



Report of the Cottage and Small-
Scale Industries Sub-Committee
of the Provincial Industries
Committee, Bombay

SURVEY OF COTTAGE AND SMALL-SCALE INDUSTRIES.

For official use only

BOMBAY
PRINTED AT THE GOVERNMENT CENTRAL PRESS.
1946

**REPORT OF THE COTTAGE AND SMALL-SCALE INDUSTRIES SUB-COMMITTEE
OF THE PROVINCIAL INDUSTRIES COMMITTEE, BOMBAY**

SURVEY OF COTTAGE AND SMALL-SCALE INDUSTRIES.

CONTENTS.

	PAGE
CHAPTER I.—INTRODUCTION	1
CHAPTER II.—ROLE OF COTTAGE AND SMALL-SCALE INDUSTRIES IN THE ECONOMIC DEVELOPMENT OF THE PROVINCE	4
CHAPTER III.—THE REPORT OF THE BOMBAY ECONOMIC AND INDUSTRIAL SURVEY COMMITTEE; DEFINITIONS AND RECOMMENDATIONS	5
CHAPTER IV.—SURVEY OF COTTAGE AND SMALL-SCALE INDUSTRIES, ETC. :—	7
Textile (Cotton)	7
Textile (Woollen)	13
Hosiery	20
Sericulture	21
Eri-culture	24
Gold and Silver Thread	25
Fibre	29
Coir	36
Paper	40
Tanning and Leather Working	45
Glue	51
Mechanical and Metal	52
Carpentry, Wood-working, etc.	58
Bamboo and Cane work	62
Lac	67
Glass Bangle	69
Pottery, Bricks, Tiles, etc.	71
Bee-keeping	75
Fruit Preservation	79
Gur	84
Vegetable Oils	89
Essential Oils	102
Art-Crafts	104
Miscellaneous	107
Cottage and Small-scale industries in Bombay City and the Suburbs	109
Mechanical and Electrical Power	113
CHAPTER V.—ORGANISATION OF COTTAGE AND SMALL-SCALE INDUSTRIES	115
CHAPTER VI.—FINANCE OF COTTAGE AND SMALL-SCALE INDUSTRIES	121
CHAPTER VII.—SUMMARY OF RECOMMENDATIONS	125
CHAPTER VIII.—CONCLUSION	133

CONTENTS.

	PAGE
APPENDICES— A.—Statement giving General Information—Economic, Industrial, etc. (Based on information given in Vol. II, Report of the Bombay Economic and Industrial Survey Committee 1938-40).	134
B.—Table showing the number of workers engaged in Industry, District by District (Based on figures given in Vol. II of the Report of the Bombay Economic and Industrial Survey Committee, 1938-40).	158
C.—Table showing the acreage under Cash-Crops for the years 1937-38 and 1943-44.	170
D.—Table showing the livestock during the years 1934-35 and 1943-44.	174

REPORT OF THE COTTAGE AND SMALL SCALE INDUSTRIES SUB-COMMITTEE OF THE PROVINCIAL INDUSTRIES COMMITTEE, BOMBAY.

SURVEY OF COTTAGE AND SMALL-SCALE INDUSTRIES

CHAPTER I

INTRODUCTION.

Appointment of the Sub-Committee.—The Government of Bombay appointed the Provincial Industries Committee by their Resolution, General Department No. 5393/33, dated 13th June, 1945. At its first meeting, held on 19th July, 1945, that Committee appointed seven Sub-Committees, one of which being “The Cottage and Small-scale Industries Sub-Committee.”

The Sub-Committee consists of the following members :—

- | | | |
|---|-----|-------------------|
| (1) M. P. Kanga, Esqr., M.Sc., (Tech.) ; J.P., Director of Industries, and Member and Secretary, Provincial Industries Committee | ... | <i>Chairman.</i> |
| (2) P. J. Chinmulgund, Esqr., I.C.S., Joint Registrar of Co-operative Societies, nominee of the Registrar of Co-operative Societies | ... | <i>Member.</i> |
| (3) N. M. Joshi, Esq., B.A., | ... | <i>Do.</i> |
| (4) V. L. Mehta, Esqr., B.A., | ... | <i>Do.</i> |
| (5) Dewan Bahadur H. L. Kaji, J.P., I.E.S. (Retd.) | ... | <i>Do.</i> |
| (6) F. E. Bharucha, Esqr., L.M.E., M.I. Mech. E. (Lond) ; M.I.E., | ... | <i>Do.</i> |
| (7) Prof. D. R. Gadgil, M.A., M. Litt., | ... | <i>Do.</i> |
| (8) J. K. Mehta, Esqr., M.A., | ... | <i>Do.</i> |
| (9) S. K. Kallapur, Esqr., B.A., LL.B., | ... | <i>Do.</i> |
| (10) Dr. R. D. Desai, D.Sc., | ... | <i>Do.</i> |
| (11) Dr. S. M. Dhume, D.Sc., Ph.D. (Lond.), | ... | <i>Do.</i> |
| (12) S. Y. Anandkar, Esqr., | ... | <i>Do.</i> |
| (13) Rao Sahib B. M. Rane, I.S.O., B.A., J.P., | ... | <i>Secretary.</i> |

Mr. Vaikunth L. Mehta resigned when he assumed office of the Minister of Finance, Co-operation and Village Industries, Province of Bombay.

Prof. D. R. Gadgil resigned his membership in February, 1946 on account of his pre-occupation in Poona.

Terms of Reference.—The terms of reference of the Provincial Industries Committee were—

(i) To recommend existing industries in the Province which should be further expanded and new industries which should be started during the post-war period.

(ii) To recommend such industries as can best be organised as (1) large-scale industries (2) small-scale or cottage industries.

(iii) To suggest the most suitable sites for the location of the various industries after taking into consideration the availability of labour, water supply, electric power, raw materials, markets, and the desirability of preventing congestion in thickly populated areas.

(iv) To advise whether the industries recommended should be promoted by Government or private agency; and in the latter case whether Government should participate and if so the nature of the help which would be required.

(v) To advise Government in regard to panels to be set up for particular industries, consisting of persons specially interested in such industry, such as business men, industrialists, and technical experts.

The Cottage and Small-scale Industries Sub-Committee is primarily concerned with making a survey of the existing small-scale or cottage industries in the Province, which deserve to be expanded and new industries which can be best organised and started on a small or cottage scale. In making its recommendations, the Sub-Committee has to take account of such factors as the type, availability of raw materials, power and markets and suggest suitable centres for location of the various industries.

The number of meetings.—The Sub-Committee held in all 8 meetings, commencing from 12th November, 1945.

Staff sanctioned.—Besides the Secretary, the clerical and fields staff appointed was as under :—

- 1 Senior Assistant.
- 2 Junior Assistants.
- 1 Clerk.
- 1 Stenographer.
- 1 Typist.
- 2 Peons.
- 4 District Industrial Officers (Department of Industries) on special Duty.
- 10 Investigators.

Procedure for Collection of Information, etc.—As a rapid survey was required to be made, questionnaires were issued to the Collectors, officers of the Co-operative Department, etc., and the District Industrial Officers and Investigators were simultaneously sent to the Districts to obtain all information possible on the spot, by personal contact with Government officials, industrialists, artisans and others.

Later, the services of the said Officers and Investigators were utilised in making a rapid survey of small-scale and cottage industries in Bombay city and the Bombay Suburban District.

The Department of Industries furnished as much commercial and industrial information as was available.

Mr. Vaikunth L. Mehta very kindly contributed a chapter on 'Finance of Cottage and Small-scale Industries' and Mr. P. J. Chinmulgund, I.C.S., gave valuable assistance in framing a chapter on 'Organisation of Cottage and Small-scale Industries.'

The following were interviewed by the Sub-Committee to elicit their views on the various industries they were connected with :—

Mr. A. A. Shah, Chairman, N. D. Industrial Co-operative Association, Ahmedabad.

Mr. Yasin Ashraf, Chairman, District Industrial Co-operative Association, Dhulia, District West Khandesh.

Mr. R. C. Kakatkar, Manager, District Industrial Co-operative Association, Dhulia, District West Khandesh.

Mr. M. A. Quadir, Manager, District Industrial Co-operative Association, Malegaon, District Nasik.

Mr. B. S. Chhanna, Chairman, District Industrial Co-operative Association, Ahmednagar.

Mr. T. L. Dikonda, Manager, District Industrial Co-operative Association Ahmednagar.

Mr. P. N. Kanakatti, Chairman, District Industrial Co-operative Association, Sholapur.

Mr. G. D. Sane, Adviser, District Industrial Co-operative Association, Sholapur.

Mr. P. R. Chikodi, Chairman, District Industrial Co-operative Association, Belgaum.

Mr. G. D. Dhongde, Manager, District Industrial Co-operative Association, Hubli, District Dharwar.

Mr. K. R. Koshti, Secretary, Bombay Presidency Handloom Weavers' Association, Poona.

Messrs. B. C. Munshaw, J. P. Engineer and R. S. Desai, representatives of the Textile Stores and Machinery Merchants' Association.

Dewan Bahadur B. J. G. Shastri, Surat.

Mr. R. T. Popawala, President, Surat Chamber of Commerce, Surat.

Mr. Manchubhai Maganlal Jariwala, President, Jari Merchants' Association, Surat.

Mr. Bhagubhai Nathubhai Jariwala, Vice-President, Jari Merchants' Association, Surat.

Mr. Chandulal G. Kantiwala, Vice-President, Surat Jari Goods Producers' Co-operative Society, Ltd.

Mr. N. Y. Keshalkar, Manager, Madhu Canning Co., Dadar, Bombay.

Mr. N. G. Apte, Proprietor, Rural Products Ltd., Poona.

Mr. E. I. Ahmed Khan, Proprietor, Ahmedi Ship Yard, Bombay.

Mr. Arjun Balaji Shinde, Bombay.

Mr. V. V. Bedekar of Messrs. V. P. Bedekar & Sons, Bombay.

Considerable information was collected by the Investigators but their work was handicapped by a census of industrial workers, etc., not having been taken in 1941, as was done in 1931. The figures may not, therefore, be quite accurate but they have been useful in framing a picture of the existing condition of the industry.

General Arrangement of the Report.—In the Chapters which follow, a survey has been made particularly of 23 important cottage and small-scale industries of the Province. The economic significance, present position, location, etc., and scope for development of these industries and the extent to which they should be developed in the next decade, have been pointed out. The Cottage and Small-scale industries in Bombay city and its Suburbs are briefly dealt with separately. Chapters have been devoted to the organisation and finance of Cottage and Small-scale industries. The views of the Sub-Committee are also expressed on some of the recommendations of the Bombay Economic and Industrial Survey Committee, which have not yet been adopted.

Completion of the Report.—The work was completed in about nine months and the Report was ready early in August, 1946.

Acknowledgments.—The Sub-Committee expresses its best thanks to all the officials and non-officials who have very kindly assisted in preparing this Report. The Sub-Committee also places on record its appreciation of the work done by the Secretary, the District Industrial Officers and Investigators, and the staff in the limited time at their disposal.

CHAPTER II

ROLE OF COTTAGE AND SMALL SCALE INDUSTRIES IN THE ECONOMIC DEVELOPMENT OF THE PROVINCE.

Before the introduction of modern machinery and mass-scale methods of production, industry was carried on everywhere on a cottage or small scale. The use of steam and electric power ushered in a new industrial era and revolutionised the methods of production. In the past century some of the industrially advanced countries of the world established factories, the production of some of which has been on a colossal scale. On account of rapid industrialisation, it was possible for these countries to switch over from small scale to mass production without causing much dislocation in the employment of labour. Although considerable progress has been made in India, it was possible to industrialise only some parts of the country, with the result that large scale industries have affected cottage industries. There is unemployment and the earnings have diminished. Self-sufficiency in the villages has been reduced and the villagers have been impoverished. With the development of large scale industries in the future, it is desirable that cottage and small-scale industries should at the same time be fostered and put on a sound footing. This will enable wealth to be retained in the towns and villages and improve the rural economy.

2. It is stated that the average annual income per head of population in India is about Rs. 65 and that from industries Rs. 15. The corresponding figures for the United Kingdom are Rs. 1,000 and Rs. 600 respectively and for the U.S.A. Rs. 1,200 and Rs. 800 respectively. These figures disclose the position in India and stress the importance of establishing a balance between industry and agriculture.

3. According to the 1941 Census, the population of the Province of Bombay was 20·8 million. It is estimated that there are about 560,000 workers engaged in cottage and small-scale industries in the Province (excluding the Bombay city and its suburbs). Assuming that there are 1·5 dependents on every worker, only about 1½ million people are dependent on cottage and small-scale industries for their means of livelihood. The ratio of the population dependent on cottage and small-scale industries to the rural population is not large. It follows, therefore, that an important aim in any post-war plan for increasing the income per head must be to find ways and means to increase the number, and improve the economic condition of the artisans engaged in cottage industries.

4. The condition of the workers can be improved by adopting the equipment and methods calculated to increase the production per head and improve the quality of their product. Employment should be provided for as large a number of people as possible and at the same time an effort should be made to increase the earning capacity of the workers.

5. Cottage industries can provide part-time occupation to agriculturists and enable them to earn extra income.

6. The development of large scale industries should not affect cottage or small-scale industries. By proper organisation and by providing training and marketing facilities and with Government assistance, the small-scale industries should be able to hold their own against organised industries. The interests of the two should not conflict. The types of materials and articles turned out by the artisans could be different from those produced in factories. The policy may, therefore, be to encourage cottage and small-scale industries. In many instances, it has been possible to connect cottage industries with large-scale industries.

CHAPTER III.

THE REPORT OF THE BOMBAY ECONOMIC AND INDUSTRIAL SURVEY COMMITTEE :
DEFINITIONS AND RECOMMENDATIONS.

An important survey of the economic and industrial condition of the Province was made in 1938-39 by the Bombay Economic and Industrial Survey Committee. They principally dealt with the cottage and small-scale industries of the Province and made several recommendations.

Some of the important figures given in the 'Report of the Bombay Economic and Industrial Survey Committee', are tabulated in the statements appended to this report.

2. The definitions of cottage, small and large scale industries suggested by that Committee are as follows :—

Definition of Cottage Industries.—Cottage industries are industries where no power is used and the manufacture is carried on, generally speaking, in the home of the artisan himself and occasionally in small 'karkhanas' where not more than 9 workers are employed. Our reason for placing the maximum number of workers in cottage industrial units at 9 is because 'karkhanas' of handloom weavers even though they do not use power, are subject to the provisions of the Indian Factories Act, if they employ ten men and over; and we feel that 'karkhanas' which are big enough to be brought within the provisions of the Indian Factories Act and are subject to inspection, etc., by the Chief Inspector of Factories should not be included in cottage industries.

Definition of Small-Scale Industries.—By small-scale industries we understand industries where power is used and where the number of workers does not exceed 50 and the capital invested is less than Rs. 30,000. Small-scale industries also include industries where no power is employed provided the manufacture is carried on in 'karkhanas' and the number employed exceeds 9.

Definition of Large Scale Industries.—By large scale industries we understand industries where power is used and the number employed exceeds 50 and the capital invested is above Rs. 30,000. Large scale industries are easily recognisable by the public.

The Sub-Committee decided to adopt the above definitions.

3. The Sub-Committee considered the recommendations made by the Bombay Economic and Industrial Survey Committee and has the following observations to make on some of the recommendations which have not yet been adopted :—

Recommendation No. 5.—It is not possible for the Sub-Committee to undertake a detailed survey of medicinal herbs found in the Province, but it is felt that experts should be appointed to make such a survey. Research is necessary for the utilisation of herbs in the preparation of medicinal drugs.

Recommendation No. 8.—The possibility of extending the development of the canning industry should be further ascertained. There is a considerable scope for canning and bottling of fruit, fruit juices and other products. With the development of such industry, the glass industry could also be considerably assisted, as a new market would be found for bottles, etc. It may be possible to establish the industry on a co-operative basis.

Recommendation No. 9.—A Fibre Expert should again be appointed to advise the Government of Bombay and to develop the fibre industry both on a cottage and large scale in the Province.

Recommendation No. 19.—At present, several Districts have District Industrial Associations and some more have been provided for, according to the post-war schemes of Government. Government may now consider establishing District Industrial Associations in the remaining Districts also.

Recommendation No. 25.—The Sub-Committee recommends that facilities in finance given by Government only to such cottage workers who have taken training in the institutions recognised or run by the Department of Industries, may now be extended to other artisans also.

CHAPTER IV.

SURVEY OF COTTAGE AND SMALL-SCALE INDUSTRIES, ETC.

Textile (Cottons).

The most important of all the cottage industries in the Province are the hadloom and powerloom weaving industries. These are the most important also in the whole of India. Handloom weaving is done from ancient times and there is a large number of people still earning their living by it. By the establishment of textile mills in Bombay and Ahmedabad the cottage industry has received a set-back but by proper approach and organisation it should be possible to revive and develop it for the following reasons—

(i) The consumption of cloth per capita in the Province is at present about 18 yards per annum only whereas cloth in large quantities will be required in the future.

(ii) Cloth of different varieties and designs can be produced on handlooms and powerlooms which cannot be economically done by the mills.

(iii) Handloom cloth in particular is more durable.

(iv) By the adoption of such improved equipments as the automatic take-up loom and powerloom, the cost of production can be appreciably reduced, so that taking into consideration everything the price of such cloth will compare reasonably with the cost of mill-made cloth.

(v) The small-scale and cottage industry provides employment of a very large number of people.

(vi) The development of this industry will considerably improve rural economy.

2. The present condition of the industry is not unsatisfactory but a great deal of improvement and organisation is required to put it on a sounder footing.

According to the figures given in the Fact Finding Committee's Report the average pre-war production of handloom cloth (cotton) for Bombay Province and for all India was estimated at 116 million yards and 1617.4 million yards respectively. The average value of hand-woven cloth per annum was Rs. 356.53 lakhs which worked out to 4 annas and 11 pies per yard.

The annual production of cotton cloth in India during 1938-39 was 3905.3 million yards (mill production) and 1703.2 million yards (handloom production).

The total number of handloom weavers according to the latest estimate made by the Provincial Textile Controller is about 95,000. According to the survey made in 1928 by Mr. S. V. Telang of the Department of Industries the number of centres and the number of looms in them were approximately as follows:—

Number of looms.		Number of Centres.
1 to	4 handlooms	293
5 to	10 "	245
11 to	19 "	166
20 to	50 "	156
51 to	100 "	56
101 to	500 "	42
501 to	1,000 "	18
1,001 to	5,000 "	15
Total ...		991

According to the Fact Finding Committee's Report of 1941-42 about 45 per cent. of the total number of looms in the Province are found in 26 urban centres.

The total number of powerlooms operating in the Province is approximately 14,500 and in the past five years there has been almost a 100 per cent. increase in the number of powerlooms.

The important powerloom centres are, Bombay city, Surat, Malegaon and Bhiwandi.

The types of cloth woven in different important centres are as follows :—

Surat.—Coating, shirting, sheeting, etc.

Dhulia.—Sarees of coarse type.

Malegaon.—Sarees of medium and fine counts.

Yeola.—Sarees and 'pitambers.'

Bhiwandi.—Sarees of fine counts and furnishing fabrics.

Ahmednagar.—Sarees of medium count.

Sholapur.—Sarees of coarse, medium and fine counts.

Ilkal.—Sarees of medium and fine counts.

Guledgud.—Khans.

Gadag.—Sarees.

Hubli.—Sarees and Khans.

Belgaum.—Fine count sarees.

Poona.—Sarees.

From the foregoing it will be observed that the Province mainly produces sarees.

90 per cent. of the goods produced on a small scale in the Province are coloured goods.

The total number of weavers' co-operative societies inclusive of District Industrial Co-operative Associations is at present 120 and the number of District Industrial Co-operative Associations, operating at present under the Marketing Scheme subsidised by the Government of India, is 9. They are operating at the following places :—

Weavers' Co-operative Societies.

District Industrial Co-operative Associations.

Bombay	...	...	1	Ahmednagar.
Ahmedabad	...	...	4	Hubli.
Broach and Panch-mahals	...	...	1	Ahmedabad.
Surat	...	...	1	Sholapur.
Ahmednagar	...	...	3	Belgaum.
East Khandesh	...	...	5	Yeola.
West Khandesh...	...	...	2	Malegaon.
Nasik	...	...	9	Bagalkot.
Poona	...	...	3	Dhulia.
Satara	...	...	16	Satara.
Sholapur	...	...	10	
Belgaum	...	...	28	
Bijapur	...	...	13	
Dharwar	...	...	21	
North Kanara	...	...	3	

Total ... 120

An additional District Industrial Co-operative Association, is being formed at Bhiwandi. Each of the associations is given a grant of about Rs. 2,000 to Rs.3,000. In the past 10 years good progress has been made by them. The membership of the associations has largely increased and a good beginning has been made in organising the weavers on a co-operative basis.

During the past few years the handloom and powerloom industry, has, on account of the war, flourished to a certain extent because of a large demand of cloth both by the military and civilians and great reduction in the import of cloth. On the other hand, yarn, chemicals and dyes have not been obtainable in sufficient quantities to enable weavers to produce cloth to the extent they could otherwise have done.

The Department of Industries is exporting small quantities of handloom and powerloom cloth in order to secure markets in countries like Australia and New Zealand.

The weavers of the Province are guided by the Department of Industries. Technical assistance is given when necessary, e.g., the weavers of the District Industrial Co-operative Associations are taught to switch over from the production of their local type of goods to various other types thus extending their market.

A Power Loom Weaving Instructional Institute, 16 peripatetic weaving and three dyeing demonstration parties are maintained by the Department. The aim of these parties is to demonstrate the use of improved appliances and adoption of new designs and improved methods of dyeing and printing. According to the Post-war Schemes of Government ten more demonstration parties for weaving, dyeing etc. are being organised.

3. The measures which have now to be taken for development of the industry should not be so much to increase the number of looms and weavers as to introduce efficient equipment and to organise the weavers so that their production may be increased, they are able to earn a fair wage and compete with the mills to a reasonable extent.

In order to achieve this end it is proposed that ordinary fly-shuttle type of handlooms should be gradually converted to or replaced by the 'automatic' take-up type of loom. This change over will cost, under present conditions, about Rs. 125 to Rs. 150 per loom but the out-put will increase approximately by 50 per cent.

An automatic take-up motion loom differs from the ordinary type of fly-shuttle loom in the following respects. The warp at the back of the fly-shuttle loom is in the form of a ball which has to be opened and spread out at intervals in order to continue with the weaving. After weaving 9 or 10 inches, the operation has to be stopped and the cloth has to be rolled on the front roller by hand. This interruption in the operation of the loom results in loss of time and consequently of production, and unnecessarily involves additional labour. In an automatic take-up motion loom the warp is spread and wound on a beam at the back of the loom. The cloth is wound on the front roller which operates automatically at the time of weaving, unwinding the warp on the beam at the back. Although the actual weaving is done by hand much time and labour is saved and production increased.

Wherever power is available or will be made available from the Electric Grid System, weavers should be encouraged to instal powerlooms.

The extent of the development to be made in the immediate future cannot be, at this stage, definitely gauged but considering that the minimum consumption of cloth per capita in the Province of Bombay should be 30 yards per annum but that the Post War Planning Committee (Textile) has made a provision for only 24 yards, it is thought that there is scope for expansion of the individual powerloom industry by about 50 per cent. and for converting about one-third of the total number of handlooms to the 'automatic' take-up type. Further the throw-shuttle looms which are only about 15 per cent. of the total should be replaced by fly-shuttle looms. Even if more textile mills than the number contemplated by the Planning Committee are put up, there is such a vast scope for supplying cloth everywhere in India and for exporting goods to such places as the Near East, Africa, Australia and New Zealand that there should be no risk of over-production of textile goods.

4. With the expansion suggested above, it will be necessary to provide a large number of spinning mills in the different weaving centres. Taking into account the free yarn available at present from the mills in Bombay Province, it is roughly estimated that as many as about 15 new mills, each having 30,000 spindles, would be required for supply of yarn to the handloom industry developed as above. This is on the assumption that no yarn from outside the Province is imported.

At present the weavers in the interior obtain their yarn mostly from the Bombay, Sholapur, Gokak and South Indian Mills. In order to assist the development of the handloom and individual powerloom industry, new spinning mills should be located in the Districts instead of being concentrated in large centres such as Bombay. Many thousands of bales of cotton are at present brought to Bombay for being converted into yarn required by handloom and powerloom weavers and almost as many thousand bales of yarn have to be re-transported to the towns and villages for use by the weavers. The location of spinning mills depends on various factors, such as availability of raw materials, trained labour, power, nearness of consuming centres, etc. From the point of view of the cottage weaving industry, it is suggested that new spinning mills should be located at the following places :—

Surat.—This is a very large powerloom weaving centre. Good quality cotton is available in the locality and power, water and railway facilities are also available.

Dhulia and/or Jalgaon.—The Jarila cotton is grown in the Khandesh Districts and these centres are also served by railway. They are close to handloom weaving centres.

Malegaon.—This is the second largest powerloom centre in the Province and a spinning mill can be located here.

Sholapur.—This city has already textile mills. New spinning mills can be installed to serve this large handloom centre.

Bagalkot.—This will be a suitable place for the location of spinning mills as Jayawant cotton is grown in the District and is served by a railway. The mill can supply yarn to such important saree and "khan" weaving centres as Ilkal, Guledgud and Kamatgi.

Gadag or Hubli.—Jayawant cotton is grown in the area around these cities which also are large handloom centres.

Belgaum.—Good quality cotton is available around Belgaum and the District has many weavers.

Some parties have already applied to the Textile Commissioner for starting spinning mills in some of the centres mentioned above. As soon as machinery is available from abroad, at least half a dozen mills should be set up in the Districts.

5. With the development of the Electric Grid it is but expected that enterprising weavers would go in, more and more, for powerlooms. Facilities should be given to those who can afford to replace handlooms by powerlooms as this will enable them to compete with the mills and earn better wages. Important centres where large numbers of powerlooms can be installed in the next 5 or 10 years are :—

<i>District.</i>	...	...	<i>Centres.</i>
(1) AHMEDABAD	...	...	Dholka.
(2) SURAT	...	...	Surat. Bulsar.
(3) THANA	...	...	Bhiwandi.
(4) EAST KHANDESH	...	...	Jalgaon. Dharangaon. Parola.
(5) WEST KHANDESH	...	...	Dhulia. Shahada.
(6) NASIK	...	...	Malegaon. Yeola.
(7) AHMEDNAGAR	...	...	Ahmednagar. Sangamner.
(8) POONA	...	...	Poona.
(9) SHOLAPUR	...	...	Sholapur.
(10) BIJAPUR	...	...	Bagalkot. Ilkal. Guledgud.
(11) DHARWAR	...	...	Kamatgi. Hubli. Gadag. Ranebennur.
(12) BELGAUM	...	...	Belgaum. Gokak.

It is known that cloth in the North Kanara District is obtained from Madura and other places in South India. There is no reason why the type of cloth required in the District cannot be manufactured in small powerloom 'karkhanas' or by individual weavers using yarn imported from the Bombay mills. Demobilised soldiers or technical men returning from the Services can be trained to operate powerlooms or automatic take-up looms and produce cloth.

6. One of the difficulties in the way of the handloom and powerloom industries is that there are no facilities at the different centres for bleaching, dyeing and finishing of cloth and dyeing of yarn. At present the weaver gets his yarn coloured at small dye-houses run by professional dyers. For calendering and finishing cloth they are obliged to send it to mills in Bombay, Sholapur, etc. In order to make the weavers independent in this matter, it is desirable that central dye-houses should be started by the District Industrial Associations.

It is proposed that either Government owned or subsidised finishing plants should be started in such important centres as Sholapur, Malegaon and Bagalkot.

7. The Government of Bombay, according to their Post-war Schemes, intend starting District Industrial Associations in the following Districts:—

(1) North Kanara.

(5) Surat.

(2) Kolaba.

(6) Poona.

(3) Ratnagiri

(7) East Khandesh.

(4) Thana.

(8) Kaira.

The expansion and the activities mentioned in the foregoing paragraphs will be to a considerable extent undertaken by such District Industrial Associations.

Textile (Woollen).

The production of wool in the Province of Bombay is very small compared with the total production in India. According to the Government of India Publication entitled "Agricultural Marketing in India—Handbook on the quality of Indian Wool" (1942) the number of sheep and production of wool in India and in the Bombay Province (including the Deccan States) was as follows respectively :—

	India.	Bombay Province (including the Deccan States).
Number of sheep	45,000,000	2,110,000
Production of wool (lbs. per annum)	86,000,000	2,110,000

The proportion of wool workers in the Province to the total in India is, however comparatively larger. The Fact Finding Committee gives the following figures :—

	India.	Bombay Province.
Total number of wool workers (including mill workers)	127,000	18,400
Number of handloom (wool) workers	122,000	17,400

According to the Fact Finding Committee's Report, the production and estimated value of hand-woven woollen cloth were as follows :—

	India.	Bombay Province.
Production of hand-woven woollen cloth in million yards, per year.	20.61	2.66
Estimated value of hand-woven woollen cloth in Rupees	3.17 crores	30.2 lakhs

These figures show that the woollen industry in the Province is required to be largely developed although the production and yield of wool is small. The value of the hand-woven woollen cloth produced in the Province was as much as Rs. 30 lakhs as compared with the value of the hand-woven cotton cloth which was about Rs. 357 lakhs.

It is estimated that in 1938-39 the total imports (including foreign import) of raw wool and yarn into Bombay were about 20 million lbs. and the exports about 16 million lbs. Assuming the production of wool in the Province to be about 2 million lbs. the total consumption must have been a little over 6 million lbs.

The Woollen Mills in the Province are :—

- Raymond Woollen Mills.
- Indian Woollen Mills.
- Usha Woollen Mills.
- Ambernath Woollen Mills.
- Nagpal Woollen Mills.

The total production of these mills was about 3 million lbs. in 1938-39 valued at Rs. 47 lakhs, but it rose to over 9 million lbs. in 1940-41 and was about 6.9 million lbs. in 1943-44, the value then being about Rs. 2.66 crores.

Despite such a large production in the mills, the hand-loom woollen industry has held its own.

Appended to this report is a statement showing the imports into, and exports from, India of raw wool and woollen manufactures in the pre-war years and the quota of Bombay. The foreign imports were mostly from Germany, Italy and Japan. From this statement it will be seen that the quota of Bombay in the woollen manufactures was almost a crore of rupees. Considering the large demand for woollen goods in the Province, it appears that the industry can be expanded to a considerable extent.

2. The present position of the small-scale woollen industry is as follows :

The important wool growing districts are Belgaum, Bijapur, Dharwar, Sholapur, Ahmednagar, Poona, Satara, Nasik and Khandesh. The wool manufacturing districts are Bijapur, Dharwar, Sholapur, Ahmednagar, Poona, Satara and Nasik.

The annual production of wool and the number of sheep in different areas in India, as given in the "Handbook on the Quality of Indian Wool" are as follows :—

Area.	Number of sheep (lakhs).	Annual yield of wool per sheep (greasy basis) lb.	Annual production of wool (Lakh lbs.)	Percentage to total production
Kashmir State	12.5	1.5	18.5	2.2
North West Frontier Province including Agency and tribal areas.	8.4	3.4	28.3	3.3
British Baluchistan and States	15.1	3.2	48.6	5.7
Sind and Khairpur State	7.8	4.0	30.9	3.6
Punjab	44.2	3.8	169.7	20.0
Punjab States	13.6	3.8	52.3	6.2
United Provinces and States	22.0	4.3	75.1	11.2
Rajputana States	53.2	3.1	164.5	19.3
Western India States	12.5	3.7	46.3	5.4
(Bombay including Deccan States).. .. .	21.1	1.0	21.1	2.5
Mysore State	26.0	0.85	22.1	2.6
Madras and States	121.0	0.56	60.4	8.2
Hyderabad State	59.4	0.56	34.0	4.0
Central Provinces	5.8	2.0	11.7	1.4
Bi har	11.5	0.81	9.3	1.1
Or issa	4.0	0.75	3.0	0.3
Bengal and States	5.1	1.1	6.0	0.7
Other areas*	9.7	2.0	19.5	2.3
Total India	453.8	1.9	850.3	100.0

* Includes Delhi Province, Central India and Bundelkhand States, Baroda State, Gujarat Agency, Eastern States, Assam and Assam States.

This table shows that the annual yield of wool per sheep is 1 lb. only for Bombay as compared with the maximum of 4.3 lbs. in the United Provinces and States. This yield is, indeed poor, compared with the Australian production. Australia possesses over 1,000 million sheep yielding the finest wool in the world at the rate of 9 lbs. per head.

Moreover, the quality of wool produced in the Province is very coarse and the colour is mostly black. It does not come up to the quality of "Kathiawar wool" which is generally superior and the wool is mostly white. It may, therefore, be possible to improve the quality and quantity of wool produced in the Province by scientific sheep-breeding on a large scale.

The shepherds generally use crude implements to shear the wool which is done twice a year. The wool is then sold generally to wool merchants and spinners and weavers. The spinner generally cleanses and cures the wool, cards it by carding bow and spins it on the "charkha". It is the usual complaint of weavers that the yarn is coarse, uneven and weak. This is one of the reasons why the weaver avoids the fly-shuttle loom though production can be greatly increased on it. As it is, the fly-shuttle loom is not suitable for the type of yarn produced as it cannot stand the strain of fly-shuttle weaving.

The weavers generally produce woollen cloth on throw-shuttle looms after sizing the yarn and using tamarind seed. 'Kamblies' or blankets are generally woven and two 'kamblies' a week are generally turned out. The skill of the cottage weaver is not utilized in this industry as he weaves materials made of yarn as coarse as one count or under. The finest Australian wool can be had in 80s. The cotton weaver on the other hand is skilled in the production of fine cloth made of yarn of medium or fine counts.

The co-operative societies for wool weaving are as follows:—

The Kurbar Wool Industry Development Co-operative Association, Ltd., Ranebennur, District Dharwar.

The S. D. Industrial Co-operative Association, Ltd., Hubli, District Dharwar (Cotton and Woollen Schemes combined).

The District Kurbar Wool Industrial Co-operative Producers' Society, Ltd., Bijapur.

The Kurbar Wool Industrial Co-operative Producers' Society, Ltd., Konnur District Dharwar.

The N. C. D. Industrial Co-operative Association, Ltd., Ahmednagar (Cotton and Woollen Schemes combined).

A scheme for the improvement and development of the woollen industry was introduced by the Government of Bombay in 1937. The Department of Industries maintains three wool weaving peripatetic demonstration parties and one wool weaving school. Training is given in the use of improved type of equipment, such as, spinning wheels, fly-shuttle looms, etc. Weavers are also taught to adopt new designs. The wool weavers have now been able to produce blankets, rugs, shawls, scarfs, tweeds, felts, carpets, etc. Marketing facilities are provided. Arrangements were made with the Industrial Co-operative Associations at Hubli, Ahmednagar and Ranebennur to sell their products. Woollen articles manufactured by the weavers are also sold through the Sales Depots of the Industries Department.

3. As pointed out above, there is a considerable scope for the development of the woollen industry. Raw materials are available, the best kind of wool may be imported from Australia and the labour is cheap and the market good in the Province.

In the first place, the quality of wool should be improved by starting sheep breeding farms in different centres, where wool is available. According to the Post-war Schemes of the Bombay Government, Sheep Breeding Sub-Stations for the improvement of sheep and wool are intended to be established in Khandesh and Ahmedabad Districts. In the 'Notes on Wool in India' by Messrs. A. H. Silver and J. K. Mehta, the following is mentioned.

“ *Bombay sheep*.—In 1787 Dr. Hove described this type of sheep as being the finest that he saw in India, ‘ with long wool which was soft and white as the finest Gujerat cotton.’ If that description were true, then it can only be said that the breed has deteriorated very greatly to-day.”

To begin with, efforts should be concentrated on improving the lot of the existing workers. The demonstration parties of the Department have been to the following places and co-operative societies should be established at the following centres :—

District.	Centres.
BROACH AND PANCHMAHALS ...	... Dohad. Limdi.
SURAT ...	... Kadod.
NASIK ...	... Dubere. Wani.
POONA ...	... Bori Baramati. Avsari Budruk.
SATARA ...	... Mhaswad.
BELGAUM ...	... Hukeri. Benchimardi. Vannur.
SHOLAPUR ...	... Pandharpur. Natepute. Sangola.
BIJAPUR ...	... Bijapur (Darga). Yedalli. Budihal. Bijapur. Kundurgi.
DHARWAR ...	... Medleri. Ranebennur. Motebennur. Konnur.

The Department is organising 6 more demonstration parties according to its Post-war Schemes. Also, an Institute for advanced training is to be started in the Dharwar District.

The question of sorting and grading of wool has to be examined. One of the great drawbacks of the industry is that the yarn, usually spun by women, is extremely uneven. It is, therefore, proposed that possibilities of installing small domestic spinning plants in some of the important centres should be investigated. It is understood that such plants have been designed and brought into use abroad. Appended to this report is an extract from Bulletin No. 15 of the Department of Industries, Madras, which indicates the importance of introducing such plants.

The following statement about wool spinning units in the Indian Textile Journal of November, 1945, may be noted:—

“ At a meeting of the Cottage Industries Committee held on 27th September at Bangalore, Rajasevasakta P. Subbarama Chetty urged the need to install small efficient units of wool spinning machinery at various wool weaving centres in the State to make available to the artisans a uniform quality of wool yarn at reasonable prices. In addition, he suggested that the Industries Department should make arrangements to make dyed wool yarn in various colours available in order to enable the wool weavers to manufacture woollen goods of improved design and quality.”

If such plants are available, units may be installed by co-operative societies at Gadag, Dharwar, Ahmednagar, etc.

Fly-shuttle and automatic looms should be introduced, wherever possible, to increase production. The weavers should gradually aspire to make coating, tweeds, coarse flannels, shawls, felts, hoisery, carpets, etc.

Carpets worth over a crore of rupees were exported from India in 1937-38 out of which the quota of Bombay was practically nil. The finest type of carpets used to be once produced in Bijapur. It should be, therefore, possible to revive this industry in the Province as there is a large market for carpets in the United Kingdom, U.S.A., Australia and New Zealand.

Imports and Exports of Raw Wool, Woollen Manufactures etc.

