

One, in each district, advocated as necessity arises, (399). Stimulation of demand for, means of, (399).

Students, subsequent careers, (400).

Nature study, as compulsory subject advocated, (399).

School farms, work on, should be optional, (399).

School plots, on small scale, uselful, (399).

School started partly for agriculture instruction, control by agriculture Department and financing by fees, donations and Govern-

ment grants advocated, (400). Schools, boys overworked in, and course of study should be revised,

Teachers in rural areas, should be drawn from agricultural classes, (399).

### FERTILISERS:

Ashes, instruction of cultivator in use of, advocated, (402).

Cattle urine, instruction of cultivator in use of, proposal, (402).

Dung-pits, instruction of cultivator in use of, proposal, (402). Use as fuel, difficulty of discouraging owing to absence of equally or more cheap and readily obtainable fuel, (403).

Natural manures, increased use of, preferable to increased use of artificial, (402).

Popularisation of new and improved fertilisers, measures for, (403).

FINANCE, Taccavi loans:

Criticism of procedure, and improvement needed, (401). Supervision of use of loan necessary, (401).

Fragmentation problem not serious in Berar, (402).

Legislation dealing with minors, widows, etc., not necessary in Berar, (402).

Small, certain advantages, (402).

Adoption of, proposed measure for hastening, occular proof and demonstration, (404).

Improvements:

to enable Automatic regulation of sowing, proposal, (404).

of India hoe, need for, (404).
of Tifan, needed, (404).
Manufacture in India, and proposed encouragement, (404), 31,888. New, objection to forcing of, on cultivators, (404). Tractors, obstacles to use of, (404).

IRRIGATION, need for, in Berar, (402).

LAND REVENUE, reduction of, only means of assisting cultivator, 31,890. LANDOWNERS, improvement of land, by, discouraged by Government assessment policy, (407-8).

## KHAPARDE, B. G.—contd.

MIDDLE-CLASS YOUTHS, means of making agriculture attractive to, (400). RESEARCH:

Department:

should be Independent of administrative department of Agriculture, (399).

Staff, should be Indians, (399).

into Destruction of cotton crops and tur by worm, advocated, (399). Financing of, suggestion for, and proposed charging of fees to agriculturists for making use of results, (399), 31,873-4.

Scientific staff of Government of India, increase not advocated,

into Scientific value of indigenous theory and traditional methods, extent of scope for, (399).

SOTT.8

Drainage for draining off rain water, need for, in Berar, and proposed measures, (402).

Improvement, example of, by erection of bund to prevent sweeping away of surface by rain water, (402).

Land gone out of cultivation, proposed reclamation measures, (402). VETERINARY:

Contagious diseases, objections to legislation, (404).

Dispensaries, extent to which use made of, and reasons for use not being great, (404).

WELFARE OF RUBAL POPULATION:

Economic surveys of typical villages, by Committee on which representatives of the people a majority, proposal for, (408). Improvement of health conditions:

Difficulties in connection with, (406).

Propaganda, need for, (406).
Typical ideal village, scheme, (406).
Panchayat Committees, proposal, (408).

KORDE, Rao Saheb T. S., M.L.C., Landlord, Murtizapur, Akola: (317-320). 30,679-30,907.

Agricultural operations, income, rent, revenue, etc., 30,758-9, 30,770-6. 30,790-9.

Lands let on cash rent and batai system, 30,757, 30,760-4.

Ryotwari system of owning land, 30,713-4.

Special farm for conducting experiments, particulars re work, etc., 30,683-9.

ADMINISTRATION:

Co-ordination between provinces on common subjects advocated, (317-8).

Functions of Government of India should be mainly advisory, (318).

Meteorological Department, research on reduction in rainfall and its uncertainty, need for, and for wide and regular publication of results, (318).

Postal Service, inadequacy of, in rural areas, (318), 30,828. Railways, special facilities and concession rates for transport of raw produce and fodder advocated, (318), 30,884-5. Roads:

Baluta system, return to, desired, 30,818-9.

Fair weather, need for improvement, and Government must undertake, 30,747-50, 30,780-3, 30,811-7.

Importance of, for agriculturists, (318).
Telegraph service, rural areas, importance of development, (318).

AGRICULTURAL DEPARTMENT:

Provincial organisation, proposal, (317).

Service not satisfactory, (318).

AGRICULTURAL INDEBTEDNESS:

Causes, (318).

Credit, sources of, (318). Government Central Banks on lines of Co-operative Banks, proposal for, (318), 30,874-8.

# KORDE, Rao Saheb T. S .- contd.

## AGRICULTURAL INDEBTEDNESS—contd.

Lending of grain in kind, practice of, 30,854-7.

Measures for lightening burden of debt, proposals for, (318), 30.870-5.

Moneylenders:

Doubling of loan in one season, (318), 30,864-9. Rates of interest charged by, (318).

Repayment, reasons preventing, (318).
Usurious Loans Act, need for, and proposals re, (318), 30,870-3.

#### AGRICULTURAL INDUSTRIES:

more Intensive study of rural industries desirable, (319).

Preparation of agricultural produce for consumption, Government measures for establishment desirable, (319). Time spent by cultivators on holdings and occupation during slack

seasons, (319).

## ANIMAL HUSBANDRY:

Dairying industry, proposed measures for improvement, (319).

Fodder:

Dry:

Grass supply, suggestion for improvement of railway facilities, (319).

Insufficiency of, (319).

Shortage, seasons of, (319).

Transport of, special facilities and concession rates advocated,

(318), 30,884-5.

## CAPITAL, attracting of men with:

Steps necessary, (320).

Sufficiency of land for, on the whole, 30,732-5.

Agricultural associations, suggestion for, (320).

Central Bank, Akola, crisis owing to want of funds as result of bad years, 30,704-11, 30,777-9, 30,802-4. Credit movement, desirability of extension, 30,715.

Loss on, during present year, 30,886-901. Roseum, experience of, 30,792-6, 30,902-7.

CULTIVATION, intensive, experiments carried out by witness, 30,683-9.

DEMONSTRATION AND PROPAGANDA, proposals re, (317).

#### EDUCATION:

## Agricultural:

Practical training, importance of, (317).

Teachers:

Confining of, to agricultural class with special training of methods advocated, (317).

Difficulty of obtaining right type and need for improved training, 30,690-1

Nature study, approved, (317).

# Primary:

Compulsory, in rural areas:

Failure of, in Akola, (320).

Raising of age limit to 15 advocated, (320), 30,882.

Free, advocated, 30,880-3.

Small proportion of boys passing through fourth class, reason. (320).

Teachers, pay, 30,801.

Public demand for increased facilities, 30,726.

#### FINANCE:

Taccari Advances:

Criticisms of system, (318).

Procedure should be shorter, (318)

Terms should be according to needs, (318).

#### lxxxiv

## KORDE, Rao Saheb T. S .- contd.

HOLDINGS, consolidation of:

by Exchange, scheme, (318-9). Steps being taken by Government, 30,858-63.

IMPLEMENTS, adoption of improved, proposed measures for, (319).

Indian Central Cotton Committee, value of work, 30,694-8.

IBRIGATION:

Perennial canals in Berar, proposals for, (319), 30,840-9, 30,879. Tanks and ponds, scope for, in Berar, extent, (319).

Wells:

Geological survey desirable, (319).

Personal experience, and failure to obtain sufficient water, 30,717-23, 30,751-6, 30,765-9, 30,805-8.

LANDOWNERS, discouragement of, from carrying out improvements, caused by shortage of funds, (320).

LOCAL BOARD, AKOLA:

Cess levied for educational purposes and increase in, 30,737-46. 30.785-9.

Expenditure on wells, 30,851-3.

Improvement of fair weather roads, work re, but need for funds, 30,747-50.

Insufficient funds, 30,725, 30,736.

Public demand for better educational facilities and better roads, 30,726-9.

MARKETING:

Cotton, in Berar, facilities not satisfactory and suggestions for improvement (320), 30,820-7.

Grain, in Berar, facilities not satisfactory and suggestions for improvement, (320), 30,823.

Market Committee, majority of sellers on, advocated, 30,827.

Public Health, drinking water, dearth of, in Berar, 30,846.

RESEARCH:

Organisation:

by Groups according to soil and climate, proposal, (317), 30.690-3.

separate Institute for each Province advocated, (317). Scientific staff of Government of India, increase not desirable, (318). Some, research, proposal re, (317).

Ancient methods should be studied and systematised, (317).

Civil Veterinary Department, control by Director of Agriculture advocated, (319). Dispensaries:

Expansion not adequate, (319).
Full use not made of, and reasons, (319).
under Local (District) Boards, satisfactory working of system in some placed, (319), 30,730-1.

Transfer of control to Provincial Authority, not advocated,

(319).

Indigenous methods, use of (319), 30,809-11, 30,830-9. Service not satisfactory, (318).

WELFARE OF RURAL POPULATION:

Economic surveys in typical village by Government, advocated, Sanitary conditions, inadequate attention paid to, (320).

Lac culture, see under Agricultural Industries.

Land Mortgage Banks, see under Finance.

### Land Revenue:

Berar Land Revenue Code, proposed amendment, Brahma (248). 29.965, 30.102.

# Land Revenue-contd.

Burden of, comparison with other countries, *Pande* 33,530-3. Change in date of payment proposed to avoid overflooding of markets, *Dubey* (107), 28,496-8, 28,763-71.

Agricultural officers should have greater insight into working of, Allan 29,730-2.

Commissioners: Deputy:

Relations of Agricultural Assistants to, and proposal, Irwin 31,270-1.

Responsibilities with regard to agriculture and economic development, Irwin 31,057-8, 31,369-72.

Responsibilities with regard to agriculture and development, Irwin 31,055-6. Contact with Forest Department, Witt 30,331-2, 30,349.

Lower grade officers, agricultural graduates as, would be approved, Irwin 31,299-300.

Officers:

of Assistance to Agricultural Department, Allan 29,674. Assistance of Co-operative Department by, suggestions for, Brahma (246); Deshpande (302), 30,581. Assistance in demonstration work, Plymen 27,904.

Consolidation of holdings by:
Impossibility with the ordinary staff, Dyer (157).
Proposal, Bhargava (428).

Co-operation of, in connection with field demonstrations, importance of, *Irwin* (342-3), 31,066, 31,292-4.

Interchange with Agricultural officers would be advantageous,

Dubey 28,772-4.
Lectures for, at Nagpur agricultural college, occasionally and question of extension, Allan 29,676-83, 29,790-7.

Organisation under malguzari settlement, Irwin 31,060-1. Recruitment to, agricultural qualifications should receive more consideration, Powar 28,403-5.

Tahsildars, short course in agriculture might be useful for. Irwin 31.297-8.

Increase as result of consolidation, suspicion must be avoided, Dyer

Inspectors, Agricultural training, value doubted, Irwin 31,247-51, 31,297.

Policy, improvements discouraged by, Khaparde (407-8); Pande (538), 33,482-4.

Suspension and remissions, power to Central co-operative banks of recommending, advocated, Brahma (247), 29,954-5.

#### Land Tenure:

Change, need for, Deshpande (303), 30,551-6.
Cultivating tenure, classes of, Irwin 31,158-60.
Malguzar system of tenure, evils of, Allan (203).
Market value of tenancy land, Dubey 28,689-93.
Nazarana system, Pande 33,537-40, 33,556-8.
not Considered to be a cause of indebtedness Deshpande 30,677-8.
Obstacle to growth of co-operative movement. Trived (170) 29,470.

Obstacle to growth of co-operative movement, Trivedi (170), 29,470.

#### OCCUPANCY TENURE:

Co-operative societies no assets owing to, Pande 33,326-38.
Percentage, Trivedi 29,232.
Rights, should be transferable after certain period, Bhargava 32,226, 32,316.

Rent, system of fixing, by settlement officer, Bhargava 32,332. Acquisition of land with rent as fixed at settlement, Irwin 31,379.

#### Landowners:

Absentee, Irwin 31,157.

#### Landowners—contd.

Discouragement of, from carrying out improvements, factors, Plymen (35); Allan (210); Korde (320); Khaparde (407-8); Bhargava (430); Dwarkanath Singh (505); Pande (538), 33,482-4.

Education of, to sense of responsibilities as landlords, importance of, Allan (208), 29,714-6.

Interest in animal husbandry, see that title.

Large number have no interest in agriculture, Allan 29,865-6.

## Legislative Council:

Attitude towards agriculture, Dubey 28,565-9; Bhargava 32,312-6. Ineffectiveness, Pande 33,383-85. increasing Interest in agriculture since Reforms, Plymen 27,858-60.

Leprosy, see under Public Health.

Local Boards, see District or Local Boards.

Lucerne, see under Crops.

Malaria, see under Public Health.

#### Marketing:

Commercial Gazette published biweekly or daily in Hindi, dealing with market conditions, crop returns, &c., needed, Pochory (518). Conditions better where communications have been improved, Powar 28.347-9.

Co-operative, see Sale Societies under Co-operation.

Charges, Plymen 28,222-7.

Commission agents, licensing desirable, Plymen 27,740-1.

Co-operative societies, particulars re working of, Trivedi (171), 29,289-330, 29,515-29, 29,573-4; Brahma (249), 29,968-84, 30,143-4. Distance of cultivators from markets, Dokras 32,626-8.

Facilities not satisfactory and suggestions for improvement, Korde (320), 30,820-7. Grading, need for, Dwarkanath Singh (503), 32,757-8.

Improvement, proposals for, Dwarkanath Singh (503).

Markets, system, Plymen (3).

Satisfactory in theory but not in practice, Plymen 27,733-4, 27,743, 28,203-5.

Passing of cotton through market and sale elsewhere, Plymen 27,736-9.

Personal experience, Amanat Ali 31,656-69, 31 754-6.

System and defects, Sahasrabudhe (467-8); Dokr
Dwarkanath Singh (503), 32,745-6, 32,753-8, 32,884-7. Dokras

Crop (cotton, wheat, rice, oil seeds) movements, (2).
Dalals, licensing system, Peterson 32,363-5.
Difficulties owing to inadequate communications, Irwin 31,137-50, 31,210.

Exhibition of Bombay rates, opposition by merchants, Dokras 32,505. FACILITIES:

Eastern circle, Raipur, Powar (93).

Gadarwara and Kareli markets, not satisfactory, Pochory (517-8).

Unsatisfactory, Powar (93); Dokras (484).

# GRAIN:

by Co-operative methods, scheme, Peterson (445-6), 32,397-8; Pande (537).

Cultivators', system, Bhargava 32,194-210. Empress Mills Co-operative Stores Ltd., system, Peterson (445-6), 32,395-6.

scilities not satisfactory and suggestions for improvement, Korde (320), 30,823. Facilities Measurement should be by weight and not by quantity, Peterson

32,424.

# Marketing—contd.

GRAIN—contd.

System in Berar, Sahasrabudhe (467-8).

System, defects cf, and proposals for improvement, Peterson (442-5), 32,356-65, 32,376-92, 32,403-24; Dwarkanath Singh (503); Pochory (517-8), 33,162-3.

Witness' own system, Bhargava 32,187-94. Gram, personal experience, Amanat Ali 31,674-5. Improvement, suggestions for, Pochory (517); Pande (537).

Information to cultivators, &c., as to market conditions, crof RETURNS, &c.:

Advocated, Pande 537; Dokras (484); Dwarkanath Singh (503).

Advocated, Panae 331; Doktas (404); Dicarkanath Singh (303).

Magazine or weekly papers, suggestion, Bhargava (430).

Proposal, Powar (93).

Rates of main produce in important railway centres should be published on morning of bazar days, Pandeya (127).

through Special Crop Committees, proposed, Plymen (33).

Kochias, etc., system of trading and profit made by, Powar (93).

Managing Committees in markets scheme Powar (93).

Managing Committees in markets, scheme, Powar (93).

MARKET COMMITTEE:

Majority of sellers on, advocated, Korde 30,827.

Representation of cultivators advocated but if impossible, representative of Agricultural Department would be improvement, Dokras

(484), 32,503-5.

Markets on lines of cotton markets, experiment worth trying, Plymen 28,206-7.

Municipal Committees, system, Sahasrabudhe (467). Overflooding of markets and low prices at harvest times and change of dates of payment of land revenue and water-rate suggested to avoid, Dubey (107), 28,496-8, 28,763-71.

Protection of villagers in sale of produce, suggestions for, Pandeya (127).

RICE, Plymen 27,779.

Defects in, and criticisms of activities of Marwaris, Pandeya (127). System, Plymen (2-3).

Eastern circle, Raipur, Powar (93).

Transport facilities, improvement advocated, *Powar* (93), 28,350. Vegetables, personal experience, *Amanat Ali* 31,678-83. Village Bania or malguzar, system of trading and profit made by, Powar (93).

WEIGHTS AND MEASURES:

Cotton, platform scales should be insisted on, Brahma (249), 29,968-70.

in Grain bazars, difficulty of tampering with, Peterson 32,414. Inspection, Sahasrabudhe 32,443-6.

Multiplicity of, Peterson (442), 32,356-7, 32,373-4, 32,403-9. Multiplicity of, Peterson (442), 32,356-7, 32,373-4, 32,403-9. Municipal measures, law would be approved, Peterson 32,414-7. Municipal stamping of, Peterson (442), 32,413, 32,369, 32,407, 32,413. Standardisation, need for, and suggestion, Peterson (442), 32,367-74, 32,391-2; Sahasrabudhe (468), 32,437; Pochory (518).

WHEAT:

Dirt, cause of, Plymen 28,005-8.

Personal experience, Amanat Ali 31,670-3.

Personal experience, and inadequacy of prices, Pande 33,321-5.

Meteorological Department, see under Administration.

### Middle class and educated men:

Apprentices, scope for training of, Amanat Ali 31,850-1.

proposed Measures for encouraging taking up of agriculture by, Plymen (26), 27,523-4, 28,141-3; Powar (89), 28,403-5; Dubey (101); Brahma (241), 30,150-2; Deshpande (297); Khaparde (400); Dokras (479); Pande (529), 33,248-9.
Unattractiveness of agriculture to, reasons for, Allan (200).

Milk, see under Dairying industry under Animal Husbandry.

Moneylenders, see under Agricultural Indebtedness.

Mortgages, see under Agricultural Indebtedness.

Muktesar Research Institute, see under Research under Veterinary.

Nature study, see under Education.

Oilseeds, see under Crops.

Onions, see under Crops.

PANDE, K. P., representing the Tahsil Agricultural Association, Sihora, Jubbulpore: (529-539), 33,185-33,558.

Agricultural operations, and landownership, 33,187-246, 33,304-25,

33,485-91, 33,494-7.

ADMINISTRATION:

Government of India should only deal with activities beneficial to whole of India, (529-30).

Meteorological Department, existence of, little known to agriculturists, (530). Railways:

Concessions to agricultural produce and live stock, suggestion, (530)

Restraint on export of certain agricultural necessities might be necessary in some cases, (530). Roads in rural areas, importance of, (530).

AGRICULTURAL DEPARTMENT:

Budget, cut in, after report of Co-operation Committee, 33,358-67. Director of Agriculture:

Indian as, advocated, (533). proposed Position, etc., (533).

Increased funds necessary and question of source of, 33,541-55. People have little faith in activities of, 33,387-92.

Service, improvement since introduction of Reform scheme, (530), 33,368-77.

#### AGRICULTURAL INDEBTEDNESS:

Causes, (530)

Conciliation Boards formerly, 33,411-4.

Oredit, sources of, (530).

Damdopat system, 33,286-8.

Debt per head, increasing, (539), 33,348.

Inherited debt, insolvency question, 33,449-54.

Lending of money to villagers by malguzar, and rates of interest, 33,240-1.

Long term credit, facilities should be established, (530).
proposed Measures for lightening burden of debt, (530).
Mortgage and sale, restriction of right of, not advocated as long as better facilities not provided, (530). Mortgages:

Non-terminable, objected to, (530).

Redemption advocated, (530).

