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I. INTRODUCTION
II. SHORT NOTES ABOUT THE INDUSTRIES.					
1. Weaving
2. Wool industry
3. Silk industry .. .. .	..	..	..	..	..
4. Dyeing .. .. .	..	..	..	..	..
5. Manufacture of weaving combs or reeds .. .. .	..	..	..	..	..
6. Galicha and durry .. .. .	..	..	..	..	8
7. Fishing nets .. .. .	..	..	..	..	8
8. Carpentry .. .. .	..	..	..	..	9
9. Blacksmithy .. .. .	..	..	..	..	10
10. Oil-pressing .. .. .	..	..	..	..	11
11. Pottery .. .. .	..	..	..	..	12
12. Mat-weaving .. .. .	..	..	..	..	13
13. Rope-making .. .. .	..	..	..	..	13
14. Basket-making .. .. .	..	..	..	..	14
15. Goldsmithy .. .. .	..	..	..	..	14
16. Solapith works .. .. .	..	..	..	..	15
17. Coir works .. .. .	..	..	..	..	15
18. Pisciculture .. .. .	..	..	..	..	15
19. Soap-making .. .. .	..	..	..	..	16
20. Apiculture and refining of honey obtained from jungles .. .. .	..	..	..	..	17
21. Lac and glass bangles .. .. .	..	..	..	..	17
22. Catechu .. .. .	..	..	..	..	18
23. Manufacture of gur from the juice of date-palm and palm .. .. .	..	..	..	..	18
24. Fruit-canning, pickles and moorubas .. .. .	..	..	..	..	19
25. Manufacture of cutlery and agricultural implements .. .. .	..	..	..	..	19
26. Cane works .. .. .	..	..	..	..	19
27. Bricks .. .. .	..	..	..	..	20
28. Tailoring .. .. .	..	..	..	..	20
29. Brass and silver badges, buttons, stamps, etc. .. .. .	..	..	..	..	21
30. Horn and ivory works .. .. .	..	..	..	..	21
31. Toy-making .. .. .	..	..	..	..	21
32. Hosiery .. .. .	..	..	..	..	22
33. Gum and glue .. .. .	..	..	..	..	22
34. Paints and varnishes .. .. .	..	..	..	..	22
35. Manufacture of umbrella and fishing rods .. .. .	..	..	..	..	22
36. Ink .. .. .	..	..	..	..	23
37. Leather industry .. .. .	..	..	..	..	23
38. Stone-carving .. .. .	..	..	..	..	24

er. It has got
d the sea; called
er capita income
depend entirely
culture alone
according to
7 head till
8 people
at

DATA ENTERED

	PAGE
39. Brass and bell-metal works	24
40. Cigar-making	25
41. Scents and perfumes including Keuda water and scented oil	25
42. Shark liver oil	26
43. Manufacture of fish manure	26
44. Salt	26
45. Lime	26
46. Dried fish	27
47. Tin trunks	27
48. Lace work	27
49. Buttons	27
50. Painting	27
51. "Chua" oil (resin oil)	28
52. Condensed milk	28
53. "Badi"	28
54. Lozenges	28
55. Preparation of medicinal oils ('Tailas'), pills and powders..	28
56. Bonemeal	28
57. Bamboo works	28
58. Brush-making	28
59. Mica industry	28
60. Ornaments made with glass beads	29
61. Khash-khash	29
62. Brooms	29
63. Paddy-husking	29
64. Fireworks	29
65. Type foundry	29
66. Block-making	29
67. Other small crafts—23 in number	30
III. SUMMARY	30
IV. LARGE-SCALE INDUSTRY AND PRIORITY	31
V. SPECIAL PRIORITY TO COTTAGE INDUSTRY	32
VI. DIFFICULTIES OF COTTAGE INDUSTRIES AND THEIR REMEDY	32
VII. CONCLUSION	32

A Rough Survey of the Cottage Industries in Orissa

I. INTRODUCTION

Orissa is rich in minerals, in raw materials and in man power. It has got plentiful rainfall, mighty rivers, rich forests, wide sea-coasts and the sea, called Ratnakar (full of jewels), but the people are very poor. Their per capita income is less than Rs. 2-8-0 per month. They are poor because they depend entirely upon agriculture to the total discontinuance of industry. Agriculture alone can never raise their standard of life. The population of Orissa according to the last census is 8,714,000. The proportion of agricultural land per head till the end of 1942-43 was less than one acre. The main crop grown by the people is paddy. The total outturn of rice during the year 1942-43 was estimated at 1,241,544 tons that is 3.75 maunds per head, while average requirement per head is 4½ maunds per year. It need hardly be stated that the total quantity of rice produced is insufficient for the population. It has to be noted that out of this produce a large quantity is also exported. Available statistics indicate that the production does not keep pace with increase in population. Population in Orissa increases at the rate of about 75 thousands per year. So unemployment and under-nourishment and starvation will continue unless wider fields for employment are provided to the population. Increase in population, decrease in food production, low yield of agriculture and want of industrial activities, are responsible for the very low standard of rural income indicative of serious rupture of economic equilibrium. Our efforts should, therefore, be directed towards bringing about a balance between agriculture and industry by necessary occupational redistribution and thus secure a higher standard of life.

In trying to secure this occupational redistribution of population, due weight may be given to the fact that out of the total population of about 8.9 millions in Orissa only about 3 per cent live in towns and the rest in villages. Condition of both need attention. Most of the people living in the rural areas are agriculturists and agricultural labourers. They have no employment for four months completely in a year and even for the period they have work, they are not fully employed. So our planning should aim at the provision of employment to these people for the periods they are without employment. Migration of villagers to urban centres for employment, will not improve matters; for agriculture cannot be neglected. Such migration of villagers will deprive agriculture of its efficient workers, leading to reduction of agricultural production, and thus in the long run it will do more harm than good. Hence village life and rural occupations should be made more attractive and profitable. Development of the economic condition of the people is possible only by careful selection and efficient organisation of industries, both for rural and urban areas, looking to the environment, nature of the industry, circumstances of the people, their liking and disliking, their aptitude and all other facts connected therewith.

No one can deny that Orissa was one day prominent for its industries. It was prosperous, so long as it pursued industrial activities. The convincing evidences are still glaring before the eyes of all. The Oriyas have become poor having lost their industries and industrial activities. They have not only lost industrial activities, but by long discontinuance, they have lost all confidence in industry. People belonging to industrial castes have adopted non-industrial occupations for earning their living. Some of the special industrial arts of Orissa are forgotten and others will be forgotten in no time, if no attention is paid to them. Old communal organisation has altogether disappeared. Castes, whose family occupation was to distribute the industrial products and carry on trade, have fully discontinued. Persons having any capital for investment prefer lending the same to unscrupulous debtors. Agents appointed by Government to effect industrial development, have not only failed but have in some cases increased distrust of the people much more towards themselves and the industry.

It should also be remembered that though the people of Orissa have lost confidence in industry, still their industrial acumen is dormant in them. Aptitude towards industry is an inherent ability of the Oriyas. It is displayed now and then whenever an opportunity arises. Instances are not wanting of the Oriyas ^{then} ~~men~~ building up a high reputation for artistic skill in distant towns like Calcutta,

Bombay and other places, whenever they get an opportunity. Their dormant faculties, once regenerated, are sure to achieve success and regain its lost glory. So I think careful selection of industries and their proper organisation, are very important for industrial reconstruction of the Province.

For the rural population, cottage industries are more suitable.

Cottage industries may be divided into two broad classes :—

(A) Existing cottage industries and

(B) New cottage industries for which there are materials and other facilities for proper development. -

The existing cottage industries again may be divided into four classes :—

(1) Cottage industries subsidiary to agriculture, followed mostly by the female members of agriculturists and sometimes by the agriculturists themselves, during their spare time, mostly meeting their own household requirements, requirements of the neighbours and occasionally producing articles with leaves, grasses, reeds, bamboos, etc., available in the villages for the village markets.

(2) Village crafts, followed by village artisan castes. They may be more appropriately called village subsistence crafts, indispensable for agricultural villages, continuing since time unknown, in the course of village communal organisation.

(3) Village arts and crafts representing a higher standard of local arts and creative genius commanding bigger markets beyond the villages.

(4) Urban arts and crafts representing still higher standard of arts superior to those covered by the above three classes. Such arts are generally found in the urban areas where there is better scope for wider markets and larger variety of production and thus opportunity for display of hereditary skill and dexterity of any particular caste or groups of artisans. These may be called industries of luxury.

This classification is neither exhaustive nor exact. Many more cottage industries will have to be further classified. Some of the industries classified as rural are found also in urban centres. Similarly some urban industries are found in rich villages. Thus this classification is only a rough one giving a broad idea of the industries.

A descriptive account of some of the important cottage industries of Orissa is given in this report. I have to depend for this account on the information that I have gathered during the last 25 years of my tours to the several parts of Orissa. This account will only be a guide to those who will undertake detailed survey. Number of people employed in these cottage industries, the capital invested in them, the total volume and the total value and the marketing facilities will have to be ascertained as far as possible when intensive survey is undertaken. Within the short time of a month allowed to me, it was not possible for me to undertake any tours and I therefore had to depend upon the information noted by me now and then during my previous tours.

B. C. PATNAIK

II. SHORT NOTES ABOUT THE INDUSTRIES

1. Weaving

Amongst all, weaving is the most important cottage industry of the Province. According to the report of the fact finding committee of handloom and mills published in 1942, the number of weavers in Orissa is 168,640 and the number of looms is 50,307.

From the same report it appears that Orissa consumes 14.73 million pounds of yarn per year, out of which 0.002935 million pounds is used for crochet and embroidery works and 0.008537 million pounds for sewing, etc. Thus deducting 0.011472 million pounds from the total yarn used in Orissa, the balance 14.718528 million pounds of yarn is used by the weavers for weaving cloth. And they produce 14.73 million yards of cloth with it. That report also shows that an expert weaver earns only about Rs. 10-10-0 per month in busy season and Rs. 7-15-6 per month in a slack season, both when he weaves independently and as a member under the co-operative society.

Almost everywhere the weavers are heavily indebted. The middlemen creditors take the cloth at price dictated by them. The yarn dealers charge higher prices, which under the present control of price is likely to improve, but the irregular accounting of the dealers and creditors cannot be easily corrected.

The only possible means for helping this important industry to grow and the weavers to prosper, is to organise weavers' co-operative societies, under the guidance of better class of men, to be controlled by sensible officers, and to arrange with mills for supply of yarn, which will be given to the weavers to weave and supply the cloth to the society, on payment of wages. The marketing of the products must be taken up by the society.

A list of the important places of weaving in the Province is given at the end, which will be of much help as a guide at the time of detailed survey. At many important weaving centres there are some special artistic designs of the place, which are special arts of the place and cannot be found anywhere else.

Some of such designs could not be copied so long by other provinces notwithstanding their attempts to copy them. Some of such arts are likely to disappear in the near future for want of attention, both from the people and the Government. The products of such designs fetch fancy price and there is demand for them; but it is beyond the means of such weavers to supply the demands. It would be unwise to allow such arts to die for ever.

Some of the special arts of the above nature are to be found in Gulnagar in Kendrapara subdivision, district Cuttack; Dhalapathar in Khurda subdivision, district Puri; Ragadi in Banki, district Cuttack and the 'Bandha' system of weaving prevalent in Sambalpur district.

The special art of Sambalpur and that of Ragadi have now secured a commercial footing and they seem to be safe for the present. They would need only better advantages for development of the industry and improvement of the condition of the weavers.

The special art of Gulnagar is on the verge of its death. Only three or four weavers are able to weave the design but they hardly get any opportunity to weave. If early steps are not taken to keep the art alive, it is sure to disappear in no time, causing a serious loss to the weaving industry of Orissa.

In the days of the old, when handloom cloth of Orissa received highest admiration in the distant lands, there was no mill cloth nor mill yarn to be seen. Orissa used to grow cotton and the people used to spin themselves. After mill cloth and mill yarn were imported, the industry was seriously affected. Cotton cultivation was discontinued and people gave up spinning. It was only in the year 1921 that All-India Spinners Association tried to revive spinning. The progress will be seen from their report. This much is sure that hand-spun yarn cannot satisfy the need. The main disadvantage for development of the weaving industry at present is want of yarn at cheap cost.

We have no cotton mill in Orissa, nor sufficient cotton to feed a mill. Only 5,000 maunds of cotton is available from 8,000 acres of land grown with cotton. There are more land both in British India and neighbouring States fit for growing cotton. Though cotton cultivation does not make any appreciable progress, it will progress much as soon as a mill is started. Though a cotton mill is not within the scope of the survey of cottage industries, still I mention about it as a cotton mill will remove the greatest difficulty felt by the weavers. The

fate of the weavers' population will receive a change and many allied industries like ginning, carding, dyeing of yarn and others will spring up automatically. But the mill should not weave cloth, it should confine itself to produce yarn only.

Weaving in Orissa is not confined to cotton weaving alone. A large number of weavers weave tussler and mulberry silk. The weavers of Barapali and other places of Sambalpur are expert weavers of tussler silk. Their tussler cloth is considered to be the best amongst all the tussler cloths available in any market in India. There is a section amongst the weavers there, who are known as "Kosta" weavers. They live in large numbers in Barapali and in small numbers at many other places in the district of Sambalpur. All of them weave tussler cloth.

This tussler industry is an important industry of Orissa. It received a serious set-back by interference of the forest department, which tried to stop tussler-rearing in the forests of Orissa. Formerly tussler-rearing was common in the forests of Angul, Sukinda and other estates where there are Assan trees. Before the war tussler-rearing on the ground that the trees will never prosper if rearing of tussler is allowed on their branches. At present no doubt the price of "Assan wood" has increased, so also has increased the value of tussler cocoons. Under no circumstances it is desirable to obstruct the growth and progress of such a flourishing industry of the Province. They could have at best charged a reasonable tax in proportion to the number of years taken by a tree to mature.