	Quantity in lbs.					Value in Rs.				
	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
IMPORTS.—										
<i>Wool—Raw.</i>										
Bombay ..	2,485,724	2,074,727	2,354,788	1,927,994	2,782,932	13,59,216	16,36,436	26,36,815	18,93,579	30,02,529
India ..	7,485,249	6,773,720	8,173,058	7,296,107	7,689,469	44,10,193	59,52,313	84,80,425	63,11,361	74,98,739
<i>Yarn and Knitting Wool.</i>										
Worsted yarn for weaving.										
Bombay ..	183,897	249,583	752,980	690,181	618,340	2,98,500	4,75,445	17,25,948	12,58,877	11,24,719
India ..	1,086,197	950,805	1,629,150	2,160,426	1,726,486	18,26,576	18,83,415	37,93,174	38,27,851	30,21,690
<i>Knitting Wool.</i>										
Bombay ..	238,066	433,507	374,287	485,020	481,454	3,64,045	7,81,806	8,95,671	9,65,736	9,35,404
India ..	1,038,579	1,224,657	1,196,243	1,195,428	1,058,998	17,12,190	23,31,374	29,22,638	25,13,968	20,67,365
<i>Total of Woollen Manufactures.</i> (including yarn and knitting wool)										
Bombay ..	....	....	....	....	....	95,84,308	96,04,991	1,58,80,829	94,98,689	63,14,722
India ..	....	....	....	....	....	2,34,43,582	2,27,41,766	3,30,06,369	2,19,78,397	1,41,44,209
Total of Wool and Woollens.	....	....	....	....	....	2,78,53,775	2,86,94,079	4,14,86,794	2,81,89,753	2,16,39,948
EXPORTS.—										
<i>Wool—Raw.</i>										
Bombay ..	15,262,334	17,988,301	8,922,186	11,555,989	15,606,261	69,66,949	76,97,780	70,77,577	64,74,970	1,07,43,558
India ..	49,352,285	51,937,719	37,989,319	55,415,743	52,814,591	2,09,66,129	2,86,08,005	2,64,55,835	2,98,08,271	3,22,48,606
<i>Total of Woollen Manufactures.</i>										
Bombay ..	....	....	....	....	....	10,13,918	10,31,972	19,22,530	13,83,438	13,84,873
India ..	....	....	....	....	....	82,89,722	87,81,468	1,07,81,559	86,26,288	80,98,863
Total of Wool and Woollens.	..	..	..	..	..	2,92,55,851	3,73,89,473	3,72,97,394	3,84,94,559	4,03,47,409

An extract from bulletin No. 15 of the Department of Industries Madras 'The Development of Cumbly and blanket industry'.

Power Spinning and Fly-Shuttle Weaving.—These two measures are inter-related. Till now the great obstacle in the way of increasing the output of these fabrics is the use of wool yarn spun by hand with the aid of the suspended spindle as in Kurnool or by charka as in Bellary. Both these varieties contain an irregular number of fibres, length for length, and are therefore uneven in diameter or thickness and irregular in the number of turns or twist. They are consequently unable to withstand the strain involved in weaving with the fly-shuttle slay. In recent years, however, the firm of St. Joseph's Erben of Poland has placed on the market domestic power plants for the spinning of coarse and short staple wool, such as is available in the Ceded Districts. The counts obtainable are between 3/4s and 3s English count or 750 yards to 2,500 yards per lb. These yarns are spun on the principle of ring spinning, the minimum number being 60 spindles per machine. The plant consists of a willow opener, breaker card, finisher card, condenser card and ring spinning. The method of working them is arranged in the most simple way. The raw wool as it is shorn off the sheep contains a considerable quantity of dust and other impurities. It must therefore be washed in the first instance. It is done by soaking the wool in a large wooden trough or barrel containing warm water to which is added ordinary washing soda. The wool is next put into bamboo baskets and the latter are placed in a river. The water continuously passing through the wool carries away the dirt and cleanses the wool to an appreciable extent. The wool is finally spread on the ground or preferably on coir mattings and exposed to the air to be dried.

The wool is next passed through a willow opener. The machine serves to open out to a fleecy and soft condition the matted mass of wool and in so doing a portion of the impurities present in it is also extracted. The product is then spread on the ground, preferably on Cuddapah slabs, and batched evenly with an equal quantity of an emulsion of oil and hot water. The batched wool is then passed once again through a willowing machine in order to secure a thorough mixing and opening. Wool can also be worked in dry state without batching, if so required.

The prepared wool is now passed through the breaker card. The net result of the opener is to leave the wool in small soft masses. There are no parts which operate on the woollen fibre so as practically to free the wool from short fibres as is possible in the process of carding. Care must be taken to weigh small lots of, say, 12 oz. of wool at a time and to spread it evenly on the feed table. The breaker card combs the material and thus removes not only the short fibres but also places them parallel to each other in order to produce a material suitable for the subsequent operation. The wool leaves the breaker card in the form of a lap or fleece wound on a wooden cylinder. As the wool fed is of the same weight, yard for yard, the laps produced are also uniform. They are next placed on the feed table of the finisher condenser card to intensify the previous treatment. The product from this machine is divided into 30 rovings by a system of tape, called the "Tape Condenser", and wound up on long wooden bobbins. The rovings are lastly placed on the horizontal feeding creels of the ring spinning frame, attenuated and converted into yarns and finally wound on paper tubes.

Financial Statement.—The total cost of the set including the ring spinning frame is about Rs. 12,000 and it is capable of producing 3,500 lbs. of woollen yarn per month of 26 days. It is estimated that about 75 cumblys, 7 ft. by 5 ft. may be woven per month from the output of a single plant and that it will maintain about 130 families continuously at work.

Hosiery.

The hosiery industry is carried on in India in varying units and is in existence for the last 50 years. The main centres of the hosiery manufacture are in Bengal, the Punjab, the United Provinces, Bombay, Madras and some of the Indian States. Underwears, outer-wears including neck-wear, head-wear, etc. foot-wear including socks, stockings, etc. are made by using cotton, wool, silk and artificial silk yarn. Small, compact power-driven machines are required for manufacturing hosiery and, therefore, the industry is suited for development on a cottage scale.

It is roughly estimated that the total production of hosiery goods in the Province by the mills and different establishments is about 4 million lbs. per year. The imports in the pre-war years amounted to about Rs. 9 lakhs per year. Assuming the price per lb. was Re. 1, about 900,000 lbs. must have been imported. On this assumption 25 per cent. expansion in the trade may be expected.

2. The number of hosiery establishments in the different Districts of the Province is as follows :—

District.	Number	Name of Establishments.
Ahmedabad	14	
Thana	1	
Surat	1	
Bombay and Bombay Suburban	31	
Poona	3	
Dharwar	1	
	51	

Out of the 51 establishments, 18 were registered under the Factories Act in 1944. Several textile mills have also machines for producing hosiery. Three or four years ago the average production per annum by the textile mills was a little over a million pounds.

The industry is handicapped at present by yarn not being available in sufficient quantities and by difficulty in getting hosiery machines and/or their accessories from abroad. It is not unlikely that hosiery machines, needles, etc. would be manufactured in India, in the near future.

3. In due course, when machines are imported or made in India and yarn is available, several units could be started on a cottage scale wherever power is available in towns or villages. Machines for making shoe-laces and file-strings could also be operated together with the hosiery machines.

Sericulture.

Sericulture industry in India is of great importance. The consumption of raw silk yarn in the country is about 5 million lbs. a year.

Bombay being a large textile centre is an important market for raw silk and very large quantities are consumed by the mills and the handloom industry.

2. The production of silk yarn in India is about 2½ million lbs. The important Provinces and States in which the sericulture industry has considerably advanced and their approximate production are as follows :—

Mysore	...	...	...	1,000,000 lbs. per year.
Bengal	...	...	...	700,000 lbs. per year.
Kashmir	...	...	...	600,000 lbs. per year.
Madras	...	...	...	100,000 lbs. per year.
				2,400,000

According to the Sea Borne Trade of British India, the import of raw silk and cocoons into India in the pre-war years and their value were as follows :—

	1935-36	1936-37	1937-38	1938-39	1939-40
Total Quantity in lbs.	2,191,436	1,974,489	2,535,274	2,247,544	2,020,374
Value in Rupees	57,73,129	64,41,547	94,67,262	62,17,344	62,72,190

The share of Bombay was as follows :—

	1935-36	1936-37	1937-38	1938-39	1939-40
Total quantity in lbs.	1,247,792	1,188,980	1,435,589	1,175,846	1,418,718
Value in Rupees	34,69,360	37,40,854	52,22,060	31,23,965	44,57,595

Compared with the imports the export of silk from India is small.

From the foregoing it will be seen that very large quantities of silk valued at several lakhs of rupees were being imported. The import was mostly from Japan and China. The share of Bombay was over 50 per cent. of the total imports which were about equal to the production in India.

As yet the amount of silk produced in the Province of Bombay is negligible. Therefore, there is a very large scope for this industry in the Province.

2. The late Mr. C. S. Ramnath, Sericulturist to the Department of Industries, had investigated into the possibilities of the sericulture industry in the Province of Bombay. Bulletin No. 13 of the Department of Industries, Bombay, entitled "Possibilities of Sericulture Industry in the Province of Bombay" was published in 1940. 14 Districts viz. Belgaum, Bijapur, Dharwar, Kanara and Ratnagiri in the Southern Division; Ahmednagar, West and East Khandesh, Nasik, Poona, Satara and Sholapur in the Central Division; and Surat and Broach in the Northern Division of the Province were surveyed. It was found that for the introduction of sericulture the tracts having moderate rainfall, temperate climate and a favourable soil retentive of moisture, comprising the western portions of the Districts of Nasik, Poona, Satara and Sangamner, Parner and Akola Talukas of Ahmednagar, and, the Districts of Belgaum and Dharwar and some Talukas of Surat were well suited. The climatic conditions for rearing silk worms in some parts of Konkan, where mulberry grows well, seem to be good but only during four or five months in the year from October to the end of February.

Historical records show that the rearing of silk-worms was done in the Province about 125 years ago.

As labour is cheap and as sericulture industry is an excellent subsidiary occupation for agriculturists' families, it should be developed on an extensive scale as a cottage industry.

3. In 1940 Government sanctioned the establishment of a silk farm at Belgaum in order to find out the possibility of establishing the industry in the Province and whether it could be adopted as a profitable spare-time occupation by agriculturists. Experiments carried out at the farm were successful and it was ascertained that there was a scope for the development of sericulture as a cottage industry. The requirements of the silk trade being more or less standardized it was considered necessary to produce cocoons on a cottage scale and then to reel them in filature units.

The Department of Industries has been entrusted with the organisation of the agricultural or cottage industries section of the Scheme so as to ensure the minimum production of cocoons to feed an economic filature unit of 100 basins to start with and the commercial section is being organised by the Bombay Silk Filatures Ltd., who will assist the Department of Industries in organising the cottage industries section. The Company has also undertaken to buy all the cocoons produced by the cultivators in the Belgaum-Dharwar area. Interest-free 'tagai' loans are being given to agriculturists under the Agriculturists' Loans Act and according to the Scheme, 1,000 families will be encouraged to take up mulberry cultivation and rearing of silk worms. As a further concession each agriculturist family will be given a subsidy for two years equal to the assessment of the land brought under mulberry cultivation within one year of the grant of 'tagai' loan. Five granages are to be established. Organisers, demonstrators, etc. have been appointed for carrying out propaganda and training the agriculturists.

4. As stated above, there is a good scope for the sericulture industry in the Province. In his report, the late Mr. Ramnath stated as follows:—

"There is, thus, a very great scope for the industry and Bombay Province is quite fitted to take up the industry and capture the market as certain tracts in this Province are climatically as ideal as any other silk-producing tract in India."

According to the present scheme about 2,500 acres will be brought under mulberry cultivation in the next few years. The following figures indicate the development of the industry as envisaged by the late Mr. Ramnath :

Period.	Possible area which could be brought under Mulberry Cultivation.	Number of Families expected to be engaged in the Sericulture Industry.	Probable Additional earnings per annum of the people in the Industry.	Quantity of silk expected to be produced	Approximate value of silk.
	Acres.	Number.	Rs. (Lakhs).	lbs.	Rs. (Lakhs.)
At the end of 5 years ..	3,000	4,800	1.44	45,000	1.82
At the end of 10 years ..	4,500	7,200	2.16	81,000	3.29
At the end of 15 years ..	6,000	9,600	2.88	120,000	4.88

It is suggested that immediately it is found that the industry in the Belgaum-Dharwar area is successful, farms in Nasik, Satara and Poona Districts should be started after carrying out experiments to find out if proper rearing can be done on a large scale in these Districts and a scheme such as the one operating in the Belgaum-Dharwar Districts should be prepared for the three new Districts.

5. For the utilization of waste silk, people should be sent to Mysore, later on for learning how to spin waste silk into yarn. It is estimated that for every lb. of good silk there may be as much as a lb. of waste silk. The spinning and utilization of such silk and that obtained from pierced cocoons will provide work for several thousands of people.

6. As a subsidiary industry the preparation of silk guts for surgical purposes should not be overlooked.

Eri-Culture.

A large quantity of silk of all kinds is required by the handloom and powerloom weavers and there is a good demand for such silk, as tasar, munga, eria, etc. particularly in Surat.

Eri-silk is obtained from the cocoons of the eri-worms which feed on castor leaves. The eri-silk industry like the sericulture industry is pre-eminently suited as a cottage industry. The worms are hardy and thrive best in a warm and moist climate. The temperature and humidity conditions at the time of rearing vary from about 70°F to 85°F and 85°F to 95°F respectively. Unlike the mulberry worm, the eri-worm is not killed and the cocoons are spun into thread like cotton thread and not reeled like mulberry cocoons as long and continuous thread cannot be obtained.

Eri-silk is soft, strong and durable and is of a cream colour. Ahmedabad District has the largest area under castor seeds compared with the other Districts of the Province and its climate appears to be suitable for eri-worm culture. The acreage under castor seed cultivation in the Ahmedabad District was about 15,000 in 1944-45 and in the whole of the Province about 54,000.

Assuming that the yield of the cocoons is a maund per acre, about Rs. 22,00,000 worth of cocoons can be produced in the Ahmedabad District by utilising all the leaves.

2. It appears, therefore, that there is a considerable scope for the industry. The work involved is simple and inexpensive and can be carried out even as a part-time occupation. Eri-silk worms are hardy and do not need so much care as the mulberry worms. The industry is established in Assam, Bengal, Bihar and Orissa but no eri-silk is produced in Bombay.

Investigations should immediately be carried out to see if the industry can be developed in Gujerat. Services of an expert can perhaps be secured from the Silk Institute at Bhagalpore and small centres started at suitable places in the Ahmedabad District.

Gold and Silver Thread.

The gold-thread industry is one of the oldest and important industries in India. 'Jari' is manufactured on a cottage or small scale in Bombay, Madras and the United Provinces. It suffered on account of foreign competition but it has now revived and made excellent progress in some centres of India. In the Province of Bombay, Surat is the only important centre left, although gold-thread is manufactured to a certain extent in the city of Bombay, Poona, Yeola, etc. In the report of the Indian Tariff Board, 1930, on the gold-thread industry, it is mentioned that the conclusions recorded therein were based in the main on conditions then prevailing in Surat.

The growth and extent of the industry will be seen from the following table in which figures pertaining to the industry in Surat in 1924-25 (as mentioned in the Tariff Board Report) and the present day figures as supplied by Surat industrialists are given :—

		1924-25*	Present (1945)	
			<i>Fine gold thread.</i>	<i>Other silver and gold thread.</i>
Average Production	... ..	Rs. 20,00,000	Rs. 3,00,00,000	Rs. 70,00,000
			<i>Other allied products.</i>	
			Rs. 2,30,00,000	
			<i>Real.</i>	<i>Imitation.</i>
Hands employed	... ..	2,000	20,000 plus 1,500 part-time women workers.	10,000 plus 1,500 part-time women workers.
Number of factories	... ..	60	1,000	500
Capital	... ..	Rs. 10,00,000	Rs. 3,00,00,000	
			Cost of machinery	Rs. 1,00,00,000
			Working capital	„ 2,00,00,000

*N.B.—These figures refer only to the finer classes of Indian gold-thread which are in direct competition with imported thread for weaving purposes and do not refer to the coarser classes used for embroidery and other forms or ornamentation. If all classes of gold-thread and wire are included, these figures would be approximately double.

When recommending a protective duty at 50 per cent. *ad valorem*, the Tariff Board explained that the following three conditions laid down in the Fiscal Commission's Report were fulfilled :—

- (i) The industry must be one possessing natural advantages ;
- (ii) The industry must be one which without the help of protection either is not likely to develop at all or is not likely to develop so rapidly as is desirable in the interests of the country ;
- (iii) The industry must be one which will eventually be able to face world competition without protection.

In connection with the first condition it was mentioned that the gold-thread industry was more suitable than any other which the Board had investigated for organisation on cottage industry lines and was thus peculiarly adapted to Indian conditions of labour. The cost of labour, when the assistance of family members during the leisure time was enlisted, was low, and when electric power was used its cost formed an insignificant factor in the total cost of manufacture.

In connection with the other two conditions, the condition of import was taken into account. The following tables give the import figures of gold thread and lametta :—

				1931-32.	1938-39.
<i>Gold and Silver Thread.</i>					
(Value in lakhs of Rs.)					
Bombay	...	...	...	2.47	0.60
Madras	...	...	...	1.68	0.30
<i>Lametta</i>					
(Quantity in 1000 lbs.)					
Bombay	...	...	...	154	120
Madras	...	...	...	102	188
(Value in lakhs of Rs.)					
Bombay	...	...	...	1.96	1.13
Madras	...	...	...	1.20	1.23

2. As has already been mentioned, Surat is the main centre where "jari" is still manufactured on a cottage or small scale and where the industry has firmly established itself. Three classes of workers are generally found. First there is the independent artisan who obtains his own material and markets his produce. Secondly, there are artisans who work for dealers in gold-thread, obtaining raw materials from them. Lastly, there are those who are employed in small 'karkhanas' owned by gold-thread manufacturers.

Surat has a total of 1,500 establishments. There are 20,000 full-time and 1,500 part-time workers engaged in the production of real gold-thread and 10,000 full-time and 1,500 part-time workers manufacturing imitation gold-thread. It, therefore, appears that the industry supports nearly 100,000 people.

The establishments, having complete wire-winding and flattening machines, are 300 for real gold-thread and 100 for imitation gold-thread. 60 manufacture fine wire and 200 specialise in gold-plating.

There are two processes for manufacturing real gold-thread. In the first, a coating of gold is hammered on to a silver bar, from which wire is produced and wound on to the silk, artificial silk or cotton yarn. In the second process, the bar is reduced to wire in the wire-drawing operation. The wire is then wound round the yarn and gold-plating is done in the final operation. The latter process is more in use at present and is cheaper of the two.

The basic raw materials are gold, silver, copper wire of 99.5 fineness (for imitation gold-thread), silk and glazed cotton yarn.

The total quantity of raw materials and process materials required during the year and its approximate value is as follows :—

	Quantity.	Value in lakhs of rupees.
Silver	6,000 Bars of 2,600 Tolas each.	225
Gold	45,000 Tolas.	35
Copper	300 Tons.	6.5
Cotton	...	10
Silk	60,000 Tolas.	36
Art Silk	50,000 Tolas (Not available at present).	2
Process materials	...	10

Copper wire of requisite fineness required for imitation gold-thread used to be imported from Japan as there were few wire-drawing factories in India. During the war there might have been a shortage of copper wire but for the fact that some factories were producing wire from copper scrap.

The process materials which are required are cyanide, copper-salts, brass-salts, zinc-oxide, colours, soft soap, wax, crucibles, ruby and diamond dies, acids, potassium iodide. Of these, the chemicals and crucibles are foreign but dies are made locally.

All machinery required in the gold-thread industry in Surat is manufactured there except engines and electric motors. Melting crucibles for melting metals are imported as they are found to be better than those manufactured in the country. Similarly diamond dies are also sometimes imported. Efforts, therefore, ought to be made to manufacture melting crucibles of the standard of the imported ones. It is also necessary to modernise the melting and annealing furnaces and to improve the winding and flattening machines.

Gold-thread is used in the production of 'kinkhab', caps, laces, embroidery turbans, dhoties, neckwares, sarees and blouse pieces. Lametta is used in the production of 'tiki', 'chalak', etc.

The figures given in the foregoing paragraphs for the industry as it is at present, were furnished by the Surat industrialists who were interviewed by the Sub-Committee.

3. In the pre-war years, there was a good demand from foreign countries and approximately 33 per cent. of the gold-thread goods manufactured in Surat were exported to the Middle East, Africa and Straits Settlements, Burma and Ceylon. But during the war, the export was banned and the ban still continues. On an average for every 100 tola of 'jari' goods, the consumption of silver is only 40 tolas and that of gold is hardly 1½ tolas. Consequently, there is no ground to suggest that the export of gold-thread goods means the export of bullion. Such goods can be sent by registered post parcels and, therefore, there can be no transport difficulty.

Soldiers from the Allied Nations and particularly from the U. S. A. took, considerable interest in gold-thread goods. An opportunity of this should, therefore, be taken to develop the export market. According to the Surat industrialists, Surat has now completely captured the South Indian market and there is a demand for the finished products all over India. The quality of goods, however, must be further improved.

4. Due to the war there were no imports from Japan and France. Surat, therefore, had an excellent opportunity of expanding the industry considerably to meet the large demands for 'jari' etc. The Surat industrialists are confident that there is a scope for the further development of the industry on a cottage or small scale by 33 per cent. Capital to the extent of 50 per cent. of the amount at present invested will be required, but can easily be procured. In order to expand the industry, more electric power will require to be provided and raw materials such as silk, art-silk, cotton yarn, chemicals etc., should be made freely available. Not only is there a good demand for real gold-thread in India, Burma and Africa but there is a vast potential market in America for imitation gold-thread.

The industry should continue to flourish as a cottage and small-scale industry, as the luxury articles are produced and emphasis has to be laid on beauty, design, craftsmanship etc. It is pointed out by the Surat industrialists, however, that in order to face competition in the post-war years, it will be necessary to produce wire in large factories. About 20 to 30 tons of copper wire are required per month in Surat and a plant for metal melting and wire-drawing could be put up by a 'manufacturers co-operative industrial organisation.'

At present, there is already a Jari Producers Co-operative Society at Surat. The individual workers producing gold-thread, lametta, 'kinkhab' etc., should form co-operative societies and the societies should obtain raw materials and market their produce. This will eliminate competition.

The population engaged in the gold-thread industry is large and there are hereditary workers in Surat. It is, therefore, proposed that a trade-school may be established in the city for training hereditary artisans to improve their technique and to produce new designs.

In such a large centre a research laboratory is a necessity so that the quality of articles produced may be improved and such articles may compare with the gold-thread of the kind which used to be once produced, as for instance, in France a few years ago.

Fibre.

The possibilities of the development of the fibre industry in the Province of Bombay are quite good. A variety of plants from which good quality fibre is obtained, grows wild in the Province and can also be grown. An organised effort has yet to be made to utilize the valuable fibre resources of the Province and at the same time give employment to thousands of people.

A preliminary survey was made by Mr. J. K. Sircar, Fibre Expert of the Department of Industries, Bombay, the results of which are given in Bulletin No. 12, entitled 'Possibilities of the Development of Fibre Industry in the Province of Bombay' published in 1940. Mr. Sircar was of opinion that there were good prospects of developing the fibre industry in the Province on a cottage industry scale.

The commercial and industrial utilization of fibre is possible from the following plants :—

(a) Cultivator's crop.

(1) Bombay hemp—Sann hemp or "Tag" (*Crotolaria juncea*);

(2) Deccan hemp—"Ambari or Ambadi" (*Hibiscus cannabinus*).

(b) Planter's crop or crop grown as a protection to gardens, fields canals and railway embankments—

Aloe fibre or Sisal plant—"Ghaipat", "Ghayal" "Ketki", "Ketgi" or "Kallaru" (*Agave fibres*).

(c) Seed—

Crops which are grown for their seeds but not utilised for the production of fibres—

Linseed or Alshi (*Linum usitatissimum*).

and

(d) Forest produce—

"Kittul" or "Kitool" fibre (*Caryota urens*).

In the 'Season and Crop Report of the Bombay Province' for the year 1942-43, the area of fibre crops (other than cotton) is given as 79,517 acres only. It, therefore, appears that a very much larger area can be cultivated with fibre yielding crops and there will be a considerable scope for the industry in the Province.

2. *Sann Hemp*.—It will be noted from the attached statement that the total area under Sann Hemp is about 30,000 acres. On the basis of about 3½ cwts. yield per acre per annum, the total fibre which can be produced is estimated at about 5,000 tons. The statement shows that the export of hemp fibre from Bombay has gradually declined from about 6,000 tons in 1935-36 to about 2,600 tons in 1939-40. On the other hand, the import of cordage and ropes was about 500 to 800 tons per year in the pre-war years.

At present the following types of articles are being manufactured from Sann Hemp fibre :—

- (1) Twine and other binder cordage.
- (2) Fishing line.
- (3) Fishing net.
- (4) Rope (household and marine).
- (5) Burlap.
- (6) Carpets.
- (7) Tatpatti.
- (8) Shopping bags.

The Department of Industries maintains a peripatetic demonstration party for training fibre workers in the manufacture of fibre articles. Several people have been trained so far in the up-to-date methods of retting or extraction and processing of the fibre and producing finished articles from it. There is only one co-operative society in Bijapur and the industry is carried on, generally, by the backward classes such as, mangs, mahars, etc.

With better organisation many more people can be induced to take to the production of Sann Hemp. Further, as suggested by Mr. Sircar, the cultivators should be taught the advantages of growing Sann Hemp as a fibre crop instead of only a crop for green manuring. Thus the production of this type can be considerably increased without sacrificing the green manure as the leaves and roots can be used as manure and at the same time the fibre can be produced from the stalk. Publicity for this can be best carried on by the Agricultural Department and there should be more demonstration parties to train a larger number of people. According to one of the Post-War Reconstruction Schemes of the Government of Bombay, 8 demonstration parties are being organised. Sann Hemp can be extensively cultivated in most of the Districts of the Province. The Department of Industries' demonstration parties have already worked in Nasik, East Khandesh and Panch Mahals Districts, and steps should be taken to establish co-operative societies there of fibre workers. This is a difficult task as the workers are too poor to raise sufficient capital. Considerable support from Government will, therefore, be necessary.

In the next five years or so, an attempt should be made to increase the production by about 25 per cent. If necessary more fibre can be exported and there will also be a demand from agriculturists on account of the rural development.

The industry can also be intensively increased during the next 10 years if fibre is produced on a cottage scale and sent to central factories to be processed and spun into uniform and thin yarn suitable for making canvas, twines, fishing net fishing line, etc. In particular, instead of exporting the well-known 'Deogadi' fibre as is done from Ratnagiri in large quantities, it can be processed in factories as mentioned above and then exported, if necessary.

3. *Ambadi Hemp (Deccan Hemp)*.—From the attached statement it will be observed that the total area under Ambadi hemp is about 49,000 to 50,000 acres. On the basis of about $3\frac{1}{2}$ cwts. yield per acre per annum, the total fibre which can be produced is estimated at about 9,000 tons.

Ambadi hemp is very much like jute and as the Province has to import large quantities of jute and hessian there seems to be a scope for more extensive cultivation of the Ambadi plant and possibly processing the fibre and producing hessian etc. in factories. Experiments have already been conducted in producing hessian from Ambadi fibre by means of jute mill machinery and have proved successful.

As mentioned in the report of Mr. Sircar, Sholapur, Ahmednagar and West Khandesh Districts in the Central Division and Belgaum, Dharwar and Bijapur in the Southern Division are important Ambadi growing areas. Ambadi is a monsoon crop and is not grown purely as a fibre crop. It is grown more or less as a mixed crop along with 'Jawar' or 'Bajri.'

Rope-making on simple crude wooden appliances is carried out at several places and other articles produced are as follows:—

- (i) Sutli or pack-thread.
- (ii) Rope for agricultural and household use.
- (iii) Burlap.
- (iv) Bondrie for packing cotton.
- (v) Bazaar or shopping bags.
- (vi) Mattings and carpets.

The demonstration party mentioned above imparts training in the production of Ambadi fibre and in manufacturing different products from it.

A detailed investigation is necessary for cultivation of this crop on a large scale and producing Ambadi fibre on a cottage basis from it. A scheme should then be prepared for installing a mill similar to a jute mill for producing hessian etc. The results of such scheme should be watched and further development may be planned accordingly. Mr. J. K. Sircar, Fibre Development Officer, Government of India, Department of Agriculture, in his Memorandum on 'Indian Fibres other than Jute and Cotton' recently published states as follows :—

“ There are three factories in the Madras Province which deal with this fibre. The export of manufactures is inconsiderable. There is good local demand for the bags which compete with gunnies of similar texture from Calcutta mills. There are no mills manufacturing Deccan hemp in Bombay. Rope and cordage is made in most of the Provinces by the cultivators and sometimes by the scheduled castes. Recently a few jute mills have been established in Bijapur, U. P. and Central Provinces where in addition to jute, Hibiscus fibres are used.”

The demonstration Parties which are being started under the Post-War Schemes of the Government of Bombay can train the cultivators and other fibre workers in proper methods of retting and producing Ambadi fibre suitable for manufacturing hessian.

4. *Agave Plants (Aloe and Sisal Fibre).*—There are four species of Agave plants found in the Province. They are,

- (i) Agave sisalana,
- (ii) Agave cantala,
- (iii) Agave veracruz, and
- (iv) Agave wightii.

The area under (i) Agave sisalana is not considerable and the bulk of Agave plantations consists of (ii), (iii) and (iv). The Agave plants, except Sisalana, also grow wild and they grow successfully on waste and arid lands, requiring hardly any attention after the preliminary operations of clearing the land and planting the young shoots either as bulbils or suckers.

The Aloe fibre is very nearly as good as Manila for the manufacture of cordage and ropes. It is a hard fibre and has excellent water resisting properties. Although it grows wild in several of the Central and Southern Division Districts, it is also grown as a hedge plant to protect canals, railway embankments, fields and gardens. It is also a plantation crop.

The total area under cultivation is very small though the fibre products are of very great importance. There is a scope for development of the Aloe fibre industry particularly as the plant is hardy and can be grown with very little attention.

In his report on the 'Possibilities of Development of Fibre Industry in the Province of Bombay' Mr. J. K. Sircar mentions that the estimated area under this crop was approximately 1480 acres and the most important Districts were Ahmednagar, Satara, Poona, Nasik, Thana and Belgaum. The plant was mainly grown in scattered plots. At present there are three plantations as under :—

- | | | |
|--|-----|---|
| (i) Shrigonda in the Ahmednagar District | ... | 250 acres. |
| (ii) Pavai Estates in the Thana District | ... | Originally 1000 acres now reduced to 200 acres. |
| (iii) Kamshet in the Poona District | ... | 29 acres. |

In order to further the industry, the Government of Bombay sanctioned in 1943 a scheme under the joint control of the Industries and Agricultural Departments for renovation of derelict plantations mainly consisting of Agave Cantala or Aloe at Shrigonda (Ahmednagar Distrit). 183 acres were taken up for mprovement from the agricultural and industrial points of view. A raspador was installed at Shrigonda and the problem of the economic extraction of the fibre is being solved satisfactorily. The Government of Bombay give a grant-in-aid to the Sisal Fibre Institute, Ahmednagar, which is conducted by the American Marathi Mission for training the fibre workers in producing articles of modern designs such as ladies' hand-bags, sandals, mats, hats, etc. The centre has become very popular and with more extensive propaganda and training it should be possible to considerably develop the aloe fibre industry on a cottage industry scale. The following articles are being manufactured at present :—

- (1) Twine and other cordage:
- (2) Rope,
- (3) Matting.
- (4) Carpets.
- (5) Burlap.
- (6) Bondrie.
- (7) Nets (Camouflage and others).
- (8) Shopping bags.
- (9) Handbags.
- (10) Sandals.
- (11) Brushes.
- (12) Baskets, etc.

The Department of Industries has designed, manufactured and introduced improved types of implements for the manufacture of twines, ropes, mats, mattings, etc.

In the next decade plantations of a few thousand acres should be encouraged for producing fibres not only for the cottage workers on an organised basis but also to feed a small rope factory which should be started as an experimental measure. Wherever possible the fibre workers should be organised and raspadors installed at the centres where Aloe fibre is growing so that full use is made of the fibre grown at present. Side by side with the above development a more comprehensive survey should be made.

The following places appear to be suitable for Aloe plantations each of about 1000 acres.—

District.	Taluka.
Nasik	(i) Baglan.
...	(ii) Kalawan.
...	(iii) Malegaon.

District.	Taluka.
AHMEDNAGAR	(i) Shrigonda. (ii) Akola.
SATARA	(i) Satara, (ii) Man. (iii) Khatav. (iv) Khanapur. (v) Karhad.
BELGAUM	(i) Belgaum. (ii) Khanapur. (iii) Chandagáda.
DHARWAR	(i) Dharwar. (ii) Ranebennur. (iii) Haveri.

5. It is suggested that in view of the importance of the fibre industry in India, a central Institute of development and research should be established on the pattern of the Dehra Dun Forest Research Institute. All problems relating to the cultivation, processing and improvement of the different fibres can be dealt with by such Institute, so that the various fibre plants grown in India could be put to the best advantage.

Statement showing Acreages under Sann (Hemp) Ambadi Fibre in 1942.

No.	District.			Ambadi.	Sann Hemp.
				1942.	1942.
1	2			3	4
				Acres.	Acres.
BOMBAY PROVINCE					
<i>Gujerat.</i>					
1	Ahmedabad	...	...	175	1,684
2	Kaira	...	...	.....	4,413
3	Broach and Panch Mahals	...	...	487	7,090
4	Surat	...	...	302	55
Total Gujerat				964	13,242
<i>Deccan.</i>					
5	West Khandesh	...	...	7,516	1,287
6	East Khandesh	...	...	3,411	583
7	Nasik	...	...	6,021	.....
8	Ahmednagar	...	...	3,545	1,895
9	Poona	...	...	645	817
10	Sholapur	...	...	6,067	394
11	Satara	...	...	1,824	1,541
Total Deccan				29,029	6,517
<i>Karnatak.</i>					
12	Belgaum	...	...	6,056	2,989
13	Bijapur	...	...	4,755	68
14	Dharwar	...	...	6,160	424
Total Karnatak				16,980	3,481
<i>Konkan.</i>					
15	Thana	...	...	927	781
16	Bombay Suburban	...	...	.....	.....
17	Kolaba	...	...	78	56
18	Ratnagiri	...	...	99	5,463
19	Kanara	...	...	.....	114
Total Konkan				1,104	6,414
Total—Bombay Province				48,077	29,654

Statement showing Export of Hemp fibre from Bombay.

(Appendix B page 73 Indian fibres other than cotton and Jute by Sircar)

...	1935-36	1936-37	1937-38	1938-39	1939-40	1935-36	1936-37	1937-38	1938-39	1939-40
	Quantity Cwts.					Value Rupees.				
Export ...	1,29,893	71,983	48,076	41,528	52,010	16,78,891	8,47,103	5,75,015	4,51,831	7,41,268

Import of Cordage and Rope into Bombay Province.

	1935-36	1936-37	1937-38	1938-39	1939-40	1935-36	1936-37	1937-38	1938-39	1939-40
	Quantity in Cwts.					Value in Rupees.				
Import ...	17,046	12,682	10,358	12,149	10,913	3,35,625	3,30,710	3,85,732	3,80,914	3,43,828

Coir

The Cocoanut Palm or "Cocos Nucifera" is an important source of food and raw materials in tropical countries. Crores of cocoanut trees exist along the coast lines. Practically every part of the tree can be used to advantage. Raw nut kernel and 'copra' are articles of food. Cocoanut oil is widely used in cooking and in the manufacture of vegetable ghee, soap, candle, toilet articles, etc. The husk of the nut contains fibre so that various articles, such as, ropes, mats, mattings, rugs, druggets, etc. are made out of it. The shell of the nut is used as fuel; and charcoal produced from it can be used in gas masks. Buttons and similar articles can also be made from the shells. The leaves or 'Cadjans', as they are called, are plaited and used as fans and baskets and for thatching houses. The trunk can be used for building purposes. Juice is obtained by tapping the spathe and can be converted into toddy or by distillation, into alcohol.

Thus, cocoanut is an essential item of rural economy.

2. The cocoanut area in different countries is as follows :

Phillipines	...	...	...	2.0	million acres.
Netherlands, East Indies	...	...	...	1.5	" "
India	...	...	...	1.5	" "
Ceylon	...	...	...	1.1	" "
British Malaya	...	...	...	0.6	" "
British South Sea Island	...	...	...	0.6	" "
Others	...	...	...	0.7	" "
Total				8.0	

Such area in the different Provinces and States in India is as follows :—

Madras	...	...	...	585,083	acres
Bengal	...	...	...	31,240	" "
Orissa	...	...	...	30,479	" "
Bombay	...	...	...	27,971	" "
Assam	...	...	...	5,000	" "
Sind	...	...	...	13	" "
Travancore	...	...	...	576,862	" "
Mysore	...	...	...	168,707	" "
Cochin	...	...	...	68,112	" "
Pudukkotta	...	...	...	1,274	" "
Others	...	...	...	1,000	" "
Total				1,495,741	" "

The table above shows that the total acreage in the Bombay Province is small in comparison with Madras, Travancore, Mysore and Cochin.

3. The statement, attached hereto, shows the acreage in the different Districts of Bombay Province, the estimated yield of coir and the value of the same. Attached hereto is also a statement showing the export of coir and coir yarn from India and the share thereof of the Bombay Province.

4. From these figures it will be seen that inspite of the fairly large acreage in Bombay of cocoanut plantations, the export of unmanufactured coir and coir yarn is comparatively negligible. The production of coir goods in the Bombay Province is also very small compared with that in Madras, Travancore, etc.

Development of the coir industry in the Province, will not only give employment to thousands of people who live in poverty on the coasts, but also considerably add to

the wealth of the Konkan and other coastal zones. An examination of the coir fibre from various places such as Malvan, Masura, Achra, Deobag, Vengurla, Mochemad, Shiroda and Redi in Ratnagiri District; Aversa, Gangavali, Keni, Kumta and various villages and Honavar in North Kanara District and Revdanda and Chaul in Kolaba District has shown that the coir obtainable at these places is as good as that imported from South India. Very good yarn can be spun from the fibre and the products can compare favourably with the Travancore coir goods which find a ready market in Bombay. The fibre bleaches well and can be coloured in attractive shades.

5. The present position of the industry is that it is carried on on a cottage scale by a few people wherever there are cocoanut plantations. Coir is being extracted from only a small percentage of the available cocoanut husk. In order to develop the industry, the Department of Industries has endeavoured to introduce improved types of implements and methods. It also conducts a peripatetic demonstration school which is stationed at present at Karwar and a demonstration party located at Bassein.

There is a co-operative society of coir workers at Honavar. There is also a school run by the All India Village Industries Association to which grants-in-aid are given by the Government of Bombay. The persons trained in the coir work are given subsidies and interest-free loans in the form of implements and working capital on their application. Thus a good beginning is made but a large scale effort requires to be made. There is not a single factory for making coir products or a ropery in the Province.

6. From the statement attached it may be observed that in developing the industry, fibre valued at about Rs. 25,00,000 can be utilised and the value of the coir products which can be obtained from this raw product might reach four times such value. There is thus a good scope for development of this industry.

Such development can take place both on a cottage scale as well as on a small scale or a large scale factory basis. It is necessary to start about half a dozen demonstration parties immediately. An attempt is necessary to organise also co-operative societies. It is difficult to get fibre workers to constitute such societies as they have very little money for investment as capital. Considerable Government assistance will, therefore, have to be given to assist the workers to organise themselves. In order to quickly utilize as much of the coir resources of the Province as possible, it is advisable to produce the fibre on a cottage scale and convert it into coir products by small factories. For instance small roperies installed in different parts of the Province may induce agriculturists to produce more fibre. Large plantations are at the following places :—

District.	Places.
(1) Ratnagiri	Ratnagiri (including several villages in the Taluka), Malvan, Vengurla Petha.
(2) North Kanara	Karwar, Ankola, Kumta, Honavar Bhatkal.

District.	Places.
(3) Kolaba	Revdanda, Chaul.
(4) Thana	Bassein, Palghar and Dahanu.