Rate of interest, statutory limitation would be approved if State provided money for agriculturists, 33,242.

Repayment, causes preventing, (530).

Usurious Loans Act of little value, existence not known of, in province, (530), 33,283-5.

## AGRICULTURAL INDUSTRIES:

Exhibitions, proposal, (535-6).

Industrial concerns, removal to rural areas, objections to, (535).

Intensive study of rural industries, advocated, (535-6).

Subsidiary industries:

Encouragement advocated, and means for. (535), 33,299.

Experimental work in connection with, should be carried out by Government, (535)

Industries suggested, (535).

Time spent by cultivators on holdings, (535).

# PANDE, K. P .- contd.

## AGRICULTURAL LABOUR:

Areas not at present under cultivation, leasing out of, scheme. (536).

Labour saving machines, results from introduction, (537).

Mobility of (536).
Moving of, from one place to another, objections to system of, (536, 537).

Shortage, causes, (532), (536), 33,295-8. little Surplus of, (536).

#### ANIMAL HUSBANDRY:

Brahmani bulls, discouragement of, should cease, (534), 33,498-9.

Breeding farms, not paying, 33,462.
Conditions in Jubbulpore and Hoshangabad as regards fodder and pasture, 33,464-9.
Cows, prohibition of slaughter of, advocated, (534).

Dairying industry:

Ghi, import and adulteration must be stopped, (534). Milk, adulteration with water must be stopped, (534).

#### Fodder:

Dry, prohibition of export advocated, (534), 33,519-29. Green, encouragement of growing of, needed, (535). Improvement of supply, proposals for, (535). Interesting of landowners in question of, means of, (535). Juar, tried but unable to withstand rainfall, 33,235.

Lucerne, not profitable for draught cattle, 33,236. Mineral constituents:

Insufficient and salt tax should be abolished, (535). Manufacture of local salts should not be discouraged, (535). Sann hemp, special concessions proposed to encourage growing of, (535).

Shortage, (535), 33,233.

Silage, personal experience, 33,304-16. Wheat straw, export to United Provinces, (534).

## Grazing:

Conversion of good pastures into fields, (534). Encroachment on village pastures should be severely dealt with,

(535), 33,526.

Exemption of land from land revenue proposed. (535).

Grass borders in tilled fields, reduction, (534).

Over-stocking of common pastures, question of, (534), 33,470-2. Pasture land, proposals for maintenance in villages, (535).

## Improvement of breeds:

Importance of, (534). Services of bulls of good breed in group of 50 villages, proposal, (534).

Slaughter of milch cattle and other agricultural cattle should be prohibited, (537).

### CAPITAL, means of encouraging, (538).

## Co-operation:

Cattle breeding societies, failure in Central Provinces but should be tried again, and suggestion re, (537).

## Central Bank:

Activities should be confined to education, training and pro-

paganda, 33,403.

Deposit of money in, by trustees and District Councils and Municipal Committees should be allowed, (537). Local bodies should be allowed to keep money in, (537).

Applications for, and granting of loans, procedure, 33,331-8. Audit, 33,402.

## PANDE, K. P .- contd.

## CO-OPERATION—contd.

Credit societies contd.

more Auditors should be appointed and Central Bank not be asked to bear expense, 33,403.

Difficulties of, owing to tenancy system, 33,326-38, 33,455-61. more Education of, required, (537).

Debt per head, increasing, (539), 33,348-52. Encouragement of growth of, proposed measures for, (537), 33,480-1. Federation of Co-operative Societies, position, 33,393-98. Housing societies, State aid advocated, (537).

Improvement societies, advance of money to, at low rates and liberal number of instalments advocated, (537).

Insolvency Act, amendment advocated, in order to protect, 33,339-41.

Joint farming societies, should be tried, (537)

Joint improvement, legislation necessary, (538).

Purchase societies, establishment advocated, (537). Registrar:

frequent Changes, 33,342.

Powers recommended by Committee, objection to, 33,366-7, 33,417-9.

Sale societies, establishment advocated, (537).

Societies, reasons for greater success not resulting from, (538). Societies for fighting diseases, establishment advocated, (537). Use of machinery, scope for, (537).

Damage by wild animals, proposed measures for preventing, (532). increased Fertility of the soils, need for, and methods, (531). Fodder, difficulty in connection with, (532), 33,415-6. Food, securing of better prices or increase in yield, need for, (532).

Gram, personal experience, 33,214-5.

Heavy yielding food crops, proposals, (532).

Improved varieties, high yielding nature, continuance doubted owing to soil, (531), 33,294.

Introduction of new crops, Government should advance money free

of interest for three years to approved and bona fide cultivators, (532).

Mixture, practice re, (533).

## Protection:

Internal, cheap methods necessary, and provision to compel owners of neighbouring fields to co-operate advocated, (533). Methods suggested by Department generally too expensive, (533). Rust-resisting wheat produced, (533).

Rice:

Personal experience, 33,208-9, 33,228-31.

Transplantation, known about before propagated by department, 33,371.

Rotation, second crop giving as good a return as wheat without affecting fertility of the soil needed for, (533).

Sann hemp, for fodder and manure, special concessions for growing of, under irrigation, proposal, (535), 33,317-8.

Seeds:

## Distribution:

through Agricultural Association, (532).

Certified seed farmers, suggestion re supply of seed to, by Government, (531).

through Government, Court of Wards and certified farms advocated, (352). by Malguzars to tenants, and rate of interest, 33,243-7.

Introduction of selected seed, good results, (531).

# Wheat:

# Cost of cultivation, 33,237-9.

Personal experience, 33,211-3, 33,216-7, 33,237-9, 33,494-7. Yield, 33,216.

## PANDE, K. P.—contd.

DEMONSTRATION AND PROPAGANDA:

Demonstration plots, one for group of 50 villages advocated, (529).

Success of, in influencing and improving agriculture, (529).

Success as result of propaganda for selected seed in Sihora tahsil, (529).

Results, suggestion re publication of, (529), 33,374.

#### EDUCATION:

### Adult:

Night schools, experiment tried by Sihora Central Bank, 33,250-5.

Popularisation by opening night schools proposed, (529),33,250-5.

## Agricultural:

Administration by District Councils, Co-operative Central Banks and Village Panchayats, with co-ordination by Government, advocated, (529).

Attendances not satisfactory, and reasons, (529). Charges should be charged on land revenue, (529). as Compulsory subject in schools in rural areas, advocated, (529).

Courses of study, modifications advocated, (529).

Demonstration farms attached to all Vernacular middle schools and normal schools, advocated, (529).

Facilities, extension, need for, (529). Scholarships, suggestion for, (529).

Students:

After-careers, (529).

Technical knowledge, no steps taken for improving, (529). Teachers in rural areas, should be drawn from agricultural classes, (529).

### Higher or collegiate:

Agriculture as optional subject, suggestion re, (538).

Farm economics should be Studied, (538).

Nature study, present system of little practical use, (529).

Primary schools, practical teaching in agriculture advocated, (538). Rural, must be in conformity with needs of agriculturists, (538).

Rural primary schools, reasons for small proportion of boys passing through fourth class, (538).

## FERTILISERS:

Adulteration, proposed preventive measures, (531).

Artificial:

Experiments made but price too high to be paying and irriga-

tion necessary, 33,218-27.

Increased use of, scope for, and methods of encouraging, (531).

Cow dung, use as fuel and proposed measures for preventing, (531).

Manufacture in India, need for, (531).

Materials usable for, export should be prohibited, (531).

Natural manures, scope for increased use of, and methods of encouraging, (531).

Popularisation of new and improved fertilisers, proposed methods of, (531).

Prices, reduction necessary, (331).

Land mortgage banks, State aid advocated, (537).

Long term loans, Government should advance, (530).

Short term loans, Co-operative credit societies should advance, (530). Taccavi loans:

Delay in granting, (530), 33,262-3.

Granting of, through co-operative societies proposed, and scheme for, 33,264-82, 33,353-4, 33,420-48.

suggested Modifications and improvements, (530)

Obstacles to greater use of, (530), 33,408-10, 33,437.

## PANDE, K. P .- contd.

#### FORESTS:

Afforestation, no need for further operations, (537). Cultivation of better fodder crops on systematic lines advocated, (537).

Grazing:

Facilities, increase advocated, (537) Minimum rate should be charged, 33,502.

Provision of facilities by malguzars, 33,504-14.

Leasing of areas for cultivation, cattle breeding and dairying pur-

poses, proposal, (537).

Roads, construction advocated, (537).
Seeds of superior kinds of grasses should be supplied, (537).
Soil erosion due to deterioration of forests, not marked in Central Provinces, (537).

full Use not being made of, for agricultural purposes and proposals, (537).

#### HOLDINGS:

## Consolidation:

Compulsory, legislation necessary for, (531).
Difficulty greater than in Punjab, 33,292-3.
Obstacles in way of, (531).
Voluntary, success doubted, (531), (537), 33,289-93.

Legislation necessary for extending right of pre-emption, (531). Tenancy and Land Revenue Acts, changes needed, (531).

Adoption of improved, proposed measures for hastening, (533). Distribution and sale by Co-operative Societies and local bodies suggested, (533). Manufacture:

by Government at Central workshop, proposal, (533).

Private firms should be encouraged in, (533).

Obstacles in way of increased use of machinery, (533).

Ploughs and bakhars worked by power, supply by Government on contract system, proposal, (532), 33,300-3.

Repairing facilities prod for (522)

Repairing facilities, need for, (533).

IMPROVEMENTS, discouragement of owners of agricultural lands from carrying out, by Government land revenue policy, (538), 33,482-4.

## IRRIGATION:

Tanks, facilities should be supplied at low rates, (532).

Water rates, yearly increase of, detrimental to commercial crops not fully established, (532).

Well, experiments made, Schora district, but impossibility of, on large scale owing to nature of soil, 33,197-206, 33,493.

LAND REVENUE, burden of, comparison with other countries, 33,530-3.

## LAND SYSTEM:

Nazarana system, 33,537-40, 33,556-8.

Occupancy tenure, Co-operative societies no assets owing to, 33,326-38.

LEGISLATIVE COUNCIL, ineffectiveness, 33,383-5.

LOCAL BOARD, interests mainly schools, 33,404-7.

#### MARKETING:

Grain, co-operative purchase and sale societies advocated, (537).

Improvement, suggestions for, (537).

Information to cultivators, &c., as to market conditions, crop returns, &c., advocated, (537).

Roads, provision of, in rural areas with light railways, proposal, (537).

Wheat, personal experience, and inadequacy of prices, 33,321-5.

MIDDLE CLASS YOUTHS, methods of making agriculture attractive to. (529), 33,248-9.

## PANDE, K. P.—contd.

RESEARCH, increase of scientific staff of Government of India not advocated, (530).

Soils, bunding:

Encouragement advocated, (531).

Improvement of soils by, in Jubbulpore haveli, (531).

#### STATISTICS:

Areas under cultivation, collection by village Patwaris, and substitution of another agency would be expensive, (539). Arrangement and publication should be carried out by Department

of Agriculture, (539).

Persons should be deputed to study American system, (539). Yield of agricultural produce:

Collection by executive officers, objection to, (539).

Taking only one-tenth acre for experiments, method should be changed, (539).

### VETERINARY:

Civil Veterinary Department, independence of Director of Agriculture not necessary, (533), (534).

Contagious diseases:

Legislation not desirable at present, (534).

Obstacles in way of dealing with, (534)

Serum, difficulty experienced in obtaining, (534). Dispensaries:

Control:

by Extra Assistant Directors of agriculture desirable, (534). Transfer to Provincial authority not objected to if kept in touch with local needs, (533).

Expansion needed, (533).
Responsibility not realised by Boards owing to dual control

with Government, (533).
Touring, little known of, (534).
full Use not made of, and reasons, (533).

Veterinary assistants, transfer to control of local bodies advocated, 33,256-61.

Muktesar Research Institute, relations with proposed provincial

institutes, (534).

for Ordinary diseases man of lower subordinate service in every Revenue circle desirable, (533-4).

Pamphlets in vernaculars dealing with diseases and medicines should be published, (534).

Preventive inoculation:

no Fee charged in rural areas, (534).
Obstacles in way of popularising, (534).
Propaganda work should be increased, (534).
Provincial Veterinary Research Institute in each province, proposal, (534).

Service, improvement since introduction of Reform scheme, (530).

## WELFARE OF RURAL POPULATION:

Economic surveys of typical villages desirable and suggestions re carrying out of, (538-9).

Government financial assistance needed, (538).

Government scheme of sanitation in rural areas needed, (536), 33,476-8-

Improvement of health conditions, Government scheme and grants needed, (536).

Indian attitude re cleanliness of houses, infectious diseases, &c., (538), **3334**.

Physical condition of people in different districts, 33,473-5.

# INDEX. PANDEYA, PURUSHOTTAM PRASAD, Malguzar, Balpur, Bilaspur District: (125-8), 28,777-28,837. Agricultural operations, 28,781-5. AGRICULTURAL INDESTEDNESS: Causes, (125). Interest, rate of, question of restriction, (125), 28,826-7. Moneylenders, restrictions on, advocated, (125). Mortgages: Property should not be allowed to lapse to moneylenders, (125). Restriction would be approved, 28,836-7. Repayment, causes preventing, (125). Rural insolvency, measures for dealing with, advocated, (125). Usurious Loans Act, measures for applying, advocated, (125), 28,828. AGRICULTURAL INDUSTRIES: Bee-keeping, rope-making and lac-culture, advantageous if introduced successfully and managed by local men, (127), 28,806. Charka, importance of, and suggestion re supply of cotton, (126). Factories in every tract controlled by Co-operative Banks advocated, (127).Time spent by cultivators on holdings, (126). Vegetable growing, encouragement advocated, (125), 28,778-80-28,831. ANIMAL HUSBANDRY: Cows: Feeding of, 28,817-24. Number decreasing, (126), 28,798-800. erioration of cattle, cause, 28,825 Deterioration of cattle, cause, 28,825 Fodder, shortage of, (126), 28,800-5. Ghi, shortage of, (126). Milk, shortage of, (126). Co-operation: Tendency of officials to consider profits rather than welfare of people, (127), 28,807-9. Value of, if properly run, (127). EDUCATION: Agricultural: should be Compulsory subject in Colleges, High Schools, Middle Schools and Primary Schools, (128). Inducements to take interest in cultivation, (125), 28,778-80, 28.831. Instruction of agriculturists on social economy advocated, (125).Demand for, must be created, 28,796-7. Night schools in villages, suggestion, (128). Primary: Compulsory, apathy of people towards, and means of encouraging interest, (128) Lapse of boys into illiteracy, (128). Travelling libraries of light literature advocated to keep up

present Systems, interest in agriculture not encouraged by, (127-8). Village Schools, practical agricultural work advocated, (128).

FINANCE:
Advances of money and seed to cultivators without interest by societies and farms advocated, (125).

Loans by big landlords on moderate or nominal interest should be encouraged, (125).

Taccavi advances:

learning of boys, (128).

Approved, (125).

Method of realising, criticism, (125).

## PANDEYA, PURUSHOTTAM PRASAD—contd.

HOLDINGS:

Consolidation of:

Advantageous, (125).

Opposed by ryot class, favoured by malguzar class, as a rule,  $(\bar{1}25).$ 

Fragmentation of, objections to, (125). Legislation to safeguard interest of minors and widows desirable, (125).

IRRIGATION BY TANKS:

Bilaspur District, (125).

Extension desirable, 28,786-7.

Improvement and construction:

Difficulty of obtaining permission from Superior Proprietors or Taluqdars, (125-6), 28,813, 28-832-5.

Restrictions should be removed and constructors of tanks encouraged, (126).

MARKETING:

Protection of villagers in sale of produce, suggestions for, (127).

Rates of main produce in important railway centres should be published on morning of bazaar days, (127).

Rice market, defects in, and criticism of activities of Marwaris, (127).

Societies should be formed to protect interests of villagers, (127).

RESEARCH:

Economy necessary, (125). Indian youths should be selected for work, (125).

ROADS, District Board without sufficient funds for maintenance, Bilaspur district, 28,795.

VETERINARY:

Dispensaries:

Placed too far from villages, (126), 28,790-4. Travelling, inadequate stock of medicine, (126).

Officers, criticism of, (126), 28,814-5.

Research:

Economy necessary, (125).
Indian youths should be selected for work, (125).
Surgeons and subordinate officers, strength should be increased in every district, (126).
Welfare of Rural Population, suggestions for improvement of health

conditions of villages, (127).

Paper pulp and paper making, see under Agricultural Industries.

PETERSON, H. H., B.A., Secretary, Y.M.C.A., and President, The Empress Mills Co-operative Stores, Ltd., Nagpur: (442-446), 32,555-32,424.

EMPRESS MILLS CO-OPERATIVE STORES, LTD.:

Grain marketing system, (445-6), 32,395-6

Sources of grain, 32,399-401.

MARKETING:

Dalals, licensing system, 32,363-5.

Grain:

by Co-operative methods, scheme, (445-6), 32,397-8.
Empress Mills Co-operative Stores, Ltd., system, (445-6) 32,395-6.

in Ganj or market:

Improvement, suggestions for, and sale by auction proposed, (442-5), 32,376-92, 32,422-4.

System, and defects, (442), (443-5), 32,356-65, 32,382-90,

32,403-21.

Measurement should be by weight and not by quantity, 32,424.

Weights and measures: in Grain bazaars, difficulty of tampering with, 32,414.

Multiplicity of, (442), 32,356-7, 32,373-4, 32,403-9.
Municipal measures, law would be approved, 32,414-7.