These "Kosta" weavers are now compelled to purchase their cocoons from Chainbasa, Redhakhole and other places.

Berhampur weavers mostly weave mulberry silk, imported from outside. Eri silk is also woven by some weavers at different places. This is a new industry first introduced in 1926. After repeated set-backs it is progressing. The weaving of eri cloth would have made much better progress within these two years but for the unwise and unnecessary interference of an officer of Government.

Besides weaving of cloth, weaving of newar, patties, tapes and fringes should also receive attention. Weaving of cloth is an art which cannot be carried on successfully by persons of any other caste except the weavers, who have inherited the necessary patience required for the art.

But weaving of newar, patties, tapes, and fringes can be woven easily by any person, weaver or non-weaver with a little training. The requirement of these articles in the Province is not small. The forest department, the police, the excise and other departments consume a large quantity of patties and fringes. Public Works Department always needs newar and the civil population also wants it.

Once "Poor Industry Cottage" got the opportunity of supplying patties to the Forest Department of Orissa. The cottage devised its own appliances and trained a number of men and women. In competition three persons amongst the male workers could earn Rs. 2 per day on piece wages. One female, working for a few hours, after her domestic occupations, could earn 10 to 12 rupees per month.

This deserves attention. I should mention here, that Government should consider and encourage this and similar other industries, by insisting upon the departments, which require such articles, to purchase local products in preference to imported articles, even if the price be a little higher. They can easily get the articles made cheaper if arrangements are made to supply the necessary yarn at moderate value. A difference of one anna, two annas or four annas is certainly negligible in consideration of the fact that the rate-payers should be helped by all means to earn more, with the help of the money collected from them either as rents, taxes or otherwise. The principle should be followed, not only in the case of these items but in case of other articles for which Government is the biggest customer: For instance, uniforms of the police and of forest departments. The value and quantity of the requirements may be collected at the time of detailed survey, as well as the freight and other incidental expenses.

The important places of weaving are—

In the district of Cuttack—Gualipur, Sunderpur, Kathahar, Kendupatana, Gopinathpur and Katarpa within thana Salepur. At Kendupatana and in about 15 villages surrounding Kendupatana, there are about 510 looms. Raghunathpur, Badabag, and Nabapatana are in thana Jagatsingpur. Kesnugar and Jawnkuti in thana Kesnagar.

In the town of Cuttack the weavers of Rawsawpatana weave various designs and those of Satahat, who are Telugu weavers, weave mostly temple bordered saris, lungies and dhoties. Bindhan, Chhatia, Gopalpur, Narasingpur and Haripur

are in subdivision of Jajpur. Ragadi, Gholapur, Balipahada and others are in Banki. Gulnagar, Thakurpatana, Oladihi, Balia, Patharpadia and others are in Kendrapara subdivision. Tangi and Bhagatpur in thana Tangi, Mulsing in thana Tirtole.

Dhalapathar, Sanapader, Seemore, Bafapur, Ghoradiha, Olasing, Taraboi, Sunderpada, Golebai, Panichhatar, Kalapahad, and Gopinathpur in the district of Puri. Makhalpur, Dasipur, Janooganj, Kudai, Sahajipatana, Jiragumoori, Kukudia, Sankhari, Bagurai, Ullagarh, Chandanpur, Baudpur and Nampo in the district of Balasore. Balarampur, Chhendipada and Angarbandh in Angul. Padma, Baganapada, Kukudakhandi, Boirani, Pandia, Pitala, Durbandha, Patapur, Nuapada, Bellgunta, Bailipahard, Buguda, Salakausbha, Mundamarli and Berhampur in the district of Ganjam. Ukhamba, Salkamba, Bamuni, Kothapad, Bariguma and Navarangpur in the district of Koraput.

In the district of Sambalpur—In old Sambalpur there are about 250 families who mostly weave tusser. At Bhuliapada the weavers weave "Purdhas" or door curtains. At Nuapada there are 14 or 15 weavers who make "Kapta saries". There are one hundred families in the village Durgapali in thana Atabira and two hundred families in Kadabahal who weave excellent "Bandha" process of weaving. The other places in thana Atabira are Jhilimunda, Sepali, Tope, Nurupali and Saranda. In thana Bidhar, village Rumunda is noted for weaving. In thana Padmapur villages Dahina, Burakal and Momfia are important. In thana Bargarh at Tora Sri Krutarth Acharjya, a member of the Industrial sub-committee, has organised a big weaving centre. His organisation will show one of the ways how the weaving industry can be developed in Orissa. Other places of weaving of this thana are Khurusir, Chakrakal and Katapali.

In thana Barpali at Barpali village there are about three hundred families besides 150 more in Kosta Sahi. They weave silk and tusser cloth mostly. Other important villages of weavers in this thana are Kuburi and Bagadi.

2. Wool industry

The number of sheep in Orissa is not small. The cattle census of 1930 showed the figure of sheep as follows:—

District	Cuttack	..	..	..	..	69,942
"	Angul	..	..	..	..	16,812
"	Balasore	..	..	..	..	7,358
"	Puri	..	..	..	..	37,867
"	Sambalpur	..	..	..	..	25,926
"	Koraput	..	..	..	About	240,000
"	Ganjam	..	..	..	About	219,338
					Total	617,246

I could not get the latest figure. There must have been a considerable change. Attempts should be made to get the present number at the time of detailed survey. This is true that there are a large number of sheep in the Province. No doubt the wool of the local sheep is inferior in quality. Still it has some value according to its quality.

A pretty long time ago some families came from Bihar and settled in the suburb of the town of Cuttack at Godisahi and a few other places on the other side of the river. They used to keep some sheep of better breed brought from their own native places and used to weave "Assans" and blankets with their wool. Probably they gave up the profession as it did not pay.

Soon after the formation of our Province, attempts were made by Government on my suggestion, to revive this industry, by making an experiment with the wool of the local sheep. The experiment was made in the "Poor Industry Cottage" and was found that the local wool was quite suitable for rough blankets, assans and beautiful galichas. Some specimen are still preserved in the show room of the Poor Industry Cottage. Though the experiment was successful, no attempts were made to introduce the industry in the Province, on the lines of the experiment made. Some years after, another attempt was made by the Government to develop the industry by importing some foreign sheep. Some Bikanir sheep were purchased and distributed to some villagers and other respectable persons with a view to improve the breed of the animals and their wool. But the attempt proved a failure as Government did not render sufficient expert guidance beyond distributing a few Bikanir sheep among the villagers. It need hardly be stated

that the villagers are quite ignorant about the technics of the industry; they require continuous and sustained expert guidance till they fully acquire sufficient knowledge about the industry and its economic value.

Lastly for war supply blanket weaving was introduced by Government with imported wool yarn. Some blankets were woven and supplied. Some people were persuaded by the Weaving Department to purchase blanket-weaving looms and accessories. They were supplied with wool yarn imported from other provinces, and helped with expert advice to weave the blankets. A number of persons picked up the art of woolweaving. They expected permanent supply of wool yarn. But supply of yarn was stopped. Those who practised weaving of wool could not get any advantage of weaving. Those who purchased looms and accessories felt disappointed.

If shearing of local wool and their spinning could have made some progress in Orissa, weaving of rough blankets would have continued without any difficulty.

The industry could not make any progress so long, owing to the ignorance of the people about the process and inefficient methods adopted by Government for its propaganda and development. This is an industry which has sufficient scope for expansion and it can be developed into a dependable source of income. It needs attention.

3. Silk industry

There are four kinds of silk in our country—Mulberry silk, eri silk, tusser silk and muga silk. Tusser silk was one of the indigenous industries of Orissa. Sambalpur was prominent in this industry. Tusser silk-worms are wild and they are reared mostly on Assan trees in the forest. There are a large number of weavers in Sambalpur district, known as 'Kosta' weavers, whose main occupation is weaving cloths with tusser silk. Gradually the progress was hampered by the obstructions of the Forest Department. The weavers of Sambalpur purchase cocoons from Chainbasa and other places. It is a matter for serious consideration whether such an useful industry should be so obstructed in its progress. This industry, if encouraged, Orissa can stand competition in any market in India or elsewhere. The objection of the Forest Department is that the trees on which these worms are allowed to be reared are seriously affected in their growth. The tusser worms are reared on Assan trees. It is to be seen that an Assan tree takes about 50 years or upwards to mature. The wood in ordinary times was of much less value. It is also to be seen what would be the value of cocoons produced within that period from an Assan tree. This is only possible at the time of detailed survey. Under any circumstances this industry should not be obstructed. The important centres of Kosta weavers in the district of Sambalpur are Barpali and Sambalpur town. Tusser cloth is also woven at Berhampur in the district of Ganjam, Olsing in the district of Puri, Kasipur and Agarapada in the district of Balasore, Angul, Kaijanga, Gopalpur in the district of Cuttack. Tusser rearing from Angul forests has altogether disappeared. In some of the neighbouring States of Sambalpur rearing is still continuing, but it cannot supply the need. Sukinda in the district of Cuttack produces a small quantity. The development of this industry needs attention.

Eri silk—This eri silk was not known in Orissa before 1926. Only some cloth from Assam was being sold here at very high price. In 1926 I first moved the Industry Department of Bihar and Orissa Government and got considerable help from that Government to popularise the industry in Orissa. I started in 1926 and within a course of four years, it could be extended to almost all parts of the then Orissa and into the neighbouring States. Large number of people began to rear worms. It became one of the most familiar industries within that period. After four years, Bihar and Orissa Government retrenched the staff temporarily on the ground of financial stringency, with the promise of reviving the same as soon as conditions permitted. In spite of this retrenchment, the industry continued its existence till the creation of the Orissa Province. But after the formation of the Province this industry could not make much progress. It is true that Government sanctioned funds for development of the industry. But these funds were so utilised that the development of the industry was much hampered. It received a serious set-back. Subsequently in 1942, I was again asked by the Government to revive it. Government is providing all facilities for its progress and development. It could have made much more progress but for the unwise interference of one official. Eri silk industry has enough scope for development throughout the Province. The worms feed upon castor leave. Castor grows almost

everywhere throughout the Province. Worms can be reared in every cottage by preserving a few perennial castor plants in the kitchen garden. There is regular annual cultivation of castor crop in almost every part—both in flooded areas as well as in the hilly tracts. A helpless widow having no other means of livelihood can easily earn five to six rupees per month simply by rearing a few worms in her hut and keeping a few castor plants by the side of the hut. She will have to rear the worms and spin the cocoons and nothing else. The only difficulty is that all the worms die in summer. The rearers are to be supplied with seeds again as soon as the monsoon breaks. For this purpose some seed centres are to be established at places where the temperature in summer does not rise above 100 degrees. Such places will not be wanting in our Province. Attempt is being made to experiment during the coming summer at Patangi in Koraput district. If this prove successful the seed difficulty will disappear and seeds can be supplied to our people to rear eri worms for more than eight or nine months during the year and get sufficient produce. Eri silk cloth is soft to feel and durable for more than ten years even with rough use. This industry is most suitable for our people and deserves special attention as well as better organisation.

Mulberry silk—Mulberry silk is used for production of silk cloth mostly at Berhampur in the district of Ganjam and at some places in the districts of Balasore and Puri. All the yarn used are imported. Attempt was made about two years back by the industry department and some money was spent for rearing of mulberry silk at the Agricultural Farm, Cuttack, without referring to the results of the past attempts in this direction in Orissa. It was stopped. This has many difficulties which cannot be solved easily. So we need not try for mulberry silk rearing at present.

Muga silk—It has no chance in Orissa. The leaves upon which the worms feed are not available here. Except eri, in the three other silks the worms are to be killed. Our people cannot agree to do this. Though tusser silk has the same difficulty, still a class of people have accepted it as their profession and they do not feel for it. For eri silk the worms are not to be killed. The worms spin the cocoons and come out in the form of butterflies and die a natural death after laying sufficient eggs for their future generation. We get empty cocoons for use. So it is most suitable for our people. The climate is congenial and the people can earn some money without spending a pie for it.

4. Dyeing

Orissa used to consume in normal times about 4,464 bales of dyed yarn per year as detailed below :—

District	Bales per month
Cuttack	188
Sambalpur	120
Puri, Ganjam and Koraput	64

Of course it is more economical to get the yarn dyed in small factories specially equipped for the purpose. It requires some technical knowledge and special appliances, without which successful results cannot be expected. Dyed yarn is more costly than gray yarn. It would be possible to encourage small dyeing factories at every important weavers' village to work on the co-operative basis. This will help the weavers to get their yarn dyed by themselves according to their own need.

There is no dyeing factory in Orissa. There was one at Jatni, it is closed. Cuttack Jail dyes its own yarn at the jail according to its need. All-India Spinners Association get their yarn dyed at Kendupatana. At Ragadi, in Banki, the weavers get their own yarn dyed in the village. Some other villages also follow the procedure to get their yarn dyed and it is much less costly with the same result. The only thing necessary is that some arrangement should be made to supply the dye stuff to different weavers' villages at reasonable cost. They are often cheated, while purchasing dye stuff from retail dealers. Government marketing organisation has got its dyeing arrangement and staff. Gopabandhu Sebasadan get their yarn dyed at Sakhigopal.