Vigorous measures should be taken to start co-operative societies and establish factories at some of the above places to manufacture the following articles:—

- | | |
|---------------------|-------------------|
| 1. Yarn. | 8. Ribbed mats. |
| 2. Rope. | 9. Belting. |
| 3. Matting. | 10. Carpets. |
| 4. Fancy fibre mat. | 11. Bags. |
| 5. Frame mat. | 12. Brushes. |
| 6. Brush mat. | 13. Brooms. |
| 7. Sinnet mat. | 14. Buffers, etc. |

Statement showing the acreage under cocoanut plantation and estimated yield of the coir fibre in the Province of Bombay (1942-43 season and crop Report of Bombay Province).

District.	Acreage.	Yield of coir 10,000 husks per. ton.	Value estimated at Rs. 15 per cwt.	Remarks.
		Cwts.	Rs.	
Surat	17	96	1,440	No. of trees average per acre, 79.
Satara	6	34	510	
Bijapur	19	102	1,530	No. of nuts per tree, 36 per annum.
Dharwar	379	2,154	32,810	No. of husks required for one ton coir fibre—10,000.
Thana	307	1,746	26,190	
Bombay Suburban	762	4,335	65,025	
Kolaba	1,400	7,963	119,445	
Ratnagiri	14,568	82,934	12,44,010	
Kanara	11,739	66,771	10,01,565	
Total	29,197	1,66,135	24,92,025	

Export of Coir and Coir Yarn from India.

	1935-36	1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43
Unmanufactured Coir.	Cwts. 5,200	5,400	3,940	6,620	20,780	9,320	21,500	9,760
Manufactured Coir	12,97,280	12,34,940	12,57,160	12,58,540	14,48,040	7,20,860	594,320	641,060
	<i>Share of Bombay Province.</i>							
Unmanufactured Coir.	140	20	...	...	80	20	...	...
Manufactured Coir.	1,820	2,180	1,940	1,740	1,580	3,920	...	...

Paper.

Paper is produced for centuries in civilised countries. The Egyptians used papyrus but the Chinese made paper in the form it is used today. Hand-made paper was being made practically all over India until cheap machine-made paper began to be imported in large quantities. The hereditary art of paper-making has now practically died out on account of the advent of machine-made paper during the past 50 years or so.

The per capita consumption of paper in India is extremely low compared with that of other countries. The following figures for 1937 indicate how backward India is in this respect :—

Country.	lbs. per capita per annum.
U. S. A.	241
Great Britain	134
Belgium	106
Norway	98
Denmark	96
Germany	94
France	33
U. S. S. R.	10
Rumania	8
India	1

Even on the basis of 1 lb. consumption per annum per head, the paper requirements of the Province would be 10,000 tons per year whereas the production in the Province is hardly half of this figure.

A statement showing the imports of different categories of paper, board, etc. into India and the "share" of Bombay, in the pre-war years, is attached hereto; from which it will be observed that the "share" of Bombay was as much as Rs. 19 lakhs.

The above shows that the scope for the production of paper in the Province is almost unlimited. With a drive for a greater degree of literacy the paper requirements of the Province are likely to increase considerably.

2. There are only a few families of hereditary "kagdis" left in the Province. The Main centres are Erandol and Junnar.

There are about 200 hereditary workers engaged in some 20 "karkhanas" in Erandol.

In Junnar, there are 4 "karkhanas" giving employment to about 40 hereditary workers.

There is a "karkhana" at Ahmedabad employing about 20 hereditary workers.

A small factory has been started in Nasik with the assistance of the Department of Industries.

The Pudumjee Hand-made Paper Factory in Poona produces an excellent quality of writing paper from rags particularly Insurance Policy Bond paper.

Certain technical institutions in the Province give training in hand-made paper making.

Until recently, the Department of Industries maintained a Hand-made Paper Research Centre in Poona and the services of the Paper Expert of the Department were utilised for assisting small-scale industries for making hand-made paper including blotting paper. Filter paper of fairly good quality was produced at the Centre. The Centre has now been abolished as Government considered that there were no prospects for cheap hand-made paper.

3. Although hand-made paper made from waste-paper etc., cannot be produced economically so as to compete with machine-made paper, special types of paper like currency paper, document paper, drawing paper, blotting paper, filter paper and high grade writing paper can be produced on a cottage scale. An attempt may be made to train the hereditary workers in Erandol and Junnar where co-operative societies have recently been established. The process may be semi-mechanised. A small "karkhana" should be set up where beaters may be installed for producing pulp from rags, short-staple cotton and other raw materials of a better grade. Pulp may be distributed among the 'kagdis' to prepare paper sheets, size and glaze them. If practicable, calendering machines may be installed at the "karkhana" where paper can be glazed. Encouragement may be given by Government by purchasing the paper.

Imports of different categories of paper, Board, etc., into India and the 'Share' of Bombay in pre-war years.

		Quantity					Value				
		1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
		Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Packing and Wrapping Paper—</i>											
Bombay	...	193,889	150,057	256,418	173,233	171,227	25,52,086	20,69,717	42,11,245	30,66,111	37,55,980
India	...	405,495	364,146	510,419	387,079	378,033	53,01,635	48,05,959	83,99,260	66,83,964	82,24,336
<i>Printing Paper—</i>											
Bombay	...	369,714	352,515	468,991	347,222	329,644	36,19,800	31,23,161	54,44,811	36,01,224	40,96,676
India	...	1,014,336	991,240	1,221,440	922,176	933,700	96,09,765	87,04,689	1,39,28,807	92,74,614	1,05,75,572
<i>Writing Paper and Envelopes—</i>											
Bombay	...	74,070	69,511	86,711	99,051	77,562	16,65,165	14,77,038	21,02,308	24,08,938	17,54,538
India	...	147,223	150,486	178,994	181,341	135,098	34,71,153	33,59,888	46,02,115	44,56,960	34,45,503
<i>Blotting Paper—</i>											
Bombay	...	2,718	2,339	2,511	2,027	1,864	69,610	66,236	77,750	64,279	73,259
India	...	6,050	5,548	5,708	5,003	4,240	1,64,044	1,54,383	1,74,921	1,36,214	1,62,024
<i>Old Newspaper in bales and bags—</i>											
Bombay	...	166,761	181,722	224,764	191,309	186,661	6,38,835	7,16,326	10,34,227	8,58,755	12,67,051
India	...	1,151,667	1,094,607	976,181	947,673	667,153	41,69,088	38,99,033	47,47,716	38,59,132	38,39,451

Other Kinds of Paper—

Bombay	...	10,626	10,122	14,096	12,820	11,355	3,43,698	2,84,305	4,23,118	3,66,977	5,33,648
India	...	70,878	70,564	58,774	57,517	38,427	19,75,717	19,80,618	20,64,872	18,09,292	13,74,742

Paper Manufactures—

Bombay	...	13,959	14,786	19,477	15,187	13,282	6,31,238	7,34,777	9,95,476	7,72,380	5,91,331
India	...	40,375	40,987	47,991	30,740	32,006	15,52,275	17,72,946	20,39,260	16,15,043	13,27,290

Total of Paper—

Bombay	...	831,737	781,052	1,072,968	840,853	701,595	95,20,427	84,71,650	1,42,88,935	1,11,38,664	1,21,02,963
India	...	2,836,024	2,717,578	2,999,507	2,531,529	2,188,657	2,62,43,677	2,46,27,516	3,59,56,951	2,78,35,219	2,89,48,918

Strawboards—

Bombay	...	116,278	114,368	177,386	163,578	194,724	4,83,204	4,63,888	8,48,183	8,00,245	17,08,445
India	...	301,797	269,115	340,894	337,522	307,028	12,86,510	11,32,500	16,77,148	17,07,097	25,68,610

Total of Pasteboard, mill board and Cardboard of all kinds—

Bombay	...	182,899	176,380	277,707	225,849	252,194	12,33,460	11,37,015	20,71,412	16,20,715	25,87,611
India	...	496,926	485,009	633,686	541,140	512,389	36,55,434	35,40,428	55,14,218	44,58,128	56,43,359

Total of Paper and Pasteboard—

Bombay	...	1,014,636	957,432	1,350,675	1,006,702	1,043,789	1,07,53,887	96,08,665	1,63,60,347	1,28,59,901	1,46,90,674
India	...	3,332,950	3,202,587	3,633,193	3,072,669	2,701,046	2,90,00,111	2,81,67,944	4,14,71,169	3,22,93,342	3,45,92,277

Imports of different categories of paper, board, etc., into India, and the "share" of Bombay in pre-war years—contd.

	Quantity					Value				
	1935-36.	1936-37.	1937-38.	1938-39.	1939-40	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Paper making Materials</i>										
<i>pulp of Wood—</i>										
Bombay	... 29,924	21,187	8,073	24,802	12,419	2,17,097	1,77,882	1,06,167	2,27,667	1,02,249
India	... 309,422	220,944	214,334	276,862	234,278	20,47,566	14,56,125	17,17,076	25,89,877	21,84,649
<i>Rags and other materials—</i>										
Bombay	... ..	.....	284	104	2,599	.....	.....	2,342	920	17,615
India	... 22	281	6,509	9,886	16,199	734	8,272	1,18,330	1,49,618	1,79,298
<i>Total of paper-making materials—</i>										
Bombay	... 29,924	21,187	8,073	24,802	12,419	2,17,097	1,77,882	1,06,167	2,27,667	1,02,249
India	... 309,444	221,225	220,843	286,728	250,477	20,48,300	14,64,397	18,35,406	27,39,495	23,63,947

Tanning and Leather Working.

The tanning and leather working industries as cottage industries in the Province of Bombay are next in importance, to the handloom weaving industry.

2. They are important because they give employment to a very large number of people. According to the Bombay Economic and Industrial Survey Committee's Report—1940, the total number of tanners was about 13,500 and of leather workers 35,700. The approximate distribution was as follows:—

	No. of tanners.	No. of leather workers.
Bombay city and Suburban District ...	800	4,000
Northern Division ...	6,400	2,200
Central Division ...	3,400	22,200
Southern Division ...	2,900	7,300
Total ...	13,500	35,700

According to the 1941 Census, the number of people of the castes pertaining to tanning and leather working industries such as Chambhars, Dhors, Khalpas and Mochis was as follows:—

Chambhars, Dhors Khalpas, Mochis.

	Males.	Females.
Bombay city and Suburban District ...	15,378	12,276
Northern Division ...	43,609	39,387
Central Division ...	73,122	72,557
Southern Division ...	24,738	24,149
Total ...	156,848	148,369

From the foregoing it will be observed that the total population of the above castes is as large as 305,000. If raw materials are available and Chambhars, Dhors, etc. are organised, there is a considerable scope for employing a large number of people in the industry.

Further, according to the 1941 Census, the total number of Dheds Mahars and Kasais, who are generally flayers, is given at about 921,000. It is not known how many such people earn a decent living but it is doubtful if they are fully employed and earn a fair wage. It may be possible to employ such people in tanning, leather and allied industries.

The following table indicates roughly the production of hides and skins in the Province of Bombay. The basis taken is the number of livestock according to the

1930-40 Census and the percentage of hides and skins to animal population as given in the Government of India ' Report on the Marketing of Hides in India and Burma

			Number of livestock according to 1939-40 census.	Percentage of hides and skins to animal population.	Estimated production of hides and skins per annum.
Cow kind	...	...	7,248,611	10.5	7,61,104
Buff kind	...	...	2,485,048	9.3	2,31,109
Goat	...	...	2,834,697	85.3	24,35,056
Sheep	...	...	2,087,486	77	16,15,064

From the above table it will be seen that about a million pieces of buffalo and cow hides are produced every year in the Province. This quantity in itself will not suffice for expansion of the leather working (footwear) industry. It appears, however, that large quantities of hides are brought into the Province from surrounding Provinces and States and a large quantity is also exported from Bombay.

The exports of raw hides and skins from Bombay in the pre-war years are given below (*vide* Annual Statement of the Sea Borne Trade of British India) :—

	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.
Quantity in Tons ...	4,594	4,792	3,397	4,620	4,578
Value in Rupees ...	45,99,262	55,58,890	50,76,070	73,42,634	52,20,412

If, therefore, a large quantity of hides and skins is tanned and finished in the Province and not exported, the industry can be expanded.

Very little factual information is available about the leather goods industry in the Province. There are hardly any large factories making footwear and other leather goods, but shoes, chappals, suit-cases, etc., are extensively made on a cottage industries scale, and tanners and Chambhars are scattered all over the Province. It is roughly estimated that the number of Western styled shoes made in the Province in the pre-war days was little over one million pairs and the number of country pattern shoes including chappals about five million pairs. It is obvious that when the purchasing power of the people increases there will be a very much larger demand for footwear in the Province which has a population of about 20 millions.

The export of sheep and goat skins from Bombay in the pre-war years is given below (*vide* Annual Statement of the Sea Borne Trade of British India) :—

	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.
<i>Quantity in tons.</i>					
Goat skins ...	2,884	4,147	2,918	3,824	2,772
Sheep skins ...	126	59	33	31	19
<i>Value in rupees.</i>					
Goat skins ...	29,14,755	46,08,565	41,87,025	62,10,379	43,42,283
Sheep skins ...	7,51,204	5,23,685	5,84,546	3,92,689	70,998

It appears from the figures of production and export of sheep and goat skins that there is a good scope for the development of tanning of skins and producing leather such as glazed-kid, mock-chamois, suede, etc., and articles such as hand-bags, purses, wallets, etc. There is also a scope for industrial leather goods such as leather belting, pickers, picking bands, leather laces, gin washers, buffers, leather pump buckets, washers, general leather strapping, gloves and leggings for workers of iron and steel factories, etc. etc.,

In general, the present condition of both the tanning as well as the leather working industries is far from satisfactory. There are at present only 11 tanners co-operative societies and 10 leather workers societies. One more society at Khanapur is being formed. The tanners' societies are as follows:—

Name of the Society.	District.
1. Godhra Tanners Co-operative Society ...	Broach and Panch Mahals.
2. Kalak Tanners' Co-operative Society ...	Do. do.
3. Dhor Kankaya Co-operative Producers' Society.	Nasik.
4. Pimpri Sayad Dhor Co-operative Society.	Do.
5. Sholapur Tanners Co-operative Society.	Sholapur.
6. Bagalkot Samgars Producers Society ...	Bijapur.
7. Solanki Leather Producers Society ...	Surat.
8. Parmar Leather Producers Society ...	Do.
9. Khergam Leather Producers Co-operative Society.	Do.
10. Lilapur Tanners Producers Co-operative Society.	Do.
11. Ovada Tanners' Co-operative Society Ltd.	Do.

The leather workers' societies are as follows:—

Name of the Society.	District.
1. Dharwar Mochigar Co-operative Society ...	Dharwar.
2. Deopur Co-operative Leather Works Ltd.	West Khandesh.
3. Khariami Chambhars Producers Society.	Nasik.
4. Leather Workers Co-operative Society	Belgaum.
5. Ankola Shoe Makers Society ...	North Kanara.
6. Karwar Shoe Makers Society ...	Do.
7. Honavar Shoe Makers Society ...	Do.
8. Shri Govind Chambhars and Dhors Co-operative Society	Ahmednagar.
9. Bhagur Co-operative Leather Works Ltd.	Nasik.
10. Sinhal Leather Producers' Society at Kadod.	Surat.

The tanners are ignorant people and the methods employed by them are crude. The flaying is defective, curing is inadequate and the process of tanning itself faulty. In the leather working trade the artisans do not have proper sort of tools and equipment. Their products are crude and somewhat stereotyped.

In order to put the tanning and leather working industries on a proper footing, it will be necessary to organise co-operative societies wherever possible. In other words, the existing industry should first be well established before the expansion is undertaken. The purchase of raw materials should be made through organised societies in order to prevent hides being taken away by outsiders from the locality. Marketing of finished products will also have to be done through District Industrial Associations.

The Department of Industries is maintaining 6 tanning demonstration parties and one peripatetic demonstration school in leather working. Efforts have been made to train hereditary tanners and leather workers in the use of up-to-date tools and appliances and improved methods of tanning, etc. According to the Bombay Government Post-war Scheme No. 108, 5 demonstration parties for tanning and 8 for leather working are being started.

There is a Government Tanning Institute and a Leather Working School at Bandra where instruction is given to students from all over the Province in tanning and the manufacture of footwear and leather goods.

As stated above, greater attention should be paid to tanning of skins and producing finished articles from them.

Steps should be taken to develop the industry in the centres in the different Districts mentioned below :—

Northern Division.

Ahmedabad.—It is proposed that in the next five years or so co-operative societies at Dholka and Dhanduka should be organised. Later on, societies could be started at Sanad, Modasa and Barla. The Industries Department's tanning demonstration parties have already been at Dholka and Dhanduka where there are quite a few tanners' families and it would be advisable to organise a tanners' co-operative society at these places. Besides there is a slaughter house at Dholka.

Kaira.—Nadiad is an important centre for tanning for industrial leather goods such as pickers, ginning washers and the like. As the tanning demonstration parties have visited Nadiad, a co-operative society should be immediately started there. Later, societies at Naphad and Borsad may be considered.

Panch Mahals.—At Godhra, there is already a co-operative society for the tanners, but the activities of the society should be increased and more attention should be paid to develop tanning of skins. There are several small concerns in Godhra. Efforts should be made to modernise them if possible. In due course a society at Halol should be started.

Broach.—There is a tanners' society at present at Kalak, but there is considerable room for improvement in technical processes etc. Pit-tanning process is employed. This should be expanded and tanning of skins should be carried out on a large scale. Later on, Ankleshwar could be considered for establishing a co-operative society.

Surat.—There are at present 4 tanners' co-operative societies in the Surat District at Lilapur, Madhar, Kachholi and Khergam. These should be encouraged. Consideration should be given for starting further societies at Vapi and Hansapore. At Vapi there is a tannery for tanning sheep skins by the chrome tanning process. Other suitable places are Sukhes, Nagdhara, Kumta, Ovada, Untadi, Kadod, Barbodhan and Atodra. In the past few years considerable progress has been made in the Surat District and there is a good scope for further development.

Thana.—Masoli and Khardi are small places where a beginning has been made and in due course there may be a possibility of establishing co-operative societies.

Central Division.

Ahmednagar.—There is a shoe-makers' society at Ahmednagar and as the tanning demonstration party has been there and also in Miraigaon, tanners' co-operative societies should be started there as soon as possible. Later on Rahuri and Shrigonda may be considered.

West Khandesh.—There is a leather workers' co-operative society at Dhulia. As Dhulia is the largest centre in West Khandesh a tanners' co-operative society is necessary. An attempt is being made to start a society at Nandurbar.

East Khandesh.—At Bhusaval and Chalisgaon there are several families in the tanning industry. They are somewhat conservative and attempts should be made to form co-operative societies so that the industry could be established. Other centres are Amalner and Chopda. Amalner is well-known for saddlery and leather goods.

Nasik.—There is a combined tanners and leather workers' society at Bhagur. This should be encouraged and the workers should also be taught tanning of skins. The Deolali market is close by and there is a scope for the industry at Bhagur. The Department of Industries tanning demonstration parties have visited Satana, Vani and Nandgaon and these places appear to be suitable for starting co-operative societies immediately. The other places which may be considered later on are Nampur, Taharabad and Malegaon.

Poona.—There is considerable activity at Talegaon (Dabhade and Dhamdhere) which is a big centre for the tanning industry. It should be possible to organise a tannery and start a society so that better results can be obtained. Baramati is well known for its buffalo hides. The tanners have approached the Department of Industries for a demonstration party. In the next five years it may be advisable to start a co-operative society at this place. At Poona (Wanavdi) the industry is being carried on by private capitalists on a fairly large scale.

Satara.—Satara city is a fairly large centre for tanners. There is a scope for further development particularly in the line of tanning of skins. The industry could be developed on small scale on co-operative lines in Satara where there are several people who have done well in furthering the industry. The tanning demonstration party of the Department of Industries has visited Dahiwadi and Mhaswad where it may be necessary to establish co-operative societies. Later on Rahimatpur and Vaduj and Wai may be considered.

Sholapur.—Sholapur city also is a very large centre for the tanning industry. Picking bands, belting, buffers, pickers and other industrial leather goods are being made on a cottage industries basis. Although there is a co-operative society at Sholapur there is a scope for another at the small tanners' colony in Sholapur. The demonstration parties of the Department of Industries have already been to Laul, Malsiras and Barsi and co-operative societies should be started at these places.

Southern Division.

Belgaum.—Belgaum is a suitable centre as it is a central place for getting raw hides and skins from Dharwar, Goa, Konkan, etc. There are two large tanneries at Belgaum and also a leather workers' co-operative society at Nipani. A tanners' co-operative society could be started at Chouth Galli in Belgaum. There is a scope for starting a co-operative society at Gokak where the demonstration parties have already worked.

Dharwar.—In the Dharwar District the tanners' co-operative societies should be started at Dharwar and Haveri and later on at Gadag.

Bijapur.—There is a Sangars' (Tanners) Co-operative Society at Bagalkot. A tanners' and leather workers' society should also be started in Bijapur soon.

Ratnagiri and Kolaba.—There does not appear to be much scope for the immediate development of the industry in these districts.

North Kanara.—Three shoe-makers' societies have already been started in this District, one each at Karwar, Honavar and Ankola. It may be advisable to have a tanners' co-operative society at Honavar. It is understood that the tanners are exploited by Mhophalas from the Madras Province who take away hides and skins and little is left for the local tanners. Strong steps should be taken to safeguard the interests of these local tanners. A tanners' co-operative society may be started at Shirsi.

Glue.

Although glue is produced generally on a large scale, small inexpensive installations may be set up with advantage by cottage workers alongside their tanneries.

Glue is used for several purposes in industries as an adhesive and a sizing agent.

According to the Sea Borne Trade of India, the quantity of glue imported in India and the 'share' of Bombay, as also its value, in the pre-war years was as follows :—

	1934-35.	1935-36.	1936-37.	1937-38.	1938-39.
<i>India—</i>					
Quantity in (cwts.)	16,304	20,616	19,647	17,239	19,261
Value in Rupees ...	3,81,977	4,73,852	4,70,721	5,95,336	6,06,974
<i>Bombay—</i>					
Quantity in (cwts.)	6,674	7,147	5,959	6,994	7,201
Value in Rupees	1,39,219	1,46,906	1,36,140	2,15,421	2,10,764

This table shows that there is a scope for this industry in the Province.

2. There are about 8 factories in the Province, which manufacture glue producing roughly 280 tons per annum out of which about 250 tons are manufactured by one of the factories for its own consumption.

3. The industry can be developed on a cottage scale by inducing co-operative societies of tanners to install small plants in conjunction with their tanneries. The glue is a by-product of hides and skins. Fleshings and hide-cuttings are discarded as the village tanners do not know how to extract glue from them.

The process is simple and consists of breaking up one of the important skin proteins viz. collagen into simple compounds by boiling it in water whereby a colloidal substance viz. glue is obtained. The village tanners cannot manufacture glue except in the dry season from November to the middle of March.

Efforts already made by the Department of Industries in introducing glue manufacture on a cottage scale have produced satisfactory results in some of the centres. Further efforts should be made to train the tanners, so that the industry also may appeal to them.

Mechanical and Metal.

The 'Lohar' or the village blacksmith figures practically in every village. He looks after the requirements of the villager by carrying out repairs and making the few metal parts required by him. He tyers cart wheels and shoes the cattle. The agriculturist depends upon him for the up-keep of his agricultural implements. His scope is extremely limited as he has no modern tools or appliances to work with.

Except for workshops in the cities and large towns and a few 'karkhanas' in some of the towns in the Districts, there are no facilities in the rural areas for the villager to cheaply obtain improved types of agricultural implements, tools, pumps, and equipment for cottage industries.

It is, therefore, essential for the rural development and economy to establish small foundries and workshops, particularly the latter, in small towns. The requirements of the rural population would thus be met and at the same time materials and equipment required for rural development schemes of Government could be produced on the spot.

2. A brief review of the mechanical and metal industries in the different parts of the Province is as under :

Ahmedabad.—Manufacture of the mill machinery parts is one of the most important small scale industries of Ahmedabad city. It appears that there are as many as 200 iron and brass factories in the city and the total capital invested in the industry may be as much as a crore of rupees. Most of these factories fall under the category of small-scale industries. The "Panchals" or hereditary blacksmiths are illiterate and conservative. With proper training and organisation, their condition can be improved. A small foundry will have one or more 'bhattis' for melting iron and about 3½ maunds of castings can be prepared in a 'bhatti'. The machine shops have lathes, planing, shaping and boring machines.

These small factories produce textile mill spare parts, pumps and industrial machinery parts. They have made good progress during the war but now that the war is over their progress is likely to slow down unless assistance is given by Government. The mill industry should continue to obtain its requirements from such workshops which on the other hand should be better organised for the type of work they will be required to turn out in peace time.

There are a few factories engaged in metal engraving. There is a good demand for engraved copper rollers for printing machines. The industry has a good scope for expansion, particularly as there are 20 to 30 mills engaged in printing cloth.

Surat.—The important centres are Surat and Bulsar. It has been reported that there are 8 factories and 56 small foundries in the District. The production consists of crude oil engines, sugar cane crushers, pumps, parts of steam engines and gold-thread machinery; and ginning and pressing machinery is repaired.

Thana.—The important centres are Dahanu, Bhiwandi and Mulund. There are about 10 establishments manufacturing rice mills and spare parts, pulse mills, flour mills, sugar cane crushers, parts of machinery and machine tools, etc. Several lakhs of rupees worth of material is turned out. Die making is done at Chinchani

and Tarapore. There is a possibility of establishing an industrial co-operative society here.

Ahmednagar.—The important centres are Sangamner, Copergaon, Belapur and Rahuri. The District has about a dozen foundries and workshops. The capacity of production of ploughs is stated to be 250 per day.

Ahmednagar is well known for its brass and copper pots. Only a few merchants have made a monopoly of this industry. It is possible to start co-operative workshops at Copergaon, Rahuri and Belapur.

West Khandesh.—There are practically no iron works or foundries for manufacturing agricultural implements or industrial machinery parts in the District. Several hundred blacksmiths are found in about 120 villages. They are mostly centred in Dondaicha, Sindkheda, Shahada, Nardana and Dhulia. It appears that there is a scope for starting co-operative societies for making ploughs and other agricultural implements in Dhulia, Nandurbar and Taloda.

Sonjin is well-known for its brass, copper and bell-metal industry. This is in the hands of a few dealers. A co-operative workshop may be established here.

East Khandesh.—There are large colonies of blacksmiths in towns such as Jalgaon, Amalner, Chalisgaon, and Parola. Although this is an important District there are few independent workshops in Jalgaon which do the repair work for oil mills and ginning factories. The mills in Jalgaon and Amalner have their own workshops which also accept outside work. There is a scope for establishing co-operative societies and workshops for manufacturing agricultural implements in the District.

Nasik.—There are a few iron foundries and workshops in Nasik, Manmad and Malegaon. They manufacture cutlery and small machinery parts and attend to mechanical repairs. There is a great need for a foundry and machine shop for the manufacture of ploughs and other agricultural implements and industrial machinery in Nasik. The cutlery industry for which Ozere in the Niphad Taluka and Nanpur in the Baglan Taluka are well known, should be on a co-operative basis.

Brass and copper smithy is an important industry in the District, the main centres being Nasik, Ozere and Yeola. A central organisation of copper-smiths is being formed and it is understood that about Rs. 10,000 have already been collected. A joint workshop for casting, turning and pressing is to be erected. All possible assistance should be given to this society by a supply of power and procurement of machinery.

Nasik is also well known for its artistic silverware. It is estimated that there are 100 families engaged in this industry. An association is being formed. A common workshop for the joint use of the members will be established having such equipment as lathes operated by electric power, power press, border-making machines, smelting furnaces, etc.

Poona.—There are several people engaged in the industry. The smiths repair agricultural implements, bullock carts, etc. Co-operative societies for the manufacture and repair of agricultural implements and industrial machinery etc. should be organised in Poona and Baramati.

Brass and copper-ware is produced on a considerable scale in Poona. There are three big factories and about a hundred smaller establishments engaging several workers. Skilled workers produce household utensils, 'Tapelis', 'Handas' and small

boilers for heating water. These artisans are not organised and, therefore, co-operative societies should be established to advance their trade.

Satara.—This District has the advantage of having three large scale factories *viz.*, the Cooper Engineering Co. Ltd., Kirloskars Ltd., and Phadke Iron Works at Karad for the manufacture of agricultural implements, machine tools and industrial machinery. There are several hundred blacksmiths in the District. The main centres are Satara, Karad, Koregaon and Islampur. The economic condition of the blacksmiths can be improved by inducing them to form co-operative societies. One such society can be started in Koregaon.

Satara proper is very well-known throughout Maharashtra for its pitted 'tapeli' and utensils like it. The other centres in the District for brass and copperware are Karad and Islampur, where several hundred people are engaged in the industry. This is in the hands of a few dealers. A co-operative society which was established some years ago did not succeed and was wound up. Another attempt may be made at re-organisation of this class of workers with Government assistance. Modern implements should be provided to facilitate their work.

Sholapur.—The main centres are Sholapur and Barsi. There is a foundry and workshop in Tikekarwadi and Sholapur. The blacksmiths are engaged generally in repairing agricultural implements, repairing carts, etc. It appears that there is a scope for establishing a co-operative workshop in Sholapur.

Belgaum.—There are about half a dozen good workshops in Belgaum city, out of which three are engaged in iron and brass castings on a large scale. They manufacture mostly agricultural implements, spare parts of machinery, iron railings, iron and brass weights, sugarcane crushers, etc. There are a few small workshops in some of the other towns which undertake the manufacture of small brass castings and repairs to machinery. The blacksmiths are inclined to start small workshops of their own. Co-operative societies should be encouraged in the District.

Dharwar.—The main centres are Hubli, Dharwar, Gadag and Ranabennur. The economic condition of the blacksmiths is not good. They should be organised to form into co-operative societies. There are two large workshops in Hubli manufacturing industrial machinery and rice-mill parts, pumps, grinding mills, paddy driers, oil expellers, etc. There are small welding and repair shops in Hubli, Dharwar and Gadag.

Hubli is a large centre for the manufacture of brass and copperware which are well known in South India. The industry is carried out in 'karkhanas'. There is a Copper and Brass Merchants' Association which is interested in the industry. An attempt should be made to form a co-operative society of brass and copper workers.

Bijapur.—There are workshops in towns such as Bijapur and Bagalkot. In Bijapur there are four workshops engaged in welding and repairing machine parts as also in manufacturing spare parts of machinery. Co-operative workshops should be established in some of the Taluka headquarters.

The brass and copperware industry is carried on in Bijapur and Bagalkot. The condition of the artisans could be improved if they are well organised.

Ratnagiri.—There are 'karkhanas' manufacturing cutlery in Malvan and Wadi. They need capital in order to increase their production. They should be assisted in procuring capital and improving their products.

Kolaba.—There are two factories manufacturing cutlery in Pen.

Pen, Roha, Mahad, Mangaon and Rewdanda are centres for the manufacture of copper and brassware. The artisans at Roha have formed a co-operative society recently and the artisans at Mahad have formed an association in order to obtain raw materials collectively. Co-operative societies should be established in the District.

North Kanara.—A co-operative society of carpenters and blacksmiths was organised some time back in the Honavar Taluka. In spite of the difficulty in getting such equipment as oil engines, lathes, etc., the society manufactured articles such as pans, buckets, knives, nut-crackers, scissors and bronze ware. The turn-over was quite good. Other societies should be formed in suitable localities in the North Kanara District. There are about half a dozen small 'karkhanas' engaged in the manufacture of copper and brassware. As there is a keen competition due to machine-made articles, the workers should be organised and central workshops established.

3. It is proposed that small workshops costing Rs. 15,000 to 20,000 each be established at the headquarters of such Talukas which have been selected by Government for extensive development in the post-war years. In addition to this, workshops may be installed also in the selected Talukas of the following Districts as they are comparatively undeveloped.

Khandesh (East and West),
Kaira,

Broach and
Panch Mahals.

The equipment of such small workshops may consist generally of the following :—

A lathe (6' x 6"/9" centres).

1½" Pillar Drilling machine.

18" Shaping machine.

Grinder.

A set of tools.

Anvil.

A smith's furnace.

Blower.

A set of smithy tools.

Oil Engine (wherever power is not available).

Such workshops may be immediately started, as an experimental measure, at the following places :—

Baramati
Karad
Bijapur
Belgaum
Sholapur
Hubli

Poona District.
Satara District.
Bijapur District.
Belgaum District.
Sholapur District or
Dharwar District.

If the existing workshops and 'karkhanas' in the towns get sufficient orders and are, therefore, fully occupied, more of such central workshops may be established

in the important towns of the Districts. These would operate on a co-operative basis, for the production of such equipment as stone crushers, concrete mixers, asphalt mixers, mortar mills, plunger pumps, etc. A good deal of this equipment will be required by Government in connection with their large scale rural development programmes in the post-war years, particularly their irrigation, Electric Grid and road development projects. If the work of these 'karkhanas' is co-ordinated by a central organisation, it would be possible for Government to place orders with them for their requirements, thus giving them an opportunity for development. Once they are well established they could produce such equipment as :—

Small centrifugal pumps,
 Hand-driven semi-rotary pumps,
 Hand blowers,
 Pulley-blocks,
 Flour mills,
 Farming implements and tools,
 Door fittings,
 Steel windows and
 Locks,

which will find a ready market in the Districts.

4. Small workshops can work in conjunction with some of the large establishments in cities such as Bombay, Poona, Satara, Nasik, Hubli, etc. It is not economical for the large workshops to manufacture all the small and hand-made parts of machinery. They can, therefore, place orders with the small co-operative workshops for producing such equipment. As an example, a large machine tool manufacturing concern in the Province is reported to have recently placed an order for a large number of troughs required for lathes with a small workshop in Belgaum.

The railways can place orders with the 'karkhanas' for carriage and wagon fittings, etc.

5. The introduction of the Bombay Weights and Measures Act in the Bombay Province has created a large demand for beam scale and other weighing instruments which are manufactured according to the requirements of the Weights and Measures Act. It is estimated that about 30,000 new weighing instruments worth Rs. 3 lakhs are sold in this Province alone every year. At present, a large percentage of such scales is imported from outside the Province, where they are manufactured on a cottage scale by villagers. There is, therefore, a scope for the development of this industry at suitable centres in the Province.

6. In Bombay city itself there are several hundred small establishments having machine tools and producing parts of mechanical equipment for the mills and other concerns. They were kept extremely busy during the war but on the termination of war they may not have sufficient work unless a co-ordinated effort is made by a central organisation to provide them with work. They should work in collaboration with the following large scale industries which are likely to be extended in the near future.

Agricultural implements.—Ploughs, Sugar cane crushers, Reciprocating and Centrifugal pumps.

Machine tools.—Lathes, Drilling machines, Mechanical presses.

Power machinery.—Oil engines up to 10 H. P. capacity.

Rice milling.

Metal pressing.—Utensils for domestic use; Measures, Manufacture of lanterns.

Sheet-Metal.—Safes, cash boxes, trunks, etc. Furniture, Metal boxes and tins; Buckets, domestic ware, etc. Rolling doors, expanded metal.

Bolts and nuts.

Weights and scales

Iron and steel.—Rolling mills, Steel casting, Iron foundries, textile machinery.

Oil Expeller.

Carpentry, Wood-Working etc.

Practically every village has carpenters or "sutars". They are just as much needed as the blacksmiths. They attend to the simple requirements of the villagers and the agriculturists. They make furniture, doors and windows and other wooden building material, carts, wooden implements for farmers, appliances required for village industries such as 'ghanies', looms and the like. Being illiterate and untrained and without proper implements, their scope is naturally limited.

It is necessary, for the rural development, to establish small workshops on co-operative basis in practically every Taluka headquarter and large villages.

In the cities and larger towns there are a number of "karkhanas" and furniture-makers.

There are large and dense forests in several Districts of the Province from which a good deal of timber is produced. The Kanara forests are noted for a variety of trees and can provide employment for a large number of people for producing timber as well as for manufacturing useful articles from it.

The timber and wood-working industries can be gradually expanded in the Khandesh, Nasik and Panch Mahals Districts. The forests of Thana are also important and this industry has much scope in the District.

With proper organisation and afforestation there would be unlimited scope for the timber and wood-working industries in the Province.

2. A brief review of the industry in different parts of the Province is as under :—

Ahmedabad.—The important centres are Ahmedabad and Dholka. The number of establishments is estimated at 80. Bulsari 'Saug' and timber from Bhavnagar and other States are used. There is a good demand for furniture of the latest design and models. The workers are engaged mostly on a contract basis. As teak wood has to be purchased and stocked for seasoning purposes considerable capital is required and consequently the industry is on a 'karkhana' basis. There are some centres making 'pétara' or wooden boxes.

Surat.—The centres are Surat and Bulsar and wood is available from the forests of Vaghai, Dangs, Navapur, Bulsar, etc. There are as many as 30 small factories in the District engaged mostly in furniture-making.

Panch Mahals.—The centres are Godhra and Dohad. Wood is available from the forests of Panch Mahals. The income from timber for the year 1944-45 was over Rs. 12 lakhs. A large number of people is engaged in the 'kharadi' (wood-turning and lacquer-work) industry. The 'kharadi' should be taught new designs and improved methods of producing lacquer-work.

Thana.—The centres are Vada, Bhiwandi and Shahapur. Timber products worth over Rs. 60 lakhs were produced in 1944-45. The produce mainly consisted of carts, cart wheels, 'tongas', building materials, etc. It is reported that a Thana timber merchant prepared furniture, bobbins, reels, etc. worth over Rs. 3 lakhs. A variety of timber such as 'Saug', "Khair" and "Shisham" is available and there is a good scope particularly if technical training is given, for the manufacture of furniture, wooden toys, etc. There is also a scope for organising co-operative societies in the District.

East Khandesh.—The centres are Parola, Dharangaon, Chalisgaon, Jalgaon, Nashirabad, Amalner, Chopda and Raver. Timber is not available from the East-Khandesh forests and so it is brought from West Khandesh. A number of co-operative societies can be organised in the District. As there are skilled carpenters there is a scope for production of textile parts, toys, lacquer-works, etc. At Amalner wooden combs are made out of 'Shisham' wood and there is a good demand from agriculturists for the same. Machinery is required for producing slabs of wood and making the slits automatically.

West Khandesh.—The centres are Dhulia, Nandarbar, Shirpur, Sindkheda and Dondaicha. Skilled carpenters are available. A co-operative society can be established in Dhulia.

Nasik.—There are several establishments for making furniture, motor body building, etc. Saw mills are found in towns like Nasik, Deolali, Manmad and Malegaon. There is a scope for co-operative societies. The backward class people can be trained in wood working. Soft wood is also available in the forest areas and it may be possible to start a pencil factory in the District on a small scale.

Ahmednagar.—There are not many 'karkhanas' in the District but there is a scope for co-operative societies. A large number of bullock carts is being made.

Satara.—The forests of this District produce some teak. Timber, however, has also to be obtained from Karwar. The main centres are Satara, Karad, Vai and Lonand. There are not many 'karkhanas' and more carpenters can find employment if they are trained in furniture-making.

Poona.—Furniture is manufactured on a fairly large scale in Poona itself. A co-operative society has been started, which will help to improve the condition of the carpenters. Wooden toys are manufactured from soft wood but a sales organisation is necessary.

Sholapur.—The centres for furniture-making are Sholapur, and Pandharpur and, for 'tonga' and cart-making, Sholapur, Barsi and Khurduwadi.

Belgaum.—Timber-felling is done in Belgaum and also in the forests of Khanapur. It is estimated that there are about 30 timber depots in Belgaum employing several hundred workers. Many of these were engaged in the manufacture of articles required by the Military. Wood is also imported from Dandelli and other nearby forests. Articles required for building purposes and household furniture are also turned out in the depots. Helves (for pick-axes), hammer-handles, shovel handles and a number of other articles were supplied to the Supply Department. The industry is carried on on a fairly extensive scale.