Municipal stamping of, (442), 32,369, 32,407, 32,413. Standardisation of, need for, and suggestion, (442), 32,367-74, 32,391-2.

```
PLYMEN,
             F. J., I.A.S., Director of Agriculture: (1-35), 27,453-28,314,
  (88 i-88 ii).
    Evidence agreed with, Powar 28,320-1.
    Training and past appointments, 27,454-5.
    Administration:
        Advisory Board in Agriculture, 27,558-61, 27,580-1, 27,608-9, 27,858.
        All-India legislation on agricultural matters, Government of India
           should have at its disposal some advisory organisation, (27)
        Board of Agriculture, Central, no force behind recommendations.
           28,270.
        Board of Agriculture, Provincial, functions, 27,915-6.
        Co-ordination between provinces
             Bureau for summarizing of work, to be maintained by Central Government, proposal, (27), 27,547-50, 28,182-4.
             Financing of certain schemes by Central Government, proposal,
        Meteorological information, improved methods would be welcomed,
           (27), 28,185-7.
        Railways:
             Examination of rates, desirable, (27), 27,551-61.
        Provision considered satisfactory, 27,562.
Roads in paddy tracts, condition of, 27,776-8.
    AGRICULTURAL DEPARTMENT:
        Agricultural Bacteriology section, proposal for expansion, (25).
        Agricultural Engineer:
             Functions, 27,948-58, 27,962.
Post at present vacant, 27,457, 27,944.
proposed Status and functions, (30).
        Budget, and increased sum that could be spent, 28,216-21.
        Budget procedure, 27,606-9.
        Cotton paid more attention to than other crops, 27,861-5.
        Demand for services of, by cultivators, increasing, 27,658-9. Directors of Agriculture:
             Qualifications required, 28,130-2.
Relations with Civil Veterinary Department, (30).
        Distribution of work, (9-10).
Extra Assistant Directors, functions, etc., 27,458.
        Horticultural section, proposed strengthening of, (32).
        Lectures to young officers of various departments on rural economy,
           27,725-9.
        Organisation, 27,457-60, 27,897-8, 28,115-20.
        Relations with Irrigation Department, 27,578-82, 27,586.
        Results of work, 27,866-70.
        special Statistical Officer and Economist should be added to staff,
           and proposals re status, etc., (25), 27,500-3, 27,537.
        Subordinate services:
             Initial pay, 28,176, 28,179.
             Organisation, 27,459-60.
        Superior Service, opinion re training, 27,845-6.
        Unirrigated areas attended to equally with irrigated, 27,528-30.
    AGRICULTURAL INDEBTEDNESS:
        Alienation of land from cultivating classes, 27,757-60, 28,295-7.
        Assistance to cultivators through agencies such as Land Mortgage
           Banks, proposal for, (28), 27,564, 28,106.
        Causes of, (6).
        Credit:
             Effects of system of obtaining, (8).
        Sources of, (6-7).
Legislation on lines of Deccan Agriculturists' Relief Act, required,
          (28).
        Types of loan and rates of interest, (7).
        Whole time officer, appointment proposed, for dealing with, (28).
          27,564-9, 28,106.
```

xcvii

```
INDEX.
PLYMEN, F. J.—contd.
    AGRICULTURAL INDUSTRIES:
         Intensive study of rural industries necessary before steps taken for
         improvement, (32), 27,704.
Lac culture, (32), 27,702-3, 28,051.
           (32).
         improved Lay-out and sanitary conditions of villages, scope for,
           (32).
         Poultry farming, (32).
Preparation of produce for consumption, a matter for private
         enterprise, (32).
Removal of industrial concerns to rural areas, advantages and
           disadvantages, (32).
         Rope-making, prospects, (32).
         Rural employment, increase of, improvement of whole agricultural
           position only measure necessary, (32)
         Sericulture, unsatisfactory results, (32).
         Vegetable and fruit growing encouragement, proposals for and
           and steps taken, (32), 27,697-701.
   AGRICULTURAL LABOUR :
         Emigration, (4), 28,073.
         Migration to cotton tract, (5).
         Migration to wheat area, (4-5).
         Ryotwari villages, (33).
         Seasonal migration, (32).
         Shortage:
              and Causes, (3-4, 4, 5, 33), 28,069-72.
             Means of overcoming, (33).
         Wages, (4).
    ANIMAL HUSBANDRY:
         Cattle breeding societies, Province not yet prepared for, (34),
           28,110.
         Dairying:
             Breeds used, 27,676-8.
             under Deputy Director in charge of Animal Husbandry and
                Principal of Agricultural College, 27,671.
             Improvement:
                  Desirable and possible on co-operative lines, (31).
                  Improvement of milch animal necessary for, (31).
                  from Buffalo v. cow, 27,673-5.
                  Nagpur system, 27,672-3.
             Produce, consumption by cultivators and physical effects,
                27,697-94.
         Excessive number of inferior cattle, 27,934.
         Fodder:
             probable Demand for, (33), 27,719-24.
Reserves, extension of system, suggestion, (31).
Cakes, use of, 27,817-21.
             Feeding of cattle during periods of scarcity, 28,192-5. Green, absence of, in dry seasons, (31).
             Growing of crops:
                  Cultivators might be persuaded to take up, if economically sound, 27,683, 28,199-200, 28,202.

Remission or reduction of revenue for, question not considered, 27,695.
             Mineral constituents, absence of, research in central institute
                and provinces desirable (31).
             Position re, (18).
Problem of, (20).
              Shortage, periods of, (31).
```

Supply, proposals for increasing, (20). xcviii

Operations, results and prospects, (88i-88ii). Sillage, need for careful investigation, 27,684-6.

Supply of dry fodder:
Deficiency in cotton country sometimes, (31).
Sufficiency in tracts where wheat and rice main crops, (31).

# INDEX. PLYMEN, F. J.—contd. ANIMAL HUBBANDRY-contd. Forest areas for cattle breeding, proposal, (33), 27,718, 28,201. Grazing: Area available, statistics, (31). Grass borders in tilled fields, cutting down of area, (31), 28.196-8. Opening of additional forest areas for, not desirable, (31), (33). Overstocking of common pastures, (31). Importance of improved live-stock, (18). Improvement of breeds: Extension of work, need for, and proposals, (19-20). Measures to be undertaken by Department, 27,794-800. Particulars re operations, (19), 27,679-82. Proposals framed for, (30). Improvement in cultivation dependent on improved cattle, (18). Landowners' interest, means of increasing, (32). Statistics, (18). CAPITAL, means of attracting, (35). COUNCIL, increasing interest in agriculture since reforms, 27,858-60. CO-OPERATION: for Betterment of village life, need for, and suggestions, (34). Cattle Breeding Societies, little scope for, (34), 28,110. Control of Co-operative Department by specially trained wholetime officer, proposal, (34), 27,745-8. Co-operative marketing, development desirable, (34). Credit and Purchase Societies: Object attained by many, but constant and detailed supervision necessary, (34). Tendency to attach excessive importance to making of large profits, (34). Useful and proposal for improvement, 27,749-50. Joint Farming Societies, extent of scope for, (34). Legislation advocated where necessary to compel minority to join in, (34). Societies for co-operative use of agricultural machinery, future for, (34). CROPS: Cotton: Increase in acreage during last few years, but tendency to decrease owing to drop in price, 27,629-42. Introduction of improved varieties, (16). Roseum, extra profit on, (16). Seed, pure, difficulty of maintaining, (15). Damage by wild animals, (29). Dangerous plants, compulsory destruction of, proposal, (30). Fodder, experiments with, (29), 27,935-6. Groundnut, (16), 28,040-41. Hemp, growing of, but prejudice of some cultivators against, 28,273-7. Improvement work, consideration of problem from all aspects. 27,937-8. Introduction of new crops and varieties: Improvement from, but conditions required for, (15). Particulars re, (16). Requirements for success, (29). Juar, (16). Smut in, measures taken against, (14). Money, change over from food crops to, but tendency again to revert, 27,629-42.

28,040-4. Onions, 28,054-7. Potatoes, 28,054-5.

Oilseeds, nature of, and question of acreage under, 27,810-5,

```
PLYMEN, F. J .- contd.
     CROPS-contd.
          Protection:
               Imported plants might be allowed in without investigation or
                  fumigation on recommendation of Director of Agriculture,
               (30), 27,663-4.
Local Departments should have more power and responsi-
                  bility, Plymen (30).
               Procedure, not always efficient and takes too long. (30),
                  27,660-2.
          Rice:
               Introduction of improved varieties, (16-17).
               Introduction of improved ploughs, and means of distribution from depots, 27,780-8. little Manuring of, 27,763-4.
               Transplantation of, (14), 27,906.
               Yield from Department seed and ordinary seed, comparison,
                  27,882-8.
          Seeds:
               Combined Co-operative and seed producing agencies, 27,649. Distribution, (10-11), (15), 27,871-81, 28,034-9.

through Seed farmers and question of extension on com-
                       mercial basis, 27,643-9.
                     Difficulty of maintaining, (15).
              Measures taken by recognition of seed growers, 23,233-5. Seed farms, and percentage of total requirements supplied by, 27,879-81, 27,905. Seed Unions, results, 28,286-7.
          Sesamum, (16).
          Sugarcane, see that title lielow.
          Water hyacinth, destruction should be made compulsory, (30),
            27,665-8.
          Wheat:
               Decrease in area under, 28,066-8, 28,252-9.
               Importation, 28,255-6.
               Impracticability of manuring dry wheat, 28,083-90.
               Improved varieties, (16-17).
Ploughings, number, 28,247-8.
Varieties grown, 27,475-7, 27,838, 27,999-8004.
    CULTIVATION:
          Double cropping, 27,770-2.
         Dry farming, 28,272.
         Improvement:
               Line sowing instead of broadcasting of seed, (14).
Improvements as result of extended use of inversion plough,
                 (14).
               Transplanting of rice instead of broadcasting, (14), 27,906.
         Rotations or mixtures:
               Improvement, extent of scope for, (30).
               Recommendation, 28,013-6.
    Tillage systems, improvements, (30). Demonstration and Propaganda:
         Agricultural associations, (11), 27,705-13.
Assistance from District Associations, &c., 27,911-4.
          Assistance from revenue officers, 27,904.
          Attention paid to, equally with research, 27,528-7.
         through Big landowners, 23,052-7.
by Cinema films, (27), 27,651-7.
Co-operation with Co-operative Department, 27,650-1.
         Demonstration farms:
               satisfactory Financial results desirable, 28,077-81.
               System, 27,892-6.
         Demonstration plots:
              Importance of, (27).
Organisation of, proposals, (27), 29,289-91.
```

```
PLYMEN, F. J.—contd.
```

DEMONSTRATION AND PROPAGANDA—contd. Work carried and satisfactory results, (14-5), 27,892, 27,896, 27,899, 28,080-1, 28,144-8.

Demonstrators, class of, training, &c., 27,531-6, 27,889, 28,093.

Expenditure on propaganda and research, comparison, 28,298-Field demonstrations, proposals for increasing effectiveness, (2). Improvement needed and proposals, 27,525, 27,768, 28,094-8. Methods adopted, 27,890-6, 27,899-903. Records of experiences, extent to which kept, and importance of, 27,537-45. Results of propaganda, 28,092. Work, (10). Work easier in cotton tracts and opening of demonstration plots there unnecessary, 27,907. EDUCATION: Adult, means of popularising, (26). Agricultural: on Akola farm, failure, (23). Attendances, (26). Affiliation to University, expectations from, (21-2). Course too scientific and should be more economic, 27,517, 28,177-8. Courses, etc., (21-22), 27,939-43, 27,951-2, 28,174-6. Research workers, too great proportion of time spent on teaching, 27,504-6.
Selection of candidates for admission, (26). Students: After careers, (21), 27,507-14, 27,854-7, 25,100-1. Employment on estates or cattle farms, encouragement desirable, 27,509-10. Courses of study, modifications will be carried out when called for, (26). Facilities, (21-3), (25-6). Farm school under construction, (26). Farmers' attitude towards, (26). on Government farms, (23) Inducements, prospect of obtaining Government service the main inducement, (26). in Middle schools, (35). Post Graduate: Facilities, provision not advocated until prospect of posts, 28,264-5. Students going abroad for, 28,262-3. Middle School, Powerkhera, record of students being kept. 27,520-2. in Middle schools, (35). in Rural Vernacular schools, (23). Seasonal classes, (23). Students: Source of, (26). Subsequent training, (26). Teachers, from agricultural classes, only, rule not advocated, University, (21), (25-6). Vocational schools, experiments and results, (22-3), 28,301-14. Yeotmal farm students under bond to take up employment as teachers, (26). growing Demand for, among cultivators for sons, 28,312. Faculty of Agriculture, 28,062-4. little Influence on agricultural efficiency or desire to take up agriculture, (34-5), 27,751-4. Low caste attendance at schools, 28,228-31. Nagpur University, Chair in Rural Economics, desirability, 27,515-7.

Nature study, opinion re, (26).

```
INDEX.
PLYMEN, F. J.—contd.
     EDUCATION—contd.
         Rural:
              Compulsory, would be m
taught, (35).
Elasticity necessary, (35).
general Policy, (22).
                             would be more acceptable if subsidiary industry
              Small proportion of boys in primary schools passing through
                fourth class, explanation, (35).
         School farms:
               Necessary in schools where agriculture taught as a vocation, (26).
              Valueless for young boys, (26).
         School plots, opinion re, (26).
    Fertilisers:
         Ammonium sulphate, increased use of, for cotton at Hoshangabad,
            (29).
         Artificial:
              Increased use of, scope for, (29).
              Investigations, (29).
              Price, importance of reduction, (29).
         Bonemeal:
              Export, 28,030-1.
              not Used to any large extent, 28,030-1.
         Bones, grinding up of, and use in Province desired instead of
            export, 27,617-22.
         Cowdung, use as fuel:
              Attempts to encourage use of firewood in place of, and failure,
              Fuel depots, establishment of, in Chhattisgarh Division, 27,624-8.
              Means of discouraging, (29).
Question very serious, 27,623.
         Use of cotton stalks instead, extent to which possible, 28,032-3. Experiments being carried out, 27,765.
         Fraudulent adulteration, prevention of, measures, (29).
         Increased use of, economic question in connection with, 27,610, 27,614.
         Karanja cake, places where use of, increased, (29).
         Natural:
              Compost-making experiments, 27,613, 27,615-6.
              Increased use of, scope for, (29).
         no Natural deposits usable as, 28,052-3
         Nitrogen:
               Fixation of, from the air, 27,993-8.
         the Limiting factor, 27,611.
Oil-cake, importance of, 27,617.
         Oil seeds, retention desired, 27,816.
Popularisation of new fertilizers, methods, (29).
         Sann hemp, use not developing as quickly as desirable, 277. Tilli cake, districts where use of, increased, (29).
    Famine, none for many years and reason, 27,978-81.
```

FINANCE:

Banking influence, (6).

Barhi system of loans, 27,570-4. Provision of much cheaper credit than obtainable under present system not advocated, (28).

Taccavi loans:

Issue of, in kind, extension of system desirable, (28).
Issue, appointment of special officer, proposal, (28), 28,103.
Remission of interest on instalments when land revenue remitted, 27,576-7.
Remission, loss on account of, not believed to be heavy, 28,105.
Speed the important thing, 28,104.
System and statistics (8)

System and statistics, (8). Unpopularity, reasons for, (8).

FOOD GRAINS, difference in prices in rice or wheat tract and cotton tract, 28,292-4.

## PLYMEN, F. J .- contd.

#### FORBSTS:

Afforestation schemes near villages, opening for, where fodder and fuel supplies scarce and where waste land exists, (33).

Baled grass, experiments in supply of, for staff feeding, (8). Cattle-breeding areas, proposal, (33), 27,718, 28,201.

Department:

Relations with Agricultural Department, 27,718.

Young officers, attachment of, to Agricultural Department, scheme not considered necessary, but not objected to, 27,726-8. Erosion of soil by monsoon rains, and preventive steps advocated,

Firewood, encouragement of use of, as fuel in place of cowdung,

attempts and failure, (9).

Fodder and thatching grass, supply, (8-9).

Fuel and other produce, supply to cultivators, (9). Planting of shrubs or trees by cultivators, doubted, 27,730-1.

## FRUIT GROWING:

Prospects, 28,045-50. Position re, 27,801-5.

#### HOLDINGS:

Consolidation:

Importance of, 27,715-7. Labour problem would be affected by, (4). Legislation necessary, 28,214-5.

Obstacles in way of, (2).

Position rc, (2), 28,208-13.

Special legislation and special staff needed, (2).

Fragmentation, serious problem only in Chattisgarh Division, (1-2). Small size of, drawback of, 27,523-4.

## IMPLEMENTS:

Agency for supply of, (17)

Improved:

Extension of use of, statistics, (17).

Methods for increasing adoption of, (30).

Improvement, work carried out, (13).

Manufacture by Indian firms (17).

Timber for, no difficulty in obtaining, by ryots, 27,789-93. Types sold, (17-18).

IMPROVEMENTS, discouragement of landowners from carrying out, due to general lack of interest, (35).

INDIAN CENTRAL COTTON COMMITTEE, representation of cultivators on, 27,463-6.

## IRRIGATION:

Department, relations with Agricultural Department, 27,578-82, 27,586, 27,827-9.

Extension necessary in northern part of province, (28).

Facilities, 27,824-6.

Minor achemes, scope for, but difficulty in connection with, and proposal, 27,588-92, 27,594-5.

Requirements of various crops, investigation being carried out, 27,584-5.

Extension desirable, (28). Particulars re, 27,984-92.

## Wells:

Investigation of subject by specialist, proposal for, (28), 27,592-3, 28,107-9. Position τe, 27,959-77.

Saline efflorescence, proposed resting of soil in areas with, (28). Tube, geological conditions not suitable for, 27,963-73.

62797

## PLYMEN, F. J.—contd.

MARKETING:

Co-operative, development desirable, (34).

Cotton:

Charges, 28,222-7.

Commission agents, licensing desirable, 27,740-1. Markets, system, (3).

Markets, system satisfactory in theory but not in practice.

27,733-4, 27,743, 28,203-5.
Passing of cotton through market and sale elsewhere, 27,736-9.

Crop (cotton, wheat, rice, seeds) movements, (2).

Giving of information re market conditions through Special Crop Committees proposed, (33). Markets on lines of cotton markets, experiment worth trying,

28,206-7.

Rice, 27,779.

System, (2-3). Wheat, exported, cause of dirt, 28,005-8.

MIDDLE CLASS YOUTHS, means of attracting to agriculture, (26). 27,523-4, 28,141-3, 28,403-5.

## PUBLIC HEALTH:

Drinking water:

Improvement, must be financed along with general improvement of rural areas, 27,756.

careful Investigation necessary and appointment of special officer advocated, 27,755.

Well boring, work transferred to Public Works Department, 27,955-8.

### RESEARCH:

Agricultural Bacteriology, proposal for increased staff, (25). Animal nutrition, central or provincial organisation, question,

28,167-8.

Botanical, work, (11-12). Central fund or funds provided by cess on exports of wheat, rice, oil seeds and cakes, etc., scheme for, (24-5), 27,461-2, 27,467-9, 27,830-3, 27,847-52, 28,133-8.

Chemist, familiarity with work at Pusa and in other provinces, 27,486-7.

Co-operation between officers of scientific sections of various provinces, 27,481-2.

Distribution between central and provincial institutions, question of, 27,929-33, 28,154-73, 28,135-8.

Horticulturist, duties now carried out by other officers, criticism, (25). Major crops such as oilseeds, small millets and fibres, increased

attention to, desirable, (25). Nature of problems being dealt with, (12), (13), 27,483-5, 28,271-81.

Pusa Institute:

little Benefit to Provincial Departments, 27,471-4, 27,480.

Developed before organisation of provincial departments, 27,470, 27,834-5.

Development for central research work and post graduate training would be approved, 28,267-9.

Post-graduate training, sending of men to England probably more useful, and proposal re, 27,489-99.

Recruitment to, opinion re, 28,121-8, 28,153.

Training at, question of, 27,836-7, 27,839-44, 27,845.

Scientific staff:

Particulars re, and need for increase, 27,921-8. Separation from teaching staff desirable, 27,922, 27,927.

Soil physics, increased attention to desirable, (25). Staff and distribution of work, (9-10).

Visits of officers to other parts of India useful. 27,488.

Scarcity, relief works during, 27,981-3.

## PLYMEN, F. J .- contd.

SOILS:

Bunding system, (28). Chemicals taken away by different crops, work re, 28,022-5.

Deterioration owing to growth of kans grass, and measures adopted

for dealing with, (28), 27,599-605, 28,026-9, 23,232-3.

xcoss water, co-operation amongst cultivators for removal of, Excess water, co-operation amongst condesirable, (28).

Erosion, extent of problem, 28,249-51.

Improvement on some Government farms, (28).

Resting of, from irrigation, in areas where wells unsuitable for irrigation, (28).

Retention of moisture, experiments carried out for, 28,271.

no organised Survey carried out, but certain work being done,

27.596-8.

Uncultivated land, and question of encouraging settlement on, 27,806-9, 28,074-6. Waterlogged, drainage proposals, (28).

STATISTICS:

Areas under cultivation and crops, sufficiently accurate, in general, (35).

Crop forecasts:

Extent of responsibility of Agricultural Department, 28,151-2.

System, 28,234-46, 28,260-1.

Imports and exports of foods, question of availability, 28,058-61. Live stock and implements, reliability of, (35).

Yield, crop cutting experiments needed and increased staff required

SUGAR INDUSTRY, Gur making only, 28,009-10, 28,017.

SUGABOANE:

Acreage, decrease and reason, 27,822-3.

Coimbatore:

Cultivation of, 27,773-5. Value of, 27,478-9. Coimbatore Station, advantage derived from, 27,480.

Cultivation, improvements in, as result of demonstration, (14-15). new Furnace, benefits derived from introduction of, (15).

Fertilisers, value of Karanja cake, 28,188-90.

Introduction of new varieties, (16).

Rotation, 28,011-6.

Watering required, 28,019-21.

Veterinary :

Civil Veterinary Department:

Close co-operation with Director of Agriculture desirable, (30) Control by Director of Agriculture not desirable, (30). Staff, increase needed, (30).