Another point which should receive attention is that there were some indigenous dyes of Orissa. As for instance chocolate from "Achhu" roots. It is fast and excellent to look at. That has gradually disappeared from North Orissa except Sambalpur where it is still continuing in some parts only. Black colour is also easily available from different barks. Various brown colours have been

experimented by the Poor Industry Cottage and demonstrated by it in different exhibitions. Better results could be achieved if the services of a chemist is available. The colours prepared from barks of several trees experimented in the cottage cannot stand bleaching though it can stand ordinary dhobi wash.

Of course there are several articles which do not require constant washing, as for instance durry, galicha and similar other articles, for which these colours will serve the purpose satisfactorily. Most of the colours used are direct colours and are not fast. If this bark dye process is popularised by demonstration in the weavers' villages it will save a great deal. The dyes are available from barks of the trees. Almost every tree gives a colour. It will be available to all in Orissa without any cost and the process is so easy that it can be done easily in every house.

5. Manufacture of weaving combs or reeds

This is one of the most important appliances of weaving. Without reed weaving is not possible. Reeds are made of iron, bamboo and other materials which are known as reeds in Orissa. Orissa has got two kinds of reeds growing at many places. Weaving reeds are manufactured at different places but the reeds made at Kantaballavapur in police-station Jagatsingpur of district Cuttack and next to it those made at Tangi Sahi in Khurda subdivision in the district Puri have earned a trade reputation in this article. There is demand for Orissa reeds from Bengal and other provinces. This reed-making can be encouraged to supply the needs of other places and get some money from outside. This is possible by encouraging people to carry on a small business by granting them small loans under State-Aid to Industries Act.

6. Galicha and durry

Import of galichas, carpets and durries should be ascertained at the time of detailed survey. These are very costly articles. They are required in all rich houses, Government offices, meeting halls and at the time of marriages for presents to the bridegrooms. The inferior local wool of Orissa is quite suitable for such galichas. It has been proved by experiment in the Orissa Poor Industry Cottage. Galichas made by that cottage with the wastes of the tailors are highly appreciated. The process is so easy that it can be adopted by males and females of the cottages very easily to engage themselves in their spare time. It is a fit craft to be adopted in all girls' schools in addition to other handworks like knitting, sewing and crochet works. Many girls after leaving the schools do not get the advantage of utilising their knowledge in knitting and other handicrafts for want of wool and other costly yarn. Every one can get opportunity of weaving such galichas at their houses as the materials for them will be available everywhere at nominal or no cost. Those who can weave galichas can also weave durries. Both these can be easily introduced in the cottages. It will supply employment to many people during their spare time.

7. Fishing nets

Fishing is the profession of the fishermen. Their population in the Province is to be ascertained. They not only catch fish but they are the masters of several industries connected with water and fish. They are the boatmen and majhies. They manufacture nets for fishing. They are to catch the fish and do all other things connected with the fish industry. They are the main persons for any business carried on by boats in the rivers. Formerly they were the persons for any were leading vessels and controlling their speed by use of sails. They are one of the most important sections of the communities. Their condition is no doubt getting worse and worse for want of attention to pisciculture and fish industries and fall of business through rivers. The subject of fish industry will be discussed under pisciculture. As regards the fishing nets it is an industry done by the fishermen and they do it while engaged in walking, talking and doing any other work involving less physical labour. They teach that time is money. They teach how to utilise the time in producing an useful article. The nets used in different localities are of different kinds and different nets are also necessary for catching different kinds of fish. Raja Brajasundar Dev of Aul has devised good many kinds of fishing nets and occasionally demonstrates them by catching the

fish for which the net was intended. It is necessary that the Fishery Department should try to pick up that valuable art from Raja Brajasundar Dev. He is never anxious to make a propaganda of what he does, but he will never grudge to teach the process to any one who will be willing to learn it.

3. Carpentry

Carpentry is an important industry of a village. No village can get along without the help of a carpenter. Carpentry supplies all appliances and tools for agriculture as well as instruments for all other industries in the locality. The carpenter also helps in building houses in the village. So he is interested in agriculture and all industries of the village. According to the old custom of communal organisation of villages, the village carpenter gets share of agricultural produce, in proportion to the service rendered by him. Thus the agriculturist gets all his agricultural implements ready and repaired according to his needs. For extra labour he is paid cash. Now with the progress of civilisation, the old order is gradually changing. Carpenters with a little more than average ability migrate to towns for higher wages. In Angul and other hilly tracts, every agriculturist and every day labourer is able to handle the ordinary implements of a carpenter and never feels the want of a carpenter for making or repairing his agricultural implements or even to build an ordinary house. In the plains however people do not know how to handle the ordinary simple implements and therefore depend upon a professional carpenter to do even their simplest repairs. It has become necessary that every householder should learn a bit of carpentry at least to repair his own agricultural implements or other ordinary tools for his village crafts. This will be possible by arranging training in carpentry, in all industrial schools or training centres, if started, for training the people to make use of the raw materials, available in each locality for production of useful articles of utility.

In some towns and at a few other places in Orissa, carpentry has reached a much higher position. At Cuttack town the carpentry work is far above the ordinary mark. The carpenters of Cuttack can produce high grade artistic products of wood. They can compete in fine workmanship with any other carpenter in India. They supply orders to Calcutta and other important places where their workmanship is highly appreciated. The number of men engaged in this industry at the town of Cuttack is about 300. Carpentry at Cuttack is not confined to the caste artisan of carpenters. Many 'Chasas' and 'Goalas' are also engaged in this industry. Besides the town of Cuttack this industry has received prominence at many other places. A few amongst them are noted below :—

The carpenters of Jeypore in the Koraput district make fine furniture of teak wood. Wooden carts are manufactured at many places, amongst which Cuttack town and Tangi are famous. Carts of Tangi are exported to different parts of Cuttack and Balasore districts and Midnapur district in Bengal.

Wooden palanquins, fly-shuttle looms, carriages, rickshaws, wooden portions of motor lorries and wooden blocks for printing purposes, are manufactured at Cuttack town. Wooden sticks of finest workmanship are manufactured in Jajpur subdivision. Two persons named Dhaneswar Maharana and Baishnab Ojha of Kuansapur in Jajpur have earned wide fame for their sticks and other wooden products of excellent artistic beauty. Their works are extraordinary. Ordinary sticks are produced at Cuttack town, Banki, Parlakimedi and Dharakot. They use different kinds of wood at different places namely 'Khira', 'Naraguni', 'Ankula', 'Masu', 'Veru', 'Dhahura' and other similar wood are selected by them for manufacture of sticks.

Cuttack has got the greatest advantage of getting supply of wood from almost all the State forests, through which rivers of Mahanadi and Baitarani flow. This industry needs only better organisation. It is in the hands only of illiterate workmen, who do not understand the importance of executing the orders in time. There is only one firm, started by one Bengali gentleman, who died two years back and the firm is now managed by his successor. He utilises the labour of the illiterate workmen to some extent.

There are some carpenters at Cuttack who are engaged only in turning works. The principal articles produced by them are wooden cases (Pharua) painted with

lac which is called lacquer work. This lacquer industry of Cuttack is not in an improved condition. It needs improvement. The articles produced are far inferior to those imported from outside. Some instructors should be brought for training the workers here.

At many places, on the sides of the rivers, the carpenters manufacture boats of different designs suited to the rivers of the locality. The different boats are called 'Malangi', 'Sapua', 'Kosali', 'Badamuli', etc. Baidyeswar in Banki and Kolabira in Sambalpur produce more dug-outs. Kujang, Kanika and Aul produce more Malangi; Puri produces a kind of boat called 'Padhau' which is very light and is used for fishing in the sea and for transport of articles to and from the ships, which anchor at a distance from the shore.

In the first century of Christian era the people of Orissa used to manufacture sea-going vessels and were sailing to the islands of Java, Bali as well as to Burma in their own vessels to carry on trade. In 1665 Shaistakhan directed the Subadar of Utkal to arrange for ship-building at Balasore. The art of ship-building has gradually disappeared, since the use of steam ships. Raja Brajasunder Dev of Aul has built recently accommodation boats and steam launches by the help of local carpenters. He has adjusted machines brought from outside.

9. Blacksmithy

Like carpentry this is another industry closely allied to agriculture. Village blacksmiths used to supply all the agricultural implements, and other necessities like cutlery, hooks, etc., to the village homes and appliances to the village craftsmen including razors and scissors to the barbers. Unfortunately the demand for such articles has fallen down since the coming in of foreign articles of cheap value. Practically a village blacksmith at present only carries on the repair work of agricultural implements. He gets a share of paddy from each cultivator and occasionally some extra remuneration for extra work.

In Orissa iron ores are available at many places, namely, Angul, Koraput and in other estates. The blacksmiths formerly used to smelt iron and make all the iron products for daily use at cheap cost. Since the establishment of Tata Iron Factory, the iron ores available in big quantities in the neighbouring States, are taken away by that company to produce iron and steel at cheap cost. The village industry of producing iron was discontinued. Only at Koraput there are people belonging to two castes called "Khati" and "Lohar" who have not yet given up iron smelting. They smelt iron in the crude process and produce the appliances of villages. Still there are excellent blacksmiths at some places who can produce beautiful articles of iron, quite useful for daily use. They could produce much better things if encouraged. There are some blacksmiths at Mangalabag, town Cuttack, who are experts in producing machinery parts and other articles of iron according to any design shown to them. Government Engineering School at Cuttack and the aided institute at Balasore, named Balasore Technical School, have got full equipment and machinery for producing excellent iron products. Government School at Fulbani also produces beautiful articles of iron at cheap cost.

The population of blacksmiths in the Province should be ascertained. It was not possible within so short time to ascertain wages they get at present. The general condition shows that it has seriously deteriorated and so they cannot stick to the profession. They are compelled to seek some subsidiary occupation for their maintenance. They occasionally work in their work sheds using the old type of bellows fitted with goat's skin by which the draught is not constant. At a few instances improved blowers giving constant draught, are substituted.

On the whole this industry has not received any attention for its improvement. The skill inherited from their ancestors is still continuing, without any improvement in keeping pace with the progress of the time and needs of the country. Besides their difficulties gradually increase by import of cheap articles from abroad. In course of time the art and skill will gradually disappear and the difficulty of the villagers in getting their appliances at least repaired at the villages will increase. The blacksmiths being deprived of the facilities of smelting iron themselves, or getting it cheap from their brother workers within the Province, for producing articles at cheap cost, are to depend upon scrap iron, which also is available at a very

high cost now. Their difficulty will be softened to some extent, if iron smelting even in the old crude process or in some improved cottage process, is encouraged at places where iron ores are available, or iron is supplied to them at reasonable price.

10. Oil-pressing

Oil pressing is a family occupation of oil-pressers known as 'Telies'. The population of Telies has to be ascertained. This is an industry which serves a large section of population, as the products form one of the principal items of diet. They are found throughout the Province. In every four or five villages there are at least a few Telies, who supply oil to the residents of these villages. Now the industry has been seriously affected by the introduction of machine-pressed oil into the market. Telies used to press out the oil by their bullock Ghanies which is called cold process. It is evident that oil pressed by cold process in the Ghanies, retains its nutritive value while mill-pressed oil loses much of it. But the people purchase it, as it is cheap and available easily at the door. Even Telies near the towns purchase and supply mill-pressed oil to their customers. By introduction of mill-pressed oil in the villages, the villagers lose not only the nutritive value of the oil but the oil-cake which is a very good fodder for cattle and is a valuable manure. The village carpenter could have got some wages for the Ghani, which he makes. He loses his wages. I have got the figure of production and export of some of the oil seeds for the year 1938-39. I use them here just for giving an idea. The latest figure can be collected at the time of detailed survey.

In the year 1938-39

Production in maunds				Export in maunds	
Groundnut	189,965	..	..	..	43,666
Castor	49,232	..	..	..	31,738
Til	353,600	..	..	..	424,523
					(including import from States).
Linseed	22,854	..	..	..	15,460
Mustard	76,875	..	..	..	32,468
Other oil-seeds	250,719	..	..	..

Besides the above a large quantity of cocoanuts are also exported. They could be easily pressed into oil. The export figure given, no doubt, refers to export from the Province, but export from the villages to the towns or places where there are oil mills cannot be known without detailed survey. There are at present two oil mills in this Province. Besides what they produce, 60,000 maunds of mustard oil and 70,000 maunds of groundnut oil are imported per year. The advantages available from getting the oil-seeds pressed in the villages will be useful to the villages if the local Telies are encouraged to carry on their family business of pressing oil by their Ghanies. They fail to do this for want of capital to purchase the oil-seeds at the time of harvesting. This will be possible by co-operative system of working. No one will purchase mill-pressed oil if Ghani-pressed oil is available at hand. 'Polanga', 'Karanja' and other vegetable oils could be used easily for illumination purposes. This Province imports about 4 lakhs maunds of kerosene in ordinary times. Now the people have realised the difficulties of depending upon kerosene. If oil-pressing is encouraged and other oils be available for lighting, our people will devise lamps for burning them as in China. China could devise a lamp to burn vegetable oils and could drive kerosene from the villages.

If allied industries of oil are encouraged, it can create a great deal of employment for the unemployed. Linseed oil is largely used for varnishes and paints. We have got red and yellow ochres easily available. With these raw materials we can manufacture varnishes and paints.

Much of the soap consumed is being imported into the Province. Soap can be easily manufactured here. 'Mahua' oil is easily available from the

neighbouring States. That oil can also be used for the purpose of soap-making. If thought and attention are applied to the need of converting the raw materials into finished products, it would be quite possible to increase the wealth of the people in the villages. Telies can earn more. Their Ghanies can be improved and poverty of the villages can be removed to a considerable extent.