There are about half a dozen establishments for motor body building. There is a scope for developing this industry, as Belgaum is close to large forests and is a centre for a number of bus services. A co-operative society of carpenters should be established in Belgaum.

Dharwar.—In Dharwar there are three saw mills and in Hubli four. Furniture and cabinets are made only in the big cities.

Bijapur.—Carpenters are an important class of artisans in the District and carpentry is both an urban and rural occupation. Co-operative societies are

necessary to enable the carpenters to purchase wood from the forest areas of Belgaum, Dharwar and North Kanara and sell the articles made by them economically.

North Kanara.—There are not many 'karkhanas' although there is a co-operative society of carpenters and blacksmiths in the Honavar Taluka. The District contains one of the largest forests in India and is suitable for the development of the wood-working industry on a co-operative basis. There is also a scope for building boats and country crafts.

Ratnagiri.—There will be a scope for the industry in the District in addition to boat building.

Kolaba.—The District is rich in forests and the timber business is conducted in most of the towns. The important centres are Pen, Roha, Panvel, Naghothana, Uran and Karjat. There are about 16 saw mills in the District for building purposes. There is a scope for ship-building. A 'karkhandar' builds about two boats per year. The artisans might do better if small workshops or 'karkhanas' are established on a co-operative basis.

3. It is proposed that small workshops costing about Rs. 10,000 each be established at the headquarters of such Talukas as have been selected by Government for extensive development in the post-war years. In addition to this, workshops may be installed also in the selected Talukas of the following Districts which are comparatively undeveloped :—

Khandesh (East and West),
Kaira,
Broach and Panch Mahals.

The equipment of such small workshops would consist generally of the following :—

A 5' Wood-working Lathe.
A Wood-working drilling machine ($\frac{1}{2}$ " cap.)
Grinder.
Circular saw.
Band saw.
A set of fitter's tools.
Sets of carpentry tools.
An oil engine 5 H.P. (wherever electric power is not available).

Such workshops should be started immediately, as an experimental measure, at the following places :—

Karad ... Satara District.
Khed ... Ratnagiri District.
Roha ... Kolaba District.
Bagalkot ... Bijapur District.

4. The timber and wood-working industry is very important and small-scale industries and co-operative societies may be established, particularly in the forest areas, so that the best use can be made of the forest wealth of the Province. It is recommended that Government should provide these societies with timber at concession rates. Appended hereto is a statement showing the variety of timber and wood available and the articles and products which can be made from it.

List showing the use of Minor Forest Products in cottage and small-scale industries.

1. PRINCIPAL SPECIES OF TIMBER USED IN THE PROVINCE.

	Bombay timbers.	Indian timbers.	Foreign timbers.
(i) Textile Industry			
(a) Shuttle ..	Diospyros melanoxyylon dalbergioides	Ougeinia Same as Bombay timber	Cornus florida, Persimmon wood.
(b) Bobbin ..	Adina cordifolia parvifolia. Stepeggyne Holarrhena antidysenterica. Gmelina arborea. Holoptelea intergrifolia. Boswellia serrate.	Same as Bombay timbers. Mulberry.	Beech. Birch. Maple.
(c) Picker arms ..	Grewia tiliaw folia. dalbergioides. Diospyros melanoxyylon. Lagerstroemia lanceolata. Terminalia tomentosa. Dalbergia latifolia. Anogeissus latifolia. Acasia arbica.	Same as Bombay timbers.	Hickory wood.
(d) Minor accessories e.g., pegs, warpers.	Wrightia tinctoria. tomentosa. Wrightia Gardenia latifolia.	Same as Bombay timbers Parrotia jacquemontina.	Beech. Birch. Maple. Cornel wood.
(ii) Furniture			
..	Tinctona grandis. latifolia Terminalia tomentosa. Albizzia lebbek. Albizzia procera. Lagerstoremia Spp. Gmelina arborea. Dillenia pentagyna. Cedrela toona. Calophyllum tomentosum. Ougeinia dalbergioides Hopea parvifolia. Odina woodier. Chuckrassia tabularis. Adina cordifolia. Stepeggyne parvifolia. Lophopetalum tomentosum.	Same as Bombay timbers.	Oak. Plywood.
(iii) Tool Handle Industry.			
..	Anogiossus latifolia. Terminalia tomentosa. Ougeninia dalbergiodes. Acasia arabica. Hrewia tiliaefolia. Careye arborea. Strychnos nuxvomica.		

2. PRINCIPAL MINOR FOREST PRODUCTS.

- (a) Grass.
- (b) Fibres.
- (c) Tans—(i) Barks, (ii) Myrabolaus and (iii) Leaves.
- (d) Oils—(i) Rosha. Oils out of seeds: Moha, Karanja and Neem.
- (e) Lac.

Bamboo and Cane Work.

Utility articles are manufactured on a cottage scale from bamboo and cane all over the Province. There are hundreds of cane and bamboo workers in practically every District of the Province and it is roughly estimated that there are altogether about 350 centres having about 14,000 workers.

Cane and bamboo grow in abundance in the forests and jungles of the Province and there is a good market for cane and bamboo articles in Bombay and other large cities.

With proper organisation it may be possible to make better use of these forest products and even develop an export trade in various articles, particularly, furniture made of cane and bamboo.

Bamboo.—Bamboos fall under the Natural Order 'Gramineæ'. The number of bamboos species found in India is very large. Over a 100 species have been met with up-to now. Some grow in limited areas, whereas others cover large ones forming bamboo forests. The Dharwar and North Kanara Districts have dense bamboo forests covering over 100 square miles each and the forest ranges of Belgaum, Bijapur, Kolaba, Poona and East and West Khandesh also contain bamboo. The important species of bamboos found in the Province of Bombay are :—

Dendrocalamus Strictus.—It is the 'Male Bamboo' which occurs throughout India except in the Northern and East Bengal and Assam. It is the most common and widely spread, and universally used, of all the Indian bamboos.

Dendrocalamus Giganteus.—As the name implies this is the biggest of the Indian bamboos.

Bambusa Arundinacea.—This is the thorny bamboo known as 'Daugi' found growing luxuriously in the moist forest of the Western Ghats.

Oxytenanthera Monostigma.—This is the slender bamboo growing along the Konkan coast and on the Ghats of North Kanara.

Bamboos can be put to a variety of use because of the following characteristics :—

Strength, lightness, smoothness, straightness, roundness, hollowness, the facility with which they can be split, the ease with which they can be cut, etc.

They are used for rafters, scaffolding, roofing, flooring, poles, shafts. etc. The articles generally manufactured from bamboo by the artisans are 'charpoys' and simple furniture, baskets for packing fruits etc., mats or 'chatais' and trays. Bamboos are used also as raw material for preparing pulp for the large scale paper industry.

Cane or rattan.—Cane or rattan is a stem of a climbing palm belonging to several Genera of the 'Palmaceæ'. The most important group is the 'Calamus'. Rattan is a term applied to the thick variety growing in the Straits Settlements. Calamus Rotang is the slender cane of a common variety found in Central and South India. Cane is found to grow in almost all the forests in the Province but more so in the Southern ranges. Singapur cane as the Rattan from the Straits Settlements is called, is superior to Indian cane due to its lustrous surface and softness and distance between the nodes. The Indian cane, however, is also good and can be utilised for the manufacture of high grade furniture, baskets, trays and other articles.

Its characteristics are strength, lightness and pliability. Strips, with the smooth outer surface, are used for caning chairs, settees, teapoys, perambulators, baskets, mats, screens, window blinds etc. The furniture made from it is light and more durable than bamboo furniture.

A table is appended hereto showing the imports and exports of cane and rattan from which it will be observed that over Rs. 2 lakhs worth of cane was imported into Bombay in the pre-war years.

As cheap and skilled labour, raw materials and market etc., are available there is a good scope for this cottage industry in the Province.

2. The present position of the industry is as follows :

Broach.—The centres are Ankleshwar, Diva, Borbatta, Jambusar and Broach. The artisans are generally of the sweeper class and are engaged in basket-making. It may be possible to organise a small co-operative society at Broach.

Kaira.—The centres are Anand, Uttarsanda, Guttal, Kaira, Vadtal, Dumaral and Tudel. The problem of the artisans is to obtain bamboos cheaply. In due course a demonstration party may be sent to Anand and Uttarsanda.

Panch Mahals.—The centres for basket-making are Dohad, Limdi, Godhra, Jhalod, Halol and Kalol. It may be possible to establish co-operative societies at some of the centres after the visit of the demonstration parties. The artisans should be assisted in obtaining bamboos cheaply.

The centres for 'pal' weaving from bamboo are Tadwa, Mataria, and Nada. Bamboos are more easily available. The economic condition of the artisans is not good. Demonstration parties might visit the centres after which industrial co-operative societies could be established.

Surat.—The centres are villages in Mandvi, Chikhli and Bulsar Talukas for mat-making. Mat-making and 'Pankha' from leaves of date trees growing in the jungle is common. A woman takes about a day to complete a mat 3"×2". This provides part-time occupation. Several hundred mats are produced per week from August to September. The mats are mostly used for wrapping cloth bales and there is a demand by the mills in Ahmedabad and Bombay. Centres for basket-making are Mandvi, Ambach, Khergam, Vapi, Bulsar and Surat. The bamboo workers do not get good price for the products on account of competition amongst themselves. They should be trained and given loans and subsidies to develop their craft.

Thana.—The centres are, Masoli, Bordi, Gholwad, Asangaon, Mahim, Thana, Palghar, Umbergaon, Khattalwad and Dehri. Baskets and mats are prepared in large quantities and sent to Bombay. The artisans are mostly Harijans and both men and women are engaged in this work. Training may be given in preparing mats of artistic designs and other useful articles.

West Khandesh.—Bamboos are available in Taloda, Navapur and Sakri ranges but there are only a few families of bamboo workers. Baskets are not much in demand as there is little fruit trade. Bhils, however, provide their own needs and utilise bamboos for building and mat-making purposes. They can be taught to make furniture, fans, etc. for which there is a demand in towns. The Department of Industries has opened a centre at Navapur under the Backward Class Scheme.

East Khandesh.—The population engaged in basket making is fairly large, the main centres being Raver, Yawal, Jalgaon, Amalner, Erandol, Pachora and Jamner. Workers are spread all along the railway line making baskets for fruit transport and also containers for cotton and oil seeds.

Ahmednagar.—Bamboos are brought from outside the District and large quantities are used in preparing baskets for fruits. Several hundred people are engaged in the industry between Rahuri and Kopargaon.

Satara.—The main centres are Patan, Medha, Karad, Tasgaon, Satara, Mhaswad, Vaduj, Islampur and Vita. The forest is poor in bamboos which are used in preparing baskets and other articles. The Buruds must be trained by a demonstration party in places like Satara or Karad.

Poona.—There are several hundred workers in the District preparing baskets, and mats. Bamboo is available in the Vadgaon range. A demonstration party may be sent to Poona to train workers to produce articles along modern lines. A co-operative society may be established in Poona in due course.

Belgaum.—The important centres are Khanapur, Belgaum, Nandgad, Nipani, Athni and Gokak. There are several hundred hereditary artisans preparing bamboo and cane furniture. During the war the artisans were mainly engaged in preparing bamboo mats or 'Tatties' required by the Military. As ample cane and bamboo are available from the forests there is a scope for the industry and co-operative organisations in the district.

Dharwar.—Some of the centres are Dharwar, Hubli, Byadgi and Ranebennur. There is a Producers' Co-operative Society of medars called the Burud Audyogik Mattu Vyapari Sangh Ltd. which is the only one of its kind, for the Southern Division. Although the society was started recently it has made good progress. It has about 100 members. The society desires that as a special concession it should be permitted to cut bamboos a month earlier i.e. from October so as to meet demands. The basket-makers of Dharwar desire that a Producers' cooperative society, such as the one at Hubli, should be established at Dharwar.

Bijapur.—Bamboos are brought from Alnawar and Dandeli forest areas. Several families are engaged in preparing baskets, which are required for the bunding work.

North Kanara.—The important centres are Shedgori, Ankola, Heggur in Ankola Taluka, Kyadgi in Siddapur Taluka and Anshi in Supa Petha; Sadashivgad, Karwar and Nandangadde in Karwar Taluka and Honavar. The work is generally done from October to May when there is a large demand by agriculturists. Due to decline in transport by bullock-carts, the demand for mats has decreased.

Cane grows naturally in the Honavar, Sirsi and Siddapur Talukas and Bhatkal and Supa Pethas. Several tons are exported. The artisans produce cane curtains, baskets, etc. There is a proposal to organise a co-operative society of the cane-workers of Ankola Taluka. A suitable centre will be Ankola where there are several hundred cane-workers. A co-operative society of cane-workers has been organised at Angadi in Karwar Taluka. This needs encouragement.

Ratnagiri and Kolaba.—The artisans are engaged in basket-making, for which there is a good demand by fruit growers. The baskets are used for packing mangoes, which are despatched to Bombay.

The Department of Industries conducts at present two peripatetic demonstration parties for imparting training in the manufacture of various cane and bamboo articles. Important types of implements and modern designs are being introduced. The artisans are taught to make articles such as the following :—

- | | |
|-----------------|--------------------------------|
| 1. Easy-chairs. | 6. Flower baskets. |
| 2. Chairs. | 7. Waste paper baskets. |
| 3. Stools. | 8. Packing baskets for fruits. |
| 4. Teapoys. | 9. Tea or tiffin baskets. |
| 5. Trays. | |

Twenty students are annually trained by each of the parties, which have by now visited Kodibag in Karwar District, Khanapur and Belgaum proper in Belgaum District, Dharwar, Hubli, Sholapur and Surat. At present one of the parties is stationed in Poona for training ex-soldiers.

Some of the past trainees have been given the benefit of the subsidy-cum-loan scheme. Government have sanctioned the supply of 25 lbs. of cane from the forests free of charge to every deserving trainee.

3. As mentioned above, there is a scope for the industry, although the artisans belong to a very poor class and are mostly illiterate. With proper training and organisation and with the assistance of demonstration parties, co-operative societies may be established, wherever possible, so that the artisans can purchase their raw materials cheaply and dispose of their articles at a good price. According to the Post-war Scheme of the Government of Bombay, 7 more demonstration parties are to be organised. Although the equipment required by the cane and bamboo workers is simple, attempts should be made to introduce machines in order to produce articles on a larger scale. It is recommended that the Forest Department makes an attempt to grow in North Kanara cane of the variety grown in Malaya and which is imported in large quantities into the Province.

Cane and Rattan

Imports.

Quantity Cwts.

Year	1935-36	1936-37	1937-38	1938-39	1939-40
INDIA	27,729	28,319	34,820	40,237	39,698
BOMBAY	18,450	16,349	21,401	25,036	19,883

Value in Rupees.

Year	1935-36	1936-37	1937-38	1938-39	1939-40
INDIA	73,20,403	3,22,483	4,49,071	4,46,721	4,55,994
BOMBAY	1,65,520	1,39,977	2,38,852	2,53,153	2,11,849

Exports.

Quantity in Cwts.

Year	1935-36	1936-37	1937-38	1938-39	1939-40
INDIA	854	557	834	1,145	1,015
BOMBAY	658	414	788	1,119	708

Value in Rupees.

Year	1935-36	1936-37	1937-38	1938-39	1939-40
INDIA	40,770	24,487	24,680	30,388	34,608
BOMBAY	33,855	19,464	21,970	27,466	26,594

Lac.

Lac cultivation in India is going on for several centuries. From the year 1900, however, its utilization for industrial purposes is steadily increasing. Its exports mounted up from about 11,000 tons in 1900 to 38,000 tons in 1939-40. The value of the exports in the year 1939-40 was Rs. 1·9 crores.

It is interesting to note that the production of synthetic resins in the United States, which is India's biggest customer for lac, increased from 2,000 tons in 1919 to as much as 60,000 in 1939. In spite of such increase the market for lac is good.

The consumption of lac in India is small compared with exports but there is a potential market for it as there is a great number of uses to which it can be put.

According to the Journal of Scientific and Industrial Research (July 1944), the average annual world production of stick-lac for the five year period 1934-39 was as follows :—

Country.	Annual production Tons.	Per cent of Total.
India	47,750	92.0
Burma	2,300	4.8
Strait Settlements and Thailand	1,600	3.2
Total	49,650	100

According to the Report on the 'Marketing of Lac in India' the estimated approximate production of lac in different Provinces and States (Average for 1934-35 to 1938-39) was as follows :—

	Tons.	Approximate share in total production.
		Per cent.
Bihar	28,500	60
Central Provinces	6,000	13
Bengal	3,700	8
Eastern States	4,800	10
Central India States	1,500	3
Assam	1,200	2
United Provinces	800	2
Punjab	250	} 2
Bombay (including Baroda and Panch Mahal States)	100	
Orissa	200	
Sind	50	
Madras (including Madras States)	50	
Others	600	
Total	47,750	100

The foregoing table shows that the production of lac in Bombay Province is extremely small compared with the total production in India.

The forests in the Province contain Khair (*Acacia Catechu*), Babul (*Acacia Arabica*), Ber (*Zizyphos jujuba*) and other trees for the cultivation of lac. Babul is an important host on the Bombay side and Ber or Bora tree is also found in many parts of the Province. Khair and Babul are found all over the Province and can be easily grown quickly. It will, therefore, appear that the scope for the development of the lac industry is considerable.

2. Lac cultivation and utilization is in a very elementary stage at present in the Province. It is reported that there is a factory at Godhra which is manufacturing shellac and button-lac from seed-lac. The output of the factory was stated as 50 tons of shellac per annum and 10 tons of button-lac. Crude seed-lac is collected from the forest host trees by Bhils who generally sell it to middlemen at Dohad, Godhra, Limdi, etc. from whom the above factory secures its requirements.

In general, there are no cultivations or proper methods for collection, etc. of the lac. According to the Forest Utilization Officer, experiments were conducted at several places to find out the possibility of lac propagation in the Province of Bombay. Experiments conducted in the Panch Mahals, Surat, Khandesh (East and West), Dharwar and Bijapur Districts were not altogether satisfactory. The failure is ascribed generally to the following causes:—

- (i) Frost.
- (ii) Insect attacks.
- (iii) Incorrect methods of lac propagation.
- (iv) Unfavourable locality.
- (v) Extremes of temperature, etc.

It appears, therefore, that certain areas are not suited for the cultivation of lac but further efforts should be made to introduce this important industry successfully in the Province. The Forest Department is again conducting experiments in the Shirsi-Sidhapur range in the North Kanara District.

The Special Research Officer of the Department of Industries is of opinion that lac cultivation is not carried out in a systematic manner but only takes place by natural infection on unpruned trees. According to what he has seen in the Province the male insects exceed in number the females. As the latter are responsible for lac production it is not surprising that the yield in lac is poor. The Special Research Officer thinks that under normal conditions the male insects should only be 30 per cent. There is too much in-breeding and in order to strengthen the strain it may be necessary to bring new breed from outside the Province. At present there is too much destruction by predators but this nuisance can be obviated. He suggests that the number of host trees and their density at different suitable centres should be determined.

3. Although a thorough survey is needed and research is necessary to see if this industry can be intensified, there appears to be a considerable scope for it. Host trees grow plentifully, natural lac deposits are found in the forests, several areas have the requisite climatic conditions and the industry is actually carried on to some extent in Godhra. As there is a fairly large collection of lac in the area around Godhra it appears that quite a few small-scale factories can be put up for the production of shellac and button-lac. If co-operative societies are formed for the collection, etc. of the lac it may be possible to put up two or three more factories in the Panch Mahals District in the immediate future.

The Forest Department could engage experts, if necessary, after consulting the Indian Lac Research Institute, to make surveys and for training people in this Province in the industry. Suitable areas in the Panch Mahals, Dharwar and Bijapur Districts should be selected and lac cultivation should again be tried out on proper lines.

If lac cultivation on a large scale is successful a number of important products such as varnishes, paints, polishes, gramophone records, sealing wax, bangles, etc. can be made.

Glass Bangle.

The manufacture of glass and glass products is generally carried out in large factories. Few articles, made of glass, can be manufactured on a cottage scale but the glass bangle industry has been and can be further developed on a small-scale co-operative basis.

In practically every village there is a demand for glass bangles. It is the every day requirement of women in towns and villages.

In pre-war days large quantities of glass bangles were imported from Japan and Czechoslovakia. This Province imported bangles also from places like Ferozabad in the United Provinces.

According to the Sea-borne Trade of British India, bangles worth Rs. 18.4 lakhs were imported into India in 1939-40. Of this the 'share' of Bombay was about Rs. 12 lakhs.

These figures show that there is a large scope for the development of the glass bangle industry in the Province.

2. At present glass bangles are being manufactured on a cottage scale by a few hereditary workers scattered through the Province.

In the year 1937 the Department of Industries started the scheme of training hereditary glass bangle workers. They were taught the use of improved appliances and new methods of working. Over 60 people have been trained so far.

Formerly these bangle workers were dependent on merchants to supply them with local cullet or that imported from the United Provinces. The Department of Industries designed a glass furnace of a very small capacity, i.e., of 80 lbs. which could be fired with fire-wood. Generally, cullet can be used and it is not necessary to actually manufacture glass. The glass bangle workers who have been assisted by the Department with equipment, loans and subsidies are successfully conducting their business at the following places :

District.	Village.
(1) Kaira	Kapadvanj.
(2) East Khandesh	Nasirabad.
(3) Thana	Tarapore.
(4) Bijapur	Gudur.
	Badami.
	Bagewadi.
(5) Belgaum	Ghodgeri.
	Kittur.
	Tallur.
	Murgod.

3. There is a scope for extending the glass bangle industry in the following talukas :—

District.	Taluka.
(1) Bijapur	Hungund.
	Bagalkot.
	Badami.
(2) Belgaum	Belgaum.
	Gokak.
	Hukeri.
(3) Ahmednagar	Parner.
(4) Nasik	Chandor.

The industry could be started in about 5 to 6 villages in each of the Talukas mentioned above.

Although at present plain and Tarapore type of bangles are being made, other sorts such as the Patala bangles decorated with enamel, etc., and Ferozabad bangles could also be produced after training artisans in the art of manufacture of such bangles. Other articles which could be made are glass buttons, beads, hair pins, ear-rings, imitation pearls, etc.

Co-operative societies should be formed wherever necessary particularly as it would be necessary for the workers to share the furnaces and appliances between them. They should be assisted by the Forest Department which should supply them with fire-wood at reasonable prices. District Industrial Associations should stock their goods and the Sales Depots should assist them in selling their wares.

Pottery, Bricks, Tiles, Etc.

Pottery as a cottage industry has existed for centuries. Although it has now evolved into a large scale industry, the village potter is and will be indispensable for many years to come. The potter ('Kumbhar' and the 'Kusagar' who makes artistic-wares) produces such domestic and utility articles as jars or 'handas', 'kundies' or large jars for storing corn, flasks or 'khujas' or 'madkas' for storing water, earthen pots or 'patelies' for cooking food, flat dishes or 'tawas', small pots or 'burnies' and country tiles. The industry gives employment to thousands of people in the Province and may be considered as one of the major cottage industries.

A survey was made by Mr. C. P. Shah, Honorary Pottery Expert to the Department of Industries, Bombay, whose 'Report on the Possibilities of Pottery Manufacture in the Province of Bombay' was published in 1941. Geological surveys of clay and other raw materials were made in selected places and the lines on which the industry should be organised were suggested. It was suggested that the industry should be developed on a cottage as well as large scale.

There is a great demand for pottery-ware. About Rs. 16 lakhs worth of pottery goods were imported into the Province of Bombay in the pre-war years.

The raw materials required such as china-clay, plastic-clay, felspar, fire-clay, etc. are available in the different parts of the Province. For production on a small-scale basis fire-wood can be used for fuel.

From the above it will be seen that there is a good scope for an extensive development of the industry.

2. According to Mr. C. P. Shah's report there are as many as 58,000 potters in the Province. Clays of different types are available practically in all the Districts particularly from the river beds. The potters follow crude old-fashioned methods and there are hardly any organizations of potters.

A brief review of Pottery and allied industries in the different parts of the Province is as follows :—

Panch Mahals.—There are three important centres viz. Godhra, Kalol and Limdi in this District. The clay from 'Balatia' in the Kalol Taluka is quite suitable for pottery and bricks; earthen pots, etc., are prepared. To a certain extent, pottery manufacture is a part-time occupation. It appears that industrial co-operative societies can be established in the District.

There is a small pottery in Derol where crockery-ware is produced.

Kaira.—The important centres are Borsad, Nadiad, Anand, Mehamadabad and Kaira. Industrial co-operative societies can most probably be started at these centres.

Broach.—Good clay is available in the District. The important centres are Broach and Jambusar where bricks and 'deshi' tiles are being made.

Surat.—There are hundreds of potters preparing ordinary utensils, bricks and tiles. The income is small as the people prefer aluminium utensils and Mangalore tiles.

Thana.—The important centres are Kalyan, Thana, Umbergaon and Bassein. At Kalyan, clay is available by the side of the river Ulhas and fine sand from Mumbra creek. Several million bricks were produced in 1945 at Kalyan and were utilised by the Military.

Clay available at Bassein is suitable for the manufacture of pottery-ware. There are deposits of white and yellow clays at the bottom of the Tungar and Gokhira hills. The pottery demonstration class of the Department of Industries has done useful work in Bassein and a co-operative society has been formed with the help of the Department mainly for producing crockery which has a very good demand and fetches good price at present when there are very small imports.

West Khandesh.—There are good silt deposits along the course of the river Tapti. Good quality pottery is made at stations on the Tapti such as Taloda, Prakasha, Sarangkhed and Dhulia.

White clay is found at Chhadvel in Sakri Taluka which may be suitable for the manufacture of high class pottery, pipes, Mangalore tiles, etc.

Bricks and tiles are manufactured on the outskirts of Dhulia, Nandurbar Navapur, etc. An expert survey of the deposits at Chhadvel is necessary. A pottery demonstration party may in due course be sent to Chhadvel.

Ahmednagar.—The potters are mostly located along the sides of the rivers Godavari and Pravara. The large centres are Ahmednagar, Sangamner and Kopergaon. The industry provides whole-time occupation for the majority of the potters. They get grain from agriculturists in exchange for some pottery-ware. The soil on the whole does not appear to be suitable for high class pottery.

There are several establishments for preparing bricks and tiles.

East Khandesh.—Hereditary potters make use of silt deposits along the Tapti and Girna rivers. Large colonies of potters are found in Erandol, Jalgaon, Bhusawal and Patonde. The industry provides whole-time occupation. The potters are illiterate and ignorant although skilled in their trade. They would do well if trained in the use of improved appliances and new methods of production. Tiles and chinaware could be made in due course.

Brick kilns are situated in Chalisgaon, Amalner, Jalgaon, Bhusawal and Savda.

Nasik.—Colonies of potters are found in Madki-jamp, Palkhed along the Kadwa in the Dindori Taluka, Nasik, Girnare and Madmeshwar (Niphad) along the Godavri: Palse along Darna; Malegaon, Chandanpur along the Girna; Mulher, Jamkhed and Nampur along the Mosam. The soil is black-out of which red glazed pottery can be made. Co-operative societies of potters can be organised in Nasik, Saykheda and Sinnar.

Poona.—There are several establishments engaging about 1,400 people in the manufacture of bricks and tiles. The centres are Vithalwadi, Parvati, Mandwa, Lonavala and Khed.

Satara.—Potters are found along the Krishna river in Wai, Limb and Karad and in Vaduj, Koregaon and Mhaswad. The soil does not appear to be suitable for high class pottery and is gritty.

There are brick and tile factories in Karad, Wai, Vaduj, Bhilar, Koregaon and Bhilavadi. In Shenevadi, 8 miles from Vaduj, there are deposits of clay which are considered suitable for the manufacture of Mangalore tiles. Experiments are being conducted. It is reported that there are deposits of good clay useful for the manufacture of high class bricks in the Khanapur Taluka.

Sholapur.—Except in Sholapur, Barsi and Pandharpur, the pottery industry provides part-time occupation to the workers. Bricks are manufactured in Sholapur, Barsi and Kurduwadi.

Belgaum.—The important centres are Kongnolli, Athni, Mumdapur, Hirebage-wadi, Nandgad, Khanapur and Gulgurji. There are good prospects for development of the industry in the District. In Khanapur ample clay suitable for the manufacture of glazed pottery-ware is available. The Department of Industries is organising a pottery demonstration party in Khanapur, for training the potters. It is said that there are good deposits of white china-clay under the existing surface layers.

The brick and tile manufacturing industry is one of the most important industries in the Belgaum District. It is developed in the Khanapur, Gokak, and Sampgaon Talukas and Chandgadmahal. Almost all the towns and important villages have small or large kilns for the manufacture of bricks and country tiles. Red bricks and Mangalore tiles are made in Khanapur on a very large scale. There is a scope for further expansion and development. Co-operative societies can be constituted in the District after the potters are trained.

Bijapur.—Bijapur clay being unsuitable for pottery the potters bring clay from distant places. Recently a potters' co-operative society was organized in Chamalgi in Murdeshwar Taluka. The clay at Yelgar is used for making glazed pots.

Bricks are made on the outskirts of a few important towns.

Dharwar.—The potters are not doing well in this District due to cheaper and more durable aluminium vessels displacing earthen pots. The workers in the industry are, therefore, gradually dwindling.

Bricks and tiles are manufactured in good many towns and important villages.

North Kanara.—Earthen pots and country tiles are manufactured in all the Talukas and Pethas in the District to meet the local demand. The important centres of the potters are Halkar, Kujalli, Vannually, Kekkar, Baad, Valgall, Hervatte in Kumta Taluka; Kirkee, Nanki, Hadipur in Honavar Taluka; Bengre, Mudalli in Bhatkal Taluka, Haliyal, Kumbharkop in Haliyal Taluka. A 'sangh' has been constituted by the 'kumbhars' at Kumta with a membership of 106 and working capital of about Rs. 1,000. There is a proposal now to organise a co-operative society of these potters. Co-operative societies can eventually be started in Halkar in Kumta Taluka, Madpur in Honavar Taluka; Bengre in Bhatkal Taluka and at Haliyal.

Ratnagiri.—The important centres are Jalgaon, Patgon, Kumkenly, Kalnath and Lanja. Training in the manufacture of glazed-ware and different types of articles is essential.

Kolaba.—The important centres are Pen, Panvel, Roha, Nagothana, Mangaon and Goregaon. It is reported that the clay available is not of good quality. The industry provides part-time occupation.

There is a number of artisans who are experts in clay modelling.

Bricks and tiles are made in Pen, Panvel, Roha and other important towns. There is a large scale factory near Uran for the manufacture of cement tiles.

3. In the next few years, potters should be organised to form co-operative societies wherever possible. In particular small industrial units should be established at Derol in the Panch Mahals District, near Khanapur in the Belgaum District, Honavar in the North Kanara District and near Jalgaon in the Ratnagiri District. Unlike as in the case of other demonstration parties, it is difficult to shift the pottery demonstration from one place to another as new furnaces and tanks have to be built at the centres to which the demonstration party is shifted. It may be advisable, therefore, to locate more demonstrations in some central places where training can be given to 'kumbhars' coming from neighbouring localities.

A central factory on a small scale should be established for providing prepared raw materials, glaze-frit, plaster moulds, etc. at one suitable centre. The potters should be taught to make glazed-ware to a larger extent and also crockery-ware for which there will be a market in the towns in the near future.

Bee-Keeping.

Bee-keeping, as a cottage industry, can bring considerable wealth to the people of the Konkan and some of the other parts of the Province. It is particularly suited for providing part-time occupation to thousands of agriculturists along the coast without entailing much capital expenditure, training or effort.

Honey, worth several lakhs of rupees, was imported in pre-war years into the Province and the rest of India. It has medicinal properties and is an important food and, therefore, its consumption is capable of increasing considerably, with the purchasing power of the people. Large quantities can be produced in the Province to meet its requirements and even for export.

Apiculture has now been highly developed. Even in such highly industrialised countries as Germany and Czechoslovakia, bee-keeping provides occupation for many people.

The general belief being that bee-keeping is troublesome and dangerous the industry has made little progress in the Province.

The conditions favouring development of the industry are (a) moderate climate, (b) a perennial growth of flowers rich in pollen and nectar and (c) abundance of fresh water. Such conditions do exist in the North Kanara, Ratnagiri and Kolaba Districts in the Konkan, Surat, certain hill stations like Mahabaleshwar and in some other parts of the Province. Although assistance of experts is occasionally needed, the work is simple so that even children can attend to it. The bee-keeper is not called upon to leave his home or premises. He only has to keep a few bee colonies in his court yard. As many as 20 colonies can be looked after by one individual without being distracted from his normal occupation. In three months, a villager can be taught to look after the bees and manage their hives. Very little capital is required initially and with less than Rs. 8 per each colony, bee-keepers have earned several hundred rupees.

Bee is useful not merely for its honey. Scientists have found that the primary and essential service, which the honey bee performs, lies in its work of pollination. In the U. S. A. it has been estimated that about 100,000 species of plant life would be extinct without the intervention of bees. Dr. E. F. Phillips, Professor of Apiculture, Cornell University, U. S. A., has stated as follows :—

“In addition to the financial value of the honey and wax crops bees have a value to agriculture and to human economy that is doubtless far greater. Peculiarly, the bee-keeper is not the one who receives the greatest financial profit from the keeping of bees, for the honey-bee is one of the most beneficial insects in cross pollination of fruit and forage crops and is by far the most dependable of all insects which perform the necessary function.”

Dr. W. J. Nolan, Apiculturist to the U. S. A. Government, Division of Bee Culture, in his article on Bee Breeding (1937) states that

“The public is also directly affected by the breeding problem, not merely from the standpoint of being insured an abundant supply of honey, but from the more important standpoint of having bees that will function as efficiently as possible in the pollination of many of our crops. For example, clover crops, which are so fundamental in the dairy and livestock industries, apples and other fruits and truck crop in greenhouses are now more or less wholly dependent on the efforts of the honey-bees.”

The following is an extract from the American Bee Journal, October 1937 :—

“Now comes Prof. F. B. Paddock in the recently issued report of the State Apiarist, for 1936, to tell of some experimental work which attempted to learn the facts. In this particular case where a check was made of yields under similar conditions with and without bees it was found that for every dollar the bee-keeper received in the form of honey, the fruit grower received fourteen in the form of fruit.”

The importance of bee-keeping in India is stressed by Dr. Pruthi, Imperial Entomologist, Government of India who estimates that today India is losing 90 per cent. of the possible honey crop by not rearing quantities of bees.

Mr. R. N. Muttoo, Honorary Editor, The Indian Bee Journal has remarked as follows :—

“It is obvious that an extension of bee-keeping in India would not merely give us an abundant supply of honey which is at present going to waste for lack of gatherers, but would greatly improve the yield from agriculture and horticulture.”

From the foregoing it is clear that not only is there scope for the development of the industry in the Province but apiculture is essential for the proper development of agriculture and horticulture.

2. The present position of the industry is as follows :

A few hundred people have lately taken to bee-keeping in North Kanara and there is a fairly large apiary in Mahableshwar. The industry is carried out at Malcum Peth on a commercial scale and at Pratap Gadh on a co-operative basis.

Honey from different flowers has different properties. For example the *pisa* flower gives honey rich in calcium and iron; rose gives honey rich in glucose; *jambul* honey is said to be beneficial to diabetic people, while *gela* honey can be used as a general tonic. Therefore, honey collected in the different flower seasons is kept and sold separately in Mahableshwar.

The Honavar Bee-keepers Co-operative Society was founded about six years ago and good progress has been made by it. Two co-operative societies of bee-keepers have also been formed at Bhatkal and Kumta.

The following table shows the progress made upto the end of 1945 :—

Period.	Villages	Bee-keepers.	Colonies.	Yield of honey. (in lbs.)
30th June 1940	2	34	46	73
30th June 1941	7	52	130	580
30th June 1942	19	133	415	2,295
30th June 1943	39	356	1,038	4,596
30th June 1944	77	649	1,540	8,543
30th June 1945	112	783	2,129	13,722
30th November 1945	132	913	2,485	17,280

The average number of hives owned by a bee-keeper is 2.7 but the number of persons who have kept over 10 hives is fairly large.

The average yield of honey per hive was over 6 lbs. in the year 1944-45 but the maximum reached was 46 lbs.

The average income of a bee-keeper is estimated at Rs. 22 per year although in many cases the income exceeded Rs. 100 in 1944-45. The income derived in four or five cases was Rs. 800 in 1944-45.

The functions of the Co-operative Society are as follows :—

1. Supply of boxes and other bee-keeping material to the members at cheap price.
2. Loan of boxes to the members under the hire-and-purchase system.
3. After-care of bees.
4. Extraction, filtering and ripening of honey produced in the hives.
5. Marketing of honey.
6. Giving technical advice and assistance to the members.

The following staff and organisation was necessary for making the bee-keeping scheme in North Kanara a success.

- 1 Superintendent of bee-keeping.
- 3 Supervisors for the 3 divisions consisting of the two Talukas of Kumta, and Honavar and the Petha of Bhatkal.
- 21 Fieldmen including 6 fieldmen provided by Government.
- 1 Clerk.
- 4 Menials.

It is the function of the supervisors and fieldmen to train the bee-keepers, explain to them how to keep hives free from disease and ravages of the wax-moth and to provide fresh bee colonies.

On the coastal region, bees of the domestic type (*apis indica*) are reared in wooden boxes or hives with brood and honey chambers fitted with removable wooden frames. The queen bee resides in the brood chamber where alone the pollen, eggs, larval and pupa are deposited. The bees construct honey combs inside the frames. The frames in the brood chamber are not interfered with even though they contain honey to the extent of 40 per cent. When ripe for extraction, the frames in the honey chambers are removed after gently blowing the bees away and the contents thereof which consist of honey are forced out from the cells in a small hand-operated centrifugal machine. The machine costs from Rs. 10 to Rs. 20 and can be easily made in the village. One such unit suffices for about 50 bee-keepers. The wax of the comb remains intact in the process and is returned to the bees. No destruction of bee life is occasioned at any of the stages. The honey is pure and need not be touched by hand.

There is hardly a habitation on the coastal region without its cocoanut garden. The cocoanut trees blossom all the year round. Their flowers are rich in pollen and contain some quantity of nectar as well. Betel-nuts, plantains, mangoes, drum-sticks and soap-nuts are also found plentiful in the gardens. They flower by turns. This and the good rainfall in Kanara makes it a very suitable place for the development of the industry.

Bee-keeping has not been developed to any extent in the above-ghat areas. Experiments made some time ago showed that the conditions obtaining in the above-ghat areas were suitable only to the bees having migratory habits but were unsuitable for the *apis indica*. Production of honey although it lasts for only three months is very much more intensive. The bees i.e. both the *apis indica* and the wild bee or the *apis dorsata*, have been producing honey for generations in the log hives and, therefore, there is a field for research for developing this industry even on the ghats.

3. According to Mr. S. K. Kallapur's estimate it should be possible to increase the colonies in the North Kanara District from 3,000 to 10,000 in the next few years, providing work for about 4,000 people. There is a scope in the next 5 or 6 years for also introducing about 3,000 colonies in each of the Districts of Ratnagiri and Kolaba in the same manner as was done in the past six years in North Kanara. Assuming that 6 lbs. of honey are obtained from each hive per year, about 100,000 lbs. of honey valued at about Rs. 1½ lakhs can be produced after the industry is developed as suggested above.