Provincial Research Institute, need for, (25), (30), 27,853, 28,139-40.

WELFARE OF RURAL POPULATION:

Concentration on education, agriculture, rural sanitation and health advocated, 27,761-2.

Economic surveys in typical villages:

Desirable and suggestion re method of carrying out, (35), 28,111-4.

Work carried out, (35).

Improvement of hygienic conditions necessary, (35).

POCHORY, Kaluram, representing the Agricultural Association, Gadar-wara: (516-518), 32,896-33,184. Estate of, and agricultural operations, particulars re, 32,897-922, 32,933-32,942, 32,947-68, 32,988-33,181.

AGRICULTURAL INDEBTEDNESS Causes of, (517), 33,166-9. Credit, sources of, (517).

## POCHORY, Kaluram—contd.

AGRICULTURAL INDEBTEDNESS—contd.

Moneylenders should be bound to give loans at not more than settled rate of interest, (517), 32,926-9.

Moneylending by malguzar, rate of interest, etc., 32,920-22.

Moneylending of absolute accuracy land, proposed restriction, (517)

Mortgages of absolute occupancy land, proposed restriction, (517). Repayment, causes preventing, (517).

AGRICULTURAL LABOUR:

Binding of labour to villages, proposal, (517), 32,967-73, 33,010-20, 33,182-4.

Shortage:

Causes, (517), 32,964-6. proposed Measures to remedy, (517). Wages, rates, 32,969-73, 33,080-3, 33,147-8.

### Animal Husbandry:

Breeding farm should be started by Agricultural Department in every district and bulls be supplied to cultivators on premium system, (517).

Cows, feeding of, 32,949-55.

Fodder:

Juar stalks, use of, 33,109-11. Shortage, 32,934-5.

Silage, personal experience, 32,936-42, 33,021-7.

Grazing:

see also under Forests below.

no Land reserved for pasture by cultivators, 33,050-3, 33,089-94.

#### Crops:

#### Cotton:

Personal experience, 33,116-21, 33,133-5.

Yield, 33,042-3.

Cotton stalks not used as fuel, 33,005-9.

Damage by jackals, 33,044-8.
Groundnut, discontinued owing to trouble with jackals, 33,044-8.

Introduction of, by Malguzar among tenants, 32,913.

Seeds, distribution by Malguzar to tenants, and rate of interest, 32,914-6.

Wheat:

Personal experience, 33,136-42. Yield, 33,040-1.

#### DEMONSTRATION AND PROPAGANDA:

Assistance of intelligent cultivators with improved implements, suggestion, (516).

Demonstration of improved implements, proposal for, (516).

## EDUCATION:

## Agricultural:

Extension of facilities, need for, in Narsinghpur district, (516). Incentives inducing lads to study, (516).

Institutions, insufficiency, (516).

Teachers:

Insufficiency, (516).

in Rural areas should be drawn from agricultural classes, (516).

Nature study, advocated, (516).

School farms, advocated, (516).

School plots, advocated, (516).

#### FERTILISERS:

Cowdung, use as fuel, opening of forests free to agriculturists for wood advocated, (517), 32,982-7, 33,002-3.

Manufacture of some, in India by aid of Government advocated,

Purchase by Agricultural Department and sale at cost price, proposal, (517).

## POCHORY, Kaluram-contd.

#### FINANCE:

Long-term advances by Government at low rate advocated, (516). Taccavi loans:

Applications usually granted if request reasonable, 32,924-5. in Kind, proposal, 33,069, (516).

Use of loan, proposed supervision, (516), 32,923, 33,070-3.

## FORESTS:

#### Grazing:

Free, for agricultural cattle proposed, 32,977-81.

Tax on buffaloes should be same as on cow or bullock, (517), 32,943-6.

Stray cattle in, from hilly malguzari villages, penalty and reduction, advocated, (517), 32,956-63.

GADARWARA AGRICULTURAL ASSOCIATION, membership, objects, etc., 33,097. 33,108, 33,125-32.

#### IMPLEMENTS:

Adoption of improved implements, proposed measures for hastening, (517).

Manufacture in India, Government should start workshop for,

Motor tractors, useful in some districts, 33,154.

Taccari loans for, for long terms at low rates desired, 33,056-8.

Perennial Canals in Narsinghpur district, advocated, (517), 32,930-32, 33,031-9.

### Wells:

Construction, Government assistance, proposal, (517), 33,059. Personal experience, 32,901-2, 33,061-4, 33,067-8, 33,113-5.

Commercial Gazette published bi-weekly or daily in Hindi, dealing with market conditions, crop returns, &c., needed (518). Facilities in Gadarwara and Kareli markets, not satisfactory, (517-8), 33,160-1-

Grain, defects, and suggestions for improvement, (517-8), 33,162-3. Improvement, communication from interior to central markets, should be improved, (517).

Measures, standardisation necessary, (518),

STANDARD OF LIVING, increase, 33,166-9.

## POLLARD-LOWSLEY, Colonel H. de L., C.M.G., C.I.E., D.S.O., Chief Engineer, Irrigation: (131-3), 28,838-29,093, (150-1).

## FERTILISERS:

Manure, shortage in certain areas, (133).

Sann hemp, obstacles in way of growing, 28,906, 29,034.

Holdings, consolidation, legislation necessary, 28,909-10.

## IRRIGATION:

#### àgreements :

Guaranteeing of supply, impossibility of, 29,048-55.

Non-renewal if agreements expire in good year, 28,919-21, 29,041-7.

Non-renewed, percentage, 29,081.

System, necessity for, 29,005.

Canal Deputy Collectors, advantage of revenue officers as, 28,926. Canals:

fuller Development anticipated, 28,962-4.

Working expenses only just covered, 28,942-3.

Chief Engineer, working under Revenue Member, and is also Secretary to Government, 28,940-1.

Colonisation, Chanda scheme, (132), 28,912-17.
Consolidation of holdings necessary for obtaining full benefit of, 28,909.

## POLLARD-LOWSLEY, Colonel H. de L.-contd.

IRRIGATION-contd.

Construction schemes, in Chhattisgarh and especially in Bilaspur district, case for, (132).

Construction of schemes by private persons and charge of rate to

cultivators, 28,896-9.

Cost of labour, increase since war, 29,023-4.

Cost of works, interest, maintenance, &c., per acre, irrigated, 28,931-6-

Council Committee on, 29,086-93. Crops for which required, (131).

Department:

Relations with Agricultural Department, 28,875-6.

Staff and organisation, 28,840.

Deterioration of irrigated land in certain cases, 28,887-9.

Development, improvement of cultivation and consolidation of holdings necessary for, (133), 28,877-9, 28,886.

Distribution of water, policy, 28,849, 28,852, 29,014-5.

Districts needing new works, (132-3).

Duty allowed at outlet, 28,999-9004, 29,056-7. Efficiency, extent of, 28,841-2, 29,006-7.

total Expenditure, and absence of direct return at present, 29,082-5. Financial position in regard to works for 1925-26, statement show-

ing, (150-1). High cost of works, (133).

Hydro-electric schemes, none constructed, 29,061-2.

Irrigation Bill, 28,895-6.

little Lift irrigation, and not considered necessary, 28,992-8.

Mahanadi area, difficulties in connection with, 28,877-9.

Maintenance, high cost of, (133).

Manurial problems of irrigated land, and central research organisation might be useful, 28,889-90, 28,906-8, 29,033-6.

Minor schemes, undertaking of, by cultivators, question of, 28,866-8. Minor works, question of scope for, 28,865-6. Object of Government works, (131), 28,845

Obstacles to extension of, (133), 29,032.

Officers:

Extent of touch with cultivators, 28,924-8.

Short course in Nagpur College, not considered necessary, 28,929-30.

Particulars re, (131-3), 28,841-53.
Private, extent of, (132).
Productive projects sanctioned by Secretary of State, two will have to be relegated to unproductive list and question of power, 28,980-3.

Programme, 28,923.

Projects submitted to Secretary of State, basis of calculation, 28,973-9, 28,984-8.

small Proportion only of rainfall used for, 28,969.

Protective and productive schemes, 28,850-8.

Rates:

Contract method the only satisfactory one, 28,880-2.

Fixing of, 28,900-1.

Payment by occupier, not owner of land, 28,937-9.

Policy, 29,025-6.

Remission system, 29,060.

Recommendations of Irrigation Commission, extent to which carried out, 28,967-8.

as Reserved subject, not transferred, preferred and reason, 28,948-58.

Rice:

Agreement system, 28,891-5, 28,959-61.

Delta required, 29,011-3.

Statement of extent to which rice grown and irrigated in more important rice growing districts, (131-2). Silt in one canal only, 28,902.

#### INDEX. .

## POLLARD-LOWSLEY, Colonel H. de L .-- contd.

IRRIGATION-contd.

Sub-soil water, no Survey made, 29,070-2.

Sugarcane, works not suitable for, 28,946.

Surplus water and question of encouragement of use of, for fodder crops, 29,037-9, 29,052. Tanks:

Repairs, carried out by Department, 28,902-3.
Sites, etc., 29,016-22.
Tanks and embankments, assistance of cultivators, and pushing of, considered a matter for revenue officers, 28,859-64.

Uncertainty of income, (133), 28,944-6.

Unpopularity of, statement not agreed with, generally, 28,918. Watercourses, difficulty of obtaining, (133).

Wells:

Advice to cultivators not considered necessary, 28,872.

Nature of, 29,073-7.

Pucca:

Construction, temporary staff for advice in, could be engaged if necessary, 28,874.

Question of a department to deal with, 28,989-91.

little Scope for, except in river beds, 28,869-73. Wheat irrigation not anticipated, 28,846-7.

Juar, diversion to rice hoped for in time, 29,009-10.

Postal facilities, see under Administration.

Potatoes, see under Crops.

Poultry keeping, see under Agricultural Industries.

POWAR, Rai Bahadur TUNDI LAL, B.A. Deputy Director of Agriculture. Eastern Circle, Raipur: (89-93), 28,315-444.

Training and past appointments, 28,317-9.

AGRICULTURAL INDEBTEDNESS: Causes of, (90).

Credit:

Restriction not desirable at present, (91).

Sources of, (90). Increasing, 28,431.

Measures for lightening burden of debt, (90-1).

Mortgages:

Limitation of right of, not desirable at present, (91). Non-terminable, prohibition advocated, (91).

Passing of land from cultivators, 28,343-5.

Repayment, reasons preventing, (91).

AGRICULTURAL INDUSTRIES:

Government establishment not advocated, (92).

more Intensive study advocated, (92).

Scope for, and irrigation facilities and financial help would be required, 28,421-4.

Subsidiary:

Encouragement of, a means of checking flow of labour to industrial centres, (93).

Establishment of, by encouraging industrial concerns to move to rural areas, not desirable, (92).

Obstacles in way of expansion, (92). Requirements for successful taking up of, (92).

Time spent by cultivators on holdings, and amount of idle time, (92), 28,362-74.

AGRICULTURAL LABOUR:

Employment, extent of, and amount of idle time, 28,360, 28,365-6,

28,369-74. Migration, (93).

Returned after migrating, change in standard of living, 28,425-8.

## POWAR, Rai Bahadur TUNDI LAL, B.A.—contd.

AGRICULTURAL LABOUR—contd.

Shortage, Eastern Circle, and means of remedying, (93), 28,346, 28,359.

Taking up of other work at times, 28,360-2, 28,638.

Condition of, Chhattisgarh Division, 28,409-13. Fodder reserves, system, 28,439-40.

Co-operation:

Credit societies, proposals re working of, (90). Purchase and supply of seed by, proposal, (92).

CROPS:

Change to more valuable crops, Eastern Circle, 28,382-7.

Damage to, by wild pigs, and measures taken, (92). Eastern Circle, nature of, 28,351-6. Improvement by selection and breeding, scope for, (91).

Introduction of new crops and improved varieties:

Eastern Circle, 28,430.
Requirements for success, (91).
Paddy, system of cultivation, (92).
Seeds, distribution of:

by Co-operative Societies, suggestion, (92).

Measures for, (91-2).

Species found most profitable, (92).

Wheat, Pusa 100, introduction of, Chhattisgarh Division, and advantages of, 28,414 20.

CULTIVATION, raising of standard of, a means of checking flow of labour to industrial centres, (93).

DEMONSTRATION AND PROPAGANDA:

by Agricultural Associations and value of, (89). Cinema, value of, (90). Demonstration Plots:

Increase in number desirable, 28,436. System and success, (89), 28,434-5.

increased Expenditure on, needed, but not at expense of research, 28.322-5.

Experiments by cultivators not encouraged, 28,327.

Inducing of cultivators to adopt expert advice more freely, means,

Measures adopted and results of, Eastern Circle, Raipur, (89-90).

Seed and Demonstration Farms, success of, (89). Single purpose demonstration, effective in certain cases, 28,328-9.

Success, examples of, (90).

Well organised intensive propaganda, necessary, (90).

EDUCATION:

Adult, intensive propaganda and cinema, proposal. (89).

Agricultural:

Administration by Education Department, but supervising staff should be recruited partly from graduates of Agricultural College, (89).

Agricultural schools, little demand for, (89). Improvement of technical knowledge of students, movement for, (89).

Inducements, prospect of Government Service, (89).

Students:

After careers. (89).

Source of, (89).

Supply of teachers and institutions, inadequacy of, (89). Teachers in Village schools, must be drawn from agricultural classes, (89).

in Vernacular Middle Schools, Baloda Bazar and Champa, possible opening of demonstration plots for instruction, (89). in Village Schools, proposal for, (89), 28,388-402.

## POWAR, Rai Bahadur TUNDI LAL, B.A.—contd.

EDUCATION—contd.

slight growing Demand for, 28,341-2.

Nature Study, plots attached to normal schools, (89).

Primary Schools, fourth class, decrease in number of boys in, compared with lower classes, 28,395-400.

Artificial, useful for certain crops, (91).

Bone meal, satisfactory for paddy, but caste prejudice a difficulty, (91).

Cattle dung

careful Preservation necessary, (91).

Use as fuel and proposed measures for discouragement, (91).

Cattle urine, non-use of, (91).

Effect of manuring with phosphates, nitrates and sulphate of ammonia under investigation, (92).

Natural, scope for increased use of, (91).

Oil cake, use of, (91).
Popularisation, methods, (91).
Sann-homp, value of, (91).

# FINANCE, Taccavi advances:

in Kind advocated, (90).

should be Supplementary to loans by credit societies, (90).

#### HOLDINGS :

Consolidation:

through Co-operation, as in Punjab, not considered suitable to conditions, 28,334-40.

Mr. Dyer's proposal approved, 28,333. Exchange, legal difficulties, 28,376-81.

Measures taken for, (91).

Fragmentation of owing to effects of practice of Lakhabata (91).

### IMPLEMENTS:

Improved methods of hastening adoption, (92).

Improvement, scope for, (92).

Light iron ploughs:

Introduction into Chhattisgarh Division, 28,406-8.

Manufactured in India, material inferior, 28,408.

### IRRIGATION:

Chhattisgarh, some complaint made about rates and small supply of water, 28,438.

Minor schemes, scope for extension in Eastern Circle, but time not ripe for co-operative schemes, 28,441-4.

Conditions better where communications have been improved, (3), 28,347-9.

Co-operative purchase and sale societies, proposed organisation of. (93).

Facilities:

Eastern circle, Raipur, (93).

Unsatisfactory, (93). Issue of information re market conditions, crop returns, &c., to cultivators, merchants and traders, proposal, (93). Kochias, etc., system of trading and profit made by, (93).

Managing Committees in markets, scheme, (93).

System of, Eastern circle, Raipur, (93).

Transport facilities, improvement advocated, (93), 28,350.

Village Bania or malguzar, system of trading and profit made by, (93).

MIDDLE CLASS YOUTHS, means of making agriculture attractive to, (89).

REVENUE DEPARTMENT, recruitment to, agricultural qualifications should receive more consideration, 28,403-5.

STANDARD OF LIVING, improving slowly, 28,432.

## Public Health:

All-India Health Act desirable, Stiles Webb 31,956-8.

All-India Sanitary Conferences, discontinuance of, but need for, Stites Webb 32,014-7.

Assistant Medical Officers, training, qualifications and pay, Stiles Webb 32,073-5.

Baby welfare work, Stiles Webb 32,059-61.

Birth and death statistics in rural districts and towns, 1901-1925, Stiles Webb (412).

Budget, and increased allotment of funds to, as compared with medical budget desired, Stiles Webb 32,106-10.

#### DEPARTMENT:

Action taken by, in educating public opinion and imparting instruction re prevention of epidemic diseases and results of, Stiles Webb (412), 32,090-2.

Organisation in districts, Stiles Webb 31,907-11. Organisation, and inadequacy of staff, Stiles Webb 31,904, 32,103. Diseases, nature of, most virulent, Stiles Webb 32,044-7.

#### DISPENSABIES:

Epidemic, work of, and need for increase in number, Stiles Webb (413).

Number and system, Stiles Webb 31,907-8.

Placing under Public Health Department and not under Inspector-General of Civil Hospitals, question, of Irwin 31,376-8.

Touring, Irwin 31,182.

District Health Officers, need for appointment in large districts, Stiles

Webb (412-3), 31,910.

#### DRINKING WATER:

Dearth of, in Berar, Korde 30,846.

Disinfection of wells in case of epidemics, Stiles Webb 31,941-2.

Improvement:

must be Financed along with general improvement of rural areas, Plymen 27,756.

Measures being taken and progress of, and results, Stiles Webb 21,928-39.

careful Investigation necessary and appointment of special officer advocated, Plymen 27,755.

Well boring, work transferred to Public Works Department, Plymen 27,955-8.

Female hospitals, forthcoming establishment of, Stiles Webb 32,065-9. Fevers, difference in mortality as between town and country, Stiles Webb 32,021-8.

Government scheme of sanitation in rural areas needed, Pande (536), 33,476-8.

Health officers, number, jurisdiction, etc., Stiles Webb 32,048-51.
Health Publicity officers, work of, Stiles Webb 31,909, 32,033.
Hookworm disease, work re, Stiles Webb 31,920, 31,927, 31,943-4.
Hygiene instruction in primary schools, Stiles Webb 31,951-3, 32,012-4.

Hygiene lectures in jails, and question of extension, Stiles Webb 31,974-85.

Infantile mortality, Stiles Webb 32,043.

Influenza, 1918, mortality from, Stiles Webb 32,043.

Jail superintendents, Stiles Webb 32,101-2.

Journal for whole of India would be useful, Stiles Webb 32,017-8.

Lady doctors, Stiles Webb 32,062-4.

Leprosy, extent, of and measures taken re, Stiles Webb 31,956-97, 32,086-9.

#### MALARIA:

Connection of irrigation with, question of, Stiles Webb 32,083. Eradication, expenditure on, rather than on distribution of quinine advocated, Stiles Webb 31,998-9, 32,097-100. Extent of, Stiles Webb 31,919.

Quinine:

Distribution, Stiles Webb 31,916-7. Prophylactical, dishelief in, Stiles Webb 31,969.

#### Public Health-contd.

Malaria—contd.

Survey in 1912 by Major Kendrick, Stiles Webb 31,915, 32,072 Surveys in selected areas desirable, Stiles Webb, 31,917-8, 31,967-73.

Municipal Engineers, Stiles Webb 32,052. Physical condition of people in different districts, Stiles Webb 31,962-6, 32,029-30.

Private practitioners, subsidising of, in rural areas, Irwin 31,183. Propaganda work, need for, Stiles Webb (412). Public Health Museum would be useful, Stiles Webb 32,114-5.

Registration Act desirable owing to need for uniformity of vital statistics, Stiles Webb 31,956-8.

Registration of births and deaths, unreliability of, Stiles Webb 32,000-1. Relations with Medical Department, Public Works Department, Irrigation Department, etc., Stiles Webb 32,038-9.

#### RESEARCH:

Institute, proposed establishment of, Stiles Webb (411), 32,034-7, 32.093-6.