11. Pottery

The number of potters of the Province has to be ascertained. They are one of the important village artisans serving the villagers by supplying earthen pots for cooking and water jars for storing water and all sorts of pots and pans for domestic purpose. Although by import of some cheap metal articles, their industry has been affected a little, still no amount of cheap metal vessel can dispense with them. Rather under the present progress of the society their industry is bound to prosper. Circumstances require that tiled houses should be substituted in place of thatched ones. Pucca houses should be constructed in place of Kutchha ones. If village condition is to be improved, their condition is bound to improve. Their industry does not require costly appliances. Their material is clay, which is available in every locality. Only difficulty is fuel, which is dear at some places and cheap at other places. There are a few potters' families in every 5 or 10 villages supplying the requirements of those villages. At some places there are big colonies of potters. Kumarpada in Puri has got a big colony of potters who supply all the earthen pots required at the temple of Puri. It is a huge quantity. The business extends to over Rs. 15,000 a month. Exact figures should be collected at the time of detailed survey. Orissa has got facilities for development of ceramic industry. We have got white clay or keolin, fire-clay, and varieties of ochres at many places. Fire-clay available in Khurda subdivision, is being used by the Glass Factory at Barang. Government has got one young man trained in pottery and he has been experimenting things at the Development Office.

Tile-making has become an absolute need for the Province. Different kinds of tiles are manufactured in small quantities in the Province. Flat square tiles of one square foot size and tiles of one foot long and six inches broad are generally required for roofs of the Pucca buildings. They were formerly being made mostly at Cuttack. Now it has gradually extended to other towns and some villages. Besides these, other tiles for roofing of the houses are also made at Cuttack and Berhampur. They are mostly made of cylindrical size and then cut through into two parts forming two semicircular upper surfaces. The size of the tiles made in the district of Ganjam are smaller than those made at Cuttack. In Ganjam district most of the houses, even big buildings have roofs with the local tiles made there. Tile-making in Ganjam district has extended widely into villages also. Most of the village houses have got tiled roofs. The advantage is there is no trouble of monkey in Ganjam. Here in Cuttack district the trouble-of monkey is gradually increasing. Some remedy for removal of monkey has become essential. The monkeys not only damage the roofs but destroy all garden crops as well as some of the field crops. If monkeys are checked and tile-making be extended to villages, some of the villagers can easily use such tiles for their roofs and save the straw for fodder of the cattle. The village potters can easily pick up the art of tile-making. Only thing necessary is to show them the process of tile-making and burning them. When tiles are made available within the easy reach of the villagers at cheap cost they will naturally adopt these tiles for their roofing. There are two tile factories in the Province—one at Jeypore and another near Nuabazar in the suburb of Cuttack town. They are making tiles of Raniganj pattern. This should also be encouraged and more such factories should be started at different places.

Another fact relating to manufacture of earthen pots for cooking needs attention. The cooking pots made in the district of Cuttack are thicker than those made at other places. Thicker pots require more fuel. Balasore and Puri make thinner pots than those of Cuttack. Earthen pots of Koraput are far better than those made in any other district. They are more polished and stronger. Research should be made to find out if it would be possible to introduce manufacture of thinner pots in Cuttack district and also to introduce the process of Koraput into other districts.

12. Mat-weaving

Mats supply one of the elementary needs of the people. It occupies a place in every house, rich and poor. Mats are made out of grasses, leaves, jute, sunn-hemp, coir, reeds and many other materials which are available in abundance in our country. Though generally mats do not find a big market and are mostly consumed in the locality, still some mats are often sold in the local markets and some are exported to other Provinces. The mats known as 'Sapa' are produced in some villages of the district of Balasore. A list of some important villages is given at the end. These mats are exported in large quantities to Calcutta and are sold almost in every town of North Orissa. The quantity of their production and that exported and their value should be ascertained at the time of detailed survey.

A kind of grass known as "Nalia" grows in abundance in Kujang, Kanika, Harispur and the areas near about them. It was formerly being used only for making rough baskets. Poor Industry Cottage has been able to make fine mats out of it which will compete with fine "Sitalpati" imported from other provinces to Orissa. It makes fancy bags and hand bags with "Nalia". If the process of making them be introduced amongst basket weavers of the area where the grass grows, they can earn better wages by this industry. They make baskets and sell them at one anna to four annas according to size. A mat produced with the same quantity of material they use for a basket can bring them four annas to one rupee per piece. For bigger mats they can easily earn Rs. 3 and upwards.

Poor Industry Cottage has also experimented different kinds of reeds and produced mats with the tops of sugarcane plants which are lovely to look at and can be used for various purposes. It also makes mats with the barks of plantain trees, that are simply wasted. Parlakimedi makes bags with reeds which are highly appreciated and exported. For manufacture of mats no costly apparatus is necessary. Only the villagers are to be shown the processing of the materials and the art of weaving them. Russelkonda in Ganjam district makes excellent "Baragi" paties.

Recently there was a demand for mats from America. Samples sent from here were approved. But it could not be supplied in sufficient quantities. If the industry be properly organised it will help the people to earn some money. They will get occupation for utilising their spare time which they waste for want of employment. Coir is available in large quantities almost everywhere in the coastal areas but it is not sufficiently used for making mats. There are many other materials available but are not used. If necessary initiative and imagination are supplied this industry can be developed to a large extent.

The important places of mat (called Sapa) production are—(1) Batagan, (2) Baiganabadia, (3) Kamardachour, (4) Kakhdachour, (5) Kharuali, (6) Aulia, (7) Bangsadia, (8) Opala, (9) Karihanda, (10) Putna, (11) Mahagad, and others in the district of Balasore. The quantity of their production and value should be ascertained at the time of detailed survey. Other materials for mat-weaving available in Orissa are—(1) Kandkandia, (2) Keuti, (3) Beruhan, (4) Bena, (5) Palm leaf, (6) Date palm leaf, (7) Juna, (8) Cocoanut leaves, (9) Bamboo, (10) Jute, (11) Sunn-hemp, (12) Coir, (13) Nalia, (14) Kiapatra, (15) Santra, (16) Bargi, (17) Plantain bark, and (18) Roots of 'Kia' plants.

13. Rope-making

Rope-making is another common industry in villages. The equipment used is simple and crude. Rope is made mostly from sunn-hemp, jute, coir, sisal and other grasses. There are various other fibrous materials available from barks of trees and leaves of plants, which are simply wasted. Sambalpur Casey Firm has shown the use of sisal-hemp. It can make excellent ropes, carpets, door-mats, etc. The short fibres, not fit for ropes, can be used for making paper. The residual pulp obtained after taking out the fibre, can be used for manure. Though we have plenty materials, fit for rope-making, still in the market we find large quantity of imported ropes and strings, stocked in the godowns and sold. Rope-making is an industry which can afford work to all the members of a family both male and female in their spare time.

Poor Industry Cottage has collected more than twenty kinds of ropes and fibres. These different kinds of fibres available, can be used for ropes. The quantity of foreign ropes and strings imported should be ascertained at the time

of detailed survey. Every cultivator knows how to make ropes and twist the strings. He does it according to his own need but no commercial attention is paid to it. The quantity of jute exported from Orissa is 105,000 maunds and that of sunn-hemp about 25,000 maunds. Still it imports a big quantity of ropes and strings. Jute and sunn-hemp spun into strings will be fit for production of many useful articles. Banta and Basudebpur and some other places in the district of Balasore make excellent gunny bags for the use of pack bullocks. About 85,000 maunds of gunny bags are imported to Orissa per year. The mill-made gunny bags are much less durable than the bags made by hands in Balasore district. If production of such gunny bags is encouraged it will easily replace a good proportion of imported bags. If possible a jute mill may be started to consume the jute produced here for manufacture of gunny bags and gunny cloth. Gunny cloth is used in large quantities for the purpose of packing of articles and other purposes. The export figure of jute is now much reduced. It was about 300,000 maunds a few years back. The quantity will rise again when a mill is started here.

Poor Industry Cottage has proved by experiment that useful durries can be woven with jute strings which can prevent import of costly durries from outside. They will be more suitable for big floors in the palaces and for ordinary use of individuals for their beds in the cottages. The process of weaving is so simple and the apparatus so ordinary that any cottage owner can weave it easily at his own cottage.

Jute strings are produced in large quantities in some villages in Kendrapara subdivision of district Cuttack, and at some villages in the Balasore district, which find market in the nearest towns.

14. Basket-making

Baskets form another important item of every household necessities: They are made with different kinds of grasses, leaves, reeds, cane, creepers and other similar materials, which are available in abundance in the villages of Orissa. The appliances necessary are one crude knife and a needle and nothing more. Baskets are manufactured generally by the female members of the agriculturists for their own use or use of neighbours. Except a few, the articles do not find their way to distant markets. There are some baskets made in Orissa which find market both in and outside Orissa, that is Kaincha baskets and Rafia baskets. Rafia baskets are made at the Shelter, Cuttack. Kaincha baskets are woven in the villages throughout Orissa. It needs only guidance to produce in large quantities according to designs suitable to the present taste. Poor Industry Cottage has experimented fancy baskets with barks of plantain trees and similar other materials not used before for baskets. These ideas if extended to the villages will be of much help for development of the industry.

Besides fancy baskets of grasses, leaves and barks, rough baskets of cane, bamboo, nalia, roots of keoda plant and different creepers are generally made by Domes and Pans—the professional basket-makers. Such baskets are cheap and are in extensive use for various purposes in every house, firm, mine and ship, etc.

15. Goldsmithy

The population of goldsmith, found scattered throughout the Province, is to be ascertained. They are, so to say, partners of the income of every household, rich or poor, living in towns or villages. In a village his shop is a barometer to gauge the prosperity of the village. Since gold and silver are dear, their work has been seriously affected. The artistic skill in gold and silver work of Orissa is of a high order. The filigri work of Cuttack is an art which is special and may be called hereditary asset of the Cuttack goldsmiths. This art could not be imitated so long by any other province. Late Mr. M. S. Das devoted much of his time, energy and money to improve the art by utilising the inherent skill of the workers for production of articles according to the present taste of the people and it was appreciated in the farthest countries. He also gave opportunity to some best workers of other provinces to imitate the art just for proving the truth of heredity in the art. It was found that the best foreign worker could not succeed and compete with a little boy of 10 or 12 years old of Cuttack. He could bring this industry to a high position which attracted the notice of all the foreign lands.

Unfortunately, simply for want of organisation and inefficiency of the sons of the soil, the industry was captured by some foreign merchants who could earn lakhs and lakhs, giving only bare living wages to the actual workers. This fact needs attention. It should be so organised that the actual workers should get the full benefit of the industry in place of mere wages and thus enjoy the cream of the industry, as was desired by late Mr. M. S. Das, who spent his life, money and energy for the development of the industry. Another special skill worthy of mention is the "Kundun" art of the goldsmiths of Dompara.

16. Solapith works

There is a class of people called Malies or Malakars by caste. Their profession is to supply garlands and manufacture articles of solapith for procession during the marriages and to supply the special head dress used by the brides and bridegrooms. There number is not insignificant. When there was a demand for hats for war supply, the Orissa Poor Industry Cottage supplied a sample, which was approved. When the demand came from the Central Government for supply, I made a proposal to the Department of Industries to utilise the services of some of the Malies of the country for the purpose, so that the industry might provide an additional permanent occupation to them. The Department did not appreciate the suggestion and gave contract to a foreign merchant and then started a factory under the control and supervision of the Fishery Officer of Government. In the factory they trained several persons most of whom have applied themselves to other occupations. This industry needs attention and Government should arrange to introduce hat-making and production of other solapith works into the villages. The number of hats consumed in the Province is not insignificant. The raw materials are available in abundance. This should be utilised to produce valuable articles that can fetch money from outside or at least prevent the money that is going out. There are solapith workers in many places of Orissa. They make charming flowers for decoration, birds, animals, fruits, fruit trees and flower plants for marriage processions. The works of solapith of Puri town, Asureswar in district Cuttack, Dharakot, Parlakimedi and Boirani in the district of Ganjam deserve mention.

Solapith grows almost in all parts of Orissa. For hat-making the Malakars of areas where solapith is easily available, should be trained to make the solapith work and leave it to tailors for finishing with cloth, etc.

17. Coir works

Orissa has got the natural advantage of producing cocoanuts which is possible only within a limited belt round the world. Orissa falls within that belt. Coconut grows along the coastal area in the districts of Puri, Cuttack, Balasore and Ganjam. Sakhigopal and its neighbouring villages in the district of Puri, and North Balasore produce the largest number of cocoanuts. Figures of production can be ascertained at the time of detailed survey. Rough idea can be formed from the fact that average export of cocoanuts during the last four years was 31 thousand maunds per year. Generally outward coatings of 120 cocoanuts weigh one maund which produce 8 sears of cleaned fibres, e.g., coir fit for use. From 31 thousand maunds of cocoanut we can get more than 50 maunds of clean coir. It can be well imagined the quantity of coir available from all the cocoanuts that grow in Orissa. Malwar district earns a huge amount out of the coir industry. We lose the advantage and allow the material to be wasted simply for want of industrial attention to it. Only a negligible portion is utilised by the villagers for twisting ropes and strings for purposes of their own use. Even in markets we see imported coir strings are stocked in the shops and sold. The process is not complicated. The outer cover of the nut, after removal, is to be soaked in water for a considerable period and then it is to be beaten with a wooden hammer to remove the refuses. This industry, if encouraged, will bring enough money to the pockets of the villagers. As far as I know some students were sent for training outside the Province but their services were not utilised.

18. Pisciculture

Amongst the existing potential industries, fishery is the most important one. The proper exploitation and development of these fisheries will mean a great improvement of the financial position of the Province, employment to hundreds

of the children of the soil and supply of a food, which is not only favourite to a large number of population but an indispensable supplement to their very poor diet, the staple of which is rice.