A beginning may be made in the Nasik and Satara Districts. Nasik has a large forest area and bee-keeping may be tried out at Trimbak, Vani, Chankapur and Mulher. There is a scope for bee-keeping on a co-operative basis at Helwak in Patan Taluka and also in Javli Taluka in the Satara District.

Fruit Preservation.

A variety of fruits is grown in the Province of Bombay, the total area under fruit being about 80,000 acres. A statement showing the area under fruit in the different districts of the Province, in 1934-35 and 1944-45 is appended hereto. It will be seen that the principal fruits are mangoes, bannanas, oranges and sweet-limes. The area under mangoes has increased by over 45 per cent. in the past ten years and that of citrus fruits by over 150 per cent. The soil in the Ahmednagar, East Khandesh and Poona Districts is particularly suited for citrus fruits. The Districts of Surat, Ratnagiri, Thana and Dharwar are famous for the best type of mangoes. There are good possibilities of extensively increasing the area of these important fruits and the scope for the development of the fruit preservation industry is proportionately considerable.

It is understood that a large quantity of fruit goes to waste particularly at times of glut. Much of it rots in the markets and the gardens with heavy loss to the growers.

It is reported that about 5 per cent. of the citrus fruit is wasted due to injury to the fruit in picking, worn pest or due to being excessively sun-dried. Mangoes are generally spoilt when stored for ripening and such waste is estimated to be 8 to 12 per cent.

The President of the Southern Gujerat Fruit and Vegetable Growers' Association Ltd., who was consulted states, as regards mangoes, as follows :—

“ I have to state that uptil now no wastage has been experienced in case of graft mangoes, but it can be apprehended in future when there be a normal yield. The yield uptil now is below normal for the last seven years.

In case of country mangoes the percentage of wastage is nearly 40 per cent. as the fruit is cheaper and its market realization leaves little margin for the growers against railway freight and other labour charges.”

A good deal of wastage of the better varieties of fruit, at present, is due to inadequate transport facilities.

Fruit preservation will, therefore, not only do away with the waste but will provide employment to a large number of people and at the same time provide food for thousands of people in season and out of season.

A statement showing the imports of bottled or canned fruits, jams and jellies, pickles, chutnies, etc. in the pre-war years, is appended hereto, from which it will be noted that about Rs. 25 lakhs worth of these products were imported into India, the 'share' of Bombay being as much as Rs. 7 lakhs. This proves the scope of the industry.

Opinion is divided as to whether the industry should be on a large scale or on a cottage or small scale. Mr. N. Y. Keshalkar of the Madhu Canning Company is of opinion that only large scale factories should be established as it may not be possible to press and preserve fruit in villages under hygienic conditions. On the other hand he thinks that until such time as a sufficient number of large scale factories can be started, it would be practicable to press fruit in the locality, where it is grown, and after adding preservatives, such as sodium meta-bisulphite if necessary, send it in barrels to central small scale factories run on co-operative lines for further treatment and for bottling or canning. Mr. N. G. Apte is a strong

advocate for establishing the industry on a cottage basis. It appears that with proper organisation and training small scale units could be established for preserving fruit pulp and juices of such fruits as mangoes, sweet-limes, oranges, etc.

The equipment required for the preservation of fruit is simple and inexpensive.

2. There are several large factories in the Province for canning fruit pulp and bottling fruit juices. Fruit preservation on a small scale has yet to be successfully attempted.

3. The Sub-Committee proposes that as an experimental measure Government demonstration centres should be started immediately in the Surat, Ratnagiri, Ahmednagar and East Khandesh Districts to train fruit growers in producing mango pulp and citrus fruit juices.

Citrus Fruit.—A small centre can be opened at Rahuri in the Ahmednagar District and demonstration units could operate in the neighbouring fruit growing areas. The fruit should be pressed, strained and filtered and the juice filled in barrels. These barrels, after putting therein a little preservative, if necessary, could be sent to the central small scale factory for further treatment, bottling or canning. Sugar is available in the District and 'crushes' can be prepared. A supply of bottles and cans will have to be arranged for. The central factory should be equipped with stills for producing essential oils from rinds. Ultimately a co-operative society can be established at the demonstration centre.

Mangoes.—Demonstration centres may be started in the Surat and Ratnagiri Districts. In Surat District, suitable centres are Bulsar, Pardi, Rankuwa and Amalsad. Mango pulp should be prepared and canned.

The juices of 'raival' mangoes should be bottled after using syrup or, if necessary, preservatives. If the centres operate successfully, co-operative societies should be established, particularly, for utilising 'raival' mangoes for preparing the juice.

4. Students may be admitted for training in the preparation of jams, jellies, chutnies, pickles, etc. at the centres. There is a scope also for the preparation of crystallized fruits which can be done at the centres.

Mr. Keshalkar of the Madhu Canning Company believes that there is a scope for six additional fruit canning or bottling factories each of a capacity of about 15 tons per day, in the Province. In the next 5 or 10 years, therefore, there is scope for starting many small scale factories operating on a co-operative basis if the proposed centres are successful.

There is already a factory in the Nasik District bottling tomato juice which is supplied to the Military. Efforts should be made to establish co-operative societies for producing tomato juice and sauce.

Area (in acres) under fruit trees in Bombay Province (1934-35 and 1944-45).

NO-1 Bk Qc 6-6

District.	Plantains.		Mangoes.		Limes.		Sweet-Limes.		Oranges.		
	1934-35	1944-45	1934-35	1944-45	1934-35	1944-45	1934-35	1944-45	1934-35	1944-45	
<i>Gujera:</i>											
Ahmedabad	25	87	680	580	194	152	...	.....	.....	.....
Kaira	52	490	245	301	380	324	...	.....	.....	20
Broach	78	47	296	513	13	15	30	.....	.....	.....
Panch Mahals	.....	19	.....	18	...	28	...	.....	.....	.....
Surat	581	917	2,714	8,932	11	13	...	.....	.....	.....
<i>Deccan:</i>											
West Khandesh	747	744	127	211	41	35	...	178	67	188	
East Khandesh	5,250	8,033	46	138	160	300	265	2,165	988	2,394	
Nasik	491	203	1,009	568	281	259	...	.....	32	333
Ahmednagar	651	324	237	324	513	522	2,729	994	617	8,783	
Poona	1,972	1,556	43	163	491	388	...	5,120	1,808	1,486	
Sholapur	1,774	538	116	55	422	147	...	.....	113	15
Satara	1,990	903	72	87	117	92	202	379	.....	371
<i>Karnatak:</i>											
Belgaum	1,401	1,119	438	760	171	176	...	.....	.....	5
Bijapur	1,631	841	230	327	79	178	25	12	.....	7
Dharwar	624	354	1,615	1,272	35	181	...	6	.....	3
<i>Konkan:</i>											
Thana	2,631	2,581	890	1,183	5	5	...	.....	.....	.....
Bombay Suburban	11	6	1,838	1,842	...	...	...	.....	.....	.....
Kolaba	30	104	605	764	4	8	3	.....	.....	.....
Ratnagiri	521	670	5,694	7,215	...	...	...	.....	.....	.....
Kanara	3,892	3,607	1,382	1,489	...	2	...	.....	.....	1
Total	24,352	23,143	18,247	26,743	2,917	2,825	2,254	8,854	3,625	13,606	

District.	Pomegranates.		Guava.		Papaya.		Tomatoes.		Miscellaneous	
	1934-35	1944-45	1934-35	1944-45	1934-35	1944-45	1934-35	1944-45	1934-35	1944-45
<i>Gujerat—</i>										
Ahmedabad	553	279	625	.....	194	520	37	304	1,650	.....
Kaira	36	1	212	260	118	284	...	23	94	.....
Broach	50	4	439	395	174	81	66	93	38	33
Panch Mahals	.....	.....	.....	57	...	30	...	9	113	48
Surat	.....	.....	62	75	...	...	266	207	.....	.....
<i>Deccan—</i>										
West Khandesh	6	12	181	264	41	21	...	14	118	4
East Khandesh	5	.....	1,124	1,025	145	58	20	55	117	.....
Nasik	12	25	712	763	264	85	573	1,108	975	.....
Ahmednagar	205	278	441	589	391	157	22	104	68	44
Poona	820	230	843	550	263	237	177	467	155	486
Sholapur	129	91	257	205	83	6	...	.....	2	1
Satara	327	237	776	533	...	...	7	25	103	8
<i>Karnatak—</i>										
Belgaum	23	18	634	232	...	...	8	165	37	40
Bijapur	45	54	126	131	...	...	...	4	111	64
Dharwar	35	20	545	638	...	...	...	.....	22	2
<i>Konkan—</i>										
Thana	.....	.....	9	61	8	4	54	48	202	4
Bombay Suburban	.....	.....	.....	.....	...	...	...	.....	66	.....
Kolaba	.....	.....	7	2	...	...	2	.....	52	27
Ratnagiri	.....	.....	.....	.....	...	...	...	.....	83	30
Kanara	.....	.....	10	5	...	...	...	.....	367	466
Total	2,246	1,249	7,003	5,785	1,631	1,493	1,232	2,626	5,671	1,206

Statement showing Imports of Bottled or Canned fruits, Jams and Jellies, Pickles, Chutnies, Sauces, Condiments, into India in the pre-war (1934-35 to 1939-40) period.

NO-1 Bk Qo 6-60

	Quantity in cwts.					Value in lakhs of rupees.				
	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
<i>Canned or Bottled Fruits—</i>										
India	43,287.	44,857	46,625	43,881	40,131	11,23,025	10,16,393	12,11,598	10,09,313	10,39,783
Share of Bombay ...	11,607	10,966	15,516	16,338	15,312	2,57,953	2,28,463	3,48,651	3,20,643	3,55,414
<i>Jams and Jellies—</i>										
India	20,019	20,821	18,561	18,227	21,675	7,02,599	7,31,887	6,64,847	6,66,611	7,62,954
Share of Bombay ...	6,002	5,851	6,328	6,884	7,917	1,91,720	2,02,168	2,21,852	2,31,156	2,87,454
<i>Pickles, Chutnies, Sauces and Condiments—</i>										
India	10,815	11,446	8,435	8,507	9,766	7,22,116	7,19,882	6,21,675	5,91,122	7,21,339
Share of Bombay ...	1,706	1,846	2,217	2,710	2,937	1,36,348	1,35,023	1,61,103	1,70,810	2,20,815

Gur.

The manufacture of gur or jaggery is an important cottage industry as it is produced on a cottage scale in most of the sugar-cane growing villages in India and thousands of people are engaged in producing it.

India is the largest sugar-cane growing country in the world.

During the pre-war years sugar-cane to the extent of 17 to 18 per cent. of the total sugar-cane crop was utilised for the manufacture of sugar and about 19 to 20 per cent. was used for miscellaneous purposes like the manufacture of Khandesari Sugar, Juice, chewing, setts for planting, etc., the remaining 62 to 64 per cent. being available for the manufacture of gur. A statement showing the percentage of cane used for different purposes, in India, is appended hereto. The percentage of cane for the manufacture of sugar has since gradually increased to about 25 per cent. with the corresponding decrease in the amount of sugar-cane available for the manufacture of gur.

Although the quantity of gur, produced in India is three times the quantity of refined sugar produced, the methods of production of this enormous quantity (about 3½ million tons) are crude. Hand or bullock operated roller mills have generally replaced the old pestle and mortar type of mills made of stone or wood. In a few cases only, modern two roller and three roller mills, driven by oil engines, are installed. Although appreciable improvements have been made in furnaces and pans, in essentials, the process is still orthodox as has been the case for years past, viz. the fresh cane-juice is boiled down to a solidifying point in open pans, after which a certain amount of clarification takes place during the process. Ordinarily one or two pans are used for boiling but in places where high class gur is produced as many as 12 are arranged in a series.

The sugar consumption, in countries such as U.S.A., U.K. and Australia is approximately 100 to 120 lbs. per head per annum. Compared with this, the consumption of sugar in the Province of Bombay is 15 to 20 lbs. per head and that of gur is 14 to 15 lbs.

According to Dr. Akroyd 2 ozs. of sugar and/or gur are essential in a daily balanced diet. On this basis, the per head consumption of sugar and/or gur should be about 46 lbs. per annum.

The foregoing shows that there is a considerable scope not only for increasing the production of sugar and gur in the Province but also for improving the methods of production so that the yield and quantity may also improve.

2. Bombay Province comes third after the U. P. and Bihar in the manufacture of sugar and fifth in the manufacture of gur as U. P., Bengal, Madras and the Punjab comparatively manufacture more gur.

Compared with the sugar consumption of 7 to 8 lbs per head in the whole of India, that in the Province of Bombay is 15 to 20 lbs. per head per annum. The per head consumption in the Bombay Province stands next to that in Delhi. The per head consumption in the urban areas in the Bombay Province is as high as 81 lbs.

The per head consumption of gur in the Province is 14 to 15 lbs., compared with that of 53 lbs. per annum in the United Provinces, which is the highest in India.

The acreage under sugar-cane and its production in the different Districts of the Province are given in the statement appended hereto. Out of the production of 4,081,930 tons of sugar-cane (1944-45), about 725,776 tons were crushed by the 11 factories in the Province for the manufacture of sugar. Leaving about 24 per cent. aside for miscellaneous uses, the quantity available for the manufacture of gur is about 2,326,491 tons. The average production of gur in the Bombay Province is about 200,000 to 250,000 tons. The principal gur producing centres in the Province are given in the statement appended hereto.

A rough estimate of the production and consumption of gur, district by district is given in the statement appended hereto, which indicates that only the Deccan Districts and Belgaum have a surplus production of gur; the rest of the Districts, have deficit production, and have to depend for the supply of gur either on these Districts or on other Provinces—the U. P. and Bihar.

The information regarding the transport of gur is very scanty, since the figures for imports and exports of gur by rail or sea, from Provinces and States are not separately available, but are mixed with those for molasses, rab etc. It is however, believed that Bombay Province is a deficit Province as regards both sugar and gur so that these commodities require to be imported from the U. P. and/or Bihar. At the same time it is paradoxical that Bombay exports its best varieties of gur to distant places such as Bengal, and other varieties to the C. P., Berar, Hyderabad Deccan etc.

3. Although refined sugar can now be made at fairly low prices on a large scale, by modern factory methods of production, it is remarkable that gur is still produced and consumed in large quantities in India. It was expected that with the increase in the purchasing power of the people, the larger use of tea and the substitution of sugar for gur in sweetmeats, the consumption of gur would decrease. This, however, has not happened, due to the rationing of sugar and control of sugar prices in war time (the control on gur prices, etc., having begun only recently) and partly due to gur being preferred by many people on account of its flavour.

As stated above, there is, therefore, a considerable scope for the development of and improvement in the gur industry. Many of the installations in the villages are inefficient as a considerable quantity of juice even as much as 20 per cent. of the total quantity is left behind in the bagasse. The crude and uncontrolled methods of boiling the juice also depreciate the preserving qualities of gur.

It is, therefore, suggested that the following steps should be taken during the next 5 or 10 years :—

(1) For the purposes of increasing the production of gur in the different parts of this Province, the cultivation of sugar-cane may be encouraged in addition to food-grain crops, even in non-irrigated areas. This may be done by establishing village co-operative societies and installing pumping stations along the river banks and for supplying water from wells.

(2) Efficient mill equipment may be installed for crushing sugar-cane. Certain types of sugar-cane cannot be crushed efficiently in hand-operated mills and also from the point of view of economy, it is essential to install power-driven mills.

(3) Arrangement should be made for neutralization and clarification of juice for instance by means of Fullers earth.

(4) Evaporating pans of improved design should be used to prevent juice being caramalised.

Statement showing the percentage of cane used for different purposes, in India.

(Abstracted from the "Sugar Industry at a Glance", 1944)—by Mr. M. P. Gandhi.

	1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44
Cane used in factories ...	17.6	17.8	16.2	27.7	19.1	21.2	25.0	25.0
Cane equivalent to gur used in gur refineries. ...	0.5	0.5	0.5	0.9	1.4	1.4	1.0	1.0
Cane used for gur manufacture ...	64.9	62.0	64.0	51.4	57.7	53.4	50.0	50.0
Cane used for other purposes including khandesari, chewing, setts for planting, etc. ...	16.9	19.7	19.3	20.0	21.8	24.0	24.0	24.0
	100	100	100	100	100	100	100	100

*Statement showing the area under Sugar-cane and production of Sugar-cane
in Bombay Province.*

District	Area in acres.		Production of sugar-cane in tons.	
	1941-42	1945-46	1941-42	1945-46
<i>Gujerat—</i>				
Surat	3,388	1,839	47,640	38,310
Other Gujerat Districts	608	1,000	9,500	17,860
<i>Deccan—</i>				
Nasik	12,998	12,209	338,470	327,030
Ahmednagar	37,037	42,541	1,157,410	1,820,020
Poona	14,598	15,073	347,550	448,600
Sholapur	11,900	9,206	247,890	376,730
Satara	8,021	7,659	156,660	219,400
Other Deccan Districts	2,179	2,800	32,420	52,080
<i>Karnatak—</i>				
Belgaum	15,374	17,163	360,330	459,720
Bijapur	708	763	11,420	11,920
Dharwar	2,661	2,485	68,330	51,770
<i>Konkan—</i>				
Kanara	2,986	3,135	59,980	55,980
Other Konkan Districts	943	700	12,630	10,420
Total British Districts...	113,401	116,573	2,850,230	3,889,840

Principal Gur producing Centres.

District.	Centre.
SURAT	... Amalsad.
POONA	... Baramati, Nira.
AHMEDNAGAR	... Kopergaon, Belapur.
NASIK	... Malegaon, Lasalgaon.
SATARA	... Krishna Canal area.
BELGAUM	... Nipani, Gokak.
SHOLAPUR	... Akluj, Natepute.

Statement showing estimated production and consumption of gur in the various Districts of Bombay Province.

District.	Estimated production of gur in tons. (Average for 1943-44 to 1945-46)	Estimated consumption of gur in tons. (1944-45)
Bombay City and Bombay Suburban District	.....	15,775
<i>Gujerat—</i>		
Ahmedabad, Kaira, Broach & Panch Mahals	917	40,775
Surat	3,587	11,639
<i>Deccan—</i>		
East Khandesh	3,026	30,128
West Khandesh	}	
Nasik	22,586	15,512
Ahmednagar	1,07,362	16,347
Poona	27,294	17,588
Sholapur	18,030	12,962
Satara	16,599	19,045
<i>Karnatak—</i>		
Belgaum	34,097	17,352
Bijapur	758	13,706
Dharwar	4,030	15,013
<i>Konkan—</i>		
Kanara	}	0,094
Ratnagiri	}	
Kolaba	5,386	43,278
Thana	}	
	243,672	276,094

Vegetable Oils.

India has been one of the five biggest oil-seed producing countries in the world. The annual production of the principal oil-seeds in India in the pre-war years was about 8 million tons. In the "Oilseed Trade of India" by J. C. Bahl, the following is mentioned :—

".....Indian oil-seeds, on the whole compare well with those produced in other countries and in some cases, viz., copra and linseed, represent the best grades on the market. Indian seeds being generally of a good quality have met with wide recognition in the international markets where Germany, France, Italy, the United Kingdom and other oil-seed crushing countries are the principal purchasers. Indian seeds have been, so long, eagerly sought after in the world's markets, and in the case of castor seed, jowra seed and niger seed, India holds a virtual monopoly."

The oil-seeds are an important factor in Indian agriculture.

The principal seeds produced in the Province of Bombay in their order of importance are—

Groundnut	Linseed,
Safflower (or <i>Kardi</i>),	Niger and
Sesamum (or <i>Til</i>),	Castor.

A statement showing the area under oil-seeds in the Province of Bombay is appended hereto. An estimate of the production of the different oil-seeds is as follows :—

	tons.
Groundnut	531,718
Sesamum	12,761
Linseed	6,867
Castor	7,521
Rape and Mustard	2,228
Safflower	62,736
Niger	7,637
(Cocoanut)	28,044

The oil-contents of the various oil-seeds are as follows :—

	per cent.
Linseed	37 to 43
Groundnut	45 to 50
Rape and Mustard	42 to 45
Sessamum	47 to 50
Castor	40
Cotton	18 to 19
(Copra)	(50 to 70)

On the assumption that the entire oil-seeds produced in the Province are crushed, the production of oil and cake would be as given in the following table :—

	Acreage	Production of oil seeds (tons).	Production of oil (tons)	Production of cakes (tons).
Ground-nut	525,293	531,815	228,680	303,135
Linseed	77,087	6,867	2,747	4,120
Rape and Mustard	11,082	2,228	629	1,599
Sesamum	123,279	12,761	5,744	7,019
Castor	53,217	7,521	3,069	4,512
Safflower	465,070	62,736	15,684	47,052
(Copra)	28,044	9,660	6,000	3,000

Statements showing the export from and import into India and the 'share' of Bombay, of various oil seeds, oils and cakes are appended hereto.

Large quantities of vegetable oil have always been used for edible and lighting purposes. Various products such as 'vanaspati' soap, paint-oil, lubricants and vegetable tallow are manufactured in large quantities from these important raw products.

For centuries oil seed has been crushed in India in village 'ghanies' driven by bullocks. Even to-day thousands of such country 'ghanies' are being operated to provide oil in villages. However, with the advent of such machinery as hydraulic presses, expellers and the mechanically operated rotary 'ghanies', the oil produced by the village 'ghani' is now a small fraction of the total produced by such machinery.

There are advantages in continuing with this cottage industry but there are drawbacks also in the use of the 'ghani'.

The 'ghani' gives employment to several thousand telies. The teli population in 1941 was 141,100 in the Province. It is, however, estimated that the total number of 'ghanies' in operation is only 3,000. By crushing seeds in the village, it is possible to retain there such important by-products as cakes and husks. Thus, important manure, cattle-feed and fuel would be available for use by agriculturists, with considerable improvement in rural economy.

On the other hand, crushing of such oil seed as ground-nut in 'ghanies' is inefficient and uneconomical compared with production of oil by means of up-to-date machinery. Ghani cake (ground-nut) contains as much as about 14 per cent. oil, whereas expeller cake (ground-nut) has only 8 per cent. Therefore, for every 100 tons of seed crushed, 1 tons of oil are lost by the 'ghani' method. If ground-nut is crushed in 3,000 'ghanies' of the improved Haskell type, instead of in expellers, it is estimated that about 4,000 tons of oil per year would be lost in the cake. At annas 8 per lb. the loss runs into several lakhs of rupees. Further the higher oil content of the 'ghani' cake considerably reduces its value as manure as the soil gets soaked with oil in due course of time.

Until such time as the village can be adequately served by the large scale industry and the unemployment solved, it is necessary to assist this village industry and

put it on a proper footing. Also the oil 'ghani' is very suited for crushing certain oil seeds. In the 'Oilseed Trade of India', the following is stated :—

“ Bullock-driven country ghanis give very good results with niger seed, copra, sesame seed, and kardi seed. They do not appear to be equally efficient in dealing with groundnuts. From the economical point of view they must be considered as wasteful, as a large part of the oil is left in the cakes. However, these ghanis cannot be done away with entirely as they are quite essential in small villages where the local consumption is very small and where these equipments provide means of livelihood for small families”.

Due to cheap expeller oil from ground-nut, the use of Til and 'Kardi' oils (which were very much in demand at one time) for edible purposes has been reduced. There is, therefore, a scope for producing these oils on a cottage basis, if protection is given to the 'telies.'

2. The present position of the industry is as follows :—

There are about 216 oil mills installed and operating in the Province. The location of these mills is shown in the statement attached hereto.

About 3,000 country or 'kulu' ghanies are found all over the Province.

In order to improve the condition of the teli, the Government of Bombay sanctioned the 'Village Oil Industry Scheme' for the introduction of the improved Haskell type of 'ghani' in villages and supplying such 'ghanies' to hereditary telies at concession rates. Whereas the crushing capacity of the country 'ghani' is only 100 lbs. seed per day, that of the Haskell type 'ghani' is 200 lbs. The tractive effort of the bullock is also reduced. The number and location of Haskell ghanies so far introduced by the Department are shown in the statement appended hereto.

The Government of Bombay have sanctioned the manufacture of 100 more 'ghanies' for 1946-47.

The Department of Industries has recently experimented with, and produced, a "ghani" which can be operated either electrically or by bullock. This will be of great use when electricity is available in villages.

3. It is proposed that in the next five or ten years the existing inefficient country 'ghanies' should be replaced by the improved type of "ghanies" designed by the Department of Industries. Further, the telies in villages having a population of 1,000 and over, should be induced to take up the improved type of 'ghani' and, if possible, to form co-operative societies, wherever possible.

It is further proposed that parity between the prices of mill and 'ghani' oils for edible purposes should be maintained by Government for assisting the Cottage Industry. If the price of ground-nut oil is maintained at a higher level than that of other edible oils, the teli will take to crushing more of sesamum (*Til*), safflower (*Kardi*), and niger, which are available in practically every part of the Province where ground-nut is available.

Cocoanut oil is used for edible purposes in the Konkan and in order to increase its supply it is suggested that the area of cocoanut should be increased.

In future, the policy of Government is likely to be to encourage the installation of expellers more in the District towns than in the cities. Ground-nut cake with a minimum oil content will thus be available for the agriculturist, freight for transporting seeds to the cities and returning the cake to the interior will be reduced and the husk will be retained for use as fuel by villagers. The only difficulty will be about the transportation of surplus oil. It is proposed that tank waggons be put in service to transport oil to the cities either for manufacturing different products from it or for export.

Statement showing area (in acres) under Oil Seeds in the Bombay Province.

(1937-1938 and 1944-1945)

District.	Groundnut.		Sesame (Til).		Linseed.		Castor.		Rape and Mustard.		Safflower.		Niger.		(Cocoanut).	
	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45
<i>Gujarat</i>																
Ahmedabad ...	71,278	35,990	21,324	31,984	93	8	5,613	14,743	17,033	7,932	...	1,611	...	...	...	...
Kaira ...	55,973	23,921	8,560	13,220	98	...	5,464	7,707	146	60	7	...	...	...	...	...
*Broach ...	...	3,871	...	12,975	...	...	...	4,059	...	159	...	...	...	...	...	...
*Panch Mahals ...	90,457	66,537	27,758	4,161	82	...	4,835	4,508	241	151	...	...	1,972	...	...	...
Surat ...	6,760	1,797	1,098	1,258	...	...	7,647	4,741	102	204	...	...	...	2	3	27
<i>Deccan</i>																
West Khan- desh.	104,341	200,024	13,336	1,773	2,438	10,607	10,066	8,326	660	731	...	...	8,370	6,387	...	...
East Khandesh	325,513	347,261	8,554	6,198	937	750	267	190	39	175	...	967	102	...	...	...
Nasik ...	41,855	142,959	8,178	4,748	21,857	4,196	676	439	1,253	1,471	5,221	...	...	...	...	...
Ahmednagar ...	25,077	43,620	19,016	11,693	25,019	5,383	133	207	56	139	135,370	122,621	...	8,932	...	...
Poona ...	27,713	24,999	6,048	1,784	661	481	15	7	31	45	84,388	71,726	18,683	11,703	...	...
Sholapur ...	108,649	90,900	5,474	7,170	7,434	3,246	852	744	...	...	107,535	87,545	...	...	...	...
Satara ...	218,988	174,742	305	336	2,226	1,286	206	95	...	...	29,629	21,299	4,948	4,066	13	7

*The figures for 1937-38 are for the combined district of Broach and Panch Mahals.

District.	Groundnut.		Sesame (Til).		Linseed.		Castor.		Rape and Mustard.		Safflower.		Niger.		(Cocoanut).		
	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	1937-38	1944-45	
<i>Karnatak—</i>																	
Belgaum	...	96,193	142,124	2,194	1,348	3,721	3,700	733	885	109	...	38,311	25,733	2,848.	1,634	6	5
Bijapur	...	89,377	132,996	9,138	12,721	36,829	33,849	1,680	1,083	...	...	91,545	77,833	2,254	3,709	9	...
Dharwar	...	81,435	93,146	7,279	8,132	10,491	13,477	3,639	5,251	...	309	50,172	55,735	5,829	5,316	446	397
<i>Konkan—</i>																	
Thana	...	13	18	1,087	1,021	...	...	268	182	1	1	...	...	4,621	4,479	313	321
Bombay Sub-urban	774	590
Kolaba	2,557	2,454	...	...	7	23	...	...	...	...	889	963	1,154	1,014
Ratnagiri	...	165	125	13,597	242	...	...	...	...	...	...	...	...	3,611	13,251	13,242	10,423
Kanara	...	193	273	72	82	7	7	25	25	...	...	1	...	67	18	11,045	11,686
Total	...	1,343,930	1,525,373	155,584	23,300	111,893	77,080	42,126	53,215	19,671	11,538	542,179	465,070	54,194	60,400	27,605	25,070

Ground Nut.
Imports and Exports.

	Quantity.					Value.				
	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
<i>Groundnut Seed Imports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	1	15	209	96	104	683	1,981	29,670	14,228	17,689
Share of Bombay ... ..	.....	13	.....	.....	.....	.....	1,186	.....	.....	.....
<i>Groundnut Seed Exports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	412,567	739,483	619,370	835,103	548,564	6,65,10,263	12,28,57,494	8,93,29,631	9,92,72,141	7,19,01,488
Share of Bombay	80,240	100,803	53,619	68,924	76,071	1,26,07,634	1,67,90,477	91,14,334	99,46,883	1,19,91,352
<i>Groundnut Oil Imports—</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	1,664	1,355	115,511	37,185	8,551	2,709	1,997	1,13,901	38,816	9,415
Share of Bombay	437	12	241	90	.....	669	20	343	167	.....
<i>Groundnut oil Exports—</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	290,803	427,740	2,317,102	3,887,675	3,926,685	3,94,175	5,64,587	33,65,608	48,13,754	51,59,304
Share of Bombay	263,100	312,978	606,342	822,120	761,700	3,63,369	4,02,780	9,40,250	11,05,479	12,99,065
<i>Ground Nut Cake Imports—</i>										
India ... ..	.....	.....	.....	.....	.....
Share of Bombay ... ..	.....	.....	.....	.....	.....
<i>Groundnut Cake Exports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	194,238	237,760	251,576	365,147	232,095	1,16,30,320	1,64,33,687	1,74,86,441	2,40,65,487	1,53,71,270
Share of Bombay	93,703	113,229	161,037	224,562	138,833	61,59,096	82,11,600	1,17,72,000	1,51,37,113	96,62,454

Linsced.

Imports and Exports.

	Quantity.					Value.				
	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
<i>Linseed Seed Imports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India ... ..	.....	.....	5	24	5	47	.....	553	2,104	429
Share of Bombay ... ..	.....	.....	5	24	5	43	.....	553	2,104	429
<i>Linseed Seed Exports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	161,743	293,034	226,533	318,344	219,212	2,20,62,178	4,35,41,101	3,56,79,985	4,40,45,275	3,17,60,946
Share of Bombay	75,566	169,607	100,117	177,717	94,034	1,02,23,493	2,53,75,451	1,58,43,352	3,56,01,171	1,39,58,767
<i>Linseed Oil Imports—</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	133,311	143,518	114,564	115,932	61,169	3,27,118	3,54,854	2,91,011	2,95,418	1,87,647
Share of Bombay	102,653	103,585	89,191	83,442	47,451	2,54,848	2,76,911	2,45,763	2,26,264	1,49,506
<i>Linseed Oil Exports—</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	77,836	135,322	263,224	264,051	903,293	1,26,902	2,27,755	4,35,998	4,38,743	10,07,981
Share of Bombay	1,370	6,828	33,324	53,856	218,016	2,479	13,351	55,550	65,450	4,37,539
<i>Linseed Cake Imports—</i>										
India ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Share of Bombay ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Linseed Cake Exports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	71,774	50,194	47,003	31,436	29,555	43,93,826	34,51,280	32,41,075	22,17,233	20,82,889
Share of Bombay	16,588	13,591	8,789	3,022	6,602	10,46,020	9,83,036	6,40,609	5,67,161	4,82,695

**Rape and Mustard,
Imports and Exports.**

	Quantity.					Value.				
	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
<i>Rape and Mustard Seed</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Imports—</i>										
India ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Share of Bombay ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Rape and Mustard Seed</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Exports—</i>										
India	21,138	40,252	34,432	14,247	24,610	29,85,737	58,46,721	50,81,759	19,98,989	39,42,482
Share of Bombay ...	2,443	2,782	2,483	2,299	2,529	4,82,978	5,53,943	4,87,552	4,02,866	6,10,068
<i>Rape and Mustard Oil</i>										
<i>Imports—</i>										
India ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Share of Bombay ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Rape and Mustard Oil</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Exports—</i>										
India	236,799	252,007	325,117	406,344	337,798	3,44,533	4,94,902	4,83,728	5,70,664	5,04,455
Share of Bombay ...	2,016	2,172	2,300	2,280	3,696	3,002	3,270	4,441	3,834	7,585
<i>Rape and Mustard Cake</i>										
<i>Imports—</i>										
India ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Share of Bombay ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Rape and Mustard Cake</i>										
<i>Exports—</i>										
India ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Share of Bombay ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Sesamum.

Imports and Exports.

NO-II Bk Qc 6-7

	Quantity.					Value.				
	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
<i>Sesamum Seed Imports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	155	.....	583	1,056	2,232	19,493	164	80,652	1,29,098	2,86,868
Share of Bombay ...	62	.....	6	78	38	8,492	.....	481	8,530	7,000
<i>Sesamum Seed Exports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	1,300	14,216	10,126	7,650	3,502	2,69,803	27,15,117	19,18,289	14,80,551	7,48,739
Share of Bombay ...	1,116	12,873	4,453	4,023	1,597	2,36,574	24,99,572	9,51,480	8,83,901	4,35,394
<i>Sesamum Oil Imports—</i>						Rs.	Rs.	Rs.	Rs.	Rs.
India ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Share of Bombay ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Sesamum Oil Exports—</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons	Rs.	Rs.	Rs.	Rs.	Rs.
India	156,025	281,449	251,827	243,434	239,996	2,45,691	5,10,935	3,89,295	3,06,599	3,26,967
Share of Bombay ...	118,325	254,646	172,798	152,364	101,232	1,86,010	4,65,033	2,64,539	1,81,431	1,22,526
<i>Sesamum Cake Imports—</i>										
India ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Share of Bombay ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Sesamum Cake Exports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	20,638	30,434	36,891	15,384	14,213	14,47,836	17,90,694	22,11,735	15,14,111	14,98,353
Share of Bombay ...	.....	557	1	.....	1	.....	34,177	100	.....	62

Castor.
Imports and Exports.

	Quantity.					Value.				
	1935-36	1936-37	1937-38	1938-39	1939-40	1935-36	1936-37	1937-38	1938-39	1939-40
<i>Castor Seed Imports—</i>										
India. ....	.....	.....	.....	.....	.....
Share of Bombay	.....	.....	.....	.....	.....
<i>Castor Seed Exports—</i>										
	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	59,968	43,089	42,079	7,621	40,437	83,14,775	62,97,761	64,09,037	10,05,622	71,18,149
Share of Bombay	31,197	14,998	20,785	2,518	20,605	43,65,552	23,16,412	33,03,260	3,73,617	38,38,141
<i>Castor Oil Imports—</i>										
India ...	.....	.....	.....	.....	.....
Share of Bombay	.....	.....	.....	.....	.....
<i>Castor Oil Exports—</i>										
	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Rs.	Rs.	Rs.	Rs.	Rs.
India ...	1,408,023	1,514,728	1,583,516	1,103,085	1,253,750	21,47,397	22,90,280	24,65,723	17,03,358	23,66,559
Share of Bombay	1,037,476	1,142,152	1,228,278	903,384	942,552	16,54,354	17,97,508	19,66,052	14,59,440	19,17,991
<i>Castor Cake Imports—</i>										
India. ...	.....	.....	.....	.....	.....
Share of Bombay.	.....	.....	.....	.....	.....
<i>Castor Cake Exports—</i>										
	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India ...	1,704	1,698	2,527	1,028	941	71,669	82,771	1,01,638	42,390	54,740
Share of Bombay	887	645	223	54	145	38,322	28,143	13,992	3,015	8,409

Niger.

Imports and Exports.

MO-II-ME Qc 6-7a

	Quantity.					Value.				
	1935-36	1936-37	1937-38	1938-39	1939-40	1935-36	1936-37	1937-38	1938-39	1939-40
<i>Niger Seed Imports—</i>										
India ...	.....	.....	.....	.....	.....
Share of Bombay	.....	.....	.....	.....	.....
<i>Niger Seed Exports—</i>										
	Tons	Tons	Tons	Tons	Tons	Rs.	Rs.	Rs.	Rs.	Rs.
India ...	1,999	2,427	1,570	2,203	3,095	2,42,712	2,95,924	1,65,051	2,54,633	3,66,060
Share of Bombay	346	42	18	22	4	54,892	6,574	2,645	2,987	493
<i>Niger Oil Imports—</i>										
India ...	.....	.....	.....	.....	.....
Share of Bombay	.....	.....	.....	.....	.....
<i>Niger Oil Exports—</i>										
India ...	.....	.....	.....	.....	.....
Share of Bombay	.....	.....	.....	.....	.....
<i>Niger Cake Imports—</i>										
India ...	.....	.....	.....	.....	.....
Share of Bombay	.....	.....	.....	.....	.....
<i>Niger Cake Exports—</i>										
India ...	.....	.....	.....	.....	.....
Share of Bombay	.....	.....	.....	.....	.....

Cocoanut.

Imports and Exports.

	Quantity.					Value.				
	1935-36.	1936-37.	1937-38.	1938-39.	1939-40	1935-36.	1936-37.	1937-38.	1938-39.	1939-40.
<i>Cocoanut Copra or Kernel</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Imports—</i>										
India	45,321	52,181	49,383	46,997	40,261	78,59,763	1,09,58,466	95,67,757	64,66,797	75,87,990
Share of Bombay ...	30,987	26,916	31,075	31,111	30,823	53,89,775	60,67,572	60,97,321	44,41,900	56,07,399
<i>Cocoanut Copra or Kernel</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Exports—</i>										
India	48	38	132	99	106	17,652	15,158	44,883	37,936	37,831
Share of Bombay ...	46	37	98	84	88	16,483	14,128	33,844	30,527	30,047
<i>Cocoanut Oil Imports—</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	8,543,902	7,829,208	6,791,452	6,853,986	10,087,327	90,19,207	91,41,222	78,53,973	54,90,003	1,03,08,328
Share of Bombay ...	76,791	96,281	47,717	116,399	800,719	84,703	1,11,735	58,103	1,20,358	9,19,863
<i>Cocoanut Oil Exports—</i>	Gallons.	Gallons.	Gallons.	Gallons.	Gallons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	32,742	14,411	79,513	72,000	50,557	43,128	22,929	1,31,469	1,13,169	90,260
Share of Bombay ...	5,412	2,112	7,674	4,008	3,936	8,844	5,370	17,399	9,553	9,125
<i>Cocoanut Cake Imports—</i>										
India ... ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Share of Bombay ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
<i>Cocoanut Cake Exports—</i>	Tons.	Tons.	Tons.	Tons.	Tons.	Rs.	Rs.	Rs.	Rs.	Rs.
India	3,825	4,187	7,898	9,669	3,503	2,54,331	2,94,106	5,71,136	7,11,859	2,85,283
Share of Bombay ...	1,359	926	2,404	1,573	774	94,050	61,148	1,55,409	95,500	56,560

Statement showing location of the Oil Mills in the Bombay Province.