Joint laboratory with Veterinary Department would be approved, Stiles Webb 31,924-6.

Malaria Bureau, creation of, advocated, Stiles Webb (411),

31,968-73.

no Laboratory facilities in province, Stiles Webb 31,904-6, 32,002-5, 32,031-2.

Veterinary laboratory should be housed near, Wilson 30,913. 30,981-4.

Roundworm, Stiles Webb 31,920-3, 32,027. Rural sanitation, attitude of District Councils, Stiles Webb 32,079-92.

## SANITARY CONDETIONS:

in Different tracts, Stiles Webb 32,084-5.
Inadequate attention paid to, Korde (320).
Sanitary Engineer, need for, Stiles Webb 32,038, 32,105.
Sanitary Inspectors, number, functions, etc., Stiles Webb 32,053-8.
Sanitary progress, obstacles to, Stiles Webb (412).
Spleen index of children, work done in connection with, Stiles Webb 32,040.

#### TUBERCULOSIS:

believed to be Increasing throughout India, Stiles Webb 32,111-3. so-called Sanatorium at Pendra, Stiles Webb 32,112. Vaccinators, training and qualifications required, Stiles Webb 31,912-4,

32,006-9.

Venereal disease, Stiles Webb 32,045.

Village Sanitation Act, Stiles Webb 32,076-8.
Village sanitation, proposal, Stiles Webb 31,945-50.
Vital statistics, collection method and defectiveness of system and proposal for improvement, Stiles Webb 32.071.

Water borne diseases, Stiles Webb 32,010-11.

## Pusa Institute, see under Research.

Railways, see under Administration.

Rainfall, shortage of, and need for investigation into causes, etc., Sahasrabudhe 32.462.

Rate of exchange, Dokras 32,666; Sahasrabudhe (472), 32,468-9.

#### Research:

Agricultural Bacteriology, proposal for increased staff, Plymen (25). Agricultural implement investigation, importance of, but difficulty of

carrying out, Allan (197), (198). Bureau for summarizing of work, proposal, Plymen (27), 27,547-50. 28,182-4.

as Central subject, probably desirable, Irwin (343), 31,260-1.

#### Research—contd.

Co-operation between officers of scientific sections of various provinces, Plymen 27,481-2.

DEPARTMENT:

should be Independent of administrative department of Agriculture, Khaparde (399).

should be Indians, Khaparde (399).
Indians should be trained as, Deshpande (296), (297), 30,527-8.
Staff and distribution of work, Plymen (9-10).
Distribution between central and provincial institutions, question of, Plymen 27,929-33, 28,154-73. District research, increased facilities and funds needed, Deshpande

Economy necessary, Pandeva (125).

Engineering and machinery improvement, Plymen (13).

Cess on exports of agricultural produce, scheme, Plymen (24-5), 27,461-2, 27,467-9, 27,830-3, 27,847-52, 28,133-8; Allan (197), 29,636-8, 29,750-3, 29,824-8, (238-40).

Contributions from landholders, might be received if research profitable to their cultivation, Deshpande 30,447. of General research, mainly by Central Government advocated, Allan (196), (201-2), 29,694-6, 29,721-4. Government should provide funds, Deshpande 30,445. of Local research by Local Governments advocated, Allan (196). Suggestion for, and proposed charging of fees to agriculturists for making use of results, Khaparde (399), 31,873-4. Taxation would not be favoured, Deshpande 20,675-6. Fruit-growing, need for expert for, Allan 29,734-7. Fundamental, carrying out of by central institute, proposal not agreed

Fruit-growing, need for expert for, Allan 29,134-7.

Fundamental, carrying out of by central institute, proposal not agreed with, Plymen 27,929-33.

Government of India should send experts to study conditions in each Province, Bhargava (427).

Helminthic affections, work re, Stiles Webb (411).

Horticultural, lack of expert assistance, and proposal, Allan (197), 201 722

29,733-7.

Horticulturist, duties now carried out by other officers, criticism. Plymen (25).

Indian youths should be selected for work, Pandeya (125).

Lines on which required, Plymen (25); Allan (197-8), (198); Deshpande (296); Khaparde (399); Stiles Webb (411).

Malaria Bureau, creation of, advocated, Stiles Webb (411), 31,968-73. Mycologist and Chemist, familiarity with work at Pusa and in other provinces, Plymen 27,486-7.

Nature of work, Plymen (11-12), 27,483-5, 28,271-81.

by Non-official gentlemen, suggestion for encouragement, Deshpande (296), 30,529.

#### ORGANISATION:

Central Body, scheme for, Allan (197), 29,639-42, 29,802-5, (202). Crop Committees, scheme, Plymen (24-5), 27,461-2, 27,467; Allan (197), 29,640-2. Criticism, Deshpande (296), 30,509, 30,520-6.

by Groups according to soil and climate, proposal, Korde (317). 30,690-3.

separate Institute for each Province advocated, Korde (317). Plant breeding and botanical research, hampered until lately by lack of expert staff, Allan (197).

Provincial Research Committee, scheme for formation of, at Nagpur under chairmanship of Director of Agriculture, Deshpande (296), 30,443-7.

Public Health, see that title.

# PUSA INSTITUTE:

little Benefit to Provincial Departments, Plymen 27,471-4, 27,480.

#### Research-contd.

PUBA INSTITUTE-contd.

Developed before organisation of provincial departments, Plymen 27,470, 27,834-5.

Development for central research work and post-graduate training would be approved, Plymen 28,267-9. Excellent work done by, and desirability of development,

Sahasrabudhe (452).

Post-graduate training, sending of men to England probably more useful, and proposal re, Plymen 27,489-99.

Recruitment to, opinion re, Plymen 28,121-8, 28,153.

Training at, question of, Plymen 27,836-7, 27,839-44, 27,845.

Relations between Agricultural Advisor to Government of India and

Provincial officers and suggestions for better co-ordination, Sahasrabudhe (452).

Results must be brought to notice of cultivators, Deshpande (296).

#### SCIENTIFIC STAFF:

Particulars re qualifications required, etc., and need for increase, Plymen 27,921-8, 28,180-1. Separation from teaching staff desirable, Plymen 27,922, 27,927.

SCIENTIFIC STAFF of Government of India, increase:

not Advocated, Korde (318); Khaparde (400); Pande (530).

Increased propaganda work advocated in preference, Deshpande (298).

would be Useful, Bhargava (427).

into Scientific value of indigenous theory and traditional methods, extent of scope for, Khapards (399). Soil Investigation, lack of staff and equipment, Allan (197).

SOIL PHYSICS :

increased Attention to, desirable, Plymen (25).

Need for, Allan (198).

Veterinary, see that title. Visits of officers to other parts of India useful, Plymen 27 3.

Rice, see under Crops.

Rinderpest, see under Contagious diseases under Veterinary.

Roads, see under Administration.

Rope making, see under Agricultural Industries.

Rural economics, ignorance of politicians and town people, Dwarkanath Singh (506), 32,759-61.

SAHASRABUDHE, Rao Sahib G. N., Pleader, Ellichpur, Amroati district: (452-472), 32,425-32,490.

Agricultural operations, 32,470-81.

Experience of, (452).

#### ADMINISTRATION:

Meteorological Department, increased use should be made of, by Department of Agriculture and information published to agriculturists, (458).

Meteorology, lectures on relation of agriculture, and suggestion (458).

Postal and telegraph services, satisfactory, (458).

Railways:

Opening of branch railways advocated, (457).

Reduced inland rates for rural produce advocated, (457).

Roads, Village:

Condition of, under District Councils not satisfactory, (457). Suggestions for improvement, (457).

AGRICULTURAL DEPARTMENT, policy, 32,441-2, 32,478.

AGRICULTURAL OFFICERS, recommendations re attitude towards farmers, (456-7).

## SAHASRABUDHE, Rao Sahib G. N.—contd.

AGRICULTURAL INDEBTEDNESS:

Alienation of lands, restriction not advocated, (460).
Causes of, (459), (459-60).
Credit, sources of, (458), (460).
Education the only remedy, (460).
among Kunbis, 32,428.
Measures for lightening burden of debt, (460).
Money-lenders' Act, passing of, as in the Punjab, proposed, (460).
Money-lenders, system and evils of, (459), (460).
Mortrages long-term advantages over short-term. (459).

Mortgages, long-term, advantages over short-term, (459).

Rate of interest, lowering of, and prohibition of compound interest by legislation proposed, (460).

AGRICULTURAL INDUSTRIES:

Co-operative Industrial Societies, formation suggested, (465).

Dehydrogenation, industry of drying vegetables, proposal re, (464), 32,434-6.

Fish culture and poultry keeping, Kunbis would not take up, 32,458.

Fruit growing, water supply difficulty, (464).

Government must start small industries, (466). Instruction of rural people in, scheme, (464).

Mango trade, recommendation by Committee of enquiry appointed by Bombay Government, (464). Obstacles to development of small industries, and proposed remedies,

Paper pulp and paper making from cotton stalks, experiments and proposal re, (463-4), (466), 32,431-3.

Proposals, (464-5).

Rope making, (465). Subsidiary industries:

previous Enquiries into, (465).

Jeed for, (463).

Title spent by cultivators on holdings, (464-5).

Weaving and suggestion re opening of School, (466).

for Women, need for, (465).

ANIMAL HUSBANDRY:

Bulls, purchase of, at high cost from foreign countries, objection

to, (463).
Cattle-breeding and dairy farm, forthcoming establishment at Ellichpur, (463).

Cattle-breeding farms, (463).
Prizes to cattle breeders, continuance and development of system advocated, (463).

Berar, agricultural conditions in, (460-1), 32,428.

CO-OPERATION:

Central Banks, rate at which loans lent to primary societies,

Loans from Co-operative Central banks and credit societies: Rate of interest too high, (459), (460). Supervision over use of money advanced, need for, (459), (468), 32,485-90. Value of, (460).

CROPS:

Combination of, in America, advantage of, (462).

Cotton:

increased Cultivation, 32,453. increased Production per acre should be considered, (462), 32,465.

Damage by wild animals:

Pigs, (462).

Prevention methods, (462). Gardens and orchards, Berar, but reduction latterly, (461).

## SAHASRABUDHE, Rao Sahib G. N.—contd.

Improved methods, little progress made, (457).

Productive power of land, not increased with increased expenditure, 32,451-3.

Rotation in Berar, (462).

## DEMONSTRATION AND PROPAGANDA:

Agricultural Conferences, resolutions passed by, but not translated into vernacular and no action taken on, (456), 32,439.

American methods, and tribute to, (456, 457). Cattle breeding farm at Boregaon, (455).

Demonstration Farms:

Carrying on of, on commercial basis, desirability and possibility of, (455), 32,426-7.

Effectiveness of, question of, (455).

at Yeotmal and Basim, (455).

Departmental resolutions, etc., increased translation of, into vernacular and free distribution necessary, (456), 32,439.

### Experimental Farms:

Akola, (455).

Profitable carrying on of, not possible, (455).

Policy advocated and American and English ideals should be followed, (456).

Poona Agricultural Show, steps should be taken to bring results before people, (461), 32,439.

Propaganda work, importance of, (456).

Seed Farm at Boregaon, (455).

## EDUCATION:

Adult, libraries and reading rooms in villages should be established with Government assistance, (455).

Agricultural

Facilities, inadequacy of, (453).

Practical instruction after leaving Agricultural college necessary, and proposal, (469), 32,438.

## Teachers:

Agricultural Training school in Berar, establishment advocated, (453).

Practical course necessary after leaving Agricultural College, (453). Vernacular Middle Schools:

Number of, in different provinces and number of scholars.

Requirements for establishment of, and proposals, (453).

Defects of present system, (468-9).

Gardening, advocated, (469).

Industrial and agricultural bias, importance of providing for (468-9).

Interest in, by rural people, proposed measures for encouraging.

Nature study, advocated, (469).

## Primary:

#### Compulsory:

Compulsory establishment. proposal for Government encouragement, (453). Need for, (469).

Position re, and proposals for increase in attendance, (454-5), 32,454-6.

Curriculum must be such as to create agricultural and industrial bias in minds of boys, (453).

Gardening instruction, proposal, (453).

Teachers, importance of attitude of, and requirements, (469-70).

## SAHASRABUDHE, Rao Sahib G. N .- contd.

FERTILISERS:

Artificial, preparation by Government and distribution at chean rate, suggestion, (462).

Cattle urine, instruction of people in use of, advocated. (462).

Cowdung:

Instruction of people in use of, advocated, (462).

Use as fuel, supply of fuel to villages by Forest Department proposed, (462).

Dry leaves, suggested utilisation of, (462).

Manure depots in each village or group of villages, proposal, (461-2).

from Phosphatic mines, suggestion, (462).
Supply to landholders by Agricultural Department at cheap rate, need for, (461-2).
Urgent need for supply, (461).

FINANCE:

Land mortgage bank, opinion te proposal, (459), (460).

Taccavi loans, procedure, criticism of, and proposed alteration, (459), 32,464.

FORESTS:

Forest produce, facilities should be allowed to villagers to make use of, (467). Fuel supply to villagers from, proposal, (467).

increased Provision desirable and policy advocated re, (466-7). Statistics of areas, revenue from fees, etc., (467), 32,466-7. Management of portion of area by Panchayats, proposal, (467).

Local manufacture and encouragement desirable, (463).

New:

Requirements, (463).

Use of, (463).

for Weeding and inter-cultivation, need for, (463). Victoria Technical Institute, Amraoti, (463).

IRRIGATION:

Utilisation of surplus rainfall, processes demonstrated at Poona Agricultural exhibition, 1926, should be studied by agricultural officers in Berar, (461).

Wells:

Provision of, in Berar, need for, and suggestions re, (460-1).

Purchase of pump and engine on hire purchase system desired. 32,429-30.

MARKETING:

Cotton, system in Berar, (467-8). Grain, system in Berar, (467-8).

Municipal Committees, system, (467).

Weights and Measures: Inspection, 32,443-6.

Standardisation advocated, (468), 32,437.

RAINFALL, shortage of, and need for investigation into causes, etc.. 32.462.

RATE OF EXCHANGE, (472), 32,468-9.

RESEARCH:

Puea Institute, excellent work done by, and desirability of development, (452).

Relations between Agricultural Advisor to Government of India and Provincial officers and suggestions for better co-ordination, (452).

U.S.A., Department of, Agriculture, policy of, (471-2), 32,447.

## SAHASRABUDHE, Rao Sahib G. N.-contd.

Collection by village officers, defects of system, (470-1). Field, defects of system, (470-1), 32,439.

Improvements, need for, (470-1).

VETERINARY, Muktesar Institute, relations between superior officers at, and Provincial officers and suggestions for better co-ordination, (452).

WELFARE OF RURAL POPULATION :

Economic surveys in typical villages, objections to, (470).

Facilities required for, (470).

Model villages, scheme, (454), (458).

Sann hemp, see under Fodder under Animal Husbandry, under Crops, and under Green Manure under Fertilisers.

Scarcity, relief works during, Plymen 27,981-3.

Sea freights, prosperity of cultivators injured by, and change advocated, Bhargava (430).

Seeds, see under Crops.

Sericulture, see under Agricultural Industries.

Sihora Agricultural Association, evidence on behalf of, see Pande, K. P., (529-539), 33,185-33,558.

Soils:

#### BUNDING:

Encouragement advocated, Pande (531).

Improvement of soils by, Khaparde (402); Pande (531); Dokras (481).

System, Plymen (28).

Chemicals taken away by different crops, work re, Plymen 28,022-5. Cultivable land gone out of cultivation, proposed measures for reclamation: Bhargava (428), Khaparde (402).

Deterioration owing to growth of kans grass, and measures adopted for dealing with, Plymen (28), 27,599-305, 28,026-9, 28,232-3; Irwin (344), 31,262-5, 31,308-9.

DRAINAGE:

Better drainage during monsoon desirable in certain cases, Allan

Draining off rain water, need for, in Berar, and proposed measures, Khaparde (402).

of Waterlogged land, proposals, Plymen (28).

from Deterioration of forests, not serious, Pande (537). Extent of problem, Plymen 28,249-51; Witt (278), 30,374; Pande (537).

Means of preventing, Dokras (481), 32,650-1.

by Monsoon rains, and preventive steps advocated, Plymen (33). Excess water, co-operation amongst cultivators for removal of, desirable, Plymen (28).

Fertility, decreasing, Dwarkanath Singh 32,705-9.

IMPROVEMENT:

by Bhandhwae system, with subsequent deterioration after about thirty years, Bhargava (428)

on some Government farms, Plymen (28).

Levelling and bunding, example, Dokras (481). Means of, Dokras (481).

Research, see that title.

Resting of, from irrigation, in areas where wells unsuitable for irrigation, Plymen (28).

Retention of moisture, experiments carried out, Plymen 28,271.

no organised Survey carried out, but certain work being done, Plymen 27,596-8.

Uncultivated cultivable land, Plymen 28,074-6.

#### Statistics:

AREAS UNDER CULTIVATION:

sufficiently Accurate in general, Plymen (35).

Collection by village Patwaris, and substitution of another agency would be expensive, Pande (539).

Arrangement and publication should be carried out by Department of Agriculture, Pande (539).

COLLECTION:

Methods in Central Provinces sufficiently accurate, Irwin (347). by Patwaris, defects of system, Amanat Ali (388), 31,738-40. Trained agriculturists should be appointed as Patwaris or duties transferred to Agricultural Assistants, Amanat Ali (388). by Village officers, defects of system, Sahasrabudhe (470-1).

Crop forecasts:

Extent of responsibility of Agricultural Department, Plymen 28,151-2.

System, Plymen 28,234-46, 28,260-1.

Field, defects of system, Sahasrabudhe (470-1), 32,439. Imports and exports of foods, question of availability, Plymen 28,058-61.

Improvements, need for, Sahasrabudhe (470-1). Live stock and implements, reliability of, Plymen (35).

Persons should be deputed to study American system, Pande (539).

Vital, collection method and defectiveness of system and proposal for improvement, Stiles Webb 32,071.

YIELD OF AGRICULTURAL PRODUCE:

Crop cutting experiments needed and increased staff required for, Plymen (35).

Estimation by executive officers, objection to, Pande (539).

Taking only one-tenth acre for experiments, method should be changed, Pande (539).

STILES WEBB, Lieutenant-Colonel H. G., D.P.H., D.T.M. and H. (Camb.), I.M.S., Officiating Director of Public Health, Central Provinces: (411-13), 31,900-32,122.

DISTRICT COUNCILS, attitude re rural sanitation 32,079-82.

Primary schools, instruction in hygiene, 31,951-3, 32,012-4. Robertson Medical School, 32,116-9.

PUBLIC HEALTH:

All-India Health Act desirable, 31,956-8.

All-India Sanitary Conferences, discontinuance of, but need for, 32,014-7.

Assistant Medical Officers, training, qualifications and pay, 32,073-5. Baby welfare work, 32,059-61.

Birth and death statistics in rural districts and towns, 1901-1925,

(412).

Budget, and increased allotment of funds to, as compared with medical budget desired, 32,106-10.

Department:

Action taken by, in educating public opinion and imparting instruction re prevention of epidemic diseases and results of, (412), 32,090-2.

Oistrict Health Officers, need for appointment in large districts, (412-3), 31,910.

Organisation and inadequacy of staff, 31,904, 32,103.

Organisation in districts, 31,907-11.

Relations with Medical Department, Public Works Department,

Irrigation Department, &c., 32,038-9. Diseases, nature of most virulent, 32,044-7.

Dispensaries:

Epidemic work of, a need for increase in number, (413). Number and system, 31,907-8.

Female hospitals, forthcoming establishment of, 32,065-9.