In northern India, the position of Orissa, in respect of fisheries, is the most ideal one. There is ample advantage of deep-sea fisheries, fore-shore and estuarine fisheries, lake fisheries and inland fisheries.

The potential fishing area in the Bay of Bengal, which is just at present absolutely untapped, is approximately 39,000 square miles. The estuarine and fore-shore fisheries, which stretch over a very wide area, are but little exploited. The Chilka lake covers a region of about 400 square miles and is fished rather to a dangerous point, exporting large quantity of fresh fish every day and calls for attention to conserve the fisheries from depletion. If sea-fishing be organised, the main industry as well as the several industries for production of fish manure, fish oil and other by-products, fish-curing and similar others, could easily employ more than half the unemployed people of Orissa.

This sea-fishing is a very big industry. Some of the Orissa coasts were surveyed some years ago, but it was stopped half way. This should be completed and the industry should be organised under the post-war scheme.

As regards inland fisheries, the whole of the Province is traversed by large and numerous rivers and studded with innumerable tanks, which offer a wide scope for development and employment to the ever-increasing army of the unemployed. Leaving aside the area covered by rivers in the districts of Cuttack, Puri and Balasore, the water area covered by tanks and khals, etc., amounts to one lakh and 30 thousand acres. I could not get area of other districts and Angul. Most of them are tanks, which have not been engaged and are full of weeds and silt and are in insanitary condition, breeding mosquitoes and many other germs of diseases affecting the health of the population. Some of the tanks though engaged are engaged at very low rate.

The profit by pisciculture is calculated at Rs. 300 per each acre of water area. If pisciculture in tanks and khals only is organised, the owners will get more money, the income of the large number of fishermen will be increased and a large number of unemployed educated youths will be provided.

This would require less money, more income but tactful organisation in co-operative lines. It would be easy if a few unemployed persons of each locality be encouraged to group themselves into small societies or bodies and helped with capital to take lease of the tanks or khals existing in certain areas, from their owners, for a period of not less than ten years and rear fish in them, their income will be considerably great.

One such body or society organised at a place and helped with capital, expert help and proper supervision up to the successful state, will encourage the formation of many such societies or bodies in no time.

19. Soap-making

It is necessary to collect the figures showing the quantity of soap imported, the quantity consumed for different purposes, and the quantity produced in the Province. There is only one soap factory in the Province. Export figures show that during the years 1939-40, 40-41, 41-42, and 42-43, castor seeds exported were 32,422 maunds, 55,026 maunds, 23,208 maunds and 26,955 maunds. Groundnut was exported 14,281, 9,063, 7,780 and 8,205 maunds. Rape and mustard was exported 81,006, 56,438, 51,054 and 56,241 maunds and cocoanut was exported 13,222, 58,126, 36,421 and 15,449 maunds respectively.

I got the figures of 1938-39 in which the production and export of the following oil-seeds appear to be :—

Production	Maunds	Maunds
Groundnut	189,965	43,666 exported
Castor ..	49,232 ..	31,738 ..
Linseed ..	22,854 ..	154,060 .. (includes import from States)
Til ..	353,600 ..	124,523 exported
Mustard ..	76,875 ..	32,468 ..
Other oil-seeds	250,719	..

I could not find out separate figures about Polang and Karanja within so short time. This will have to be ascertained. These do not mean that we have got excess of the oil-seeds and they are exported; for the import figures are much bigger. Apart from imports, even the quantity of oil-seeds exported, is quite sufficient for the Province to get the soaps, required by our people, manufactured here. Besides the oil-seeds mentioned above, we can get sufficient quantity of mahua oil from the jungles of Orissa and from the neighbouring States. They can be also utilised for soap-making. Sal fruits possess sufficient oil. They are simply wasted. It is proved by experiment that sal oil is suitable for soap-making. Seeds of *neem* and *agara* are wasted. They will also be available in large quantities. These oils are very useful for soap-making, specially for medicinal purposes. If soap industry is encouraged, we can stand competition in any market, as we have the advantages of cheap raw materials and labour. This needs wide demonstration to teach the people the processes of making soaps in the cottages at least for their washing and ordinary purposes. But to produce superior soaps some small factories may be organised at some centres on cottage industry basis with finance.

Cocoon oil also will be available for manufacture of soaps provided arrangements are made for extracting oil from the nuts. At present large quantities of cocoanuts are exported as there are no suitable arrangements for extracting oil. By these exports we lose not only the oil but also the coir and the oil-cakes required for fodder and even food for the poor people. Orissa imports about 70 to 80 thousand maunds of cocoon oil per year. These imports also will be reduced if oil is extracted in the Province.

20. Apiculture and refining of honey obtained from jungles

This needs attention. Honey is a valuable food and medicine. We find prescription of honey in most of our Ayurvedic medicines. Almost every house in our country uses honey. Honey is a common medicine for children in most of their complaints. In our country, people collect honey from the hives made by wild bees in the forests. This honey is often found adulterated and on account of the ignorance of the people who collect it, is not pure and hygienic. It is necessary that arrangement should be made to train these honey collectors to collect honey without pressing the larva along with the comb. This will be possible by engaging some experts to demonstrate at places where honey is collected from the jungles. Such honey is collected mostly in Koraput and almost all other estates of Ganjam, Madhupur, Sukinda, Kanika and other estates of district Cuttack as well as many other villages of Orissa. The quantity available from jungles may be ascertained at the time of detailed survey.

Scientific method of collecting honey is known to only a very few people in the Province. Some villages in Jajpur subdivision are regularly collecting honey by keeping bees and are exporting to Bengal. The Roman Catholic Mission at Surada also collects honey and exports it. The scientific process gives pure honey in a hygienic condition. The wax is not wasted and the larvae are not killed. This process can be introduced in our villages easily helping the people to earn about 12 to 15 rupees per year per box, which is not an insignificant income for the poor families of Orissa. They can keep more boxes in a house. It can be carried on almost in every house like sericulture. The process is not difficult. Once acquainted with the nature of the bees any member of the family even boys and girls can manage it successfully. This will be successful in the flowering season of mango, cocoon, mustard and other crops. The function played by the bees also helps fertilising the crops. Necessary arrangements will have to be made for demonstrating this scientific process of apiculture in the villages as widely as possible. Honey collected from lotus by apiculture is highly profitable. One tola of such lotus honey sells at Re. 1 to Rs. 4 at times.

21. Lac and glass bangles

Bangles are necessary wearing ornament of every female of every house. Its market is in every house throughout the Province. A few families in the district of Sambalpur, in the villages of Sohala, Kusunpur and Vatli make glass bangles with materials imported from outside and broken pieces of bangles collected from the locality. Some people of Ankuspur near Berhampur in district Ganjam also make glass bangles.

Lac bangles are made by a few families living at Jagannathballava, town Kendrapara in Jeypore, Takhurpatna in Cuttack, Nabarangapur Umarkote in Jeypore, Kathua Patna in Jagatsingpur, Cuttack, Puruna Berhampur and subdivision, Pithol in the district of Ganjam and many other villages throughout the Province. Besides lac bangles Nowrangapur in Koraput produces many other things of lac. Lac grows e.g., necklace, baskets, 'Chamars' and other fancy articles of lac. Lac grows in Jeypore. People are using lac for making the above articles. If they get the facilities and expert guidance they could make many other articles.

Manufacture of glass and lac bangles in some improved designs should be encouraged at different places in all the district and subdivision towns and also important villages in order to provide employment to a number of persons and also to prevent import of such things which could be done here easily.

A mixture of lac, resin and earth is prepared by the goldsmiths which is called 'Jaue'. This 'Jaue' is used by them to fill up the hollow portions of gold and silver ornaments. Lac is also used by the weavers of Berhampur and Sambalpur for dyeing the silk they weave. The colour is deep red and very fine to look at.

There are some families living at Tangi in the district of Cuttack who manufacture 'Altapati'. This is prepared only here and nowhere else. This contains the red paint with which the females paint their feet. It was being exported from this place to all parts of Orissa as well as some parts of Bengal. Now this industry has been affected due to imported paints. Still it is used in the villages. The main ingredient of this is lac.

22. Catechu

There are catechu trees in Angul at Chhendipada, Durgapur, Santarabandh, Kosala and Jarparda and at many places in Sambalpur and Koraput districts. It is manufactured by boiling the heart wood of the tree, free from the sap. The process is easy. Export and import figures are to be collected at the time of detailed survey. The imported catechu is sold here at double the price of the indigenous articles. The difference lies in process of manufacture. The imported catechu is more refined.

It is necessary to improve the process of manufacture. Athmallik State got a few workers trained in Central Provinces. They introduced the Central Province method in the State and thus manufactured refined catechu. They secured better price for the products.

Catechu is used with betels and is more used for dyeing purposes. 'Kath', prepared from catechu sells very dear. It is used for medicine.

23. Manufacture of gur from the juice of date-palm and palm

Import figures show that in year 1942-43, 82,103 maunds of gur and 125,692 maunds of sugar and in year 1941-42, 96,737 maunds of gur and 232,340 maunds of sugar were imported. Though cultivation of sugarcane is gradually increasing it will take long to prevent import of gur and sugar from outside.

It is not desirable that any source from which gur and sugar will be available should be neglected. There are numbers of date-palm trees at many places throughout the Province. Some of them are used for excise purposes. Still there remain many which could be used for manufacture of gur. Similarly there are large numbers of palm trees throughout the Province. Juice of the palm trees is suitable for gur. The process of making gur from palm juice and date-palm juice is not very difficult. It is being manufactured only in a small area in north Balasore, thana Singla, in villages Ratai, Panchapali, Salapa, Badapuhuda, Paratappur and Jamakunda. It was tried at Singmapur and Bari in the district of Cuttack and proved successful. This should be encouraged in all parts where there are date-palm trees and palm trees. It is a valuable commodity. Wide demonstration is necessary to teach the people how to manufacture gur from the juice. One and the same instructor can instruct gur manufacture from date-palm juice in winter and that from palm juice during the summer, as summer is suitable for palm gur and winter for date-palm gur-making. For gur-making all palm trees including those which do not bear fruits are also useful.

For sugar manufacture there are only three sugar mills—one at Aska another at Rayaghada and the third at Banki. Manufacture of Kanda and Nabata are

two special preparations of Ganjam, Puri and Cuttack out of gur. They are found nowhere else. They are appreciated more by the people in preference to sugar. They should be encouraged. Manufacture of sugar on cottage industry basis may be encouraged.

24. Fruit-canning, pickles, moorubas, etc.

Horticulture is not as yet popularised in the Province of Orissa. Still there are some fruits which grow and are available in seasons only. The process of preserving fruits is not very difficult. It can be preserved in sugar and in acid. Canning process is necessary for preserving in sugar which is more appreciated by the people. Our people generally prepare pickles by drying fruits in the sun and adding tamarind, some spices, salt and oil to it. By this process they preserve fruits for use for more than a year or two. If canning is introduced when the fruits are available in large quantities, they could be preserved easily for use during the time when fruits are not available. Various kinds of fruits are available, some growing in the gardens and others in the jungles. Even if the garden fruits be insufficient for use in season and there be no excess for preservation, the quantity of fruits available from the jungles will certainly be of use for this purpose. For instance 'Moorubas' of embalic myrobalan are imported from other provinces for sale here. In season we get large quantities of those which are simply dried and exported. Lemon and orange are available very cheap in some parts while they are very dear in the towns and are not available throughout the year. If process of preservation be introduced, the fruits can be used by the people in all parts of the Province and they can be exported to other provinces. This will provide partial employment to a number of persons. Lemonsquash and orange-squash can be prepared easily in the locality where they are available in plenty and supplied to the towns and can also be exported to distant places. This can easily bring some money to our people.

25. Manufacture of cutlery and agricultural implements

I think it should be the wisest policy in the sphere of industrial development to pay attention first to the production of articles, much in demand, which can be easily produced in the Province. Orissa possesses sufficient skill in the manufacture of cutlery and other agricultural implements. But due to many difficulties our men cannot stand competition with imported articles. They do not get raw materials at cheap rate. There is no organisation for large scale production. If these difficulties are removed this industry will have better prospects.

Cutlery and agricultural implements are always necessary for our people and production of those at important centres within the Province, will be within the easy reach of all.

Of course special articles that cannot be easily produced here at the beginning may be imported. Production of ordinary articles of everyday use should be encouraged in the Province.

26. Cane works

Cane grows both in the hilly tracts as well as in the plains and is available almost throughout the districts of Cuttack, Puri, portions of Balasore, Ganjam and Koraput. Banapur in the district of Puri and Dampara in the district of Cuttack produce the largest quantity. There are cane workers at many places who generally weave baskets according to the needs of the villagers. Those living at Khannagar close to Cuttack town, Dompara, Banki, Singda-Pokhari, Kacharamal, Fulnakhara, Nuagarh and Patia, thana Sadr and Katikata and Jaripara in thana Salepur of district Cuttack, Banapur, Nuapara, Gope, Tulsipur and Balugaon in the district of Puri, Nangaleswar in the district of Balasore, produce cane trunks and other articles. No proper attention was applied to it till only a few years back. Cuttack Jail was producing fine articles of cane but now it has stopped. Madhusudan Village Industry Institute and the Orissa Poor Industry Cottage of Cuttack produce varieties of cane articles, e.g., chairs, tables, baskets, trays and other articles of different designs. The demand for cane articles is gradually increasing. The difficulty is want of sufficient trained hands to supply the needs. It would be convenient to open training centres at places where cane grows in large quantities and arrange for training the local workers to make cane articles according to the taste of the time. It is one of the

main items included in my proposals for village industrial schools, pending before the Economic Committee. Here again I can say that starting of such industrial centres at important cane-growing places, will help not only the cane workers of the locality to produce beautiful articles of cane, suited to the present taste but will supply occupation to many others who can engage themselves in preparing the preliminaries of the industry, such as splitting up of the canes and making cane strips. This will help export to place of manufacture where cane does not grow. To improve and develop this industry in Orissa it would be necessary to control the export of cane from Orissa. Government forests should not allow outsiders to take away the raw cane from Orissa by offering higher amount in bids. This is an industrial material and I would suggest that the principle of preventing any such raw material going out without undergoing the processes of producing finished articles, should be rigidly followed if it is intended to industrialise the Province. Cane of Banpur and that of Dompara are considered to be the best in quality amongst all the canes produced at different places of Orissa.