District.	Number of Oil Mills.	Location.
AHMEDABAD ..	7	Ahmedabad (3), Detroj (1), Talod (1) Dholka (1), Bavla (1).
KAIRA ..	8	Kapadvanj (4), Nadiad (2), Menpura (1), Thasra (1).
PANCH MAHALS ..	20	Derol (5), Vejalpur (3), Dohad (4), Godhra (4), Halol (3), Jhalod (1).
SURAT ..	5	Surat (2), Amalsad (1), Bardoli (1), Madhi (1).
THANA ..	1	Kalyan (1).
EAST KHANDESH	37	Jalgaon (2), Mhaswad (1), Bhusawal (4), Dharangaon (3), Bodwad (3), Faizpur (3), Raver (1), Chopda (2), Yaval (1), Kasoda (1), Pachora (4), Jamner (1), Chalisgaon (4), Kajgaon (2), Amalner (4), Varangaon (1).
WEST KHANDESH.	26	Dondaicha (6), Nandurbar (3), Dhulia (11), Nardhana (2), Shahda (2), Shirud (1), Shirpur (1).
NASIK ...	17	Malegaon (3), Lasalgaon (3), Yeola (1), Satana (5), Nandgaon (1), Ravalgaoon (1), Kalvan (1), Nasik (1), Deola (1).
AHMEDNAGAR ..	15	Sangamner (5), Ahmednagar (3), Akola (1), Belapur (4), Laxmiwadi (1), Kopergaon (1).
POONA ..	2	Poona (1), Walchandnagar (1).
SATARA ..	20	Pusesavli (1), Wathar (1), Koregaon (5), Vaduj (1), Karad (5), Targaon (1), Tasgaon (1), Rehmatpur (2), Wai (2), Kadepai (1), Masur (1), Anewadi (1).
SHOLAPUR ..	13	Sholapur (3), Barsi (6), Akluj (2), Vairag (1), Yeogi (1).
BELGAUM ..	3	Belgaum (1), Athni (1), Bailhongal (1).
BIJAPUR ..	1	Bijapur (1).
DHARWAR ..	13	Hubli (3), Gadag (3), Mundarji (1), Mulgund (1), Gajendragad (1), Hole-alur (1), Nargund (1), Haveri (1), Byadgi (1).
RATNAGIRI ..	1	Chiplun (1).
BOMBAY ..	27	
Total ..	216	

Statement showing the number of Haskell Ghanies and their Location.

District	Number of Ghanies	Location
Nasik ..	15	Nasik (1), Yeola (1), Nandgaon (1), Niphad (1), Chandor (7), Wani (1), Wanshi (1), Sinnar (1), Peint. (1)
Poona ..	2	Baramati(2).
Satara ..	5	Wai, (1) Lonand (3), Sayagaon. (1)
Belgaum ..	8	Belgaum, Athani, Gokak, Kudochi, Nandgad, Chandgad, Wantmuri, Gurlhosur, one at each.
Dharwar ..	4	Haulapur (3), Belawarnik. (1)
Total ..	34	

Essential Oils.

Essential oils, such as, Rosha grass and Cinnamon leaf and bark oil are prepared on a cottage scale in the Province of Bombay. There is a scope for development of this industry as there is a demand for these oils in India and from abroad. The raw materials, such as, Rosha grass and Cinnamon leaf and bark are available in considerable quantities.

Rosha Grass Oil.—This oil is produced from Rosha grass which grows wildy and is cultivated in the Districts of West Khandesh and East Khandesh, Nasik, Poona and Thana, the most important regions being Shahada, Taloda, Akrani, Pimpalner, ranges of Khandesh and Kalwan and Baglan Talukas of the Nasik District. The grass grows on hill sides in these regions, the climate there appearing to be suitable, there being extremes of cold and heat.

There are two varieties of this grass, viz. Sofia and Motia, the latter of which is superior in its geraneol content.

Two crops of the grass are yielded every year, the one in October and another in January. The oil yield is 0.4 to 0.5 per cent. Although the yield of grass in January is 50 to 60 per cent. of that in October, the oil content of the grass is higher in January.

The oil contains geraneol, geranyl acetate; geranyl caproate, but the total alcohols range from 75 to 95 per cent.

The experiments conducted by the Department of Industries show that the quality of oil is improved if the grass is steam distilled and that a higher yield of grass per acre is obtained by properly manuring the soil.

The oil is mostly used by perfumers and manufacturers of toilet articles.

The Rosha grass oil is at present extracted on a cottage scale. The equipment possessed by the distillers consists of copper and iron vessels and sometimes earthen pots which are directly fired by using firewood. The oil thus extracted is impure and highly coloured.

The Department of Industries is demonstrating the use of a simple steam distillation apparatus in order to improve the quality and yield of oil considerably.

It is suggested that such plants may be introduced on a larger scale and the crude oil collected from the cottage workers sent to the central distillation plant where it can be treated for isolating geraneol.

Cinnamon Leaf and Bark Oil.—The Cinnamon tree grows wildy chiefly in the North Kanara District, with its moist climate. The oil is generally produced on a cottage scale, the equipment and methods of distillation being similar to those required for the distillation of Rosha grass.

The oil is distilled from green leaves during January, February and March. The green leaves contain 1.1 per cent oil, which can be easily distilled by steam.

The oil contains Eugenol, Cinnamic aldehyde and Sapol. The Eugenol content ranges from 70 to 90 per cent. The oil is used by perfumers and manufacturers of toilet soap.

It is suggested that crude oil should be obtained by means of equipment suggested for the distillation of Rosha grass and should be sent to a central distillery for purification. It may be possible to establish a central distillery on a co-operative basis.

Other Oils.—Besides the two important essential oils mentioned above, there are other oils such as the oil from Surangi flowers, and from Brahmi and Malkangani, which are of considerable value to manufacturers of toilet articles. The raw materials can be obtained from the forests of the Province.

It is suggested that in addition to improving the methods of distillation and treatment, cultivation of the plants in suitable areas may be undertaken on a large scale.

Art-Crafts.

India is well known from ancient times for works of art. The artistic touch is exhibited in monuments, textiles, pottery, metal works, etc. Few things could be prettier for instance in textiles than the famous Dacca muslin, the Kashmiri shawls, Benarasi sarees and Surat "Kinkhab".

The prominent art-crafts of the Province of Bombay are :—

"Kinkhabs" or brocades,	Sandalwood and Ivory carving,
Embroidered silk,	Ivory inlaid work,
Embroidery work,	Jewellery and ornaments,
Lace work,	Metal work,
Gold Thread,	Lacquer work, and
Calico Printing,	Horn work.

A survey of the art-crafts of the Province was made in 1927 by Mr. G. P. Fernandez, at one time Assistant Curator, Art Section, the Prince of Wales Museum of Western India and Decorator to the Imperial Secretariat, New Delhi. His "Report on Art-Crafts of the Bombay Presidency" was published in 1932.

Every patronage and encouragement should be given to these art-crafts not only because they give employment to thousands of workers (for instance the makers of jewellery and ornaments, according to the Bombay Economic and Industrial Survey Committee's Report were as many as 30,000), but because art ought not to be allowed to die out.

The workers being generally poor are handicapped in purchasing raw materials and disposing of their goods. As they adopt orthodox designs and methods, they are unable to make progress and earn a decent living. There is, therefore, a scope in improving the lot of the workers and producing articles which would command a fair price and ready market.

2. The present position with regard to the more important art-crafts is as follows :—

Kinkhabs or Brocades.—The important centre for 'Kinkhab' or gold cloth is Surat. The cloth has a silk back-ground with various designs produced by means of gold and silver thread. It is produced on the hand-loom.

Embroidered Silk.—The centres are Surat, Bombay and Ahmedabad. Ornamental sarees, "palav" for sarees, fancy shawls, etc. are produced.

Embroidery Work.—The centres are Surat, Bombay and Ahmedabad. The embroidery work mainly consists in embroidering saree borders, "polkas" or blouses, shawls, caps, etc. Generally, the work is done by hand, but now embroidery machines are also used.

Lace Work.—Surat is an important centre for gold and silver lace work.

Gold Thread.—The important centre is Surat. The position of this industry has already been given in this Chapter elsewhere.

Calico Printing.—Calico printing is done all over the Province but mostly in Gujerat and Bombay. Knot-dyeing is done at some places.

Sandalwood and Ivory Carving.—The centres are North Kanara and Surat. There are several families of "Gudigars" in Honavar, Kumta, Sirsi, Siddhapur, Bilgi and Banvasi. There are co-operative societies of sandalwood and ivory carvers in Honavar, Kumta and Sirsi. The articles generally manufactured by

them are carved jewellery boxes, fans, combs, images, toys, paper cutters, walking sticks, cabinets, writing desks etc. In Kanara black wood or "shisham" is also used for manufacturing various kinds of carved articles.

Ivory Inlaid Work.—Some of the finest inlaid work is done in Surat. Attractive boxes are made using "Haradwan" wood with veneers of sandalwood inlaid with ivory, ebony, etc. There would be a considerable scope for even exporting these artistic boxes, etc., if modern designs are adopted.

Jewellery and Ornaments.—Jewellery is made in practically every town in the Province. Women require ornaments for personal wear and the industry flourishes, on a cottage scale in the Province. Various centres such as Nasik, Poona, Bombay and Bhatkāl (in the North Kanara District) are famous for their gold and silver smiths. They are skilled in repousse, chasing and carving, filigree etc.

Metal Work.—The centres are Bombay, Nasik, Poona and Bijapur, etc. Embossed or engraved trays, vases, toys, etc., are made.

Lacquer Work.—Lacquer work is done practically all over the Province but the important centres are Gokak, Poona, Surat, Bijapur, Bagalkot, Hubli and Dohad. The raw materials required are wood and lac. The articles are first turned on a lathe and then lacquered. Painted lacquer work is also produced. The articles made are generally jewellery boxes, toilet boxes, cradles, etc.

Horn Work.—A good deal of horn work is done in Honavar in the North Kanara District and Vijaydurg in the Ratnagiri District. There is a Button and Horn Workers Society in Honavar. Vases, buttons, etc. are produced.

The Government of Bombay sanctioned a Scheme in the year 1937-38 in order to encourage and train craftsmen. A Part-time Artist Designer and a well qualified sandalwood carver as Craft Supervisor were appointed, the latter having his headquarters in Kumta. 10 scholarships of Rs. 30 per month, tenable for two years, are given to hereditary workers engaged in different art-crafts for obtaining training in recognised schools within or outside the Province. The number of artisans, who have completed the course in the Lord Reay Art Workshop of the Sir J. J. School of Art, is 69, out of whom 24 received assistance under the Loan-cum-subsidy Scheme. The number of scholars and the subjects taken up by them are as under.

Wood carving	...	...	...	20
Repousse	...	...	...	16
Engraving	...	...	...	17
Carpentry	...	...	...	7
Stone carving	...	...	...	6
Shapemaking	...	...	...	2
Carpet making	...	...	...	1
				—
				69
				—

As a result of the work done under the Scheme, three Associations, viz., Sandalwood Producers' Co-operative Associations at Honavar, Kumta and Sirsi were established. Two peripatetic demonstration parties for training craftsmen in the production of lacquerware are maintained by the Department of Industries.

3. In order to encourage art and improve the condition of the workers it is proposed that co-operative societies should be established, wherever possible. As the number of applications is far in excess of the number of scholarships available a larger number of scholarships may be allotted to the different subjects. Propaganda is necessary and sales should be made through the District Industrial Co-operative Associations and the Sales Depots.

Miscellaneous.

Dairy.—In an agricultural country like India, there is a vast scope for development of the dairy industry on a cottage or small scale. Milk and ghee form an important part of the diet of the people and several co-operative societies can be established for preparing such products as milk, ghee, cream, cheese, casein, etc. It is understood that a report is being made on the subject by the office of the Milk Commissioner. The Sub-Committee has, therefore, not dealt with the subject in detail.

Fisheries.—Thousands of people on the coast of the Province earn their living by fishing. A report is being prepared by the Department of Fisheries for Government. The Sub-Committee has, therefore, not dealt with the subject in detail.

Confectionery and biscuits.—Although biscuits manufacture can be started on a small-scale it naturally develops into a large scale. Small-scale factories can be started in the Districts such as Dharwar and Bijapur.

Bidi-making.—Owing to the consumption of bidis on a large scale throughout the Province and without, the manufacture of bidis is carried on in a number of small 'karkhanas' all over the Province, using Nipani tobacco. The tobacco is purchased by the manufacturers during January and March and stocked for making bidis throughout the year. The industry affords employment to a large number of people, most of whom are women and children. It is understood that licences for stocking the tobacco for the bidis are held by widows who in turn transfer them to the manufacturers. It is suggested that co-operative societies may be formed, they only working under the licences. In spite of the growing competition of cheap cigarettes, bidis are consumed in large quantities. Small 'karkhanas' are in need of capital for holding stocks which can be obtained if co-operative societies are established.

Snuff.—The manufacture of this product is carried on in a number of 'karkhanas' in Poona where tobacco is imported from Nipani in the Belgaum District, from Gujerat and from outside the Province. Different grades of snuff are produced, that from the tobacco from Nipani and Belgaum being regarded as superior to others. Although most of the 'karkhanas' work on a small-scale, some of them have increased their production considerably by means of oil engines used for grinding purposes. There are possibilities of starting new factories at Nipani and in Gujerat. There is a demand for the product throughout the Province.

Akik Stone.—The most important centre is Cambay in Gujerat. Different varieties of 'akik' stones occur in the Rajpipla State and in certain localities in Kathiawar and the Ahmedabad District. Owing to its extreme hardness, agate is used for making pestles and mortars which are specially used for Ayurvedic preparations. It is also used for making buttons and other articles. There is a scope for extending the industry in Ahmedabad and Panch Mahals.

Catechu.—Catechu or 'kath' is extracted from mature Khair trees which are available in the forests of Kanara, Dharwar, Panch Mahals and Thana. The heart-wood of the mature khair tree is cut into small pieces and boiled with water. The 'kath' is then separated from the concentrated liquid. It is produced on a cottage scale and is generally collected by the forest contractors. It is advisable to start co-operative societies to develop the industry, improve the product and increase the yield.

Agarbatti.—The principal centre for the manufacture of 'Agarbatti' was formerly Pandharpur in the Sholapur District. The industry has now been established in a number of centres in the Bijapur, Sholapur and Poona Districts and in the city of Bombay. The raw materials are bamboo sticks, saw dust, coal dust, gum, scents, etc. The work is mostly done by hand. There is a considerable demand for 'Agarbatti' in the Province and also outside it. The industry can be expanded as a cottage industry if properly organised on co-operative lines. The manufacturers should produce quality articles for creating a permanent demand.

Rice pounding and husking.—Rice pounding and husking is generally done in the Kolaba and Ratnagiri Districts, the important centres in the Kolaba District being Panvel and Mahad. The industry on a cottage scale has suffered on account of installation of rice mills in these areas. The number of people engaged in the cottage industry is not large according to the report of the Bombay Economic and Industrial Survey Committee. Hand-pounding of rice should be encouraged, as the rice so obtained is more nutritive and a large number of people can be employed in the industry.

Kumkum.—Formerly the production of 'Kumkum' was centred in Pandharpur and at Kem in the Karmala Taluka of the Sholapur District. The peculiar characteristics of the water at these places, give a peculiar lustre to the product. Such product was since manufactured at a number of other centres by cheaper methods. The industry has suffered chiefly owing to adulteration and also competition. The equipment required for the manufacture of 'kumkum' consists of 'chakkis' (pounding machines) and a few casks. To encourage its production in a number of places on a cottage industries scale, co-operative societies may take up the work and manufacture product of a good quality.

Other cottage and small-scale industries as per the report of the Bombay Economic and Industrial Survey Committee are :—

Cottage Industries.—

(i) Whole-time cottage industries.

Soap-making.

Hat and Cap-making.

Rubber-stamp making.

Book-binding.

Fireworks.

Slates, sandal grinding and other grinding stones, marbles, etc.

(ii) Part-time cottage industries.—

Cashew-nut kernels (removal of the shells), etc.

Patravali making.

Chunam burning.

Small-Scale Industries.—

Motor repairing.

Manufacture of textile wooden parts.

Watch manufacture.

Manufacture of soap.

Manufacture of aerated waters, fruit drinks, ice, etc.

Manufacture of chemicals, drugs and pharmaceutical preparations.

Manufacture of paints.

Cottage and Small-Scale Industries in Bombay City and the Suburbs.

Most of the cottage and small-scale industries have already been dealt with in this Chapter. As Bombay city is the Gateway of India for commerce and trade and one of the largest industrial centres in the country, a brief survey of the cottage and small-scale industries in the city and its suburbs is considered necessary. The position with regard to some of the more important industries is as follows :—

Textile (Cotton).—The centres of the handloom industry in the city are Mandanpura and Byculla. Several thousand handlooms and powerlooms are working at present. There is, however, a difficulty in obtaining yarn. The important societies which are formed are —

Bombay City Weavers' Co-operative Society.

Bombay Handloom Weavers' Association.

As yarn becomes available more freely, the weavers should be induced to take to automatic take-up loom or the powerloom.

There are about 10 to 12 cotton cleaning factories which obtain cotton waste from the local textile mills and they assort and clean it. There is a good demand for cleaned cotton which is utilised in preparing mattresses, etc. It is also exported.

Hosiery.—There is a large number of hosiery concerns each having 10 to 15 machines and 15 to 20 workers. They manufacture cotton, silk and woollen articles. On an average a 'karkhandar' produces goods worth Rs. 5,000 a month, the articles produced being socks, mufflers, sweaters, underwears, etc. The hosiery market is centred at Chakla. It may be advisable to form co-operative societies of hosiery workers.

Thread Manufacture.—There are about 35 factories producing cotton thread ropes, etc., from yarn obtained locally, which they supply to the local provincial markets.

Rope and rope-making.—Apart from large scale factories there are about 15 small-scale concerns in the city and its suburbs which are engaged in the manufacture, of ropes and rope materials. They have to face keen competition both local and foreign and their resources are limited.

Mechanical and metal industries.—As mentioned previously there are several hundred small establishments in the city equipped with machine tools, repairing or manufacturing parts of machinery and equipment. Although these small workshops are spread all over the city, they are concentrated at Golpitha. It is understood that these concerns are doing fairly well, although they are at present handicapped on account of shortage of steel material and difficulty in procuring machine tools.

There are about 150 workshops which manufacture bolts and nuts on a small scale in addition to other metal-ware.

About 30 small 'karkhanas' mostly concentrated in Kumbharwada are engaged in manufacturing safes, etc. Mostly 'Panchals' or hereditary blacksmiths of Gujerat are engaged in this industry.

In about 50 small 'karkhanas' steel cupboards and other furniture are manufactured.

It is estimated that there are about 265 tin-smiths establishments in the city.

There are about 50 establishments manufacturing steel trunks. They are mostly situated at Null-Bazaar and Byculla.

There are about 25 brass foundries where brass castings are turned out. The articles produced are hinges, hangers, locks, bolts and nuts, faucets and small parts of machinery.

In about 285 small 'karkhanas' buckets, drums, etc., are manufactured with comparatively light machinery, such as, mechanical presses. Raw materials required are iron sheets, rivetting and soldering material, etc. These 'karkhanas' have difficulty in procuring sheets and complain that the railway freight for the transport of finished goods is high.

Electrical Goods.—It is reported that there are some 20 small factories in Bombay manufacturing electrical fans, water heaters, transformers, motors, etc.

Brass, Copper, German-silver and Aluminium wares.—The manufacture of domestic utensils of brass, copper, German-silver and aluminium is being carried out on a cottage as well as large scale.

Silver and gold melting.—There are about 14 establishments engaged in melting gold and silver bars and other ornaments and utensils.

Electro-Plating.—There are about 125 concerns engaged in electro-plating.

Musical instruments.—There are several establishments engaged in the manufacture of musical instruments, such as, harmoniums, 'satars', etc. most of the manufacturers are Sikhs who have specialised in this industry. Raw materials, such as, copper and steel wire, springs, reeds, etc., are of English and American make, but wood, polish, etc., are obtained locally. There is keen competition amongst the manufacturers themselves. They require transport facilities and Government assistance in procuring raw materials at concession rates.

There are a few concerns which, in addition to dealing in gramophone records, etc. manufacture some of the spare parts and repair and overhaul gramophones. One of the draw-backs of the industry is lack of technical hands.

Packing cases.—A number of small concerns are engaged in the manufacture of packing cases. They purchase old boxes from large concerns, such as, automobile stores and utilise them in making new packing cases.

Wooden furniture.—Several concerns are engaged in the manufacture of wooden furniture required for office, school, industrial and household purposes. They are spread all over the city.

Toys and other wooden articles.—There is a number of establishments in the city engaged in the manufacture of toys and wooden articles and hundreds earn their living by this industry. The toys are prepared from wood or rags. Previously there was competition from Japan, Germany and England but as there are now small imports from these countries, the industry is able to stand. In order to face competition in the future, it is necessary to train the workers to improve and cheapen their products.

Bamboo and Cane Work.—Bamboo and cane workers are spread all over the city. Co-operative societies may be established to improve their condition.

Tanning and Leather Goods.—The important centres are Dharavi, Kurla and Kherwadi (Khar). Besides licensed tanneries, there is a number of individual tanners engaged in the trade.

Conditions at Dharavi are not satisfactory. The Bombay Municipality has given notices to the tanners to move elsewhere as the area is required for development under the 'Greater Bombay' Scheme. The tanners are reluctant to shift, particularly as the slaughter house at Bandra is close to Dharavi. Facilities will have to be given to the Dharavi tanners to prevent trade dwindling down.

The establishment of small tanneries at Khar, around the Government Tanning Institute and Leather Working School is under Government's consideration. There are no co-operative societies of tanners or leather workers in the city but efforts are being made to form one from the tanners at Kherwadi.

Bombay city is a very important centre for the manufacture of leather goods on a cottage and small scale. Vast quantities of suit-cases, wallets, ladies' purses, sandals, shoes, etc., are being turned out.

Two associations have been formed, viz., the Bombay Shoe-makers' Association and Afghan Chappals Manufacturers' Association. There is a scope for co-operative societies.

Fruit Preservation.—There are several small establishments engaged in bottling fruit juice. It is reported that the conditions under which they work are unhygienic and unsatisfactory. The industry should be put on a better footing, and technical assistance may be provided. It may be necessary to keep inspecting these factories.

Aerated Waters.—The number of small-scale aerated water factories is very large. On an average 5 to 10 workers are employed. Inspection and supervision is necessary to see that they are worked under hygienic conditions.

Bakeries.—There are several small-scale bakeries in the city and its suburbs. Goods worth about Rs. 5,000 per month are produced by each. The bakers suffer for want of sugar. It is reported that the condition in the factories is unhygienic. Technical assistance is also required. A Bakers' and Confectioners' Association has been formed and its grievance is :

- Shortage of sugar,
- Sufficient quantity of vegetable ghee is not available,
- Considerable quantities of eggs transported from the interior, particularly the Central and Southern Divisions are destroyed in transit,
- Controlled articles such as tin sheets, etc. are not easily available.

Vegetable Oils.—The crushing of oil seeds in the city and its suburbs is done by bullock driven 'ghanies', electrical 'ghanies', rotary 'ghanies' and expellers. The telies are mostly Momins or Gujeratis (Ghanchis) and their main difficulty is finance.

Soap.—It is reported that there are about 60 small-scale-factories engaged in soap-making. They prepare washing, laundry and toilet soap. Their complaint is that they do not get sufficient cocoanut oil and that their interests are neglected in comparison to the interests of larger factories.

Paints and Varnishes.—There are about 10 small-scale factories manufacturing paints and varnishes. The products are stiff paints, ready-mixed paints, varnishes and enamel paints. They should be considerably improved by technical guidance. They should be assisted in procuring machinery and getting required supply of raw materials and solvents.

Toilet products.—Toilet preparations consist of vaseline pomades, hair-oils, tooth-powders, snows and creams, face powders etc., which are largely made in small-scale establishments. This is an important small-scale industry which needs to be

developed on a scientific basis. The total imports of toilet preparations in India in 1939-40 were about Rs. 65 lakhs and the 'share' of Bombay was about Rs. 25 lakhs.

Bidi Making.—Bidi-making is done all over the city and its suburbs. There is a large number of small concerns which are engaged in this industry. Practically every pan-shop prepares its own bidies. Men as well as women make bidies and boys are employed in packing and making bundles. This work is usually done in congested and badly ventilated places. The workers themselves prefer to prepare bidies at their own places, but the employers do not allow them to do so as they fear that the quality of their product may not be good.

Pottery.—There is a large colony of potters at Kumbharwada near Dharavi. It is reported that there are about 200 families and a total population of about a thousand people dependant on the industry. The methods of manufacture of earthenwares are crude. The potters complain that they have to face keen competition with cheap enamelwares. They require Government assistance in the form of technical advice and demonstrations so that with improved appliances they can improve the quality of their product and bring down the cost.

Ink Manufacture.—There are about forty-five establishments on a cottage and small scale in the city and about two in the suburbs manufacturing ink. They complain that it is difficult to get suitable containers and transport facilities are not available to enable them to extend their sales beyond the radius of 300 miles.

There are about six establishments engaged in the manufacture of printing ink. The raw materials and pigments are imported. They state that the import duty on raw materials is higher than that on the finished products and, therefore, it is difficult to compete with the foreign material.

Brushes.—There is a large number of small establishments in the city manufacturing brushes, particularly for domestic and toilet purposes. Indian bristles, fibres and animal hair are used. Certain raw materials are imported. There is a scope for this industry as in 1938-39 the "share" of Bombay in the imports was about 250,000 dozens valued at Rs. 5½ lakhs. There is a colony of workers manufacturing brushes for the textile factories. Their lot should be improved and co-operative societies of brush-makers should be established.

Cardboards and Paper Boxes.—About fifty establishments in the city are engaged in the manufacture of cardboard and paper boxes. Of these six are large concerns and the rest are small ones. The latter manufacture boxes utilising small machines operated by hand. Cardboards are imported from Norway, Sweden and America. Indian cardboard is not found to be of good quality. The industry can be expanded but the raw materials are not easily available. Bombay requires a large number of cardboards for its various industries and it is necessary to manufacture good quality cardboards. There is, therefore, a considerable scope for this industry.

Mechanical and Electrical Power.

It has already been pointed out that the condition of the workers can be improved by adopting the equipment and methods calculated to increase the production per head and improve the quality of their product. In order to increase production of the individual worker, to do away with drudgery and to enable the peasant to have leisure and comfort, fullest use must be made of mechanical and electrical power wherever it is available. Simple appliances operated by means of mechanical or electrical power should be introduced and adequate training should be given to artisans to work such equipment.

2. The Government of Bombay have already made considerable headway with their Electric Grid Scheme. It is anticipated that the first stage of development will be over by the end of 1948. Not only will a number of small power plants spring up all over the Province, but power supply in the Northern Division will considerably increase. Transmission lines of the North Gujerat and the South Gujerat Grid Schemes will be ready and there will be a number of power lines branching off to numerous villages. Two 15,000 KW steam turbo sets will be installed in addition to the existing sets at Ahmedabad and a steam station will be established in the vicinity of Surat comprising initially of two 7,500 KW turbo-alternator sets. This development will be of great benefit to the agriculturist and the artisan for running simple machinery and pumps. Cottage industry will be greatly revived and thousands of unemployed people will take to it.

3. Where electric power is not available, oil engines may be installed to drive machinery.

4. There are several hundred ginning and pressing factories in the Province, particularly in the Gujerat, North Deccan and the Karnatak. Due to seasonal operation of these factories, they are idle for about six to eight months in the year and it is understood that the power installations in most of these factories remain completely idle for over six months in the year. Whereas there is a crying need for mechanical power in the rural areas, it is found that several thousand Horse Power remains idle in the Province for the greater part of the year. A detailed investigation is necessary as to how the power installations of the ginning factories which are spread all over the cotton producing districts can also be utilised for industrial purposes other than cotton ginning and pressing. In some factories oil expellers, etc. have been installed. It may be possible to make use of the installations on a co-operative basis and different sorts of machines such as hosiery machines, rope-making machines, sugar-cane crushers and machines for preparatory processes could perhaps be installed.

5. The Sub-Committee, therefore, recommends that electrification of the Province should be carried out as expeditiously as possible and facilities should be provided for the artisans to go in for machinery. If necessary the equipment could be supplied on a loan-cum-subsidy basis.

6. It is interesting to note that Mr. Gandhi who has always encouraged cottage industries has stated as follows:—

“If we would have electricity in every village home I shall not mind villagers plying their implements and tools on electricity

(Harijan, 22nd June, 1935).

“Every machine that helps every individual has a place

(Harijan, 26th July, 1946).

7. The policy, therefore, may be to make the maximum use of power and machinery without displacing human labour.

CHAPTER V.

ORGANISATION OF COTTAGE AND SMALL-SCALE INDUSTRIES.

In order to develop cottage and small-scale industries, to give employment to thousands of workers scattered all over the Province and to enable them to carry on their work in an up-to-date manner, organisation is essential. In the first place, without Government control and assistance very little can be achieved. Secondly, a Co-operative system must be established linking the smallest industrial co-operative societies with the district industrial associations, which in turn, would be guided by a Provincial Industrial Co-operative Federation. The third important factor is finance to which a separate Chapter has been devoted. Providing facilities for training of artisans in up-to-date methods of production research and use of improved implements and equipment are the basic items for the organisation of workers. Finally marketing plays an extremely important part in facilitating disposal of the products and it should aim at eliminating the middleman.

Government Control, Etc.—The Sub-Committee is of opinion that control of industries should be in the hands of Government and that cottage industries should be organised jointly by the Co-operative and Industries Departments. Promotion and development of these industries should not be left to private agencies for the reason that their resources for such a task would never be adequate and the responsibility of industrial development in the rural areas cannot be entrusted to Corporations. The functions of the Industries Department should be to make occasional surveys, gauge progress, find out improved methods of production, introduce improved implements, tools and equipment, train and guide artisans, etc. The formation and finance of Industrial Co-operatives, control of co-operative societies and the management of the marketing side should be the work of the Co-operative Department. Each Department should have a staff devoted solely to the development of cottage industries. Every district should have its own marketing officers, technical men, accountants, rural assistants, etc., to maintain and operate the co-operative machinery in the District. A small Advisory Committee representative of the general public and the interests involved, should be appointed for consultation and advice.

Provincial Industrial Co-operative Federation.—One of the Post-war Schemes of the Co-operative Department is a scheme for the organisation of a Provincial Industrial Federation which has been administratively approved by Government. This Federation will co-ordinate the activities of all the District Industrial Associations and also help in the matter of supply of the requirements and the sale of the products of the societies.

District Industrial Co-operative Associations.—The scheme about the formation of District Industrial Associations was sanctioned by the Government of Bombay in April 1935 and as sanctioned, it was mainly intended for development of the handloom weaving industry in the Province to be financed by the grant-in-aid given by the Government. Later on, in October, 1937, Government also sanctioned a scheme for development of the cottage and small-scale woollen industries in the Province. The two Industrial Associations—one at Hubli and the other at Ahmednagar were proposed to be utilised for the purpose. The Associations, working as they do now, have, therefore, confined their activities to the textile

industries. There were as on 30th June 1945 nine Industrial Associations, at the following places :—

Ahmednagar, Hubli, Sholapur, Ahmedabad, Yeola, Malegaon, Dhulia, Bagalkot and Belgaum.

In pursuance of their Post-war Schemes, the Government of Bombay sanctioned the establishment of Associations in the following Districts :—

North Kanara, Kolaba, Ratnagiri, Thana, Surat, Poona, Satara, East Khandesh and Kaira.

Out of these nine, the Associations for the Satara, North Kanara, Kaira and Thana Districts have been registered after 30th June 1945. After the remaining contemplated organisations are established, there would be one Industrial Association for practically each District in the Province, except for Broach and Panch Mahals and the Bombay area. Apart from the contemplated increase in their number, the Associations are expected to play a more comprehensive role of not only developing the handloom weaving industry but also of developing the other cottage and subsidiary industries in the Districts. It is suggested by the Sub-Committee that formation of an Association for the Broach and Panch Mahals Districts may also be sanctioned by Government.

The question about the number and type of Industrial Associations required in the Districts depends on many factors. Though theoretically each group of cottage and small-scale industries may expect to have an Industrial Association of its own, it is not possible to achieve the goal in the near future. In the present circumstances, the District Industrial Associations with their enlarged functions to serve all the cottage and subsidiary industries in the Districts, are the most suitable. The Bombay Economic and Industrial Survey Committee also pointed out that the activities of the present Associations were confined to one class of artisans only viz: handloom weavers and it, therefore, suggested that a more comprehensive type of organisation was needed. In view of the proposed enlargement of the functions of the Associations it does not appear necessary to have Associations of any other type; the name 'District Industrial Association' sufficiently implies the fact that the Association caters to the needs of all the industries in the District. As all the Districts in the Province will be practically provided by the Associations, there does not appear to be any necessity at present to increase the number of Associations except for the organisation of an Industrial Association for the Districts of Broach and Panch Mahals; the type being a comprehensive one as suggested above. Separate Committees may be appointed by the District Industrial Associations, to deal with the problems of different industries.

Thus, each District will have one District Industrial Association, of the comprehensive type, with enlarged functions, to which will be affiliated a number of Industrial Societies in the District each formed for the industry which could be co-operatively developed, e.g. there would be shoe-makers' societies, societies for war-retained technicians, societies for carpenters and black-smiths, societies for potters and toy makers etc. affiliated to the Industrial Associations.

Organisation for Assisting Industries and Individuals not covered by Co-operative Organisations.—The Co-operative structure visualised above may not cover all the industries and the individuals employed therein. Some organisations will, therefore, have to be set up for helping such industries and individuals.

Co-ordination of the work of Co-operative and other organisations working in the same field will be necessary and for that purpose it would be desirable to set up committees as may be necessary for the Districts and for the Province.

Training of Artisans, Etc.—One of the important reasons why a good many village industries have died out and the condition of others is precarious is that the workers have adhered to primitive methods of production with the result that the quantity and quality of their products is so poor that they are unable to meet competition from organised industries. It is a question if the village industries can be put on their feet at all with the best of organisation and Government assistance if the producing methods are not revolutionised by the introduction of more efficient and modern implements and equipment. In order to impart technical training and inculcate skill, a vast number of demonstrations, training parties, exhibitions, etc., are necessary. The Department of Industries maintains 53 peripatetic demonstration parties and according to the Post-war Schemes of Government about 53 new parties may be sanctioned. As the development should be on an extensive scale, a still higher number of parties and schools in different centres will become necessary. One of the main difficulties in organising training parties is to find out qualified men who would abandon their own craft in order to adopt teaching. The Sub-Committee, therefore, recommends that special permanent schools should be established in each of the three Divisions to train demonstrators in various lines such as weaving, dyeing, tanning, leather-working, metal-working, carpentry, cane and bamboo, fibre, pottery, etc. Refresher courses should be given to the demonstrators so that they keep up-to-date in their job. Facilities should be provided to artisans to contact the demonstration parties and schools through Rural Assistants for solution of their individual problems. Continuous research should be made in workshops created for the purpose to evolve machinery so that unnecessary manual labour may be eliminated and the product improved and the economic condition bettered. The District Organisations of the Department of Industries should be such that a fairly accurate survey can be made every five years of—

- The number of principal earners,
- The number of subsidiary workers,
- The number of non-earning dependants,
- Type of cottage industries,
- Income of workers,
- The quantity, quality and price of the product,
- The economic condition in general,
- Handicaps, difficulties, etc.

It is estimated that a couple of Rural Assistants for each Taluka of a District controlled by a technical staff of two or three men, should be able to maintain such records, advise and guide industrial workers and form a liaison with the District Industrial Associations, other organisations dealing with industries and individuals not covered by the co-operative organisations, the Co-operative and Industries Departments.

Marketing organisation (Depots, Customer agencies and utilisation of Societies as Marketing Organisations).—Amongst the various handicaps under which the cottage and small-scale industries are suffering, may be mentioned the lack of proper arrangements for the marketing of goods produced by these industries. To facilitate the development of cottage and small-scale industries

and the marketing of cottage industries products, the Bombay Economic and Industrial Survey Committee recommended extension of the system of organisation of District Industrial Associations. As it was not possible to undertake the work of development of cottage industries on the scale recommended by the Committee in all the Districts, Government were pleased to allow under the control of the Director of Industries the opening of depots whose function was to arrange for the supply of raw materials to the artisans by purchasing in the cheapest market and for marketing of their finished products to the best advantage, without the intervention of middlemen. Although there were valid reasons for opening the existing depots, the question of opening new depots and their location or even continuing the old ones has to be reconsidered. The existing District Industrial Associations and those proposed to be organised under the post-war plans will practically serve all the Districts in the Province. It may not, therefore, be necessary to have any new depots at places where the District Industrial Associations already exist or are proposed to be formed, since the Associations will have their own shops at headquarters and other places within the areas of their operation, where necessary.

The Associations, being located at important urban centres, would be in a position to market the products of cottage and small-scale industries in the Districts. It may not be necessary nor economical at times, for the Associations to open branches in the Districts merely for the sake of marketing the products of their societies. For the marketing of products in urban areas other than the headquarters of the Associations, consumers' societies or other urban societies could be utilised. In order, however, that the products mainly meant for rural areas may be marketed with advantage it appears that there cannot be any better organisations than the rural co-operatives—either the multi-purpose societies or agricultural credit societies. During the last two or three years the rural societies have rendered distinct service by undertaking distribution work of controlled commodities. Therefore, it would be useful to try and utilise them also for distributing the products of cottage and small-scale industries. The Department of Industries has already moved in the matter and its experiments in the Nasik District are encouraging. An outline of the scheme styled the "Customer Agency Scheme" may be gathered from the "Rules for the conduct of Customer Agency (Sub-Depot) Scheme" appended hereto. The scheme ought to be given a trial in other Districts also, with modifications on the following lines :—

(1) Co-operative societies in "A" or "B" class and those which are financially sound may only be entrusted with the work on the recommendations of the Assistant Registrar.

(2) The work to be entrusted to societies should be on consignment basis only. The societies should not lock up any amount by direct purchases, though they may be required to deposit 50 per cent. of the cost of articles consigned to them.

(3) To start with, the rate of commission to be allowed to societies should be 6½ per cent. exclusive of all transport charges etc. It may be reduced later on.

At present there is no central organisation at a place like Bombay, co-ordinating the activities of all the Industrial Associations. Until, therefore, the Provincial Industrial Federation sanctioned under the Post-war Schemes comes in and is able to carry out these functions, the arrangements made at Bombay by the Industries Department for the sale of village industries products may continue.

RULES FOR THE CONDUCT OF CUSTOMER AGENCY (SUB-DEPOTS) SCHEME.

The Customer Agency may preferably be (a) A co-operative society of sound financial status; or (b) a private body approved by any Government Department or Institution or (c) any sales establishment run under Government or Semi-Government control. To all these Customer Agencies the following rules shall apply :—

1. Co-operative societies, preferably multipurpose societies and Sales Societies and Co-operative Stores, which are in 'A' and 'B' class and are financially sound should only be entrusted with the work of the Customer Agency Scheme on the recommendations of the Assistant Registrar.

2. 'A' and 'B' class co-operative societies must produce a certificate by the District Co-operative Officer or the Assistant Registrar of the Division certifying their eligibility and financial fitness to undertake Customer Agency. A Certificate should accompany the application for Agency.