## STILES WEBB, Lieutenant-Colonel H. G.—contd.

PUBLIC HEALTH-contd. Fevers, difference in mortality between town and country, 32,021-8. Health officers, number, jurisdiction, &c., 32,048-51. Health Publicity officers, work of, 31,909, 32,033. Hookworm disease, work re, 31,920, 31,927, 31,943-4. Hygiene instruction in primary schools, 31,951-3, 32,012-4. Hygiene lectures in jails, and question of extension, 31,974-85. Infantile mortality, 32,043. Influenza, 1918, mortality from, 32,043. Jail superintendents, 32,101-2. Journal for whole of India would be useful, 32,017-8. Lady doctors, 32,062-4. Leprosy, extent of, and measures taken re, 31,986-97, 32,086-9 Malaria: Connection of irrigation with, question of, 32,083.

Eradication of, expenditure on, rather than on distribution of quinine advocated, 31,998-9, 32,097-100. Extent of, 31,919. Quinine: Distribution, 31,916-7. Prophylactical, disbelief in, 31,969.
Survey by, in 1912, Major Kendrick, 31,915, 32,072.
Surveys in selected areas desirable, 31,917-8, 31,967-73. Municipal Engineers, 32,052.

Physical condition of people in different districts, 31,962-6, 32,029-30.

Public Health Museum would be useful, 32,114-5. Propaganda work, need for, (412). Registration Act desirable owing to need for uniformity of vital statistics, 31,956-8. Registration of births and deaths, unreliability of, 32,000-1. Research: Joint laboratory with Veterinary Department would be approved, 31,924-6. no Laboratory facilities in province, 31,904-6, 32,002-5, 32,031-2. Rural sanitation, attitude of District Councils, 32,079-92.
Sanitary conditions in different tracts. 32,084-5.
Sanitary Engineer, need for, 32,038, 32,105.
Sanitary Inspectors, number, functions, etc., 32,053-8.
Spleen index of children, work done in connection with, 32,040.
Tuberculosis: Roundworm, 31,920-3, 32,027. believed to be Increasing throughout India, 32,111-3. so-called Sanatorium at Pendra, 32,112. Vaccinators, training and qualifications required, 31,912-4, 32,006-9. Venereal disease, 32,045. Village sanitation, proposal, 31,945-50. Village Sanitation Act, 32,076-8. Vital statistics, collection method and defectiveness of system and proposal for improvement. 32,071. Water-borne diseases, 32,010-11. Water supply: Disinfection of wells in case of epidemics, 31,941-2. Improvement, measures being taken and progress of, and results, 31,928-39. RESEARCH: Helminthic affections, work re, (411). proposed Lines of, (411).

Malaria Bureau, creation of, advocated, (411), 31,968-73.

Public Health (Research) Institute, proposed establishment of, (411), 32,034-7, 32,093-6.

WELFARE OF RURAL POPULATION:

Salvation Army institutions, question as to existence of, 32,122. Sanitary progress, obstacles to, (412). Weakness of agriculturists physically and mentally, 31,903.

```
Sugar:
```

GUR:

improved Boiling furnace, *Dubey* (102). Shortage of, and importation, *Dubey* (105), 28,704, 28,708-12. Gur making only, *Plymen* 28,009-10, 28,017. White, shortage of, Dubey 28,709.

Sugarcane:

Acreage, decrease and reason, Plymen 27,822-3.

COLMBATORE:

Cultivation of, Plymen 27,773-5.
Experience of, Dubey 28,454-9; Bhargava 32,301-3.
Hardness of canes and need for suitable crushing mill, Dubey (105), 28,454-7. Value of, Plymen 27,478-9.

Combatore station, value of, Plymen 27,480; Allan (197). Condition of cultivation in Balaghat District, Dubey 28,539-44. Crushing mill, introduction of improved, Dubey (102). Cultivation, improvements in, as result of demonstration, Plymen (14-15).new Furnace, benefits derived from introduction of, Plymen (15). FERTILISERS:

Ammonium sulphate, successful use, Bhargava (428).

Introduction of, efforts, Dubey (102).

Karanja cake, value of, Plymen 28,188-90.

Improved varieties, introduction of, Plymen (16); Dubey (102).

Irrigation, Dubey (104).

Works not suitable for, Pollard-Lowsley 28,946.
Manuring, Allan (203), (204); Dubey (104), 28,470-2, 28,749-62.
Mills suitable for small cultivators, need for, and suggestions, Dubey

Personal experience, Dubey 28,450-9, 28,507, 28,544-51, 28,736-40. Profit per acre, Dubey 28,544-5.

Rotation, Plymen 28,011-6.

Watering required, Plymen 28,019-21.

Taccavi advances, see under Finance.

Tanks see under Irrigation.

Telegraph facilities, see under Administration.

TRIVEDI, C. M., I.C.S., Registrar, Co-operative Societies: (168-172), 29,202-29,619.

Experience of, 29,204-7.

CO-OPERATION:

Agricultural Associations, 29,263-7. Banking crisis of 1921 and causes of, 29,446-9. for Betterment of village life, scope for, (172). Cattle-breeding societies, in Raipur district formerly, but closure owing to lack of interest, (172), 29,334-5, 29,575-8. Central Banks:

Control over, extent of, 29,349-57, 29,359-62. Deposits, (172).

Directors, 29,530-2, 29,568-9. Dividend, 29,497.

Inspectors, class of men, &c., 29,457-61.

Managers, class of men, &c., 29,454-6.

Number, (168).

Particulars re, working of, &c., 29,336-57, 29,496.

Results, (172). Compulsion on minority to join as members of co-operative societies for joint improvement, objection to, (172). Co-operative Institute, Berar, system, (170).

```
TRIVEDI, C. M.—contd.
```

```
CO-OPERATION—contd.
```

Co-operative Institute for Jubbulpore and Nerbudda Divisions, working of, (169).

Credit Societies:

Accounting and audit, (169), 29,270-9, 29,285-6, 29,469.

Application and granting of loans, procedure, 29,244-61, 29,450-3.

Bye-law that members should send boys to school, one case of,

Consolidation of movement, concentration of efforts on,

advocated, (171), 29,262.

Contribution by one society for purchase of quinine, 29,617. Deficit, meeting of, by Government, proposal, (169).

Deposits, (172). Education and supervision of:

by Central Banks, and drawbacks of system, (169), 29,243-61, 29,363-5, 29.425-7.

Reorganisation of system, proposals for, and measures taken, (169-70), 29,270-82, 29,407, 29,489.

Effect on rates charged by moneylenders, 29,550-2.

Failure, statistics, 29,216-7.

Federation subscription levied from members, abolition, (169). proposed

Improvement of movement, proposals for, (171).

Joint liability, enforcement:

in Certain cases and effect on reputation of movement, 29,218-20, 29,237.
Policy re, 29,221-5.
Loans from Central Banks, system, 29,420-2.

Loans for purchase of implements, and joint purchase in one case, 29,618.

Liquidations, effect on confidence in movement, question of, 29,392-4.

Members borrowing both from, and from moneylenders, common, 29,287-8. Members, borrowing from moneylenders or malguzars, 29,408-10.

Organisation, procedure, 29,398-9.

Rates of interest charged, 29,397-9.
Rates of interest charged, 29,397, 29,493-4.
Reserve funds, policy re, 29,490-5.
Results and position of, (172), 29,496.
Sanitation not taken up by, 29,616-7.
Statistics, (170-1), 29,485-8.
Success of movement in Berar as compared with Central Provinces, 29,404-6.
Successful society features of and results 20,400.2

Successful society, features of, and results, 29,400-3. Supervision by Government auditors desired, 29,428-9.

Winding-up, policy and procedure, 29,226-39, 29,374-85, 29,499-504, 29,533-6, 29,588-91.
Working of, (171).

Defective organisation and defective education of members, 29,579. Department:

Circles, increase to five, desirability of, (168-9).

no Co-operation with Education Department, 29,505-7.

Organisation of, (168).

Encouragement of growth of, material advantages must be made clear to people, 29,390-1.

Expenditure on, and need for increase, 29,411-2, 29,508.

Federation Auditors, class of men, 29,467-8.

Gond Societies, 29,594.
Government assistance, extent of, &c., 29,509-12, 29,537-40.

Government financial assistance during banking crisis in 1920-21, 29,366-8.

History of movement, 29,209-13. Honorary workers and non-official agencies, value of, and scope for, work by, (170).

```
TRIVEDI, C. M.—contd.
```

Co-operation—contd.

Impulse must come from within, not from the State, 29,598-9.

Joint farming societies, question of, (172). Land mortgage banks, Berar, scheme under consideration, (170), 29,386-9.

Lectures in normal schools by inspector of Berar Co-operative Central Institute, 29,506.

Local instructors, recruitment method and salaries, 29,595-7.

Non-co-operation movement, effect of, 29,395-6.

Non-credit societies, loan from Central Bank to agricultural asso-

ciation, 29,423.

Non-official agency, extent of assistance received from, and scope for, 29,413-8, 29,475-84, 29,541-9.

Obstacles to growth of movement, (170), 29,470.

Position more satisfactory than two years ago, 29,268.

Primary Societies, number, (168).
little Propaganda for education of public in principles of co-operation in villages, 29,240-2.
Provincial Bank:

Cash credit with Imperial Bank, 29,369-72, 29,561-7.

Deposits, (172). Dividend, 29,497. Position of, 29,496.

Relations with Central Banks, 29,359-61.

Results, (172).

Registrar, whole-time officer, would be desirable, and necessary if work of Industries Department expands, 29,438-9.

Sale Societies:

Co-operation of Agricultural Department, necessity for, (171). Cotton sale societies, (171), 29,289-330, 29,515-29, 29,573-4. Rice sale societies, formation in Bilaspur district to be considered, (171).

Seed societies, 29,619.

Societies for aggregation of fragmented holdings and redistribution in plots of reasonable size, possibility of, in Bilaspur, but not in other parts, (171-2), 29,332-3. Societies under liquidation, number, (168).

Societies for co-operative use of agricultural machinery:

Essentials for success, (172). Scope for, and consideration advocated, (172).

Staff:

Clerks and auditors, pay considered adequate to secure honesty, 29,614-5.

Courses at Agricultural College under consideration, 29,514.

Knowledge of "The Law and Principles of Co-operation," question of, 29,462-6.

Recruitment from Nagpur Agricultural College graduates

under consideration, 29,586-7.

Training, 29,580-7.

Sweepers' societies, 29,473-4.

Transmission of money between central Banks and societies, refund of three-fourths of money order commission advocated, (170) Unlimited liability, sale or encumbering of land in order to pay

contribution, a few cases of, 29,600-13.

Crors, change to money crops from food crops, effects, 29,559 60,

29,571-2, EDUCATION, COMPULSORY, formation of co-operative societies for, desir-

able, (172), 29,436-7.

HOLDINGS :

Consolidation:

by Co-operation, see that title above. Visit of Mr. Roughton and others to the Punjab in connection with, 29,433-5, 29,440-1.
Fragmentation, evil of, Chhattisgarh, (171).

```
TRIVEDI, C. M.—contd.
```

LAND SYSTEM, occupancy holdings, percentage, 29,232.

TACCAVI LOANS, issue through co-operative societies, question of possibility and method, 29,430-2.

Tuberculosis, see under Public Health.

U.S.A., policy of the Department of Agriculture, Sahasrabudhe (471-2), 32,447.

Usurious Loans Act, see under Agricultural Indebtedness.

Vegetable growing, see under Agricultural Industries.

Venereal Diseases, see under Public Health.

#### Veterinary:

Ancient methods should be studied and systematised, Korde (317). Apathy of District Councils, Irwin 31,310-19.

#### Assistants :

few Complaints received of, Wilson 30,959.

Demanding of fees by, Amanat Ali (387), 31,844-7.

Pay, Wilson 30,958.

Tours by, value of, Irwin (345). Board of Veterinary Studies, need for, Wilson 30,913.

#### CIVIL VETERINARY DEPARTMENT:

close Co-operation with certain other departments necessary, Plymen (30); Deshpande (302).

Control by Director of Agriculture:
Advocated, Korde (319); Amanat Ali (387); Bhargava (429);
Dokras (483).

not Desirable, Plymen (30); Dubey (105).

Independence of Director of Agriculture:
should Continue, Wilson (332).
not Necessary, Pande (533).

should be Independent if Director of Agriculture a technical

officer, Irwin (344).

Control of animal husbandry operations by, rather than by Agricultural Department desirable, but not suitable in Central Provinces, Wilson 30,929-36, 31,031-8.

Relations with Agricultural Department, Wilson 30,913, 30,955.

College, desirable, Wilson 30,918-9, 31,039-46.

### CONTAGIOUS DISBASES:

Delay in treatment and need for increased staff, Dubey 28,554-6. Examination of herds coming in from Native States desirable, Irwin (345). Legislation:

not Advocated, Dokras (483).

Desirable at present, Pande (534).

Impossible owing to religious scruples of the Hindus, Wilson (333).

Objections to, Khaparde (404). not considered Possible, Irwin (345).

Methods of dealing with, education and teaching of animal hygiene

in elementary schools, Wilson (333).

Nature of, Wilson 30,985-7.

Obstacles in way of dealing with, Wilson (333); Irwin 31,320;

Pands (534).

Propaganda recommended, and failing success, legislation, Bhargava (429).

Reporting of:

by Patwaris, system and delay, Wilson 30,989-91. Post cards for, improvement from, Wilson 30,989.

Rinderpest:

Immunisation against, question of cost, and percentage of cattle worth, Wilson 31,047-52.

Incidence and mortality from, Wilson 20,971-4.

#### Veterinary—contd.

CONTAGIOUS DISEASES—contd.

Staff dealing with contagious diseases should be under sole control of veterinary officer in charge of province, Wilson 30,909-12.

Trained agriculturists should be appointed as Patwaris and Revenue Inspectors, Amanat Ali (387-8).

Troubles from borders, Wilson 30,975-9.

little Co-ordination between work of provinces and Indian States, Wilson 30,909.

#### DISPENSARIES:

Assistants:

Transfer to control of local bodies advocated, Pande 33,256-61. Work satisfactory, Wilson 30,956. Classes of, and control, Wilson (332).

Control:

by District Boards: Dubey (105).

Apathetic attitude of District Councils, Irwin (345), 31,085-7.

Nominally but Board has insufficient control, Bhargava (429).

Responsibility not realised by Boards owing to dual control with Government, Pande (533).

Satisfactory working of system in some places, Korde (319), 30,730-1.

Working well, Dokras (483).

by Extra Assistant Directors of Agriculture desirable, Pande (534).

Transfer to Provincial Authority:

not Advocated, Korde (319); Bhargava (429); Dokras (483). greater Efficiency would result, Irwin (345), 31,085-7. not Objected to if kept in touch with local needs, Pande (533)

should be Partial only, Wilson (332).

Expansion:

Inadequate, Korde (319); Wilson (332), Irwin (345), Bhargara (429).

will become Necessary, Dokras (483).

Needed, Pande (533).

None noticeable, Dubey (105).

too Far from villages, Dubey (105); Pandeya (126), 28,790-4;
Bhargara (429), 32,234-7, 32,278.

Local Fund, more interest should be taken in by local board members, Wilson (332).

Profits from cattle-pounds should be applied to, Irwin (345).

Staff, suggestion re, Amanat Ali (387).
one Surgeon should be attached to each, separate from touring assistant surgeons, Dokras (479-80), (483).

Touring: not Fully used except during outbreaks, Dubey (105).

Importance of work, Wilson (333). Inadequate stock of medicines, Pandeya (126). little Known of, Pande (534).

None, Dokras (483).
None, but desirable, Irwin 31,181-2.
Used largely by malguzars but not fully by cultivators, Wilson

Treatment and medicines too expensive, Bhargava (429).

Use of:

Extent of, and reasons for use not being greater Khaparde (404). Full use not made of, and reasons, Korde (319); Irvin (345);
Amanat Ali (387), 31,713; Bhargava (429), 32,234-7, 32,278;
Dokras (483); Pande (533).
Inadequate, Wilson (332).

Increase should be encouraged by propaganda and demonstrations and suggestions for, Wilson (333):

```
Veterinary—contd.
```

DISPENSARIES-contd.

Used generally only for inoculation and castration, Bhargava 32,236

Disposal of diseased carcases, legislation advocated, *Dubey* (106). Doctors and subordinate officers, strength should be increased in every district, Pandeya (126).

Indigenous methods, use of, Korde (319), 30,809-10, 30,830-9; Bhargava 32,233-4, 32,280-2.

Inspectors, posts should be abolished and the men appointed to take charge of dispensaries at big towns, *Dokras* (480).

Isolation and disinfection necessary at present until accommodation available for segregation, *Dubey* (105).

MEDICINES:

Mulguzars should have stock of, and be trained to use, Dubey (105), 28,669-70.

Patwaris should hold stock of, and be instructed in cattle diseases and their treatment, Pandeya (126).

Non-contagious deseases:

Cases treated, number 1901-4 and 1020-23, Wilson 30,998.
Treatment, Wilson 30,988.
for Ordinary diseases, man of lower subordinate service in every Revenue circle desirable, Pande (533-4).
Pamphlets in vernaculars dealing with diseases and medicines should be published, Pande (534).

PREVENTIVE INOCULATION:

Compulsory, advocated, Dubey (106). tremendous Demand for, Wilson 30,945. no Fee charged, Dubey (106); Bhargava (429); Dokras (483); Pande (534).

Number of cases, 1901-1905 and 1920-25, Wilson (333), 39,995. Obstacles in way of popularising, Wilson 30,996; Pande (534).

no Obstruction, Dokras (483). becoming Popular with people, Bhargava 32,238-9.

Practice of, Dubey (106).

Propaganda necessary, Bhargava (429).

Simultaneous, desirable and under consideration but increase of staff necessitated, Wilson 30,946-52.

Fropaganda work should be increased, Pande (534).

Public health aspect of work, Wilson 30,913, 30,937-9.

Public interest increasing Irvin 31.318.

Public interest increasing, Irwin 31,318.

Research:

Foonomy necessary, Pandeya (125).
Further facilities necessary, Wilson (333), 30.921-8.
Indian youths should be selected for work, Pandeya (125).

Laboratory should be housed near public health research laboratory,

Wilson 30,913, 30,981-4. Laboratory staff attached at Nagpur, Wilson 30,932-3. Muktesar Research Institute:

Relations with proposed provincial institutes, Pande (534). Relations between superior officers at, and Provincial officers

and suggestions for better co-ordination, Sahasrabudhe (452). Work of, and of branch at Bareilly, etc., Wilson (332). Piroplasmosis the most important need, Wilson 30,994.

Provincial veterinary Research Institutes

in Each province, proposal, Pande (534). Needed, Plymen (25), (30), 28,139-40; 1rwin (342). Setting up of, scheme, Wilson (333), 30,913, 30,921-8, 30,980, 30,999.

SERTM:

Difficulty experienced in obtaining, Pande (534).

no Difficulty in obtaining, Dokras (483).

Making of, in provincial institute not advocated, Wilson 30,940-4. no Shortage, Bhargava (429).

Supply of, and suggestions for facilitating, Wilson (333).

```
Veterinary—contd.
```

SERVICE:

Improvement since introduction of Reform echeme, Pande (530). Control by Agricultural Department should be increased, Bhargava (427), 32,278.

Satisfactory, with resources at disposal, Irwin (343).

not Satisfactory, Korde (318). Simpler methods and medicines should be used, Bhargava (427). STAFF:

Expansion scheme, Wilson 30,964-70. Increase advocated, Plymen (30); Dokras (479).

should Mix more with cultivators and train people in using simple medicines and preparing medicines, Dubey (102).

Officers, criticism of, Pandeya (126), 28,814-5.

Officers, criticism of, Pandeya (126), 28, Particulars re, Wilson 20,916-7, 30,960-3.

Recruitment from outside province owing to lack of training facilities and drawback of, Wilson 30,918, 31,019-26, 31,039-46. Training at Madras, found most satisfactory, Wilson 31,022-5. Subordinates of, attitude of, Deshpande (298).

SUPERIOR VETERINARY OFFICER WITH GOVERNMENT OF INDIA:
Appointment, Advocated, Wilson (333), 30,909.
proposed Functions, Wilson (333), 30,909.
Surgeons, appointment by Agricultural Department for work on attle farms, suggestion, Dubey (105).