27. Bricks

Brick laying is a very simple process. It can be done by any ordinary day labourer. Only its burning is costly and requires some skill. Generally rich people use to get kilns of 50,000 and upwards for burning of bricks. Every one at present according to the modern taste would like to have at least a pucca flooring and brick built verandah for hygienic purposes. In flooded areas it is a need for avoiding damp. Poor and even middle class people cannot attempt it, as they cannot spend large sums of money at a time. The Orissa Poor Industry Cottage demonstrates at places how to burn bricks in small quantities, commencing from 500 at a time. They burn the bricks in an oven. The same oven will continue for many years. In the same oven more than 500, say 5,000 or even 10,000 bricks can also be burnt at a time. This process, if adopted by the local bodies, would save them a considerable amount, which they pay now as carrying charges for bricks from distant towns, for small structures or repairs in the interior localities of their areas. The Executive Engineer in charge of the construction of Bhadrak and Chandballi road allowed opportunity for burning of bricks in this process and he admits, it was of much help to him in construction of the road. I think this will get approval of all Government departments and thus it can get an opportunity for extension to the interior villages by wide demonstration at places. People from all quarters are pressing me to send instructors to help them but I have not been able to train many and a few who are trained are occasionally sent but not always, as they are not under my full service. So it has not been possible for me to extend it widely.

28. Tailoring

Tailoring is gradually gaining a position next to weaving. Everyone, rich or poor, requires a 'Jama' for covering the body. There is a class of people called 'Darji' by caste in Orissa, whose family occupation is sewing. Mostly they are found in Cuttack and Puri districts. In Balasore they are rare. Pipli in the district of Puri was famous for its sewing arts. They used to make excellent 'Samayanas', pillows, bed-spreads and other articles of use, besides those used in processions during festivals of 'Thakurs' and ceremonies of the kings. Their sewing art is special and is known by the name of the place. It earned reputation far beyond Orissa. They could earn several thousands at a time for a 'Samayana'. By change of taste and circumstances of the people the scope of this Pipli sewing is much reduced. Besides, their sewing is only with hands. Since the introduction of sewing machines, the industry has not been confined to 'Darjies'. It supplies employment to many. Mostly the Muhammadans prefer to take up this occupation. Field for this industry is gradually increasing. In every town and important village there are some tailors and one or more sewing machines. Many Oriya young men mostly Muhammadans have received regular training and are able to make high class garments and suits.

This industry has sufficient scope to employ more men if attention is paid to industrial development of the nation.

Government is the highest customer of this industry. Why should not our Government get all their requirements done in the Province, when there are already

a large number of competent men to undertake such work? Government patronage will surely help the development and spread of the art and thus solve the problem of unemployment of many young men of the Province.

29. Brass and silver badges, buttons, stamps, etc.

The demand of Orissa and Orissa States for these articles is a huge quantity. The quantity is to be ascertained. Orissa has got men fit and able to make them. There is one small firm at Baxibazar and a few workers at Bhagatpur, town Cuttack, who make these articles. But they have not got the necessary equipment. Better results will be achieved if some of them are trained. At present the workers of Bhagatpur can make most of the articles required by the Government. They should at least get the advantage of producing those that they are able to produce. This will create a desire in them to attempt for others which they are not able to do.

One young man of Bhagatpur was sent for training in brass work. But all the money spent on his training is practically wasted as he was not given any opportunity to utilise the benefit of his training. Such expenditure without any purpose or plan may be avoided at least in future.

30. Horn and ivory works

This is an important industry of Orissa. Horn combs are made mostly out of buffalo horn at many places according to the old design. But the chief centre of horn industry is Cuttack town. There are about 200 horn workers at Cuttack. Parlakimedi also does some horn works. Exact number of horn workers working at Cuttack and Parlakimedi is to be ascertained.

Horn articles of Orissa are exported to Calcutta, Bombay and many other places and are highly appreciated everywhere. Varieties of fancy articles including paper-cutters, sticks, combs, penholders, birds, toy furniture, tooth brush, sticks, etc., are made with horn. Buffalo horn is used mostly, but horn of other wild animals is also used by the workers for production of articles.

During the life time of late Mr. M. S. Das he devoted his attention to improve this industry also and brought about considerable change in its outlook. He introduced several improvements in the mode of working and taught the people to produce articles suited to the modern taste. This industry needs better organisation and some more improvement. Scrapings and the refused portions of horn could be utilised by the introduction of the process of melting and casting and also some small improved appliances and machineries to save the amount of labour spent in this industry.

Some of these workers are able to produce beautiful articles of ivory. Jeypore produces best ivory articles.

31. Toy-making

Toy-making is an important art. Cuttack town is famous for its toys. Clay toys from Cuttack are exported to almost all parts of Orissa and sometimes to the neighbouring provinces. Parlakimedi makes some toys of soft wood. Cow-dung toys are made at some villages just to satisfy the children but none of them is worthy of note. Cuttack town is foremost in toy-making.

Manufacture of unbreakable toys, originated from Poor Industry Cottage is an innovation in the art in this Province. Without any propaganda or advertisement it has attracted the notice of the people of Orissa and distant towns of other provinces. There is a great demand for unbreakable toys from Central Provinces, Berar, Bombay and Delhi. Poor Industry Cottage is only an institution for imparting industrial education. It makes researches and experiments. It is difficult for this cottage to supply heavy demands. Though it is delicate for me to make any suggestion for making suitable arrangements for putting this industry on a commercial basis and keep it as an industry of Orissa, still I should say this should not be neglected.

Soon after the Congress Government took charge of the administration, their industrial adviser approached me and proposed to take up my unbreakable toys and eri silk and develop the same through their village industries association. I gladly agreed and rendered all possible assistance with the hope that they could easily develop them, as they were getting enough money from the Government. But I hoped in vain.

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Toy industry has ample scope for expansion. It can provide employment to many homes in the Province and can bring ample money from outside. This should receive the consideration that it deserves.

32. Hosiery

The quantity of socks and banians imported to Orissa is to be ascertained at the time of detailed survey. The quantity consumed is no doubt a big one. A small hosiery factory was started at Cuttack about 30 years back by a Bengalee gentleman, who came here to serve as common manager of an estate. The factory ceased to work as soon as the term of service of the gentleman was over and he left the place. There is at present one man at Salepur with one machine who produces only a small portion of the requirements of the people. One young man trained in the art is at Sambalpur but he does not do anything in the line. On my suggestion two females of Jajpur subdivision received training in the Cottage Industry Institute, Gulzarbagh. They too could not do anything for want of machines. It is necessary that a number of persons particularly women should be given training. After training they should each be provided with a machine on the hire purchase system. This will enable them to produce all the requirements of the Province. This can easily engage a good number of unemployed persons.

33. Gum and glue

Glue is used for many purposes in the Province. Gum is used in the offices for paste. We purchase glue and gum imported from outside without attempting to utilise the ordinary things that are always available at our door. Most of the gums are available from the sap of the trees. Such trees grow in the jungles as well as in the villages. One thing necessary is to show to the people the process of preparing them for use. This needs instruction and proper care. Glue from animals is sold very dear. It is required for industrial purposes. Mostly the carpenters, toy makers and others want glue in large quantities. We have got some tanneries and shoe-makers at different places. The scraping of leather and refuse of shoe-makers' shops, are simply wasted. Also flesh of carcasses which are not used for any other purpose are allowed to be wasted. If the process of preparing glue is demonstrated by experts to our people this industry will certainly take root in our country and solve the problem of unemployment to some extent. Orissa possesses a large number of cattle. So we can manufacture glue sufficiently not only to meet our own requirement but also for export.

The different trees that can produce gums are—

- (1) Babula or Babru, (2) Kaitha, (3) Genduli, (4) Bheru, (5) Assan, (6) Rahini, (7) Khaira (catechu), (8) Limba, (9) Dha, (10) Dhobala, (11) Ambada, (12) Bija or Peasal, (13) Palash, (14) Mai.

34. Paints and varnishes

The total area for the cultivation of linseed is 5,603 acres. The estimated total produce for year 1942-43 is 708 tons equal to 19,116 maunds. But the export figure shows 24,378 maunds including the export from States through Orissa. Linseed oil is the main ingredient for painting wooden furniture as well as doors, boxes, windows, beams, etc. Our carpenters are bound to purchase imported linseed oil for their purposes only because the raw material is not converted into paints which can be easily done. There are also various ochres available here but no attention is paid to manufacture the paints. The main ingredients of varnish are resin and lac. They are available in plenty in the forests of Orissa. The export figure of lac and resin should be obtained at the time of detailed survey and necessary arrangements will have to be made for instruction and preparation of varnishes out of the materials available in Orissa. Orissa can manufacture varnishes in sufficient quantities to satisfy her own needs and also to export to other provinces.

35. Manufacture of umbrella and fishing rods

It is necessary to find out the varieties of bamboo as well as wood suitable for fishing rods and umbrella handles. Bamboo is suitable for sticks as well as fishing rods.

Fishing rods are sold at high prices. There is suitable bamboo available in our Province for the purpose. We have also wood fit for handles of umbrella.

Manufacture of umbrella can also be encouraged here in the same manner as they are done at Calcutta, with imported sticks and cloths. When we have got both bamboo and wood fit for handles of umbrella, the handles may be made in the villages and the rest fitted in the towns to manufacture umbrella.

36. Ink

Ink manufacture is a small industry. Its use is very common almost in every house. The process of making ink is easy. The principal materials for ink are easily available in our Province. The raw materials like myrobalan, dibidibi and others are being exported in big quantities. But we are purchasing ink and ink powders imported from outside. Ink manufacture was tried by some parties and individuals. Their ink was not inferior but their business could not stand long. Though a small industry, it should be encouraged as it supplies one of the important items of the daily requirements of every educated family as well as the offices of all departments.

37. Leather industry

Export figure shows one lakh maunds of hides and 13,000 maunds of skin are exported from Orissa and a large quantity of leather goods is imported from outside. Exporting raw materials without processing them for the purpose of producing finished articles, is sign of indifference towards the development of the industry of the country. It appears that the export figure of hides and import figures of leather and leather goods are gradually increasing. The difference of price is considerably great. The tanning materials like myrobalan, sunari and korada barks are available in plenty in Orissa forests. Export figure of myrobalan in 1937-38 was 1,080,000 maunds. I could not get the latest figure which is to be found out during the detailed survey. Also figures of other tanning barks exported or available for use are to be found out. There are at present only three tanneries in the Province. They confine themselves to half-tanning with a view to lessen the volume and weight of hides for the convenience of transport. They are unable to enjoy the full value of it. Tanning itself is a widespread industry requiring of organisation for producing finished articles which is an universal demand. It also requires development of the process of flaying and preserving the hides and the skin. This is done generally by the low class people who are not only poor but entirely ignorant about the value, it can fetch by careful handling of the hides and skin. It is for the state to arrange for educating the people in this industry and to teach them by wide demonstration, how flaying is to be done carefully as well as the process of salting and curing the hides as soon as they are flayed. This alone will increase the value of hides considerably. The Government Industry Department has got a demonstration party. As a result of the efforts of this party the shoe-makers of Barang have considerably improved in tanning the hides and producing sole leathers, which has got a demand from distant centres.

There is a large number of shoe-makers at Cuttack, Puri, Balasore, Sambalpur, Berhampur, Koraput and many other villages in the interior. Sambalpur produces shoes at cheap cost. The musical instrument 'Khol' of a village named Pabitrpara in Cuttack district is exported to many places of Orissa and to Bengal. Even, if the cottage process of tanning is improved by demonstration at the different shoe-makers' localities in the Province, it will serve an useful purpose in supplying at least the needs of the people in different localities and increase the income of the shoe-makers.

Leather industry of Orissa received the highest estimation in the world when late Mr. M. S. Das devoted his full energy, money and time to it. One discovery of lizard skin for useful purposes drew the attention even of America. It is unfortunate that the nation could not maintain the tannery he built and for which he died penniless getting himself declared insolvent. There are still persons living in Orissa who worked under him and who received training in that tannery. It is desirable that this industry should receive considerable attention of the Government and the people to utilise the benefit of the good will earned by late Mr. M. S. Das. This industry is one which will bring enough money to the Province and stop the import of leather and leather goods altogether from outside.

We have many States close to Orissa which have myrobalan, dibidibi, sunari and korada barks, kanti, and other materials in abundance. Some of the States are also vigilant and are opening tanneries. Boudh, Kendujhar and Patna have already opened tanneries and are working in the line. Still some of the hides of the States are sure to be exported till the States are able to utilise them in full. Orissa should not lose the opportunity of utilising the facilities available to increase the economic condition of the Province. This may be possible by organising more tanneries and training the people in the process of flaying and curing and also demonstrating improved process of cottage tanning.

The existing tanneries suffer for want of chemicals and transport difficulties in getting the tanning barks from the forests and other places. It is necessary that Government should help them for removal of the difficulties otherwise they will be discouraged and the situation will seriously affect any other enterprise in this direction in future. Private enterprises in all industries should always receive the foremost encouragement.