3. In case of a private body it must produce a certificate of the Head of the Department or Institution on a copy of agreement with the Department or Institution appointing the body as the selling agency of that Department or Institution.

4. (i) The Sales Depots of the Department of Industries should entrust the work to Customer Agency on consignment basis only. The Agency need not lock up any amount in direct purchases. It may deposit 50 per cent. of the cost of articles consigned to it.

(ii) The Agency shall not stock for sale any categories of goods parallel to those which are supplied by the Depots. The list of such categories will be drawn up by the Depots and amended from time to time.

(iii) Goods remaining unsold should be returned to the Depots concerned within 2 months from the date of supply. The Agency would be responsible for the disposal of unsold goods not returned in time.

5. (i) The value of stocks to be supplied to any Agency should not exceed Rs. 3,000 or recede Rs. 500 per mensem.

(ii) The Agency should send its monthly indent for stocks, well in advance i.e. by the 20th of the preceding month. The Agency should see that the indent covers only such goods as are saleable in the area served by it.

(iii) The freight on goods supplied by the Depots to any Agency will be borne by the Depots, whereas the freight on goods returned will have to be borne by the Agency.

6. Every article or piece is labelled at the Sales Depots of the Department of Industries. The Customer Agency should sell the goods at these fixed prices labelled.

7. The Customer Agency should keep a regular account register and maintain cash memos in the same fashion and method as is done at the Sales Depots of the Department of Industries. The method will be shown to the representative of the Customer Agency.

8. The Customer Agency must keep sales and stock registers and submit a consolidated monthly report to the Manager of the Sales Depot concerned before the 10th of the following month.

9. The payment of proceeds of sales must be made every month when also the supply of new stock or return of old stock is to be effected. This must be done before the 10th of every month. The Customer Agency will be given the benefit of the maximum limit of consignment in proportion to the initial deposit.

10. The rate of commission to be allowed to Agencies shall be $6\frac{1}{4}$ per cent. on the cost price of the goods to the Depot.

11. On any question of individual advertisement or publicity as regards the Agency previous sanction of the Director of Industries should be obtained.

12. The establishment of the Customer Agency must be open for inspection, as far as the Depot goods are concerned, by the Manager or the District Industrial Officer or any other Officer of the Department of Industries authorised by the Director of Industries.

13. All stocks of the Depots at the establishment of a Customer Agency should be kept preferably separate from other stocks in the establishment, if any. The stocks must be kept secure and safe from dirt and exposure. Any stock spoiled due to lack of care in this respect will not be accounted for return.

14. The Director of Industries reserves the right to cancel the agency and to take over the entire stock given by a Depot, in the following circumstances :—

(i) If the Agency fails to observe any of the above rules,

(ii) If the sales are not encouraging i.e. if they are continuously much below the minimum of Rs. 500 per mensem,

(iii) If it is not found possible for the Depot to continue supplies to the Agency at least to the minimum extent per month.

CHAPTER VI.

FINANCE OF COTTAGE AND SMALL-SCALE INDUSTRIES.

The subject may be dealt with under three heads :—

- I. Subsidiary occupations ;
- II. Cottage industries ;
- III. Small-scale industries.

I. Persons engaged in subsidiary occupations are presumably those who follow some other full-time occupation such as agriculture. The subsidiary occupation is a part-time one to which they resort to supplement their income and which they leave off when there is pressure of work in their main occupation. Ordinarily, the tools and implements utilized for this purpose are simple ones, while the raw material will very likely be available from local sources. The finished product may be such as may be expected to be disposed of locally without much delay or difficulty. Nonetheless, if a considerable extension of subsidiary occupations is contemplated in rural areas, it is necessary to see that suitable facilities are provided for such finance as may be required. Small loans for the supply of appliances or the bulk purchase of some raw material or against a stock of goods pending disposal may be needed. The most suitable agency for the purpose will be the village co-operative societies either credit or multi-purpose. Separate societies for such workers may not ordinarily be encouraged, but should be allowed to be formed where there are homogeneous groups of persons who are not members of other co-operative organisations. There is a tendency among co-operators to confine the operations of rural credit societies to agriculturists owning lands. Societies should be permitted, and even induced, to admit to membership and to finance full-time or part-time cottage workers. This can be suitably done, however, when the financing of the cottage worker is part of a programme of development which ensures that the credit facility is not likely to be abused or wasted. The requirements of finance for workers in subsidiary occupations will usually be on a small scale and will be for short periods. The funds that will be needed can be obtained by the societies concerned from co-operative central banks. For persons who reside at places where there are no village co-operative societies, finance may be provided by Government under the Agriculturists Loans Act or the State Aid to Industries Rules which may have to be amended to enable such finance being undertaken. An allotment of Rs. 1,00,000 sanctioned every year for a period of 5 years may suffice. This should be at the disposal of the organization to be set up for the promotion of cottage industries.

II. The financial requirements of workers in cottage industries differ according to the type of industry in which they are engaged. Generally, however, the main purposes for which financing is required are :—

- (1) purchasing of raw materials ;
- (2) working expenses during the period of production ;
- (3) financial accommodation between the period of production and the final disposal by sale in the upcountry market.

One general observation may be made about these purposes that these requirements will be for short or intermediate term credit. The only exception will be when as part of a plan of reconstruction, it is decided to provide some plant

worked by electric or other power. Long term credit will be then needed not by the workers individually but by their co-operative organisation. Cottage industries of all descriptions derive their finance at present from money-lenders 'karkhandars', co-operative societies and Government. The part played by joint, stock banks in the financing of industries is negligible. Under a plan of development finance should be provided either by co-operative organisations or by Government. While state-aid is needed for the purpose, it may be the general practice for this to be made available through co-operative organisations. These organisations will be the primary societies consisting of the various types of artisans and the District Industrial Associations which may be federations of primary units each in a compact tract with homogeneous economic conditions, not necessarily a revenue District. The District Industrial Associations at present obtain the requisite finance from co-operative central banks but are themselves subsidised by Government and in their initial stages or for specific purposes obtain a guarantee fund from Government. This form of assistance will need to be extended in future to promote a planned development of cottage industries. The artisans themselves are usually too weak economically to provide a fund of guarantee for the credit that they need. Hence the societies they form often remain under capitalized and consequently fail to function as economic units. That there is no adequate security for borrowing is the direct consequence. Losses arise occasionally owing to price fluctuations and other factors and there is no source from which to meet them. Creditors have often to incur losses on their advances to industrial societies. Co-operative central banks are hence loath to grant accommodation to industrial societies with a small owned capital and because of this inability to secure adequate financial support in the initial stages schemes for industrial co-operation are either abandoned or have failed to fructify.

To meet a situation like this in respect of the handloom weaving industry the following scheme of finance was approved of by the Government of Bombay in 1935 for the encouragement of Co-operative District Industrial Associations intended mainly for weavers :

"The Joint Board may hand over the first year's provision of Rs. 2,000 to each of the Associations at the commencement of its operations. This first year's grant shall be treated as a Reserve Fund of the Association. It will serve as a security for loans taken from the District Central or Bombay Provincial Co-operative Bank, which Bank will have the first charges on the amount of this Reserve Fund.

"If during the five years for which the scheme has been sanctioned, an Association incurs in any one year any loss on account of bad debts or depreciation of stocks, this loss shall be recouped out of the provision of Rs. 2,000 which will be available from the subsequent year's grant it being understood that Government agree to recoupe such loss only to the extent of Rs. 2,000 in any one year. The loss on account of bad debts or depreciation of stocks incurred during the fifth year of the scheme shall, however, be met from the grant for this purpose for that year only as no Government grant in this connection will be available after the period of five years for which the scheme has been sanctioned.

"After recouping the loss, if any, on account of bad debts and depreciation during the previous year, if there shall remain any surplus from the grant of Rs. 2,000 set aside for the 2nd, 3rd, 4th and 5th years of the scheme, the same may at the discretion of the Joint Board be handed over to the Association to augment its reserve. The Director of Industries should decide what should be treated as 'bad debts' and what should constitute 'depreciation.'

“The amount of the Reserve Fund contributed by Government under the above paragraphs may be withdrawn by the Joint Board at the end of five years or earlier if the Board is satisfied that the Associations' own capital and reserve provide adequate security for outside borrowings.”

If arrangements for finance for cottage industries are organised on these lines there will not be any need to establish a separate industrial bank for cottage industries. Government may provide the guarantee fund for groups of workers or cottage industries which are unable to provide the initial capital or to meet fully the preliminary expenses of organisation. This will, however, scarcely be a satisfactory method of finance for a large scale programme of development. The most suitable agency for the purpose will undoubtedly be an industrial co-operative bank to be registered under the Bombay Co-operative Societies Act on the lines recommended in paragraph 217 of the report of the Bombay Economic and Industrial Survey Committee. The main features of the scheme should be as under :

(1) The principal object should be to provide finance for cottage industries primarily through industrial associations but if necessary direct to the primary unit also. Power may be taken to deal with individual artisans in special circumstances.

(2) The memberships should be restricted to industrial societies and associations and all classes of co-operative institutions.

(3) Government may subscribe to share capital to a limited extent and should guarantee the principal of and interest on the debentures to be raised by the bank. Government should also grant a subsidy towards the establishment charges, on the analogy of the subsidies granted to the Provincial Land Mortgage Bank and the Marketing Society.

(4) In a composite Board of management Government should be represented by two Directors, preferably the Registrar of Co-operative Societies and the Director of Industries. A minimum representation should be guaranteed to the constituent industrial institutions.

(5) Deposits should not be accepted for a period under 12 months.

(6) Dividends should be limited to 6 per cent and rebates to borrowers should be allowed after payment of a dividend of 4 per cent, to the shareholders.

(7) The initial share capital to be paid up should be Rs. 5 lakhs. Debentures should be restricted in amount to a multiple of thrice the paid up capital.

(8) The industrial bank may be allowed to utilize the services of the technical staff of the Department of Industries in the initial stages, but should aim at having its own technically qualified staff for the work of investigating proposals for finance and offering advice and guidance to its constituent units.

(9) The bank should have the authority to grant assistance to constituent bodies out of subsidies received from Government to promote guarantee funds to meet deficits in establishment charges, to write off losses on business and to remit interest charges.

(10) In order to enable the Co-operative Industrial Bank to have access to the Reserve Bank of India the Reserve Bank of India Act should be so amended as to permit the Bank under Section 17 (2) (a) to deal with bills or promotes drawn for industrial finance which are presented through the Provincial Co-operative Bank.

III. For meeting the requirements of the small-scale industries the Central Banking Inquiry Committee recommended the establishment of an industrial bank. Each Province may have its own bank and the following are the main features of such a corporation as conceived by the Banking Inquiry Committee :

(1) The institution should raise funds by shares and debentures principally. Government may subscribe to the shares and offer a limited guarantee on the debentures.

(2) The main business should be the grant of long term finance for development and extension.

(3) Debentures should be limited in amount to twice the paid up capital and no deposits should be taken for periods of less than 2 years.

(4) Government should be represented on the Board of Directors of the institution.

The Bombay Economic and Industrial Survey Committee too favoured the establishment of an industrial bank for small-scale industries. The principal features of the scheme it outlined are as under :—

(1) The bank should have a share capital of Rs. 25 lakhs.

(2) A minimum rate of dividend in the capital should be guaranteed by Government and profits in excess of the minimum say of 4 per cent. should be shared between the Government and the shareholders.

(3) Government should be represented on the directorate of the bank, one of the representatives being the Director of Industries.

(4) The services of technical experts should be made available to the institutions.

(5) Advances should ordinarily be confined to existing concerns for working capital or for extension or improvement of their capital equipment. There may be a limit imposed on the amount of accommodation that can be granted to an individual concern as also on the size of the concern eligible for finance.

It does not seem necessary to offer any guarantee on the share capital. This should be provided by subscription by the general public and particularly by joint stock banks. A corporation on the lines indicated has recently been formed in England at the instance of the Bank of England and of the British Government. It is understood that in India the Reserve Bank of India has under consideration a scheme for an industrial corporation. The good offices of the Reserve Bank may be utilized in organizing an industrial bank for the Province whose object will be the financing of small-scale industries. The industrial bank may, not in a programme of planned development, confine its finance only to existing institutions. It may provide funds on approved lines to newly established concerns. For this purpose, it will have to float debentures. On the debentures that may be issued Government may offer a guarantee for a restricted period and up to a limited amount. In return, they may claim representation on the board of management.

Pending the formation of an industrial bank for the Province, Government should continue to extend assistance to small-scale industries after revising suitably the rules framed by them for the grant of financial assistance.

CHAPTER VII.

SUMMARY OF RECOMMENDATIONS.

Textile (Cotton).

1. In order to provide efficient equipment and to organise the weavers so that their production might be increased, and they are enabled to earn a fair wage and compete with the mills to a reasonable extent, the Sub-Committee recommends that ordinary fly-shuttle type of handlooms may be gradually converted into, or replaced by, the automatic take-up type of loom.

2. Wherever power is available, or made available from the Electric Grid System, weavers should be encouraged to install power-looms. The individual power looms should be expanded by about 50 per cent. and about one-third of the total number of handlooms should be converted into the 'automatic' take-up type. The throw-shuttle looms which are only about 15 per cent. of the total should be replaced by fly-shuttle looms.

3. In order to provide suitable yarn to the handloom industry about 15 new spinning mills each having 30,000 spindles should be established and located at the following places :—

Surat, Dhulia and/or Jalgaon, Malegaon, Sholapur, Bagalkot, Gadag or Hubli and Belgaum.

As soon as machinery is available from abroad at least half a dozen mills should be set up in the Districts.

Demobilised soldiers or technical men retiring from the Services should be trained to operate power-looms or automatic take-up looms and produce cloth.

4. In order to overcome the difficulties experienced by the handloom and powerloom industries for want of facilities at the different centres for bleaching and finishing of cloth and yarn, central dye-houses may be started by the District Industrial Association, and either Government owned or subsidised finished plants may be started in such important centres as Sholapur, Malegaon and Bagalkot.

Textile (Woollen).

5. The quality of wool should be improved by starting sheepbreeding farms at different centres where wool is available. Efforts should be made to improve the lot of the existing workers.

6. One of the drawbacks of the woollen industry is that the yarn which is usually spun by women is extremely uneven. Possibilities of installing small domestic spinning plants in some of the centres should be investigated. After plants become available, units may be installed by Co-operative Societies at Gadag, Dharwar and Ahmednagar, etc. Fly-shuttle and automatic take-up looms may be introduced wherever possible to increase production.

The manufacturing of carpets should be revived in the Province as there is a large market for carpets in the U. K., U. S. A., Australia and New Zealand.

Hosiery.

7. When hosiery machines and their accessories are imported or made in India and yarn is made available, several units for the production of hosiery goods should be started on a cottage scale wherever power is available in towns and villages. Machines for making shoe-laces and file strings should also be operated together with the hosiery machines.

Sericulture.

8. As soon as it is found that the sericulture industry in the Belgaum-Dharwar area is successful, silk farms should be started in the Nasik.

Satara and Poona Districts, after carrying out experiments to find out if proper rearing of worms can be done on a large scale in these Districts and a scheme such as the one operating in the Belgaum-Dharwar District should be prepared for the three new Districts.

9.- For the utilisation of waste silk, people should be sent to Mysore, in due course for learning how to spin waste silk into yarn.

10. As a subsidiary industry, the preparation of silk guts for surgical purposes should not be overlooked.

Ericulture.

11. Investigations should immediately be carried out to see if the ericulture industry can be developed in Gujerat. Services of an expert should be secured from the Silk Institute at Bhagalpore and small centres started at suitable places in the Ahmedabad District.

Gold and Silver Thread.

12. During the war, soldiers from the allied forces and particularly from the U.S.A. took considerable interest in gold—thread goods. Steps may be taken to create markets in foreign countries for gold-thread goods.

13. A trade school may be run in the Surat city for training hereditary artisans to improve their technique and produce new designs. A research laboratory may also be established in the city so that the quality of 'jari' articles produced may be so improved as to compare with the gold thread of the kind which used to be produced, as for instance, in France a few years ago.

14. Efforts should be made to manufacture crucibles of the standard of the imported ones for melting metals required for 'jari' industry. The melting and annealing furnaces may be modernised and the winding and flattening machines improved.

15. As there is a scope for further development of the industry on a cottage or small-scale by 33 per cent. more electric power may be provided and raw materials such as silk, art silk, cotton yarn, chemicals, etc. made freely available.

16. As about 20 to 30 tons of copper wire are required per month in Surat, a plant for metal melting and wire drawing may be put up there by a manufacturers' Co-operative Industrial Organisation.

Fibre.

17. The cultivators should be taught the advantage of growing Sann Hemp as a fibre crop instead of only a crop for green manuring, and an attempt should be made to increase the production by about 25 per cent. during the next 5 years or so.

18. A scheme for cultivation of Ambadi fibre on a large scale and the production of Ambadi fibre from it on a cottage basis, and for installing a mill similar to a jute mill for producing hessian, etc. should, after a detailed investigation be prepared. Its result should be watched and further development planned accordingly.

19. Plantations of a few thousand acres with Aloe fibre should be encouraged for producing fibres not only for the cottage workers on an organised basis but also to feed a small rope factory which should be started as an experimental measure. Wherever possible the fibre workers should be organised and raspadors

installed at the centres where also fibre is growing so that full use is made of the fibre grown. A comprehensive survey should be made.

20. A central institute of development and research may be installed on the pattern of the Dehra Dun Forest Research Institute where all problems relating to the cultivation, processing and improvement of different fibres can be dealt with.

Coir.

21. In order to develop the coir industry both on a cottage scale as well as on a small-scale or a large scale factory basis about half a dozen demonstration parties should be started immediately. Coir fibre should be produced in the first instance on a cottage scale and then converted into coir products by the small factories. This will enable the coir resources of the Province to be utilised as much as possible.

22. Factories may also be established in some of the coastal villages in the North Kanara, Ratnagiri, Kolaba and Thana Districts to manufacture such articles as yarn, ropes, matting, fancy fibres mats, etc.

Paper.

23. Although hand-made paper made from waste paper, etc. cannot be produced economically so as to compete with machine-made paper, special types of paper like currency paper, document paper, drawing paper, blotting paper, filter paper and high grade writing paper can be produced on a cottage scale. An attempt should be made to train the hereditary workers in Ahmedabad, Erandol and Junnar. The process should be semi-mechanised.

Wherever practicable calendering machines should be installed at the 'Karkhanas' where paper can be glazed. Government may encourage the Kagdis by purchasing the paper made by them.

Tanning and Leather working.

24. Greater attention should be paid to tanning of skins and producing leather such as glazed-kid, etc. and leather articles such as hand-bags, purses, etc. and industrial leather articles such as belting, pickers, etc. Steps should be taken to develop the tanning industry in the different centres of the Province, on modern lines.

Glue.

25. Glue is a by-product of hides and skins. Fleshings and hide-cuttings are not utilised as the village tanners do not have the knowledge of how to prepare glue from them. The Sub-Committee, therefore, recommends that efforts should be made to train tanners to manufacture glue during the dry months of the year. Co-operative societies of tanners should be induced to take up the manufacture of glue.

Mechanical and Metal.

26. Small workshops costing about Rs. 15,000 to Rs. 20,000 should be established at the headquarters of such Talukas as have been selected by Government for extensive development in the post-war years. In addition to this, workshops should be installed in the selected Talukas of the following Districts which are comparatively undeveloped :—

- Khandesh,
- Kaira,
- Broach and
- Panch-Mahals.

Such workshops may be started immediately, as an experimental measure, at the following places :—

Baramati	...	Poona District.
Karad	...	Satara District.
Bijapur	...	Bijapur District.
Belgaum	...	Belgaum District.
Sholapur	...	Sholapur District.
Hubli	...	Dharwar District.

Carpentry, Wood-working, etc.

27. Small workshops costing about Rs. 10,000 each should be established at the headquarters of such Talukas as have been selected by Government for extensive development in the post-war years. In addition to this, workshops should be installed also in the selected Talukas of the following Districts which are comparatively undeveloped :—

Khandesh,
Kaira,
Broach and
Panch-Mahals.

Such workshops should be started immediately, as an experimental measure, at the following places :—

Karad	...	Satara District.
Khed	...	Ratnagiri District.
Roha	...	Kolaba District.
Bagalkot	...	Bijapur District.

28. Timber and wood-working industry is very important and small-scale industries should be established, particularly in the forest areas so that the best use can be made of the forest wealth of the Province. It is recommended that Government may provide the co-operative societies with timber at concession rates.

Bamboo and Cane Work.

29. There is a scope for the development of the industry in the manufacture of utility articles on a cottage scale from bamboo and cane all over the Province although artisans employed in the manufacture belong to a very poor class and are mostly illiterate. With proper training and organisation and the assistance of demonstration parties, co-operative societies should be established wherever possible so that artisans can purchase their raw materials cheaply and dispose of their articles at a fair price. Although the equipment required by the cane and bamboo workers is simple, attempts should be made to introduce machines in order to obtain larger production.

Lac.

30. Lac-cultivation and utilization is in a very elementary stage at present in the Province. The main lac producing Districts are the Panch Mahals, Surat, Khandesh, Dharwar and Bijapur. Though certain areas are unsuited for the cultivation of lac, efforts should be made to introduce this important industry successfully in the Province.

31. As there is a fairly large collection of lac in the area around Godhra a few small-scale factories can be put up for the production of shellac and button-lac. The Forest Department should engage experts, if necessary, after consulting the Indian Lac Research Institute, to make surveys and to train people in this Province in the industry.

Glass Bangle.

32. Although glass bangle workers assisted by the Department of Industries are successfully conducting their business at certain places, there is a scope for extending the glass bangle industry in some of the Talukas of the following Districts :—

Bijapur, Belgaum, Ahmednagar and Nasik.

Pottery, Bricks, Tiles, etc.

33. Potters should be organised to form co-operative societies wherever possible. Small industrial units should be established at Derol in the Panch Mahals District, near Khanapur in the Belgaum District, Honavar in the North Kanara District and near Jalgaon in the Ratnagiri District. More demonstration parties should be located in some central places where training could be given to 'kumbhars' coming from neighbouring localities. A central factory on a small scale should be established for providing prepared raw materials, glazefrit, plaster moulds, etc. at one suitable centre. Potters should be taught to make glazed-ware to a larger extent and also crockery-ware for which there will be demand in the towns in the near future.

Bee-keeping.

34. On the lines of the development of the bee-keeping industry on a cottage basis in the North Kanara District, efforts should be made to develop this industry in the Districts of Ratnagiri and Kolaba. In each of these Districts about 3,000 colonies should be introduced in the next 5 years. The colonies in the Kanara District can now be appreciably increased. Similarly this industry may also be introduced in the District of Nasik and further developed in the Satara District.

Fruit preservation.

35. As an experimental measure, Government demonstration centres should be started in the Surat, Ratnagiri and Ahmednagar Districts for producing mango pulp and citrus fruit juice. Students should be admitted for training in the preparation of jams, jellies, chutnies, pickles, etc. at the centres.

Gur.

36. The Sub-Committee recommends that for the purpose of increasing the production of gur in the different parts of the Province, the cultivation of sugar-cane may be encouraged, in addition to food-grain crops, even in non-irrigated areas, by establishing co-operative societies and installing pumping stations along the river banks and for supplying water from wells.

37. As certain type of sugar-cane cannot be crushed efficiently in hand-operated mills it is suggested that efficient power-driven mills should be installed for crushing sugar-cane.

38. Arrangements should be made for neutralization and clarification of juice by means of Fullers earth, etc., and evaporating pans of improved design should be introduced to prevent juice being caramalised.

Vegetable Oils.

39. In the next five or ten years, the existing inefficient country 'ghanies' should be replaced by improved type 'ghanies' designed by the Department of Industries. The telies in villages having a population of 1,000 and over should be induced to use improved type 'ghanies.'

40. The Sub-Committee suggests that parity between the price of mill and 'ghani' oils for edible purposes should be maintained by Government for assis ing the cottage industry. The 'teli' should be encouraged to produce 'Til' and 'Kardi' oils rather than ground-nut oil.

41. As cocoanut oil is used for edible purposes in parts of the Konkan, the area under cocoanut plantation should be increased in order to encourage cocoanut oil supply.

42. The policy of Government may be to encourage installation of expellers more in the District towns than in the cities. More tank wagons may be put in service to transport oil to the cities either for manufacturing different products from it or for export.

Essential Oils.

43. The Sub-Committee recommends that in order to improve the quality and yield of Rosha grass oil, Cinnamon leaf and bark oil and other essential oils, simple steam distillation apparatus may be introduced on a larger scale and the crude oil collected from the cottage workers sent to a central distillation plant for further treatment, purification, etc.

44. It is also suggested that in addition to improving the methods of distillation and treatment, cultivation of the plants in suitable areas may be undertaken on a larger scale.

Art-crafts.

45. At present 10 scholarships of Rs. 30 per month, tenable for two years, are given to hereditary workers engaged in different art-crafts for obtaining training in recognised schools within or outside the Province. As the number of applications received for scholarships is large, a larger number of scholarships may be allotted to different subjects.

Miscellaneous.

46. The Sub-Committee recommends that efforts should be made to develop some of the following cottage and small-scale industries on a co-operative basis so that a larger number of people will be employed and the quality of the product will be improved :—

Confectionery and biscuits,
Bidi-making,
Snuff,
Akik stones,
Agarbatti,
Rice-pounding and husking,
Kumkum, etc.

Cottage and Small Scale Industries in Bombay City and the Suburbs.

48. The Sub-Committee recommends that efforts should be made to develop some of the cottage and small-scale industries existing in the city and its suburbs as suggested in the Report.

Mechanical and Electrical Power.

49. The Sub-Committee suggests that in order to increase production of the individual worker, to do away with drudgery and to enable the peasant to have leisure and comfort, fullest use must be made of mechanical and electrical power wherever it is available, without displacing human labour. Simple appliances operated by means of mechanical or electrical power should be introduced and adequate training should be given to artisans to work such equipment.

50. Where electric power is not available, oil engines may be installed to drive machinery.

51. It is understood that several thousand Horse Power in some of the cotton ginning and pressing factories in the Province remains idle for the greater part of the year. A detailed investigation should be carried out to see how this surplus power can also be utilised for industrial purposes other than cotton ginning and pressing.

52. The Sub-Committee recommends that electrification of the Province should be carried out as expeditiously as possible and facilities should be provided for the artisans to go in for machinery.

Co-operative Societies.

53. The Sub-Committee recommends that co-operative societies of workers in the different cottage and small-scale industries may be established at the suitable centres mentioned in the foregoing chapters.

Organisation.

54. The Sub-Committee is of opinion that control of industries should be in the hands of Government and cottage industries should be organised jointly by the Co-operative and Industries Departments.

55. A Provincial Industrial Federation as per one of the Post-war Schemes of the Government of Bombay should now be set up to co-ordinate the activities of the District Industrial Associations.

56. The Sub-Committee recommends that District Industrial Associations may now be established in each of the Districts where there are no Associations. For the time being the District Industrial Associations will cater to the needs of all the cottage industries in the Districts.

57. The Sub-Committee recommends that special institutions may be established in each of the three Divisions of the Province to train demonstrators in various lines such as weaving, dyeing, tanning, leather working, metal working, carpentry, cane and bamboo, fibre and pottery.

58. The District organisations of the Department of Industries should be such that a fairly accurate survey of cottage industries can be made every five years.

59. In order that the products mostly meant for rural areas may be marketed with advantage, the functions of the Rural Co-operatives, i.e. multi-purpose societies or Agricultural Credit societies should be enlarged so that marketing of cottage industries products can be done through them. The Customer Agency Scheme which has been successful in the Nasik District should be given a trial in the other Districts as well.

60. The Co-operative structure as visualised in the Report may not cover all the industries and the individuals employed therein. Some organisations will, therefore, have to be set up for helping such industries and individuals.

61. Co-ordination of the work of Co-operative and other organisations working in the same field will be necessary and for that purpose it would be desirable to set up Committees as may be necessary for the Districts and for the Province.

Finance.

62. The Sub-Committee recommends that the most suitable agency for giving financial assistance to persons engaged in subsidiary occupations will be the village co-operative societies either credit or multi-purpose. Separate societies for such workers may not ordinarily be encouraged but should be allowed to be formed where there are homogenous groups of persons who are not members of other co-operative societies.

63. The funds which will be needed for the purpose can be obtained by the societies from the Co-operative Central Banks. For persons who reside at places where there are no village co-operative societies, finance may be provided by Government under the Agriculturists Loans Act or the State-aid to Industries Rules which may have to be amended to enable such finance being undertaken.

64. Finance for workers in cottage industries should be provided either by co-operative organisations or by Government.

65. A scheme such as that adopted by the Government in 1935 for the encouragement of Co-operative District Industrial Associations may be continued.

66. For a large scale programme of development, the most suitable agency would be an Industrial Co-operative Bank to be registered under the Bombay Co-operative Societies Act on the lines recommended by the Bombay Economic and Industrial Survey Committee. A similar arrangement will have to be made in the case of industries and individuals not covered by co-operative organisations.

67. The Sub-Committee favours the establishment of an Industrial Bank for small-scale industries. Pending the formation of an Industrial Bank, the Government of Bombay may continue to extend assistance to small scale industries after revising suitably the rules framed by them for the grant of financial assistance.

Plan of Development.

68. Experts should work out details, particularly for new industries and prepare schemes for an extensive industrial development in rural areas on the basis of a five year plan.

CHAPTER VIII.

CONCLUSION.

The survey of cottage and small-scale industries in the foregoing Chapters should not be considered exhaustive. However, it is hoped that it will form a basis for further development of the industries in the Province. Such a survey is useful to get a perspective view of industries and to formulate policies for the development of industries.

Experts should work out details, particularly for new industries and prepare schemes for an extensive industrial development in rural areas, on the basis of a five year plan.

Side by side with the establishment of a good many large-scale industries in the Province, extensive development of cottage and small-scale industries is essential and, therefore, the efforts of the Sub-Committee will be rewarded if Government action on this Report helps the cottage workers of this Province in bettering their position.

B. M. RANE.
(Secretary).

8th August, 1946.

M. P. KANGA.
P. J. CHINMULGUND.
N. M. JOSHI.
H. L. KAJI.
F. E. BHARUCHA.
J. K. MEHTA.
S. K. KALLAPUR.
R. D. DESAI.
S. M. DHUME.
S. Y. ANANDKAR.

APPENDIX

GENERAL INFORMATION—

(Based on Information given in Vol. II, Report of the Bombay

		1	2	3
ITEMS.		BOMBAY CITY.	BOMBAY SUBURBAN DISTRICT.	THANA.
1	Area (Sq. Miles) ...	24	154	3,422
2	Rainfall (Average) ...	75	...	98
3	Population (Census 1931)			
	Rural ...	...	68,320	756,532
	Town ...	1,161,383	111,204	80,093
	Total ...	1,161,383	179,524	836,625
4	Towns (No.) ...	...	8	5
5	Villages (No.) ...	...	87	1,547
6	Workers—			
	Exploitation of animals and vegeta- tion.	10,690	15,718	278,342
	Exploitation of minerals	1,077	807	3,372
	Industry ...	176,312	17,313	20,657
	Transport ...	50,728	4,986	6,315
	Trade ...	84,974	7,961	7,625
	Insufficiently described	125,995	12,328	13,141
	Unproductive ...	6,735	1,424	2,318
	Others ...	103,415	14,432	13,514
	Total ...	559,926	74,969	345,284
7	Health and Medical Facilities.			
	Births per 1,000 ...	27.97	23.36	33.13
	Deaths per 1,000 ...	23.38	16.84	21.13
	Survival Rate ...	4.59 lowest.	6.52	12.86
	Population per Doctor ...	...	...	6,000

A.

ECONOMIC, INDUSTRIAL ETC.

Economic and Industrial Survey Committee 1938-40).

4	5	6	7
SURAT.	AHMEDABAD.	KAIRA.	BROACH AND PANCH MAHALS.
1,651	3,846	1,620	1,608
40 to 60	29	34	40
551,010	600,200	616,030	B. 265,290 P. 381,708
142,603	399,568	123,020	141,608
693,013	999,768	741,650	788,696
5	12	10	10
780	869	570	1,051
128,008	108,983	148,100	167,972
184	1,207	250	1,059
32,603	83,915	10,690	16,826
6,257	9,881	2,004	4,604
10,514	17,579	10,175	10,252
18,179	13,443	9,205	14,842
703	3,413	2,591	1,205
11,314	21,145	13,529	14,322
197,824	261,566	205,544	231,082
43.46	45.4	42.74	B. 47.70 P. 36.96
27.45	33.5	32.08	B. 30.49 P. 23
10.01	11.9	10.66	B. 17.3 P. 13.96
8,900	18,700	11,600	B. 24,966 P. 0,375

B = Broach.
P = Panch Mahals.

ITEMS.	8	9	10
	AHMEDNAGAR.	WEST KHANDESH.	EAST KHANDESH.
1 Area (Sq. Miles) ...	6,611	6,401	4,551
2 Rainfall (Average) ...	22	23	28
3 Population (Census 1931)			
Rural ...	889,546	671,386	912,940
Town ...	98,660	100,408	293,086
Total ...	988,206	771,794	1,206,035
4 Towns (No.) ...	7	8	29
5 Villages (No.) ...	1,350	1,484	1,468
6 Workers—			
Exploitation of animals and vegetation.	270,349	208,214	309,644
Exploitation of minerals.	9	...	...
Industry ...	38,099	20,855	48,921
Transport ...	2,171	1,495	6,617
Trade ...	11,064	12,205	10,455
Insufficiently described	4,527	1,843	23,974
Unproductive ...	4,411	1,850	6,582
Others ...	20,380	13,167	17,752
Total ...	360,910	259,620	432,945
7 Health and Medical Facilities—			
Births per 1,000 ...	44.03	50.01	46.68
Deaths per 1,000 ...	27.35	28.26	30.05
Survival Rate ...	16.68	21.75	16.63
Population per Doctor ...	33,300	36,600	20,600

A—contd.

11	12	13	14
NASIK.	POONA.	SATARA.	SHOLAPUR.
5,882	5,332	5,053	4,560
30	27	25 to 30	28
843,640	857,098	1,067,405	638,546
156,408	312,700	112,307	238,974
1,000,048	1,169,798	1,170,712	877,520
10	12	11	9
1,636	1,192	1,330	708
264,872	251,707	293,962	198,075
.....
37,830	41,858	32,672	67,672
7,180	6,788	2,564	4,279
17,298	21,236	9,040	13,850
9,492	18,359	6,297	11,660
3,047	10,313	4,824	5,768
16,997	44,883	13,392	16,752
355,717	985,144	362,751	317,556
42.59	38.04	40.56	44.90
28.88	26.09	25.58	33.04
14.71	11.05	14.98	11.86
20,000	21,800	17,500	21,200

APPENDIX

		15	16	17
ITEMS.				
		BELGAUM.	BIJAPUR.	DIJARWAR.
1	Area (Sq. Miles) ...	4,612	5,710	4,606
2	Rainfall (Average) ...	50	21	33
3	Population (Census 1931)			
	Rural ...	949,956	759,104	820,314
	Town ...	126,745	110,116	282,363
	Total ...	1,076,701	869,220	1,102,677
4	Towns (No.) ...	9	8	17
5	Villages (No.) ...	1,080	1,112	1,279
6	Workers—			
	Exploitation of animals and vegetation.	211,095	186,506	207,490
	Exploitation of minerals.	...	...	4
	Industry ...	31,126	35,092	50,650
	Transport ...	2,085	1,091	5,815
	Trade ...	14,648	13,485	25,067
	Insufficiently described	18,946	13,330	27,466
	Unproductive ...	4,629	5,252	3,568
	Others ...	12,272	8,699	14,911
	Total ...	294,201	263,365	334,971
7	Health and Medical Facilities—			
	Births per 1,000 ...	40.03	41.40	37.45
	Deaths per 1,000 ...	27.49	31.46	29.93
	Survival Rate ...	12.54	9.94	7.52
	Population per Doctor.	25,330	37,368	17,406

A—contd.

18	19	20	REMARKS.
N. KANARA.	KOLABA.	RATNAGIRI.	
3,946	2,166	3,989	
Heavy and varies.	90	80 to 105	
348,557	580,508	1,211,376	
60,278	48,213	91,151	
417,835	628,721	1,302,527	
7	7	5	
1,226	1,409	1,306	
73,217	221,931	404,937	
.....	088	155	
9,446	9,346	22,455	
3,878	2,794	6,653	
5,932	6,344	10,594	
6,810	5,469	3,933	
1,863	1,303	1,793	
5,941	12,333	15,622	
106,096	260,208	466,142	
34.27	38.91	34.48	
28.91	23.90	19.82	
5.96	15.01	14.66	
14,417	15,600	20,200	

Items.	1	2	3
	BOMBAY CITY.	BOMBAY SUBURBAN DISTRICT.	THANA.
8 Literacy: Education—			
Literate persons ...	280,925	37,994	65,960
Schools—			
Primary ...	523	124	581
Secondary ...	110	20	28
Industrial & Commercial	49	3	6
No. of villages having schools.	...	...	474
9 Roads—			
Metalled (mileage) ...	224	...	876
Unmetalled (mileage)	...	...	248
Agricultural, Forests, Etc.—			
10 Area (Acres)—			
Gross cropped ...	No room for agri-culture.	20,071	642,207
Forests ...	...	2,545	835,483
Uncultivable ...	...	25,389	292,147
Current Fallow ...	...	18,890	382,026
Culturable Waste ...	...	15,251	52,489
Total ...	...	91,016	2,197,061
11 Crops (Area in Acres)—			
Rice ...	...	12,608	336,562
Wheat ...	...	...	105
Barley ...	...	...	...
Jawari ...	...	...	762
Bajari ...	...	...	...

A—contd.

4	5	6	7
SURAT.	AHMEDABAD.	KAIRA.	BROACH AND PANCH MAHALS.
114,940	119,397	91,691	B. 61,896 P. 33,511
582	640	716	634
65	49	51	30
5	8	5	4
505 Good facilities.	363	366	429
321	216	240.40	230
338	342	35.23	230
837,392	1,048,911	874,015	1,272,331
46,630	9,115	.....	202,022
176,523	406,376	157,378	364,067
21,811	254,949	16,149	100,486
44,440	75,544	14,946	104,891
1,058,197	2,465,694	986,837	1,968,532
110,151	68,431	110,770	101,073
13,861	273,052	19,048	73,746
.....	2,385	.....	2,060
75,414	406,084	42,393	121,230
3,661	121,924	135,650	32,346

B = Broach,
P = Panch Mahals.

ITEMS.	8	9	10
	AMMEDNAGAR.	WEST KHANDESH.	EAST KHANDESH.
8 Literacy : Education—			
Literate persons ...	59,475	45,420	110,474
Schools—			
Primary ...	852	497	853
Secondary ...	12	14	39
Industrial & Commercial.	7	2	...
No. of villages having schools.	654	344	617
9 Roads—			
Metalled (mileage) ...	805	1,002	1,002
Unmetalled (mileage)	379	733	733
		Both E.W.	Both E.W.
Agricultural Forest, Etc.—			
10 Area (Acres)—			
Gross cropped ...	2,992,236	1,702,251	1,986,204
Forests ...	492,130	1,333,516	408,654
Uncultivable ...	468,418	275,452	363,051
Current Fallow ...	335,284	120,829	114,398
Culturable Waste ...	34,549	164,601	62,615
Total ...	4,242,462	3 480,859	2,908,695
11 Crops (Area in Acres)—			
Rice ...	21,394	50,230	491
Wheat ...	184 016	125,391	56,805
Barley ...	...	...	...
Jawari ...	980,342	265,181	328,888
Bajri ...	851,108	295,679	241,800

A—contd.