Weaving, see under Agricultural Industries.

Weights and Measures, see under Marketing.

Welfare of Rural Population:

Amusements should be increased, Brahma (250), 30,162.
Concentration on education, agriculture, rural sanitation and health advocated, Plymen 27,761-2.
Conditions, variation of, in different districts and question of reason, Irwin 31,196-210, 31,245-6.

Economic position of cultivators, Irwin (343), 31,278-9, 31,286.

ECONOMIC SURVEYS OF TYPICAL VILLAGES:

by Committee on which representatives of the people a majority, proposal for, Khaparde (408).

Desirable and suggestions re method of carrying out, Plymen (35), 28,111-4; Brahma (250); Dokras (485); Dwarkanath Singh (505-6); Pande (538-9).

by Government, advocated, Korde (320).

Objections to, Sahasrabudhe (470).

Results of, to show that no profit possible in cultivation of land, Irvin (347), 31,276-7.
Work carried out, Plymen (35).
Facilities required for, Sahasrabudhe (470).

Government financial assistance needed, Pande (538).

Health of cultivators, increased attention needed, Dwarkanath Singh (503).

IMPROVEMENT OF HEALTH CONDITIONS:

Difficulties in connection with, Khaparde (406).
Suggestions for, Pandeya (127); Irwin (346); Khaparde (406);
Dwarkanath Singh (503); Pande (536).

Improvement of hygienic conditions necessary (Plymen (35).

Indian attitude re cleanliness of houses, infectious diseases, etc., Pande (538), 33,343-7.

improved Lay-out and sanitary conditions of villages, scope for, Plymen (32).

Model villages, scheme, Khaparde (406); Sahasrabudhe (454), (458).

Panchayat Committees, proposal, Khaparde (408).
Physical condition of people in different districts, Irwin 31,357-61; Pande 33,473-5.

Salvation Army institutions, question as to existence of, Stiles Webb 32,122.

Social Service League, establishment of institutions on lines of, proposal, Dokras (485), 32,670-3.

# Welfare of Rural Population-contd.

STANDARD OF LIVING:

Improving slowly, Powar 28,432. Increase, Pochory 33,166-9. gestions for improvement, Brahma (250), 30,162; Irwin (346), Suggestions for imp 31,226-35, 31,362-8.

Weakness of agriculturists physically and mentally, Stiles Webb 31,903.

Wells, see under Irrigation.

Wheat, see under Crops.

Wild animals:

Damage to crops by, see under Crops.

Tigers and panthers, people keen on killing in spite of reduction of rewards, Irwin 31,083-4.

WILSON, C. W., M.R.C.V.S., I.V.S., Veterinary Adviser to Government, Central Provinces: (332-3), 30,908-31,052.

Training and past appointments, 30,914-5.

ANIMAL HUSBANDRY:

Bad condition of cattle, 30,954.

Bulls, castration:

Difficulty with castes accustomed to carry out work, 31,029-30.

Progress, 31,027.

Control by Civil Veterinary Department rather than Agricultural Department desirable, but not suitable in Central Provinces, 30,929-36, 31,031-8. Gaurakshans, 31,013-8.

Hissar cattle farm, 31,009-11.

EDUCATION:

Nagpur Agricultural College, veterinary lectures and first aid demonstrations, 30,913, 30,920, 31,006-8. Veterinary Studies, Board of, need for, 30,913.

#### Veterinary:

Assistants:

few Complaints received of, 30,959.

Pay, 30,958. Board of Veterinary Studies, need for, 30,913.

College, desirable, 30,918-9, 31,039-46.

Contagious Diseases:

Foot-and-mouth disease, treatment, 31,003-4. Legislation for destruction, segregation and control of move-ment impossible owing to religious scruples of the Hindus, (333).

Methods of dealing with, education and teaching of animal hygiene in elementary schools, (333).

Nature of, 30,985-7.

Obstacles met with in dealing with, religious scruples of the Hindus (333).

Reporting of:

by Patwaris, system and delay, 30,989-91. Post cards for, improvement from, 30,989.

Rinderpest:

Immunisation against, question of cost, and percentage of cattle worth, 31,047-52.

Incidence and mortality from, 30,971-4.

Periodicity in outbreaks, 31,001-2.
Staff dealing with, should be under sole control of veterinary officer in charge of province, 30,909-12.
Troubles from borders, 30,975-9.

little Co-ordination between work of provinces and Indian States, 30,909.

Department:

Independent of Director of Agriculture, continuance advocated,

Relations with Agricultural Department, 30,913, 30,955.

#### WILSON, C. W.—contd.

VETERINARY-contd.

Dispensaries:

Assistants, work satisfactory, 30,956.
Classes of, and control, (332).
Expansion inadequate, (332).
Local Fund, more interest should be taken in by local board members, (332).

Touring:

Importance of work, (333).

Used largely by malguzars but not fully by cultivators. (333).

Transfer of control to Provincial authorities should only be partial, (332).

Use of: Inadequate, (332).

Increase should be encouraged by propaganda and demonstrations and suggestions for, (333).

Education, demand for, 31,005. Non-contagious diseases:

Cases treated, number of, in 1901-4 and 1920-25, 30,998. Treatment, 30,988.

Preventive inoculation:

tremendous Demand for, 30,945.

Number of cases in 1901-1905 and 1920-25, 30,995.

Obstacles to popularisation of, (333), 30,996.

Simultaneous, desirable and under consideration but increase of staff necessitated, 30,946-52.
no Private practitioners, 31,000.
Public health aspect of work, 30,913, 30,937-9.

Further facilities necessary, (333), 30,921-8.
Laboratory should be housed near public health research laboratory, 30,913, 30,981-4.
Laboratory staff attached at Nagpur, 30,992-3.

Muktesar Imperial Laboratory and branch at Bareilly, work of, etc., (332).

Piroplasmosis the most important need, 30,994.

Provincial Veterinary Research Institution, setting up of, scheme (333), 30,913, 30,921-8, 30,980, 30,999.

Making of, in provincial institute not advocated, 30,940-4. Supply of, and suggestions for facilitating, (333).

Expansion scheme, 30,964-70.
Particulars re, 20,916-7, 30,960-3.
Recruitment from outside province owing to lack of training facilities and drawback of, 30,918, 31,019-26, 31,039-46.

Training at Madras, found most satisfactory, 31,022-5.

Superior Veterinary Officer with Government of India: Appointment advocated, (333), 30,909. proposed Functions, (333), 30,909.

WITT, D. O., Chief Conservator of Forests, Central Provinces: (271-728), 30,170-30,429, (295).

AGRICULTURAL INDUSTRIES:

Lac industry, particulars re, (275), 30,216-25, 30,272, 30,323-5, 30,368-9, 30,379.

Sericulture in forests, position, 30,226-31, 30,368-9.

ANIMAL HUSBANDRY:

Camels, province not suitable for, 30,404-7.

Fodder:

no Scarcity except in Berar, (278).

Stall feeding, question of extension, 30,363-4.

Grazing, see under Forests.

#### WITT. D. O.—contd.

EDUCATION, Forest school, Balaghat, 30,346-7.

FERTILISERS, cowdung, attempts to induce use of fuel instead of, in Chhattisgarh district. (278).

#### FORESTS:

Afforestation, not needed in Central Provinces (278).

Area and reduction in, for cultivation, 1906-07, 1916-17 and 1925-26,

Areas available for cultivation, (276).

#### Baled grass:

Cost of baling, 30,356-7.

Distribution, method, 30,358-60. Quality, 30,355.

Storage possibilities, 30,177-83, 30,290-5. Supply for stall feeding, experiments and absence of demand for, (273-4), 30,174-6, 30,260-8. no Casuarina, 30,423-5.

Construction and repair of wells, tanks and anicuts, (276).
Cowdung, collection by people, 30,275-9.
Cutting and preserving fodder on large scale, Forest Department should carry out, but increased staff would be necessary, 30,173.

Department:

Contact with Revenue Department, 30,331-2, 30,349. Relations with Agricultural Department, 30,211-2, 30,349.

#### Deterioration:

Causes, (278). Floods in Central Provinces not due to (278).

no definite Investigation being carried on, 30,354.
will not be Serious if grazing not largely extended, 30,354.
Ensilage making never tried, 30,296.

Extraction of minor forest produce and system of working, (275), 30,272, 30,319-26, 30,368-9, 30,377-80.

Felling of trees within 20 yards of either bank of streams in certain areas forbidden, (278), 30,371-2.

Forest Engineer, question as to scope for, 30,381-3, 30,408.

#### Fuel:

Cost, question of possibility of reducing cost, 30,365-7. Increase of areas of babul bans desirable as means increasing supply, but tendency rather to reduce, (278), 30,282-9, 30,330, 30,401-3, 30,421-2.

Karanja trees not very suitable, 30,420.

no Scarcity except in Berar, (278).

Fuel and other produce, methods for supply of, to cultivators, and failure of certain experiment, Nistar and Paidawar, (275), 30,185-95, 30,232-6, 30,319.

#### Grass:

Quality of, 30,300. some Research carried out, but not by Department, 30,350-3. Sale of fodder and thatching grass from closed coupes, (274), 30,297, 30,342.

Use for stall feeding, Nimar district, (278).

Average annual value of concessions in Central Provinces, (278). Buffalo, more damage done by, than by bullocks, 30,309-11. Dear grazing and cheap fodder:

Dear grazing and cheap fodder:

Effect of cheap fodder policy on keeping of useless cattle, possible danger, 30,3124.

Policy advocated, (277-8), 30,244-52, 30,417.

Excessive, remedies for, in Central Provinces, (277), (278).

Facilities, (277), 30,342-4.

Goats and sheep, restrictions, 30,199.

Number of cattle grazing in Central Provinces and revenue realised, 1922-23, 1923-24, 1924-25, (272-3).

Policy, 30,302-11, 30,317.

```
WITT, D. O.-contd.
```

FORESTS-contd.

Grazing-contd.

Rates:

Fixation of, (272), 30,241-3, 30,318, 30,361. Reduction, undesirability of, 30,196-8. Restriction, (273).

Settlements in certain tracts and need for extension, (278).

Statistics of cattle grazed and rates paid for year 1924-25, 30,413-6, (295).

Industries:

Development possible as result of research work being done at Dehra Dun, 30,377.

Utilisation officer to be appointed for a few months, 30,378. Labour, system, 30,202-7, 30,333-9. Lac propagation and cultivation, and Government policy, (275), 30,216-25, 30,272, 30,323-5, 30,368-9, 30,379. Light railway, 30,254-7, 30,315-6.

Match factory, question as to prospects of supply of timber for, 30,393-400.

Myrobalams, revenue from, 30,386-92, 30,427. Natural generation, 30,259. Relation of forestry to agriculture, (271-2), (276), 30,213-5.

Revenue made by, and freer, and to spend money on useful projects desired, 30,237-40, 30,258.

Roads:
Construction, particulars re, expenditure on, etc., (276).
Nature of, 30,408.
Use of, by general public, (276), 30,340-1.
Sericulture, position, 30,226-31, 30,368-9.
Shifting cultivation, negligible, 30,172, 30,334.
Sleepers, supply, 30,254-7, 30,269-71.
Slopes, working of, 30,409-12.
Soil erosion, in Central Provinces, not serious, (278), 30,374.
Staff, forest guards, foresters and rangers, training and pay, 30,345-8.
Tanning materials 20,498.9

Tanning materials, 30,426-8. no Tea cultivation, 30,280-1. Tiger population, 30,327-9. Trees, commercial, 30,253.

Villages, system and cultivation in, 30,208-10, 30,333-9.

Working, methods of, and preparation of working plans, (271-2).

ACHAB		Fodder (leaves, pods, shoots) obtained from the babul tree	
		(acacia arabica).	
A m			
ADAT	•••	Brokerage, commission.	
ADRIA		Division of produce between two parties in equal pro-	
_	_	portions.	
ADTYA (	ADAT	A, An agent or broker.	
ADATITA.)		• -	
AKOLA (hoe)		A tined intercultivating implement.	
AXXA		One sixteenth of a rupee; equivalent to 11d, at exchange	
AAAA	•••		
A :		rate of one and sixpence to the rupee.	
ATTA	•••	Wheat flour.	
BARCL		A widely distributed small tree (acacia arabica).	
	D		
	DAKKH	R, A blade harrow used as a substitute for the plough and	
VAKHAR).		also for preparing the seed bed.	
BALAJEE	•••	Lit. name of a diety. A religious cess.	
BALUTA		A village servant.	
Ван	•••	A wood, grove.	
BANDI		A field of grain which has failed to mature.	
BANDHI		A rice field.	
BANIA			
	•••	A Hindu trader who is generally also a money lender.	
BANJARA	•••	A tribe of itinerant grain and cattle merchants.	
BARANI	•••	Unirrigated land depending on rain for its water supply.	
BARRE	•••	A caste of vegetable gardeners.	
BARHI		Interest in kind upon seed-grain.	
Вавті		A village, any inhabited place.	
BATAL		Payment of rent in kind, by division of produce	
		between landlord and tenant.	
BERA		An inclosure,	
	•		
Berserm	•••	Egyptian clover (trifolium alexandrinum).	
Вната	•••	Light, red, laterite soil.	
BHUSA		The husk or chaff of grain; the straw.	
BIABI	•••	Cross-ploughing of rice land after the crop has come up.	
Вірі		Country-made cigarette,	
BIGHA		A measure of land; the standard or pucca bigha is	
		3,025 square yards, or §th of an acre.	
Bra		An area reserved for the growing of grass.	
<b>T</b>	•••		
BOJA	•••	A bag of unpressed cotton, weighing 392 lbs.	
BUND	•••	A dam, a field embankment.	
BURAD	•••	The name of a Hindu caste whose main occupation is	
		mat-making.	
Buri		A variety of cotton imported from America (gossypium	
		hiroutum).	
		<i>,</i>	
_		<b>_</b>	
CABBAVA	•••	Tapioca (manihot utilissima).	
CHAR	•••	A block or portion of land.	
CHAKBANDI		Consolidation (of holdings).	
CHAMAB		A worker in skins. One of the depressed castes.	
CHARAS		The narcotic resinous exudation of the hemp plant,	
~	•••		
C=-== /C=		(cannabis sativa).	
CHARKA (CH	AKKA)	Spinning wheel.	
CHAUKI	•••	A post where a watch or guard is stationed.	
CHAUKIDAR	•••	A watchman.	
CHAWADI	•••	A shelter house for travellers.	
CHOLIKHAN	•••	Cloth from which the bodice worn by females is made.	
CHUNI	•••	Coarsely ground pulse.	
CRORE!	•••	Ten millions.	
<del></del>			

DAK (bungalov	4	
	v)	A rest house for travellers.
Dal		A generic term applied to various pulses.
D		
Disease		An agent or broker.
DAMIDURAL .		An ancient Hindu provision by which the total interest
Dimimu		on a loan may not exceed the amount of the principal.
DAWAKHANA .		A dispensary.
		An intercultivating implement.
		12 times; interest at the rate of 50 per cent.
	••	Native to the country; indigenous.
DHAINCHA .	••	A leguminous fibre plant often grown for green manuring
_		(sesbania aculeata).
		The rice plant; unhusked rice.
Dhana		Grain in general.
Dharmada .		A contribution for charitable purposes.
Dhimar .		A caste of fishermen.
DHORNE		A cess devoted to cattle protection.
		•
Erandi		Castor seed (ricinus communis).
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	•••••	Custor seed (1 tottous continuants).
Tar mer		Furtus management
FALTU		Extra, unnecessary.
~		
Ganj		'A market.
Ganja		A narcotic derived from the unfertilized flowers of
		cannabis sativa.
GAOLO		See Gowala.
GAURAKSHAN		A refuge home for cattle.
Gни		Clarified butter.
GOND		An aboriginal hill tribe inhabiting the eastern branches
		of the Vindhya mountains.
GOSHALA		Charity devoted to cow protection.
	AOLO,	Causing do to to a protocolour
GWARI, GOW	тт) — о,	A herdsman or milkman.
A		Cluck pea (cicer arietinum).
		A small evergreen tree (psidium guyava) grown solely for
GUAVA	•	
0		its fruit.
GUR		Unrefined Indian sugar, jaggery.
GWARI	• •••	See Gowala.
		·
HAISSYAT		A statement of assets and liabilities.
Накім		A practitioner of one of the Indian systems of medicine.
Hamali		Porterage charges.
HANGAM		Time, season.
HARRA		The black myrobalan (terminalia chebula).
HAQ		A privilege, perquisite, right.
		— F
T		A M 1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
JAMADAR		An official in the Agricultural Department subordinate
		to the Aggregation   Aggregate
<u>-</u> *		to the Agricultural Assistant.
JARI		A mixture of varieties of cotton belonging principally to
		A mixture of varieties of cotton belonging principally to the gossypium neglectum group.
JARI JAT (plough)		A mixture of varieties of cotton belonging principally to
		A mixture of varieties of cotton belonging principally to the gossypium neglectum group.
JAT (plough)		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough.
JAT (plough) JUAR (JOWAR).	• ••	A mixture of varieties of cotton belonging principally to the gossypium neglectum group.  A light inversion plough.  The large millet (sorghum vulgare).
JAT (plough) JUAR (JOWAR).  KABULI		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough. The large millet (sorghum vulgare).  An agreement.
JAT (plough) JUAR (JOWAR).  KABULI KALAR		A mixture of varieties of cotton belonging principally to the gossypium neglectum group.  A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence.
JAT (plough) JUAR (JOWAR).  KABULI		A mixture of varieties of cotton belonging principally to the gossypium neglectum group.  A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department.
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS		A mixture of varieties of cotton belonging principally to the gossypium neglectum group.  A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum).
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS KAPAS		A mixture of varieties of cotton belonging principally to the gossypium neglectum group.  A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum). Cotton with the seed still adhering, (unginned).
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS KAPAS KAPAS		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum). Cotton with the seed still adhering, (unginned). An evergreen jungle tree (pomgamia glabra).
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS KAPAS KARANJA KARBI (KADBI)		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum). Cotton with the seed still adhering, (unginned). An evergreen jungle tree (pomgamia glabra). Straw of juar (millet).
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS KAPAS KAPAS MARANJA KARBI (KADBI) KARGA		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum). Cotton with the seed still adhering, (unginned). An evergreen jungle tree (pomgamia glabra). Straw of juar (millet). Wild rice.
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS KAPAS KARANJA KARBI (KADBI)		A mixture of varieties of cotton belonging principally to the gossypium neglectum group.  A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum). Cotton with the seed still adhering, (unginned). An evergreen jungle tree (pomgamia glabra). Straw of juar (millet). Wild rice. A caste whose main occupation is that of writer or
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS KAPAS KAPAS I KARANJA KARBI (KADBI) KARGA KAYASTH		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum). Cotton with the seed still adhering, (unginned). An evergreen jungle tree (pomgamia glabra). Straw of juar (millet). Wild rice. A caste whose main occupation is that of writer or accountant.
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS KAPAS KAPAS MARANJA KARBI (KADBI) KARGA		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum). Cotton with the seed still adhering, (unginned). An evergreen jungle tree (pomgamia glabra). Straw of juar (millet). Wild rice. A caste whose main occupation is that of writer or accountant. A handkerchief (rumal), the fabric of which (khadi) is
JAT (plough) JUAR (JOWAR).  KABULI KALAR KAMDAR  KANS KAPAS KAPAS I KARANJA KARBI (KADBI) KARGA KAYASTH		A mixture of varieties of cotton belonging principally to the gossypium neglectum group. A light inversion plough. The large millet (sorghum vulgare).  An agreement. Saline efflorescence. Fieldman; the lowest grade of official in the Agricultural Department. A coarse, deep-rooted grass weed (saccharum spontaneum). Cotton with the seed still adhering, (unginned). An evergreen jungle tree (pomgamia glabra). Straw of juar (millet). Wild rice. A caste whose main occupation is that of writer or accountant.