38. Stone-carving

Sculpture was a special art of Orissa. The perfection it reached, was unique in the world. The carving on hard stones, still existing in the temples of Konarak and Bhubaneswar, bear mute but eloquent testimony to the grandeur and skill of the stone workers of Orissa of the ancient time. The art is gradually dying out. There are at present only a few workers, four or five at Bhubaneswar and about ten families in Pathuriasahi, town Puri, who are still able to do excellent stone work. They earn their livelihood by producing miniature stone temples, different kinds of animals, birds and other toys and dolls from soft stones. They can work on hard stones and some of them can make statues from photo; but this does not pay at present and so they scarcely do it. There are some families engaged in stone carving at Kanchilo, Haladia, Tangi, Naranagada and Bhatikira in the district of Puri and in villages of Mugunipur, Bagalpur, Talamunda, Bagadi and Mahumuha, etc., in the district of Balasore. In those villages of Balasore district there are a large number of stone workers who produce plates, cups and other fancy articles of black hard stone available there and in the State of Nilgiri. Their stone products are exported in large quantities to distant places in and outside Orissa. Besides expert workers in sculpture there are many other stone cutters living at different places whose profession is to produce grinding stones, tiles, crushers, tubs and other articles of stone for different purposes. Ordinary stone cutters are found in all the districts engaged in rough work. Their number and the different works they do, can be ascertained at the time of detailed survey. Those living near Naraj supply chalk stone to the painters of Cuttack. Some of them and others living near Chauduar work in quarries of rabbles. Raja Braja-sundar Dev of Aul does very fine works of artistic beauty on big marble slabs. He does it himself with his own hands. Plates and tumblers prepared by him are admirable. His stone plates are made to float on the water with sweets and fruits in them.

39. Brass and bell-metal works

Brass and bell-metal industry is one of the oldest industries of Orissa. There are big colonies at different places of these bell-metal workers, who produce varieties of utensils and supply to the whole Province. The important places of these workers in the district of Cuttack are Ghantimunda, Chauliganj and Bhagatpur in the sadar subdivision and Baidarajapur and Baliptna in Jajpur subdivision; in the district of Puri are—Vainchua, Balakati, Rathijama, Muktapur and Achutapur; in the district of Balasore are—Remuna, Jananganja, Chandanaswar, Chandanpur, Dehala and Erdada; in the district of Sambalpur are—Kodabahal, Tukura, Ramunda, Baragarh, Katapali and Rampela; in the district of Ganjam are—Berhampur, Parlakimedi, Aska, Boirani and others; in the district of Koraput are—Jeypore, Nawarangpur, Balia, Dasamantapur and Dahugan.

More embroidery work is done at Barapali, Bijipur, Katapali and Tukura in the district of Sambalpur. Ghantimunda in Cuttack district does embroidery work on brass articles. Since the coming in of cheap aluminium articles this industry has been seriously affected. But the industry cannot die altogether, as it has a special use in the temples and in ceremonial occasions. Brass and bell-metal utensils occupy a prominent position in the list of dowry at the time of marriages. It is a matter of serious consideration how the industry can be

improved. In better days when copper and other metals were easily available co-operative societies were formed at some of the centres and large sums were advanced. But they could not succeed for defect in the management.

The proportion of alloy used for the articles, is different at different places. The quality depends much upon this proportion, besides workmanship. Now copper and zinc sell very dear. The price of the articles becomes too high for ordinary customers to purchase. Consequently the demand is greatly reduced. It is a problem how the large number of bell-metal workers should be provided with sufficient work to keep up the industry. If the process of beating and that of turning can be improved by introduction of some labour-saving appliances and the people are trained to produce articles of less weight they can easily supply articles at cheap value and revive their market. They are now using only scraps of old utensils for production of their articles. Besides ordinary utensils and other articles of domestic use, Balakati produces 'Kubji' and Vainchua and Muktapur produce 'Jhanja' (musical instruments) which are famous throughout the Province. Remuna in Balasore is famous for the quality of its articles. But the work is gradually disappearing from the place. Besides the above there is another class of brass and bell-metal workers called 'Kharudas'. They make only ornaments for females with brass, bell-metal and other alloys. Their number should also be ascertained at the time of detailed survey. No female can remain satisfied without an ornament at least for her hands.

This industry can be helped by arranging to supply the alloys to the workers at cheap cost and educating them to produce lighter articles according to the present taste.

40. Cigar-making

According to the season crop report of 1942-43 the total area under tobacco cultivation is 29,804 acres in all the districts in the Province. The total estimated yield of the tobacco crop is 9,995 tons or say 270,000 maunds. In other words one acre of land produces roughly one maund of tobacco. In spite of the produce Orissa imports 93,015 maunds of tobacco and exports 16,166 maunds.

However the quantity exported should not be allowed to be exported in raw state without bringing it under processing them into finished articles.

They may be utilised for making cigars at least of the Madras pattern, called 'Madras piccas' imported in large quantities. If the quality is to be improved the Agriculture Department should pay attention for introducing the necessary seeds for the purpose. Spices for 'Pan' called 'Gundi' is widely in use not only in Orissa but also in Bengal and other provinces. Gundi prepared at Jajpur are exported to Burma, Assam and other places. 'Pandia subudhi masala' of Ganjam is exported to many places. Attention should be paid to organise the use of the tobacco exported for production of finished articles like the above before they are exported.

Snuff is also produced and sold.

Smoking of tobacco commonly known as 'Gudakhu' is not very common in Orissa and is not manufactured in large scale, but is imported from outside. But a kind of 'Gudakhu' used as tooth paste at Cuttack is prominent and is exported in large quantities to many other provinces, i.e., Assam, Burma, Bengal, Madras and Central Provinces.

'Bidi' is a prominent industry of Orissa. 'Bidi'-making has made considerable progress within the last 25 years. In almost every town of Orissa there are number of men, women and boys engaged in Bidi-making. Number of persons engaged, quantity of production and the quantity of export should be ascertained. Sambalpur town produces the largest quantity. It produces 'Bidi' worth about Rs. 300 per day. Bidi of Sambalpur is exported to Calcutta, Lahore, Bombay, Hyderabad, Central Provinces and other places. Besides 'Bidi' about 2 lakh maunds of 'Bidi' leaves (Kendupatra) are exported from Sambalpur per year.

41. Scents and perfumes including Keuda water and scented oil

There are raw materials and other facilities for the manufacture of different kinds of scents and scented oils in the Province. The materials available in abundance at different places are Khaskhas (roots of 'Bena, '), Kedua ('Kia')

flower, 'Champa', 'Bakula' and 'Nageswar' flowers. People from Kanawj come in season every year and manufacture these articles at different places and take them. No one of Orissa attempts to make any business out of it, except supplying the raw materials to them. There are about ten such centres for preparing scents and scented water from Keuda flowers at Kantabania in Parikud and at Gopalpur, Agraharam and Chhatrapur in the district of Ganjam. Each centre consumes about 10 lakhs of flowers on the average a year in normal times. The cost of production of 10 lb. of Keuda scent was not more than Rs. 142 while the selling price was never less than Rs. 325. Scents from 'Bakula' is manufactured at Satyabadi in Puri district and at Cuttack. Scents from 'Champak' are manufactured at Satyabadi and Jajpur. Scents from 'Nageswar' is manufactured at Jajpur. Keuda water is also another product from flowers of Keuda. This Keuda water has also market in almost every town. This is a profitable industry. This needs encouragement by organisation of co-operative societies for supplying finance and undertaking the sale of the products.

42. Shark liver oil

Shark is available in the seas in big quantities as we are informed by the Fishery Department. The Department proposes manufacture of shark liver oil which will be a substitute for cod-liver oil. This deserves encouragement.

The flesh of the fish will be suitable for production of glue. From the same arrangement, oil and glue can be produced by the same establishment.

43. Manufacture of fish manure

If fishery is developed there will be always some surplus which cannot be otherwise used or exported on many occasions. The surplus fish may be used for manufacture of fish manure. Fish manure will be a valuable commodity for use of the fruit gardens.

44. Salt

Salt manufacture was once a prominent industry of Orissa. Orissa was supplying salt to the Native States, to Central Provinces and to Berar after meeting its own requirements. When salt manufacture was prevented, many flourishing families and a large section of the population of Orissa were ruined. Now the revival of salt manufacture is a boon to Orissa. At present Huma, Nuapada and Soomandi in the district of Ganjam, which were continuing salt manufacture from the time they were under Madras, produce about 6 lakhs of maunds and the new centres opened at Gurbai, Tua and Astarang in the district of Puri and Talpada, Inchudi in the district of Balasore, are able to produce about 2 lakhs of maunds per year. Orissa needs, as per the opinion of experts about 18½ lakh maunds for its own population and about 7 lakh maunds for States. If salt manufacture is encouraged to expand, it would not only save a huge sum, but will enable us to earn huge profits by supplying salt to other places.

45. Lime

Lime is produced by burning limestones and shells. Sukinda, Madhupur and Banki in the district of Cuttack supply a large quantity of limestones to Cuttack and neighbouring places. Limestones are also found at many places in the river beds in villages. Limestones imported to Cuttack from Narsingpur State produce the best lime. Another kind of stone locally called 'Asurahada' (bone of demons) available in Sukinda produces better lime.

Lime from shells—Chilka lake supplies a large quantity of shells which are used for lime. Arakhkuda to Barunkhati and all mouths of rivers produce big quantities of shells. Cuttack and Puri consume big quantities of shell lime for white-washing of buildings. Besides ordinary shells another kind of *conical shell* is also available there, which produces lime of the same quality. Oyster produces the largest quantity and the shells are of the best quality. Oyster shells locally known as *kastura* is available at Pati-Sonapore in the district of Ganjam. Oyster shells are also used for lime. Occasionally pearl oysters are found in the river Band there. Sometimes pearls are found in the shells of green oysters. Number of persons engaged in lime industry, quantity of limestone and shells consumed and the quantity of lime produced should be ascertained.

46. Dried fish

This is one of the profitable industries of Orissa. Government has got some centres called fish-curing yards in the district of Ganjam to instruct the people how to cure the fish in improved process. The yards are at Patsunapur, Markundi, Gopalpur, Prayagi and a few other places. More than 50 thousand rupees worth of dry fish is exported from this neighbourhood. Kujang and Marsaghai in the district of Cuttack produce large quantity of Hilsa dry fish. Chandbali and Dhamra in the district of Balasore, Machhgan in the district of Cuttack, the mouth of the river Debi, Satpara, Parikud and their neighbouring places in the district of Puri are important for dry fish. Satpara and Parikud also produce large quantity of cured prawns which are first boiled and then threshed before they are packed for despatch. In normal times these two places used to export cured prawns worth more than a lakh of rupees per year. More accurate figures of export and production may be ascertained at the time of detailed survey.

47. Tin trunks

Manufacture of tin trunks has considerably increased in the towns of Cuttack, Sambalpur and Berhampur. Now the quantity of production is reduced for want of materials. Two factories at Cuttack consume raw materials imported worth about 1½ lakhs of rupees and produce trunks, buckets, etc., worth 3 lakhs of rupees and engage about 30 persons.

48. Lace work

Lace-making is a nice work. It is done by many. Mostly the female members of the native Christians of Orissa do it. Satahat, Petnisahi in the town of Cuttack, Kapila and Mahasada in Jajpur subdivision, Pipily in district of Puri are important centres of lace work. They use cotton yarn for the works they do. There are also laces of gold and silver and also imitation laces. Pure lace is used for the garments of the rich, mostly Marwadi families; who use them; imitation lace is used for the dress of Jatra and theatre parties. Cuttack town alone consumes about Rs. 3,000 worth of lace in a year and produce articles worth rupees 6 to 7 thousands. About 40 to 50 persons including females of Cuttack town and nearly 200 families of Narasingpur, a village near Haripur in Jajpur subdivision, are engaged in producing various articles with laces.

49. Buttons

Besides the shells used for lime there are various other kinds of shells available on the sea coasts. Most of them are beautiful to look at and are used for decoration of walls and fancy articles for tables. Buttons from shells are more appreciated and also sold at higher price in the market. These shells could be used for buttons, if button-manufacture is introduced in the Province. Shells from Russelkonda and Surada reservoirs will be more suitable for buttons.

Besides shells there are many other materials like horn, cocoanut shells and others that can be utilised for buttons. Orissa School of Engineering once demonstrated button-making with small appliances. Such appliances can be supplied to those who will be willing to take up button-making and the art of making buttons may be widely demonstrated. This might supply employment to some unemployed or under-employed persons.

50. Painting

Orissa is always prominent in the art of painting and its allied industries. Girls of respectable families used to receive a systematic training in painting along with other household works by painting the walls and verandahs of houses, floors of 'Tulasichaura', seats for elders and guests for their meals. They also used to paint the earthen pots used for containing sweets, sent to relations as presents. Besides, there is a class of people belonging to the caste called 'Chitrankar' whose family occupation is painting and toy-making. Some young men of Orissa have also received training in the Art School of Calcutta and have earned reputation in the art. One of them Sri Upendra Maharathy is not only an artist of reputation but he has practised weaving of designs according to paintings. He is an industrial artist. His services are retained by Bihar Government.

Parlakimedi 'Chitrakars' manufacture 'Ganjapa' (a kind of playing card, circular in form, whole body painted) which is sold mostly in Madras Presidency.

51. Chua oil (resin oil)

This is a special industry of Cuttack. Nowhere else it is produced. Large quantity of Chua oil is exported from Cuttack to Madras, Assam and Calcutta. The figures should be collected. Poor Industry Cottage experimented a new process of manufacture by which the quantity of production increased considerably.