11	12	13	14
NASIK.	POONA.	SATARA.	SHOLAPUR.
78,897	128,700	77,432	62,006
669	965	1,063	609
25	56	23	25
3	13	2	4
514	675	796	428
634	428	778	480
1,646	789	1,363	550
2,345,685	2,267,875	2,271,923	2,243,968
801,494	407,947	441,878	89,273
401,520	421,100	329,122	345,641
239,840	498,094	197,204	355,140
42,172	14,578	24,732	21,124
3,771,640	3,427,658	3,134,335	2,924,117
07,393	95,279	60,446	4,158
280,674	70,239	57,302	26,502
.....	1,155	2,315	1,009
174,850	1,012,831	582,047	1,438,451
896,158	481,645	354,181	146,838

ITEMS.	15	16	17
	BELGAUR.	BIJAPUR.	DHARWAR.
8 Literacy: Education—			
Literate persons ...	64,232	50,909	114,765
Schools—			
Primary ...	754	676	922
Secondary ...	26	11	27
Industrial & Com- mercial. ...		1	1
No. of villages having schools.	504	497	663
9 Roads—			
Metalled (mileage) ...	564	500	968
Unmetalled (mileage)	359	322	338
Agricultural, Forest, Etc.—			
10 Area (Acres)—			
Gross cropped ...	1,910,482	2,920,311	2,270,330
Forests ...	450,001	173,994	236,145
Uncultivable ...	220,035	196,597	243,460
Current Fallow ...	333,896	337,663	183,367
Culturable Waste ...	53,075	38,226	37,851
Total ...	2,937,751	3,653,528	2,949,908
11 Crops (Area in Acres)—			
Rice ...	120,236	5,262	137,861
Wheat ...	140,364	226,371	283,854
Barley ...	1,076	3,564	...
Jawari ...	618,076	1,479,374	546,369
Bajri ...	148,290	314,584	5,940

A—contd.

18	19	20	
N. KANARA.	KOLABA.	BATNAGIRI.	REMARKS.
40,732	42,450	85,093	
368	420	796	
17	17	31	
.....	2	2	
281	340	532	
553	203	956	
660	325	1,048	
243,653	421,795	803,894	
2,063,913	328,963	12,436	
73,545	238,781	723,632	
104,870	392,716	1,051,002	
58,025	19,952	9,327	
2,527,059	1,385,635	2,564,322	
156,845	277,146	300,658	
.....	
.....	.....	193,117	
465	.....	.....
.....	35,389	.....

A—contd.

4	5	6	7
SURAT.	AHMEDABAD.	KAIRA.	BROACH AND PANCH MAHALS.
6 394	2,973	47,358	17,112
.....	5,768	1,638	108,329
3 190	52,193	9,032	50,932
90,584	53,454	141,446	148,965
.....
1 098	31 324	8,560	27,758
.....	17,033	.....	.....
6 760	71,278	55,973	90,457
7,647	5,613	5,464	4,835
129	483	251	2,429
1,626	2,228	4,775	2,741
3,031	558	177	597
197,975	387,686	96,375	350,165
3,048	1,812	3,371	4,388
539	5,304	80,117	3,513
301,998	130,232	106,900	124,034
10,142	8,894	4,555	4,080
144	202	162	541
837,392	1,648,911	874,015	1,271,331
860	906	1,375	609
3,701	3,833	1,963	3,060
6,381	4,086	1,263	1,116

		8	9	10
ITEMS.		AHMEDNAGAR.	WEST KHANDESH.	EAST KHANDESH.
11	Crops (Area in Acres)— <i>contd.</i>			
	Raji ...	25,710	25,590	...
	Maize ...	1,418	9,914	616
	Gram ...	100,254	49,613	8,352
	Other food grains (including pulses).	293,975	180,245	269,975
	Linseed ...	25,019	2,438	937
	Sesame (Til) ...	19,015	13,336	8,554
	Rape and Mustard ...	...	660	...
	Ground Nuts ...	25,077	104,341	325,513
	Castor Seed ...	...	10,066	...
	Other oil seeds ...	147,165	10,058	2,486
	Condiments and spices	5,761	8,798	14,142
	Sugar Cane and other sugars.	15,767	901	706
	Cotton ...	201,860	535,696	703,396
	Other fibres ...	8,773	6,426	4,788
	Tobacco ...	2,249	...	833
	Fodder crops ...	69,040	1,255	2,476
	Fruits and Vegetables	13,766	6,153	13,647
	Miscellaneous Food and Non-food crops	527	280	1,790
	Total ...	2,992,236	1,702,251	1,986,204
12	Vegetables—			
	Ordinary ...	2,563	1,702	1,158
	Green ...	2,769	3,450	4,015
13	Fruit Trees ...	7,915	1,172	9,763

A—contd.

11	12	13	14
NASIK.	POONA.	SATARA.	SHOLAPUR.
107,861	31,371	38,171	.....
2,781	1,629	9,572	6,943
71,568	77,466	79,197	57,541
204,739	120,821	216,989	99,393
21,857	661	2,226	7,434
8,178	6,048	.....	5,474
1,253	.....	.....	.....
41,855	27,713	218,988	108,640
676	.....	.....	852
67,574	103,123	36,459	109,174
8,679	10,127	31,130	8,213
8,372	10,952	8,720	2,846
88,343	17,912	11,739	40,694
4,965	1,955	5,280	7,003
428	928	14,825	1,429
202,966	158,888	525,539	157,356
23,817	35,669	14,626	7,429
705	1,463	2,171	580
2,345,685	2,267,875	2,271,923	2,243,968
12,060	24,259	8,872	3,192
7,493	6,026	2,743	2,137
3,719	8,285	2,946	1,938

ITEMS.	15	16	17
	BELGAUM.	BIJAPUR.	DIHARWAR.
11 Crops (Area in Acres)— <i>contd.</i>			
Raji ...	34,049	...	34,402
Maize ...	12,956	1,843	...
Gram ...	39,213	33,871	38,977
Other food grains (including pulses).	225,882	125,031	288,521
Linseed ...	3,721	36,829	10,491
Sesame (Til) ...	2,194	9,138	7,279
Rape and Mustard ...	...	...	...
Ground Nuts ...	96,193	89,377	81,435
Castor Seed ...	733	1,680	3,639
Other oil seeds ...	41,315	93,808	56,842
Condiments and spices	23,940	4,625	66,022
Sugar Cane and other sugars.	13,006	544	1,775
Cotton ...	178,205	472,699	573,604
Other fibres ...	8,832	4,804	5,639
Tobacco ...	57,705	1,123	622
Fodder crops ...	132,125	8,896	114,243
Fruits and Vegetables	10,426	6,725	11,012
Miscellaneous Food and Non-food crops	1,045	163	1,713
Total ...	1,910,482	2,920,311	2,270,330
12 Vegetables—			
Ordinary ...	5,555	3,159	3,056
Green ...	2,443	1,938	5,440
13 Fruit Trees ...	2,555	1,541	2,893

A—contd.

18	19	20	REMARKS.
N. KANARA.	KOLADA.	RATNAGIRI.	
1,728	.....	.....
.....	
307	565	.....
6,749	45,849	157,351	
.....	
193	2,567	13,597	
.....	
.....	
.....	
403	933	3,776	
4,208	573	1,910	
2,860	.....	802	
.....	
.....	.....	5,457	
.....	
28,709	54,454	99,372	
7,955	2,463	12,167	
33,231	1,856	15,687	
243,653	421,795	803,894	
631	552	361	
648	1,193	1,035	
6,698	762	10,568	

ITEMS.	1	2	3
	BOMBAY CITY.	BOMBAY SUBURBAN DISTRICT.	THANA.
14 Live Stock—			
Bulls and Bullocks ...	8,263	9,007	223,581
Cows ...	3,233	8,143	193,828
Buffaloes ...	1,182	1,810	41,950
Cow Buffaloes ...	25,354	14,178	50,544
Sheep Goats ...	19,868	6,634	69,215
Horses and Ponies ...	4,527	518	2,148
Donkeys ...	...	481	352
Camels ...	...	...	...
Milch Cattle ...	24,891	...	158,056
15 Capital—			
Agricultural Co-operative Societies. ...	...	...	128
Capital: Rs. in lakhs ...	...	...	4.92
Non-Agricultural Co-operative Societies. ...	206	...	50
Capital: Rs. in lakhs ...	300	...	40.39
P. O. Savings Banks ...	82	...	36
16 Factories—			
Number of factories...	824	57	50
Number of workers.	230,513	998	254,283

A—contd.

4	5	6	7
SURAT.	AHMEDABAD.	KATRA.	BROACH AND PANCH MAHALS.
166,987	19,252	156,439	251,060
111,146	147,572	38,773	147,250
17,051	34,068	21,427	18,696
98,789	182,928	245,354	544,636
128,601	130,935	82,005	118,279
2,136	7,275	1,887	7,284
389	12,254	5,593	4,827
.....	1,258	696	418
91,538	171,801	154,109	162,310
171	86	102	348
14.92	5.17	4.49	18.14
32	102	20	50
34.44	48	1.99	18.34
137	156	110	70
133	342	45	87
6,921	124,789	4,123	10,204

ITEMS.	8	9	10
	AHMEDNAGAR.	WEST KHANDESH.	EAST KHANDESH.
14 Live Stock—			
Bulls and Bullocks ...	386,761	237,311	293,909
Cows ...	312,632	149,151	175,329
Buffaloes ...	13,791	13,169	18,143
Cow Buffaloes ...	54,770	67,773	132,633
Sheep Goats ...	415,138	153,108	223,751
Horses and Ponies ...	18,088	12,913	8,859
Donkeys ...	6,564	3,735	6,947
Camels ...	...	...	...
Milch Cattle ...	235,438	116,383	183,987
15 Capital—			
Agricultural Co-operative Societies.	165	333	563
Capital : Rs. in lakhs ...	11	31.13	63.1
Non-Agricultural Co-operative Societies.	20	28	31
Capital : Rs. in lakhs ...	22.62	16.61	32.29
P. O. Savings Bank ...	88	17	60
16 Factories—			
Number of factories ...	119	90	144
Number of workers ...	4,277	8,564	15,405

A—contd.

11	12	13	14
NASIK.	POONA.	SATARA.	SHOLAPUR.
332,840	334,640	38,263	234,093
273,314	249,469	202,594	173,568
23,091	17,557	40,217	21,168
56,315	80,298	173,491	68,316
274,220	383,590	426,548	372,821
11,591	9,613	6,478	7,666
4,379	4,635	2,849	3,836
.....
191,132	181,733	246,701	122,066
252	218	350	208
17.55	25.92	25.09	17.29
25	60	46	44
4.28	31.8	12.84	9.65
75	129	153	66
48	97	9	181
4,374	10,543	463	25,436

ITEMS.	15	16	17
	BELGAUM.	BIJAPUR.	DHARWAR.
14 Live Stock—			
Bulls and Bullocks ...	212,308	213,954	254,854
Cows ...	13,673	150,424	168,304
Buffaloes ...	61,003	25,610	35,076
Cow Buffaloes ...	194,896	115,238	150,224
Sheep Goats ...	324,890	380,063	185,353
Horses and Ponies ...	4,322	7,166	3,063
Donkeys ...	2,792	4,406	4,257
Camels ...	140	...	111
Milch Cattle ...	187,191	153,909	183,949
15 Capital—			
Agricultural Co-operative Societies.	220	174	496
Capital: Rs. in lakhs ...	18.64	12.93	43.97
Non-Agricultural Co-operative Societies.	41	33	73
Capital: Rs. in lakhs ...	24.93	12.62	44.27
P. O. Savings Banks ...	83	27	55
16 Factories—			
Number of factories ...	54	51	136
Number of workers ...	3,763	1,722	11,288

A—contd.

18	19	20	REMARKS.
N. KANARA.	KOLABA.	RATNAGIRI.	
110,293	23,246	331,375	
100,805	135,022	227,546	
26,703	45,849	47,321	
33,604	42,735	73,087	
3,184	36,662	55,248	
87	715	254	
105	575	231	
.....	
.....	117,699	163,964	
4.4	51	48	
7.32	.8	1.44	
22	9	24	
19.63	2.56	7.94	
31	35	128	
6	16	6	
184	868	1,385	

APPENDIX

PROVINCE OF

TABLE SHOWING THE NUMBER OF WORKERS

(Based on figures given in Vol. II of the Report of the

	1	2	3
	Bombay City. Number of workers.	Bombay Suburban District. Number of workers.	Thana. Number of workers.
1 Forest Industries .. ..	..	..	14,802
2 Stock Raising	3,223	..	6,946
3 Fishing etc.	2,453	3,607	6,238
4 Salt making	666	774	3,372
5 Exploitation of manganese .. ..	..	..	..
6 Cotton gins and presses	1,875	339	1,596
7 Cotton Spg., Sizing and Wvg. ..	113,084	6,426	..
8 Rope, twine, string and other fibres. .. ..	..	..	141
9 Wool Manufactures (Carding, Weaving and Spinning). .. ..	..	..	300
10 Silk Spinning and Weaving .. ..	..	..	..
11 Dyeing, Bleaching, Printing	934	..	106
12 Lace Embroideries, etc.	445	..	..
13 Working in Leather	772	..	618
14 Carpenters, Turners, etc.	5,863	635	1,655
15 Basket-makers etc.,	483	..	1,290
16 Blacksmiths and Workers in iron ..	1,409	187	542
17 Workers in Brass, Copper, and Bell Metal.	282	..	..
18 Potters and makers of earthen- ware.	486	330	1,311
19 Brick and Tile-makers	116	..	596
20 Manufacture and refining of Vegetable Oils. .. ..	..	..	1,050
21 Rice Pounders and Huskers .. ..	..	..	..
22 Grain Parchers etc.	286	..	403
23 Sweetmeat and condiment-makers ..	533	..	270

B-

BOMBAY

ENGAGED IN INDUSTRY, DISTRICT BY DISTRICT.

Bombay Economic and Industrial Survey Committee, 1938-40.)

4	5	6	7
Surat. Number of workers.	Ahmedabad. Number of workers.	Kaira. Number of workers.	Broach. Number of workers.
208	....	438	36
3,661	7,755	3,822	825
1,969	....	....	558
....	1,027	....	....
....
318	16,522	558	1,750
2,988	34,726	2,276	1,262
385	815	222	....
....	761	880	....
446	....	....	....
204	576	....	....
2,528	....	....	....
860	3,102	1,284	285
3,343	2,577	2,087	911
495	619	951	42
627	1,638	903	259
608	....	561	....
472	3,188	1,922	604
220	610	189	....
761	1,559	727	427
....
....
....	....	....	158

TABLE SHOWING THE NUMBER OF WORKERS

(Based on figures given in Vol. II of the Report of the

	1	2	3
	Bombay City. Number of workers.	Bombay Suburban District. Number of workers.	Thana. Number of workers.
24 Manufacturers of sugar, gur and Molasses. ..	..	..	..
25 Manufacture of Tobacco ..	323	..	..
26 Boot, Shoe, Sandal and Clog-makers.	3,671	343	826
27 Cabinet-makers	1,038	..	184
28 Lime burners, cement workers, etc.	3,371	1,072	1,063
29 Repairs of Motor vehicles, Cycles etc.	583	..	..
30 Heat Light, Electricity etc. ..	1,205	..	1,912
31 Printers, Engravers, Book-binders, etc.	2,171	..	..
32 Makers of Jewellery and Ornaments.	2,316	..	516
33 Furries, brush-makers ..	517	..	..
34 Upholsters, tent-makers ..	141	..	..
35 Ship, boat etc., builders ..	162	..	..
36 Makers of Musical instruments ..	614	..	..
37 Makers of Clocks, Surgical Instruments.	300	..	..
38 Manufacture of Match and Fire-works.	..	3,578	..
39 Other miscellaneous Industries..	5,980	1,974	652
Total (Industries) ..	155,302	19,265	46,330
Principal earners ..	559,926	74,969	345,284

B—contd.

ENGAGED IN INDUSTRY, DISTRICT BY DISTRICT.

Bombay Economic and Industrial Survey Committee, 1938-40).

Surat. Number of workers.	Ahmedabad. Number of workers.	Kaira. Number of workers.	Broach. Number of workers.
302	512	181	252
1,001	3,294	1,404	637
1,235	1,209	651	482
1,189	1,170	371	515
23,820	82,075	19,790	9,003
197,824	261,566	205,544	103,413

TABLE SHOWING THE NUMBER OF WORKERS
(Based on figures given in Vol. II of the Report of the

	8	9	10
	Panch Mahals. Number of workers.	Ahmednagar. Number of workers.	West Khandesh. Number of workers.
1 Forest Industries	236	1,327	3,267
2 Stock Raising	1,228	11,176	5,644
3 Fishing etc.	19	835	372
4 Salt making .. ..	..	..	..
5 Exploitation of manganese ..	916	..	..
6 Cotton gins and presses ..	538	112	1,406
7 Cotton Spg., Sizing & Wvg. ..	237	0,844	2,325
8 Rope, twine, string & other fibres ..	..	3,070	..
9 Wool Manufactures (Carding, Weaving & Spinning). ..	..	682	211
10 Silk Spinning and Weaving .. ..	..	..	..
11 Dyeing, Bleaching, Printing .. ..	..	111	119
12 Lace Embroideries etc. .. ..	..	..	..
13 Working in Leather	237	134	..
14 Carpenters, Turners, etc.	797	2,895	2,525
15 Basket-makers etc.	425	729	1,082
16 Blacksmiths and Workers in iron ..	429	1,316	803
17 Workers in Brass, Copper, & Bell metal. .. ..	..	332	195
18 Potters & makers of earthenware ..	898	2,067	998
19 Brick and Tile-makers .. ..	..	..	193
20 Manufacture & refining of Vegetable Oils.	244	1,360	..
21 Rice Pounders and Huskers .. ..	..	..	100
22 Grain Parohers etc. .. ..	..	..	295
23 Sweetmeat & condiment makers ..	179	434	352

B—contd.

ENGAGED IN INDUSTRY, DISTRICT BY DISTRICT.

Bombay Economic and Industrial Survey Committee, 1938-40.)

11	12	13	14	15
East Khandesh. Number of workers.	Nasik. Number of workers.	Poona. Number of workers.	Satara. Number of workers.	Sholapur. Number of workers.
2,098	3,423	675	826	388
7,949	9,826	9,125	7,553	10,946
1,778	669	1,142	429	456
..
..
2,250	..	..	..	20,301
6,195	11,023	2,000	3,988	17,520
621	1,779	3,347	5,154	4,359
223	912	839	736	..
201	850	677	..	658
457	413	136	..	..
..
422	171	693	1,534	504
3,885	3,185	3,792	532	2,623
2,329	563	1,075	716	975
1,539	1,160	1,199	1,142	1,055
665	382	217	..	463
2,852	1,504	2,386	2,603	1,718
222	159	158	..	..
1,437	143	766	1,638	782
..	..	232	..	..
956	..	..	..	..
740	435	716	..	..

TABLE SHOWING THE NUMBER OF WORKERS
(Based on figures given in Vol. II of the Report of the

	8	9	10
	Panch Mahals. Number of workers.	Ahmednagar. Number of workers	West Khandesh. Number of workers
24 Manufactures of sugar, gur & Molasses.	..	631	..
25 Manufacture of Tobacco	.. ..	..	434
26 Boot, Shoe, Sandal, & Clog-makers	122	4,344	1,737
27 Cabinet-makers	.. ..	..	..
28 Lime burners, Cement Workers, etc.	315	3,358	1,565
29 Repairs of Motor vehicles, Cycles, etc.	..	..	..
30 Heat Light, Electricity, etc.	.. ..	..	..
31 Printers, Engravers, Book-binders, etc.	.. ..	..	..
32 Makers of Jewellery and Ornaments.	363	1,668	1,521
33 Furries, brush-makers	.. ..	..	..
34 Upholsters, tent-makers	.. ..	..	..
35 Ship, boat, etc. builders	.. ..	..	..
36 Makers of Musical Instruments	.. ..	..	..
37 Makers of Clocks, Surgical Instruments.	.. ..	..	..
38 Manufacture of Match and Fire work.	.. ..	..	..
39 Other miscellaneous Industries	439	2,077	425
Total	7,622	45,494	25,569
Principal earners	127,669	360,910	259,629

B—contd.

ENGAGED IN INDUSTRY, DISTRICT BY DISTRICT.

Bombay Economic and Industrial Survey Committee, 1938-40.)

11	12	13	14	15
East Khandesh. Number of workers.	Nasik. Number of workers.	Poona. Number of workers.	Satara. Number of workers.	Sholapur. Number of workers.
..
..	960	289	..	..
4,141	2,973	3,744	2,791	2,409
..	..	..	978	..
2,708	2,004	3,794	2,428	3,876
..	..	288	..	..
..
..	..	243	..	..
3,115	1,491	1,836	1,092	1,191
..
..
..
..
..
3,303	1,533	4,280	1,362	1,902
50,136	45,608	43,640	35,522	72,126
432,945	355,717	395,144	362,751	317,556

TABLE SHOWING THE NUMBER OF WORKERS
(Based on figures given in Vol. II of the Report of the

	16	17	18
	Belgaum. Number of workers.	Bijapur. Number of workers.	Dharwar. Number of workers.
1 Forest Industries ..	283	246	663
2 Stock Raising ..	7,635	6,501	7,307
3 Fishing etc. ..	290	156	233
4 Salt making ..	..	..	..
5 Exploitation of manganese ..	..	..	..
6 Cotton gins and presses ..	..	..	..
7 Cotton Spg., Sizing & Wvg. ..	5,429	15,156	16,425
8 Rope, twine, string & other fibres	601	312	375
9 Wool Manufactures (Carding, Weaving and Spinning).	2,472	828	3,950
10 Silk Spinning & Weaving ..	160	381	580
11 Dyeing, Bleaching, Printing ..	119	259	..
12 Lace Embroideries etc. ..	..	..	..
13 Working in Leather ..	696	1,205	801
14 Carpenters, Turners, etc., ..	2,963	2,518	3,932
15 Basket-makers, etc. ..	1,270	775	1,265
16 Blacksmiths & Workers in iron	1,150	807	1,426
17 Workers in Brass Copper & Bell metal.	394	113	1,055
18 Potters & makers of earthen- ware	1,673	1,096	1,586
19 Brick & Tile-makers ..	..	..	..
20 Manufacture & refining of Vegetable Oils.	361	311	393
21 Rice Pounders & Huskers ..	230	113	305
22 Grain Parchers etc. ..	109	..	353
23 Sweetmeat & condiment makers.	..	..	..

B—contd.

ENGAGED IN INDUSTRY, DISTRICT BY DISTRICT.

Bombay Economic and Industrial Survey Committee, 1938-40.)

19	20	21	
North Kanara. Number of workers.	Kolaba. Number of workers.	Ratnagiri. Number of workers.	Grand Total of workers.
829	2,092	193	32,030
1,037	5,522	3,713	126,394
5,486	6,018	14,542	47,250
.....	688	.....	6,527
.....	.....	.....	916
.....	.....	848	46,413
101	163	2,681	250,949
369	124	354	22,028
.....	127	105	13,046
.....	.....	.....	3,053
.....	.....	.....	3,434
.....	.....	.....	2,978
.....	.....	205	13,523
1,314	1,507	5,446	54,986
498	552	448	16,582
216	331	486	18,674
336	113	187	5,903
406	1,020	1,292	30,412
.....	.....	.....	2,463
335	.....	843	13,137
777	.....	147	1,904
.....	.....	.....	2,402
.....	108	.....	3,025

TABLE SHOWING THE NUMBER OF WORKERS

(Based on figures given in Vol. II of the Report of the

	16	17	18
	Belgaum. Number of workers.	Bijapur. Number of workers.	Dharwar. Number of workers.
24 Manufactures of sugar, gur & Molasses. ..	..	..	..
25 Manufacture of Tobacco ..	..	..	..
26 Boot, Shoe, Sandal, & Clog- makers. ..	1,843	1,564	1,512
27 Cabinet-makers ..	..	..	..
28 Lime burners, cement workers etc. ..	4,176	3,289	4,523
29 Repairs of Motor vehicles, Cycles etc. ..	..	..	..
30 Heat, Light, Electricity, etc. ..	..	..	..
31 Printers, Engravers, Book- binders, etc. ..	..	..	..
32 Makers of Jewellery and Ornaments. ..	1,467	1,553	2,780
33 Furries, brush-makers ..	..	..	..
34 Upholsters, tent-makers ..	..	..	..
35 Ship, boat etc., builders ..	..	..	..
36 Makers of Musical Instruments ..	..	..	..
37 Makers of Clock Surgical Instruments. ..	..	..	..
38 Manufacture of Match and fire works. ..	..	..	..
39 Other miscellaneous Indus. ..	1,011	573	1,373
Total ..	34,332	37,736	50,837
Principal earners ..	294,201	263,365	334,971

B—contd.

ENGAGED IN INDUSTRY, DISTRICT BY DISTRICT.

Bombay Economic and Industrial Survey Committee, 1938-40.

	19	20	21	
North Kanara. Number of workers		Kolaba. Number of Workers.	Ratnagiri. Number of workers.	Grand Total of workers.
.....		631
.....		2,006
352		483	1,571	35,673
.....		2,563
347		736	911	45,852
.....		871
.....		231	.....	3,348
.....		117	2,848
2,036		1,174	2,197	29,885
.....		517
.....		141
.....		162
.....		614
.....		300
.....		3,678
637		766	1,604	33,186
15,076		21,755	42,890	883,696
106,090		260,208	466,142	8,085,830

Table showing the acreage under Cash-Crops

CASH CROPS.	THANA.			SURAT.		
	1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.
1 Linseed ...	1	...	-1	...	...	...
2 Sesame (Til) ...	1,087	1,019	-68	1,098	1,551	+453
3 Groundnut ...	13	35	+22	6,760	2,657	-4,103
4 Castor seed ...	268	199	-69	7,647	4,342	-3,305
5 Rape and Mustard ...	...	...	...	102	83	-19
6 Other oil seeds ...	4,621	4,489	-0,132	24	66	+42
7 Condiments and Spices ...	1,762	1,757	-5	1,626	1,471	-155
8 Sugar-cane ...	140	167	+27	2,374	2,515	+141
9 Cotton ...	...	...	...	197,975	176,690	-21,285
10 Other fibres ...	1,614	1,799	+185	3,048	1,858	-1,190
11 Tobacco ...	...	...	...	539	297	-242
12 Other drugs and Narcotics ...	600	620	+20	5	7	+2
13 Fodder ...	198,508	200,703	+02,195	301,998	282,040	-19,958
14 Fruits and Vegetables ...	6,678	7,063	+385	10,142	12,236	+2,094

CASH CROPS.	AHMEDNAGAR.			WEST KHANDESH.		
	1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.
1 Linseed ...	25,019	10,457	-14,562	2,438	1,891	-547
2 Sesame (Til) ...	19,015	16,072	-2,943	13,336	14,267	+911
3 Groundnut ...	25,077	34,564	+9,487	104,341	97,873	-6,468
4 Castor seed ...	133	194	+61	10,066	8,141	-1,925
5 Rape and Mustard ...	56	52	-4	660	557	-103
6 Other oil seeds ...	146,976	126,242	-20,734	10,058	6,302	-3,756
7 Condiments and Spices...	5,761	7,278	+1,517	8,798	14,568	+5,770
8 Sugar-cane ...	15,767	44,648	+28,881	642	1,353	+711
9 Cotton ...	201,860	113,935	-87,925	535,096	298,025	-237,670
10 Other fibres ...	8,773	5,376	-3,397	6,426	6,731	+305
11 Tobacco ...	2,249	878	-1,371	90	68	-22
12 Other drugs and Narcotics ...	314	344	+30	170	336	+166
13 Fodder ...	69,040	80,454	+11,414	1,255	14,890	+144
14 Fruits and Vegetables ...	13,766	16,278	+2,512	6,153	7,697	+1,544

C

for the years 1937-38 and 1943-44.

AHMEDABAD.			KAIRA.			BROACH AND PANCH MAHALS.		
1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.
93	244	+151	98	7	-91	82	...	-82
31,324	31,834	+510	8,560	15,637	+7,077	27,758	22,439	-5,319
71,278	41,758	+29,520	55,973	27,839	-28,134	90,457	70,863	-19,594
5,613	17,607	+11,994	5,464	9,640	+4,176	24,835	25,984	+1,149
17,033	7,066	-9,967	146	103	-43	241	74	-167
390	2,783	+2,393	7	12	+5	2,106	294	-1,812
2,228	2,824	+596	4,775	2,786	-1,989	2,741	1,947	-794
390	324	-66	177	40	-137	441	196	-245
387,686	363,930	-23,747	96,375	65,899	-30,476	350,165	328,558	-21,612
1,812	1,439	-373	3,371	4,405	-1,034	4,368	13,146	+8,758
5,304	2,226	-3,078	80,117	55,302	-34,815	3,513	2,640	-873
...	...	...	...	11	+11	10	66	+56
130,232	257,320	+127,088	106,900	119,216	-12,316	124,034	119,043	-4,991
8,894	7,773	-1,121	4,555	4,783	+228	4,080	4,340	+260

EAST KHANDESH.			NASIK.			POONA.		
1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.
937	1,285	+348	21,857	5,336	-16,521	661	553	-108
8,554	7,302	-1,192	8,178	6,885	-1,293	6,048	3,336	-3,712
325,513	340,293	+23,780	41,855	70,503	+37,648	27,713	22,609	-5,104
257	288	+21	676	686	+10	15	46	+31
39	148	+109	1,253	1,783	+530	31	80	+49
2,180	1,002	-1,178	67,574	43,815	-23,759	103,077	93,130	-9,947
14,142	17,455	+3,313	8,679	11,587	+2,908	10,127	8,790	-1,337
706	649	-57	8,372	12,867	+4,495	10,952	12,963	+2,011
703,396	506,689	-196,707	88,343	70,621	-17,722	17,912	759	-17,153
4,788	3,692	-1,096	4,965	4,408	-557	1,955	1,422	-533
833	662	-171	428	110	-318	928	237	-691
242	213	-29	398	660	-262	1,013	401	-612
2,476	3,891	+1,415	262,966	299,445	+36,479	158,888	335,926	+197,038
13,647	18,068	+4,421	23,817	14,993	-8,824	35,669	29,609	-6,060

CASH CROPS.	SATARA.			SHOLAPUR.		
	1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.
1 Linseed ...	2,226	1,072	-154	7,434	6,708	-726
2 Sesame (Til) ...	305	250	-55	5,474	8,992	+3,518
3 Groundnut ...	218,988	187,804	-31,184	108,649	102,307	-6,342
4 Castor seed ...	206	68	-138	852	638	-214
5 Rape and Mustard ...	...	...	...	...	...	...
6 Other oil seeds ...	35,935	24,559	-11,376	109,174	106,343	-2,831
7 Condiments and Spices ...	31,130	28,425	-2,705	8,213	10,612	+2,399
8 Sugar-cane ...	8,720	7,362	-1,358	2,846	11,264	+8,418
9 Cotton ...	11,739	5,481	-6,258	46,694	12,305	-34,389
10 Other fibres ...	5,280	2,978	-2,302	7,003	11,208	+4,203
11 Tobacco ...	14,825	7,732	-7,093	1,429	773	-656
12 Other drugs and Narcotics ...	1,285	946	-339	367	234	-83
13 Fodder ...	525,539	443,157	-82,382	157,356	113,769	-43,587
14 Fruits and Vegetables ...	14,626	13,457	-1,169	7,429	6,439	-990

CASH CROPS.	NORTH KANARA.			KOLABA.		
	1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.
1 Linseed ...	7	14	+7	...	...	...
2 Sesame (Til) ...	72	90	+18	2,567	2,721	+154
3 Groundnut ...	193	293	+100	...	3	+3
4 Castor seed ...	25	28	+3	7	7	...
5 Rape and Mustard ...	...	5	+5	...	...	...
6 Other oil seeds ...	299	211	-88	933	788	-145
7 Condiments and Spices ...	4,208	3,800	-408	573	564	-9
8 Sugar-cane ...	2,860	2,924	+64	57	50	-7
9 Cotton ...	...	...	...	...	...	...
10 Other fibres ...	167	136	-31	163	189	+26
11 Tobacco ...	...	...	...	...	...	...
12 Other drugs and Narcotics ...	16,989	16,725	-264	456	448	-8
13 Fodder ...	28,709	29,664	+955	54,454	39,234	-15,220
14 Fruits and Vegetables ...	7,955	8,498	+543	2,463	3,092	+629

BELGAUM.			BIJAPUR.			DHARWAR.		
1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.	1937-38.	1943-44.	Variation.
3,712	2,624	-1,097	36,829	28,997	-7,832	10,491	9,141	-1,350
2,194	1,817	-377	9,138	17,432	+8,294	7,279	12,815	+5,536
96,193	141,637	+45,444	89,377	113,139	+23,762	81,435	90,846	+9,411
733	913	+180	1,680	1,533	-147	3,639	6,138	+2,499
109	148	+39	...	...	...	366	417	+51
41,200	29,699	-11,501	93,799	72,631	-21,168	56,030	41,797	-14,233
23,940	28,444	+4,504	4,625	6,070	+1,445	66,022	78,423	+12,401
13,006	15,557	+2,551	544	617	+73	1,775	2,032	+257
178,205	157,840	-20,365	472,099	353,577	-119,122	573,604	565,333	-8,271
8,832	9,046	+214	4,804	6,129	+1,325	5,639	6,850	+1,211
57,705	31,876	-25,829	1,123	755	-368	622	619	-3
863	1,069	+206	154	110	-44	1,685	1,743	+58
132,125	117,947	-14,178	8,896	7,123	-1,773	114,243	96,042	-18,201
10,426	16,315	+5,889	6,717	8,717	+1,992	11,012	10,896	-116

RATNAGIRI.

TOTAL.

1937-38.	1943-44.	Variation.	1937-38.	1943-44.
.....	.....	.....	111,894	68,329
13,597	263	-13,334	165,584	164,789
165	185	+20	1,343,980	1,363,208
...	...	.....	42,126	56,452
...	...	.....	20,036	10,516
3,611	14,031	+10,420	677,994	568,194
1,910	1,927	+17	201,260	229,528
802	583	-219	70,571	116,111
...	...	.....	3,862,349	3,019,647
5,457	5,558	+101	78,485	86,370
...	5	+5	169,710	104,175
2,429	3,029	+600	26,980	27,112
99,372	12,145	+23,773	2,476,991	2,703,028
12,167	13,354	+1,187	200,204	203,608

Table showing the Livestock during the

LIVE-STOCK.	THANA.			SURAT.		
	1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.
1 Bulls and Bullocks— Working, Breeding and Young stock ...	223,581	218,247	-5,334	166,987	152,366	-13,621
2 Cows— Working Breeding and Young stock ...	193,828	188,756	-5,072	111,146	118,864	+7,718
3 Buffaloes— Working Breeding and Young stock ...	41,950	39,777	-2,173	17,051	11,045	-6,006
4 Cow-buffaloes— Working, Breeding and Young stock ...	50,544	47,786	-2,758	98,789	135,267	+36,468
5 Sheep and Goats ...	69,215	68,429	-786	128,601	114,630	-13,971

LIVE-STOCK.	AHMEDNAGAR.			WEST KHANDESH.		
	1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.
1 Bulls and Bullocks— Working, Breeding and Young stock ...	386,761	377,793	-8,968	237,311	257,068	+19,657
2 Cows— Working, Breeding and Young stock ...	312,632	266,614	-46,018	149,151	253,690	+104,539
3 Buffaloes— Working, Breeding and Young stock ...	13,791	13,066	-725	39,169	16,644	+3,475
4 Cow-buffaloes— Working, Breeding and Young stock ...	54,770	69,069	+4,299	67,773	112,546	+44,773
5 Sheep and Goats ...	415,138	646,654	+231,516	133,108	215,626	+62,518

years 1934-35 and 1943-44.

AHMEDABAD.			KAIRA.			BROACH AND PANCH MAHALS.		
1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.
19,252	152,187	+132,925	156,439	142,082	-14,357	351,060	230,781	-20,279
147,572	108,161	-39,411	33,773	24,265	-14,508	147,250	115,510	-31,740
34,068	14,723	-19,345	21,427	18,604	-4,783	18,696	16,186	-2,510
162,928	160,028	-22,900	245,354	234,618	-10,736	544,636	130,892	-413,744
130,935	143,850	+12,915	82,005	103,195	-21,190	118,279	136,179	-17,900

EAST KHANDESH.			NASIK.			POONA.		
1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.
293,909	285,907	-8,002	332,340	320,957	-11,383	334,640	281,463	-53,157
175,320	182,803	+7,474	273,314	226,522	-46,792	249,460	201,554	-47,915
18,143	16,547	-1,596	23,091	24,042	+951	17,557	11,636	-5,921
132,633	129,208	-3,325	56,315	57,432	+1,117	80,298	67,808	-12,490
223,751	249,612	+25,861	274,220	399,100	+124,880	383,590	311,461	+127,871

LIVE STOCK.	SATARA.			SHOLAPUR.		
	1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.
1 Bulls and Bullocks— Working, Breeding and Young stock ...	38,263	238,780	+200,517	234,093	217,758	-16,335
2 Cows— Working, Breeding and Young stock ...	202,594	178,823	-23,771	173,568	165,095	8,473
3 Buffaloes— Working, Breeding and Young stock ...	40,217	33,443	-6,774	21,168	12,961	-8,207
4 Cow-buffaloes— Working, Breeding and Young stock ...	173,491	165,891	-7,600	68,316	51,939	-16,377
5 Sheep and Goats ...	426,548	509,450	+82,902	372,821	598,484	+225,663

LIVE STOCK.	NORTH KANARA.			KOLABA.		
	1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.
1 Bulls and Bullocks— Working, Breeding and Young stock ...	110,293	110,579	+286	23,246	133,426	+110,180
2 Cows— Working, Breeding and Young stock ...	100,805	107,053	+7,148	135,022	130,547	-4,475
3 Buffaloes— Working, Breeding and Young stock ...	26,703	22,535	-4,168	45,849	40,210	-5,639
4 Cow-buffaloes— Working, Breeding and Young stock ...	33,604	42,528	+8,924	42,735	38,427	-4,308
5 Sheep and Goats ...	3,184	3,068	-116	36,662	36,552	-110

D—contd.

BELGAUM.			BIJAPUR.			DHARWAR.		
1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.	1934-35.	1943-44.	Variation.
212,303	201,962	-10,346	213,954	164,772	-49,182	254,854	234,009	-20,845
13,673	104,626	+90,953	150,424	103,653	-41,771	168,304	130,369	-37,935
61,003	45,694	-15,309	25,610	17,453	-8,117	35,076	20,410	-14,666
194,896	171,015	-23,881	155,238	88,134	-27,104	150,224	115,187	-35,037
324,890	420,371	+95,481	380,033	361,303	-18,760	185,353	153,803	-28,550
RATNAGIRI.			TOTAL.					
1934-35.	1943-44.	Variation.	1934-35.	1943-44.				
331,375	323,399	-7,976	3,820,666	4,043,966				
227,546	212,576	-14,970	2,970,400	2,825,331				
47,321	37,496	-9,845	521,990	413,512				
73,087	61,896	-11,191	2,365,631	1,879,171				
55,248	50,341	-4,907	3,763,611	4,725,163				