KHALSA			
	•••	•••	Lands or villages held immediately of Government.
Khandi	•••		A measure of weight and capacity which varies accord-
			ing to the commodity and, in many cases, for the same
			commodity in different localities; for cotton, 784 lb.;
			at page 115, 180 lb.; a common grain measure is 200
			seers or 411'4 lb. nominal weight.
KHAR			A block of land, the soil of which is more or less homo-
	•••		geneous.
Khari			A hardy variety of sugarcane popularised by the Agri-
	•••	•••	cultural Department.
KHARIP			The autumn harvest; crops sown at the beginning of
*********	•••	•••	the rains and reaped in October-December.
Кната			An account.
KHUDKASH:			
MINUDEAGN		•••	From khud (self) and kasht (cultivation); land cultivated
			by the proprietor, i.e., part of the home farm. (Any
			person who is allowed to cultivate it can acquire occu-
<b>T</b> Z			pancy rights.)
Kisan	•••	•••	A cultivator.
Korku	•••	•••	An aboriginal hill tribe.
KOTWAL	•••		A police officer.
Kunbi	. • • •	•••	An agricultural caste.
Kubo (Kur	υ)		A grain measure equivalent to 10 seers.
Kusum(b)			A forest tree (schleichera trijuga).
KUTCHA			Inferior or bad [lit. "not solid"].
			<del>-</del> , • • • • • • • • • • • • • • • • • •
LAKH			One hundred thousand.
LAKHABHAT			Signifies the system of fragmented holdings; an ancient
		•••	device, now obsolete, whereby the fields of a village
			were subject to periodical re-distribution, so as to
			ensure that each cultivator had a fair share of the
LAKHORI			different qualities of land.
_	•••		The chickling vetch (lathyrus sativus).
LUGDA	•••	•••	A strip of cloth worn as a petticoat.
37			mm , , , , , , , , , , , , , , , , , ,
MACHOWA	•••		The practice of sowing artificially germinated seed.
Mahajan			Marchant craditor
	•••		Merchant, creditor.
MAHAL			A district or province.
Mahal Mahar			A district or province.  A low caste, generally village servants.
Mahal Mahar Malee (Mai			A district or province. A low caste, generally village servants. A gardener.
Mahal Mahar			A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or
Mahal Mahar Malee (Mai	 		A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or
Mahal Mahar Malee (Mai Malguzar	 		A district or province. A low caste, generally village servants. A gardener.
Mahal Mahar Malee (Mai	 		A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure. Malik, owner, proprietor; makbuza, occupied. A culti-
Mahal Mahar Malee (Mai Malguzar	 		A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure. Malik, owner, proprietor; makbuza, occupied. A culti-
Mahal Mahar Malee (Mai Malguzar	 		A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.
Mahal Mahar Malee (Mai Malguzar	 		A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.
MAHAL MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO	 J) BUSA		A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.  An evergreen fruit tree (mangifera indica).
MAHAL MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO	 J) BUSA	 	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure. Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant.
MAHAL MAHAR MALER (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (M	 J) BUSA	) )	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure. Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta).
MAHAL MAHAR MALER (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MABUR	 BUSA	) )	A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.  An evergreen fruit tree (mangifera indica).  A banker, broker, merchant.  Lentil (lens esculenta).  A weight of 82-28 lb. (pucca maund). Has different
MAHAL MAHAR MALER (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MABUR	 BUSA	) )	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 8228 lb. (pucca maund). Has different values for different commodities and for the same
MAHAL MAHAR MALER (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND	 BUSA  farwad	or)	A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.  An evergreen fruit tree (mangifera indica).  A banker, broker, merchant.  Lentil (lens esculenta).  A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities.
MAHAL MAHAR MALER (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MABUR	 BUSA  farwad	oi)	A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.  An evergreen fruit tree (mangifera indica).  A banker, broker, merchant.  Lentil (lens esculenta).  A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities.  Residue of sugarcane after the juice has been expressed.
MAHAL MAHAR MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND MEGASS MEREA	BUSA  ARWAD	1	A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.  An evergreen fruit tree (mangifera indica).  A banker, broker, merchant.  Lentil (lens esculenta).  A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities.  Residue of sugarcane after the juice has been expressed.  A low caste, generally village servants.
MAHAL MAHAR MALER (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MABUR MAUND  MEGASS	BUBA  IARWAD  S.N.	) )	A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.  An evergreen fruit tree (mangifera indica).  A banker, broker, merchant.  Lentil (lens esculenta).  A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities.  Residue of sugarcane after the juice has been expressed.
MAHAL MAHAR MAHAR MALER (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND  MEGASS MEREA MESTON, M.	IARWAD	1	A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.  An evergreen fruit tree (mangifera indica).  A banker, broker, merchant.  Lentil (lens esculenta).  A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities.  Residue of sugarcane after the juice has been expressed.  A very light type of inversion plough.
MAHAL MAHAR MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND MEGASS MEREA	IARWAD	1	A district or province.  A low caste, generally village servants.  A gardener.  Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates.  An evergreen fruit tree (mangifera indica).  A banker, broker, merchant.  Lentil (lens esculenta).  A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities.  Residue of sugarcane after the juice has been expressed.  A low caste, generally village servants.  A very light type of inversion plough.  Lit. Government property; plots of land of which the
MAHAL MAHAR MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND MEGASS MERBA MESTON, M. MILKAYAT S	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	 (i)	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough.  Lit. Government property; plots of land of which the proprietor is the Government.
MAHAL MAHAR MAHAR MALEE (MAHAR MALIK MAK MANGO MARWARI (MASUR MAUND MEGASS MEHRA MESTON, M. MILKAYAT S MOHARRIR (1)	S.N. (plougibkar		A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough. Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer.
MAHAL MAHAR MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND MEGASS MERBA MESTON, M. MILKAYAT S	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough.  Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer. A deciduous forest tree (bassia latifolia) whose dried
MAHAL MAHAR MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND  MEGASS MEREA MESTON, M. MILKAYAT S  MOHARRIR (MOHWA	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII		A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 8228 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough.  Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer. A deciduous forest tree (bassia latifolia) whose dried flowers are eaten as food or distilled into liquor.
MAHAL MAHAR MAHAR MALEE (MAI MALEE (MAI MALEE (MAI MANGO MARWARI (MARWARI (MARWAR	IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	1	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure. Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82.28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough.  Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer. A deciduous forest tree (bassia latifolia) whose dried flowers are eaten as food or distilled into liquor. A receptacle for hoisting water from a well.
MAHAL MAHAR MAHAR MAHAR MALER (MAH MALER (MAH MANGO MANGO MARWARI (MASUR MAUND MEGASS MEHRA MESTON, M. MILKAYAT S MOHARRIR (MOHWA MOTS MUNG	S.N. (plougibran	(i) (ii) (iii) (ii	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure. Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough. Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer. A deciduous forest tree (bassia latifolia) whose dried flowers are eaten as food or distilled into liquor. A receptacle for hoisting water from a well. Green gram (phaseolus radiatus).
MAHAL MAHAR MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND  MEGASS MEHRA MESTON, M. MILKAYAT S  MOHARRIR (MOHWA  MOTE MUNG MURGLE	IARWAD  S.N. (ploughbran	mi)	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough.  Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer. A deciduous forest tree (bassia latifolia) whose dried flowers are eaten as food or distilled into liquor. A receptacle for hoisting water from a well. Green gram (phaseolus radiatus). Light stony soil.
MAHAL MAHAR MAHAR MAHAR MALEE (MAI MALEE (MAI MALEE (MAI MARUZAR  MANGO MARWARI (MARWARI (MARWARI (MAI MARWARI (MAI MARWARI (MAI MARKARI (MAI MOHARRIR (MOHWA MOTE MURUM MURUM MURUM MURUM	S.N. (plougibras Muhas)	min (min (min (min (min (min (min (min (	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough.  Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer. A deciduous forest tree (bassia latifolia) whose dried flowers are eaten as food or distilled into liquor. A receptacle for hoisting water from a well. Green gram (phaseolus radiatus). Light stony soil. A grass (tseilma laxum).
MAHAL MAHAR MAHAR MALEE (MAI MALGUZAR  MALIK MAK  MANGO MARWARI (MASUR MAUND  MEGASS MEHRA MESTON, M. MILKAYAT S  MOHARRIR (MOHWA  MOTE MUNG MURGLE	S.N. (plougibras Muhab)	min (min (min (min (min (min (min (min (	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure. Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82.28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough.  Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer. A deciduous forest tree (bassia latifolia) whose dried flowers are eaten as food or distilled into liquor. A receptacle for hoisting water from a well. Green gram (phaseolus radiatus). Light stony soil. A grass (tseilma laxum). Fanning fruit obtained from trees of the genus Ter-
MAHAL MAHAR MAHAR MAHAR MALEE (MAI MALEE (MAI MALEE (MAI MARUZAR  MANGO MARWARI (MARWARI (MARWARI (MAI MARWARI (MAI MARWARI (MAI MARKARI (MAI MOHARRIR (MOHWA MOTE MURUM MURUM MURUM MURUM	S.N. (plougibras Muhab)	min (min (min (min (min (min (min (min (	A district or province. A low caste, generally village servants. A gardener. Lit. revenue payer. A term applied to a proprietor or co-sharer in a village held in ordinary proprietary tenure.  Malik, owner, proprietor; makbuza, occupied. A cultivator possessing a hereditary or proprietary right in the land he cultivates. An evergreen fruit tree (mangifera indica). A banker, broker, merchant. Lentil (lens esculenta). A weight of 82-28 lb. (pucca maund). Has different values for different commodities and for the same commodity in different localities. Residue of sugarcane after the juice has been expressed. A low caste, generally village servants. A very light type of inversion plough.  Lit. Government property; plots of land of which the proprietor is the Government. A clerk or writer. A deciduous forest tree (bassia latifolia) whose dried flowers are eaten as food or distilled into liquor. A receptacle for hoisting water from a well. Green gram (phaseolus radiatus). Light stony soil. A grass (tseilma laxum).

		GLOSSARY.
Nahan (mill)	•••	A 3-roller iron cane mill manufactured by the Nahan Co., Ambala.
NAKA		A toll or custom station; a subordinate police-station.
Nistar		Release, acquittal.
Newar		A coarse cotton tape.
Nullah		A water course.
Danner		Disa (suura satius)
PADDY PAHADI		Rice (oryza sativa).
D		Belonging to a hill tribe.
		Pertaining to produce, outturn.
PAILI PALAS	•••	A grain measure; nominal weight in Nagpur is 1½ seer.  A moderate-sized deciduous tree (butea frondosa).
PALLA	•••	Equivalent to three mainds or 120 seers.
PANCHAYAT (PAN	CHA	Lit. a committee of five. Used to describe an association
	<b>-</b> ,	of any number of persons, instituted for objects of an administrative or judicial nature.
PATEL		The headman of a ryotwari village.
PATKA		A silken girdle or sash.
Patwari		A village accountant or registrar.
Pre		One-twelfth of an anna.
PINJRAPOLE		A refuge home for cattle.
PONIA	•••	A grass (tschoemum sulcatum).
Procy		Of good quality, up to standard, correct, substantial.
PURDAH		A veil, screen; the practice of keeping women secluded.
		•
Rаві		The spring harvest; crops sown in autumn and reaped
Roseum		at the end of the cold weather.
ROBEUM	•••	A coarse, short staple cotton (gossypium neglectem roseum).
<b>Ryoт</b>		A cultivator.
RYOTWARI		A system of tenure under which the cultivator pays the
IUIOIWAMI	•••	revenue direct to Covernment
IUIVIWAMI	•••	revenue direct to Government.
_		revenue direct to Government.
SABUL		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion
SABUL		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough.
Sabul Salai		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).
SABUL SALAI SANAD		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour.
Sabul Salai		An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria
Sabul Salai Sanad Sann (Sunn)		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.
Sabul Salai Sanad Sann (Sunn)		An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure. Supply; means of providing for charges or expenses.
Sabul Salai Sanad Sann (Sunn) Sarbarai		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure. Supply; means of providing for charges or expenses. A long cloth worn by Indian women.
Sabul Salai Sanad Sann (Sunn) Sarbarai Sari Satnami		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.
SABUL SALAI SANAD SANN (SUNN) SARBARAI SARI SATNAMI		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.
SABUL SALAI SANAD SANN (SUNN) SARBARAI SATI SATIAMI SATTA SAWAI		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure. Supply; means of providing for charges or expenses. A long cloth worn by Indian women. A reformed sect of Chamars. Traffic; exchange of money. An excess of one-fourth; interest at the rate of 25 per cent.
Sabul  Salai  Sanad  Sann (Sunn)  Sarbarai  Sari  Sati		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure. Supply; means of providing for charges or expenses. A long cloth worn by Indian women. A reformed sect of Chamars. Traffic; exchange of money. An excess of one-fourth; interest at the rate of 25 per cent. A weight (2.057 lb.).
Sabul Salai Sanad Sanan (Sunn) Sarbarai Sathami Sathami Sathami Sathami Sathami Sawai Sawai Seer Semal		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATI  SATIAMI  SATIA  SAWAI  SEER  SEMAL  SEBAMUM		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure. Supply; means of providing for charges or expenses. A long cloth worn by Indian women. A reformed sect of Chamars. Traffic; exchange of money. An excess of one-fourth; interest at the rate of 25 per cent. A weight (2.057 lb.). A large deciduous tree (bombax malabaricum). An oil seed (til) (sesamum indicum).
Sabul Salai Sanad Sanan (Sunn) Sarbarai Sathami Sathami Sathami Sathami Sathami Sawai Sawai Seer Semal		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure. Supply; means of providing for charges or expenses. A long cloth worn by Indian women. A reformed sect of Chamars. Traffic; exchange of money. An excess of one-fourth; interest at the rate of 25 per cent. A weight (2.057 lb.). A large deciduous tree (bombax malabaricum). An oil seed (till) (sesamum indicum). A scripture; a work of authority, especially one attri-
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SAWAI  SEER  SEMAL  SESAMUM  SHASTRA		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria junca); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATI  SATIAMI  SATIA  SAWAI  SEER  SEMAL  SEBAMUM		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure. Supply; means of providing for charges or expenses. A long cloth worn by Indian women. A reformed sect of Chamars. Traffic; exchange of money. An excess of one-fourth; interest at the rate of 25 per cent. A weight (2.057 lb.). A large deciduous tree (bombax malabaricum). An oil seed (til) (sesamum indicum). A scripture; a work of authority, especially one attributed to an inspired writer. Hunting: shikari, a hunter.
SABUL  SALAI SANAD SANN (SUNN) SARBARAI SATNAMI SATTA SAWAI SEER SEBAMUM SBSAMUM SHASTEA		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria junca); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.
SABUL  SALAI SANAD SANN (SUNN)  SARBARAI SATNAMI SATTA SAWAI SEER SEMAL SESAMUM SHASTRA SHIKAR SOWCAR (SOW		revenue direct to Government.  An iron bar; sabul plough, a bar-pointed, inversion plough. A gum tree (brassica serrata). A charter, a certificate of honour. Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure. Supply; means of providing for charges or expenses. A long cloth worn by Indian women. A reformed sect of Chamars. Traffic; exchange of money. An excess of one-fourth; interest at the rate of 25 per cent. A weight (2.057 lb.). A large deciduous tree (bombax malabaricum). An oil seed (til) (sesamum indicum). A scripture; a work of authority, especially one attributed to an inspired writer. Hunting; shikari, a hunter. A genus of grasses, the most important of which is juar,
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SEER  SEMAL  SESAMUM  SHASTRA  SHIKAR  SOWCAR (SOW SAHUKAR).	   	An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SAWAI  SEBAL  SEBAL		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (till (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).  A light sandy soil.
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SEER  SEMAL  SESAMUM  SHASTRA  SHIKAR  SOWCAR (SOW SAHUKAR).		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).  A light sandy soil.  Home-farm land; the personal, family or private holding
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SAWAI  SEER  SEBAMUM  SHASTRA  SHIKAR  SOWCAR (SOW SAHUKAR).  SIHAR  SIR		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).  A money lender.  A light sandy soil.  Home-farm land; the personal, family or private holding of a proprietor or co-sharer.
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SEER  SEER  SEMAL  SEBAMUM  SHASTRA  SHIKAR  SOWCAR (SOW SAHUKAR).  SIHAR  SIR  SIRKAR		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).  A light sandy soil.  Home-farm land; the personal, family or private holding of a proprietor or co-sharer.  The Government; the supreme authority.
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SAWAI  SEER  SEMAL  SEBAL  SHIKAR  SOWCAR (SOW SAHUKAR).  SIHAR  SIR  SIRKAR  SIRKAR  SIRKAR		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (till (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).  A light sandy soil.  Home-farm land; the personal, family or private holding of a proprietor or co-sharer.  The Government; the supreme authority.  The chief of the panch (see panchayat).
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SEER  SEMAL  SESAMUM  SHASTRA  SHIKAR  SOWCAR (SOW SAHUKAR).  SIHAR  SIR  SIR  SIR  SIR SIR  SIR SIR  SURKI (SARKI)		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).  A light sandy soil.  Home-farm land; the personal, family or private holding of a proprietor or co-sharer.  The Government; the supreme authority.  The chief of the panch (see panchayat).  Cotton seed.
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SAWAI  SEER  SEMAL  SEBAL  SHIKAR  SOWCAR (SOW SAHUKAR).  SIHAR  SIR  SIRKAR  SIRKAR  SIRKAR		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).  A money lender.  A light sandy soil.  Home-farm land; the personal, family or private holding of a proprietor or co-sharer.  The Government; the supreme authority.  The chief of the panch (see panchayat).  Cotton seed.  An advance made by Government to cultivators for agri-
SABUL  SALAI  SANAD  SANN (SUNN)  SARBARAI  SATNAMI  SATTA  SEER  SEMAL  SESAMUM  SHASTRA  SHIKAR  SOWCAR (SOW SAHUKAR).  SIHAR  SIR  SIR  SIR  SIR SIR  SIR SIR  SURKI (SARKI)		An iron bar; sabul plough, a bar-pointed, inversion plough.  A gum tree (brassica serrata).  A charter, a certificate of honour.  Bombay hemp; a leguminous fibre crop (crotalaria juncea); also used as a green manure.  Supply; means of providing for charges or expenses.  A long cloth worn by Indian women.  A reformed sect of Chamars.  Traffic; exchange of money.  An excess of one-fourth; interest at the rate of 25 per cent.  A weight (2.057 lb.).  A large deciduous tree (bombax malabaricum).  An oil seed (til) (sesamum indicum).  A scripture; a work of authority, especially one attributed to an inspired writer.  Hunting; shikari, a hunter.  A genus of grasses, the most important of which is juar, the great millet (sorghum vulgare).  A light sandy soil.  Home-farm land; the personal, family or private holding of a proprietor or co-sharer.  The Government; the supreme authority.  The chief of the panch (see panchayat).  Cotton seed.

Tansildar ... A revenue officer in charge of a tahsil. TALUQDAR ... A parasitic flowering plant (striga lutea).

TALUQDAR ... See Tahsil.

TAMASHA ... A big landowner.

TAMASHA ... A show, spectacle.

TARVA ... A shrub (cassia auriculata).

TENDU ... A small tree (diospyros tomentosa).

TEORA ... ... Rape (brassica campestris).

TIL (TILLI) ... An oilseed (sesamum indicum).

TOLA ... ... The weight of a silver rupee; 80 tolas equal one seer.

TOLA ... ... The weight of a survey of Tonga ... ... A horse or bullock carriage. TUR ... Pigeon pea (cajanus indicus).

URID ... ... A pulse (phaseolus mungo).

VADI ... ... An enclosed space.
VAIDAYA ... ... A practitioner of one of the Indian systems of medicine.
VAEHAB ... See Bakkhar.