52. Condensed milk

For convenience, large quantity of imported condensed milk is used in Orissa. Process of preparing condensed milk is known to some people of Orissa. This needs encouragement. Import figures of condensed milk may be ascertained.

53. Badi

It is a delicious food. Manufacture of 'Badi' is a special art in some families of Orissa. If large scale production of 'Orissa Badi' is encouraged it will have a good market in every town outside Orissa.

54. Lozenges

It is a lovely production of sugar, a pet thing for children. Import figure should be collected. Process of production is very easy. Two or three persons of Cuttack make lozenges and sell them. If encouraged this can engage some more persons.

55. Preparation of medicinal oils (Taila) and pills and powders

For this, there are raw materials in plenty and enough scope. Products made here will be far superior in quality to those imported as there is advantage of fresh raw materials. Besides encouragement for cottage production, if big pharmacies are organised Orissa products will compete in any market and fetch enough money from outside.

56. Bonemeal

About 60 thousand maunds of bone are exported from Orissa for no value. Only some wages are paid to those who collect them. Arrangements should be made to make bonemeal. At least they should be utilised as manure. Bone-ash will be necessary to refine the oils.

57. Bamboo works

Bamboo is available everywhere. Many things are produced with bamboo for daily uses. Bamboo is used for various purposes by the villagers commencing from construction of houses to smallest baskets and tooth-picks. Big quantities are taken for paper mill. Still there is scope for production of various other fancy articles to fetch more money. This should be encouraged by simply helping the villagers with expert guidance to produce different articles.

58. Brush-making

Palmyra fibres are available in plenty. They are wasted. Different hairs are also available. Different kinds of brushes including shaving brushes can be easily produced here. Orissa Poor Industry Cottage has experimented some of them.

59. Mica industry

Mica is available at many places in the Province. Large quantity of mica is imported and consumed in Orissa. Mica is used for making glasses for illumination purposes, flowers and many other articles for marriage and other processions and for decoration purposes. Cuttack town consumes about 15 maunds of mica per year. There are about 200 persons engaged in this work at Cuttack town. Mica sells at Rs. 120 per maund. Mica work is common in almost all villages where the villages observe Dole, Moharum and other festivals as well as in marriage processions. In villages no one is fully engaged but many are partly engaged. The number of men partly engaged and the period of their engagement should also be ascertained.

Black mica is used for Ayurvedic medicines. If mica mines are worked in Orissa it will help a great deal in the development of the Cottage Industries with mica as the raw material.

60. Ornaments made with glass beads

This is a cottage industry. Ornaments made with coloured glass beads are used by the Jatra and theatre parties. Some persons are engaged in making such ornaments. Their number and the quantity of production is to be ascertained.

61. Khas-khash

The roots of Bena are called khas-khash. They are fit for screens used in summer as well as for producing scents. Bena grows in abundance in our Province. This needs organisation for production.

62. Brooms

Brooms are made of various materials almost everywhere according to the raw materials available in the different locality. A kind of reeds having flowers at the top grows in abundance in the forests of Jeypore, Padwa, Nandapur, Patangi, and Giriliguda in the district of Koraput and in the hilly tracts of Ganjam district. Brooms made with those reeds with flowers are exported in large quantities to Madras and other places. Such reeds with flowers also grow in the forests of Dalijora in Cuttack district and sold at Cuttack.

Poor Industry Cottage experimented different materials including the above reeds with flowers. It simply changed their forms to suit the present taste of the time and this increased the value of the articles to 4 or 5 times that of the ordinary type of brooms.

It is only necessary to supply ideas to the people and to demonstrate the different designs which are so easy to be adopted by them. This alone will considerably increase their income.

63. Paddy-husking

Paddy-husking is an important industry of the villages. Many families specially the helpless widows who are restricted from coming out, under social customs, for any occupation outside their homes, maintain themselves by paddy-husking. The number of rice mills is increasing in Orissa. The present number is 74, engaging only 1,324 men and 1,170 women, total 2,494. But this deprives many thousands of their means of livelihood.

The villagers are deprived of many advantages that they were enjoying, by the paddy being exported from their villages. The rice produced by the mills, loses its food value. The machineries are purchased from outside. Notwithstanding all these, it is difficult to prevent mills in this age of machinery. The thing is to provide some other occupation to those who depend upon paddy husking. The occupation should be such that they can engage themselves in the industries inside their houses, without coming out. Their number should be ascertained at the time of detailed survey. I suggest eri rearing and eri spinning, basket making, weaving of mats with leaves of Kouda and barks of plantain trees which are available in almost every village of Orissa and weaving of mats, bags and other fancy articles with 'Nalia' grass where 'Nalia' is available and many others will be suitable occupation for them.

64. Fireworks

This is an industry which engages a large number of men, some fully and others partly, both in towns and in some villages. They cater fireworks to all marriage processions, Dola and other festivals. Village Nembal in the district of Cuttack is famous for its bombs. Bir-narsinghpur and Dandamukundpur in the district of Puri are noted for fireworks. Almost all the Brahmansasans of Puri spend huge amounts every year in fireworks, manufactured at their respective villages. Cuttack town produces the best fireworks and supplies to many states and rich people in the Province.

65. Type foundry

There is a good number of printing presses though 8 only are registered under the factories. All presses require types and there is only one small type foundry. Some of the presses have got arrangement for making types for themselves. Most of the presses purchase their types from outside. This industry needs development.

66. Block-making

This is another important industry which needs attention. Only Saraswata Press has got a branch for block-making where both halftone and line blocks are

made. There are some 5 persons who make line blocks with hands individually at their homes. Development of block-making is necessary for improvement of printing works. Besides metal blocks, wooden blocks are also required for printing presses, and Calico Printing. Calico Printing is done by the textile marketing organisation and the provincial branch of All-India Spinners' Association.

Most of the blocks required for the above purposes are imported from Madras and Calcutta. This industry has scope for expansion and it should receive attention.

After I completed my report I received a tabular statement from the office of the Director of Development, regarding some of the cottage industries that were utilised for war supply. From the statement it is clear that 22,550 persons (skilled labour) and three times of that number, unskilled labour were engaged in non-textile works and 2,426 persons with their families were engaged in textile. The average wage per day earned by those engaged in textile industry was Re. 0-14-0 to Rs. 1-1-0 and that earned by those engaged in non-textile industry was Rs. 1-8-0 to Rs. 2 for skilled labour and Re. 0-12-0 for unskilled labour. All these persons will be thrown out of employment when the war orders are stopped. Arrangements must be made to provide them with employment.

67. Other small crafts

Besides all the cottage industries noted above there are many other small crafts, e.g.—

(1) Cycle and motor repair, (2) Watch and Harmonium repair, (3) Manufacture of different musical instruments, (4) Manufacture of sunsheds and other works of cement, (5) Rubber stamps, (6) Tin work, (7) Cakes and biscuits, (8) Book binding, (9) Photography, (10) Photo framing, (11) Camphor beads of Puri town, (12) Relief maps, (13) Globes, (14) Charcoal cakes for tobacco smoking, (15) Fancy flowers for decoration with feathers, fish scales, paper and rags, (16) Aerated waters, (17) Sarbat, (18) Oil from sisu wood (Sisam oil), (19) Cuttacki slippers, (20) Plates and cups of leaves, (21) Paper *tholas*, (22) Charcoal making, (23) Confectionary and others in which a number of people are also engaged. Many more crafts may be found at the time of detailed survey. All these need proportionate attention.

III. SUMMARY

In short weaving industry should receive special attention. Weavers must get sufficient yarn at their doors to weave and get the full wages through well organised co-operative agency, marketing resting with the agency.

Tusser rearing should not be obstructed under any circumstances, wherever there is scope for it.

Eri silk industry should be popularised more vigorously, so as to find a place in every house, from the cottage to the palace, in one form or other. Seed centres should be opened at different places in the Province for seed supply in time.

Wool industry should receive special attention. Weaving of blankets and Galichas with local wool should be introduced in villages.

Weaving of durry with jute and cotton should be introduced in the villages. Weaving of durry, specially with jute, will supply employment to many agriculturists, where jute grows, in their spare time and will supply a need of many houses.

Dyeing is a need. There should be some dyeing factories in the towns and small dyeing centres in all the big colonies of weavers in the villages. Dyeing from indigenous materials should be encouraged and improved by help of expert assistance.

Apiculture and collection of honey from the wild hives in the scientific process should be widely propagated.

Gur making from the juice of date-palm and palm, should be widely demonstrated in the villages, where there are sufficient trees. The special variety of sugar known locally as 'Kanda' and 'Nabata' manufactured at Ganjam and Puri, should receive encouragement.

Agriculturists should be taught to process and turn into finished articles in their spare time, all the products of agriculture, e.g., oil seeds, jute, sunnhemp, cocoanuts, and other fruits, coirs, etc., as well as the different kinds of raw materials,

e.g., leaves, plants, grasses, creepers, reeds, solapith, roots and fruits, available in their localities, before they are exported from their villages or wasted. Every villager should also learn to use the ordinary carpenter's tools to repair his own appliances of agriculture or village crafts.

Large scale production of articles like toys, horn products, filigiri works, cane furniture, woodworks and others, which have earned reputation as arts of Orissa, and for which there is demand from inside and outside the Province, should be organised to supply the demand, by help of capital, expert assistance and other facilities.

Sculpture which is a prominent and world recognised ancient art of Orissa should receive special attention.

Improvement of leather industry needs attention. Manufacture of leather goods, badges and buttons of all kinds, hats, uniforms, patties, fringes, newars, ink and similar others, which can be easily produced in the Province, should be encouraged. Button making from shells, horns and other materials, manufacture of gums and glues should be introduced.

Extracts from medicinal plants, fruits and roots for which there is wide scope in the Province should be encouraged in the Province to prevent money going out. Manufacture of other small crafts likely to supply employment to the unemployed or under-employed should be introduced. Marketing of the products should be arranged through improved co-operative organisation.

Village 'malakars' of the areas where solapith grows in plenty should be trained to make sola hats and supply the same to the towns, where the tailors will finish them with cloth and other fittings.

Villagers should be encouraged to produce clean coir fibres and supply, what they cannot use themselves, to towns where small factories should be organised to produce fine coir mats and other fancy articles.

Hosiery should be encouraged in every town and important village. Soap-making should be encouraged to produce clean coir fibres and supply, Subsidiary village crafts like carpentry, smithy, pottery, oil-pressing, weaving and similar others should be so organised as to help the villagers to get their ordinary requirements of life readily supplied at their doors and their appliances of agriculture or village crafts, manufactured or repaired without delay.

Iron smelting, where iron ores are available, should be encouraged to supply iron to village smiths for making ordinary articles of villages at cheap costs.

Oil pressing in villages should be encouraged by help of co-operative finance to stock oil seeds in season.

Village potters should be trained to make tiles of all kinds in the villages for roofing. At the same time measures should be taken to check monkey troubles.

Pisciculture in tanks and khals should receive special attention as it is not only highly profitable but will supply a food which is an indispensable supplement to the poor diet of the nation and its development will remove a source of many diseases by clearance of the dirty tanks and pools in the villages. Development of sea and lake fisheries will improve the economic condition of the Province considerably. Many subsidiary industries will spring up.

All industrial developments should, as far as possible, be based upon co-operative finance to eliminate the evils of unfettered capitalism.

IV. LARGE SCALE INDUSTRY AND PRIORITY

Salt manufacture needs rapid expansion.

Large scale industries are necessary to increase the wealth of the country. Large scale industries are also necessary to improve the agriculture and cottage industries. Manufacture of manures, production of machineries for better irrigation, supply of hydro-electric power, are only possible by large scale industries. They are absolutely necessary for development of agriculture. Production of different kinds of acids and chemicals, required for cottage industries, and supply of labour saving appliances cannot be possible without big industries.

All big industries of Orissa cannot be taken up at one and the same time. I recommend that large scale industries that would lead to help agriculture and cottage industries in the above order, should receive special priority. This will surely promote harmonious development of all sections of the community without creating wide disparities in the distribution of wealth. Harmonious economic development will, while enhancing production, result in equitable distribution.

V. SPECIAL PRIORITY TO COTTAGE INDUSTRY

Development of cottage industries of Orissa need special priority of attention not only from the point of view of providing bread to millions of our unemployed and under-employment young men and women, but also for preservation of their spiritual culture and artistic talents that we have the proud privilege of inheriting from our great ancestors.

It is sure that large scale industries will require considerable time for capital, for machineries, for buildings and other necessary arrangements. If immediate attention is paid to develop cottage industries, our people might be fit in the mean time to appreciate and enjoy the full benefits of such industrialisation.

VI. DIFFICULTIES OF COTTAGE INDUSTRIES AND THEIR REMEDY

I have given above a short account of some of the important cottage industries in Orissa. All these industries labour under many difficulties which for convenience may be grouped under three heads :—

(1) Technic, (2) Finance and (3) Markets.

Technic—So far as technic is concerned it is desirable to have institutions of different grades for imparting instructions in the latest improvements in technic and also to give general training for development of the hand and eyes. Some central institutes at convenient places, large number of rural centres, wide demonstrations and propaganda should be organised. Liberal provision of stipends while under training and loans or free grants to start business after training should be provided. The control, management and administration should be under a separate officer known as Rural Development Officer. He should be associated with a non-official advisory committee.

Finance—Most of the artisans are very poor. They depend for their finance upon professional bankers and money-lenders. In some cases the artisans are reduced to mere wage earners, working under financeirs, who export the finished products to other markets. Carpenters, potters, goldsmiths, blacksmiths, horn-workers, weavers, tailors are entirely in the grip of financiers. To remove these parasitic middlemen, co-operative movement has to be strengthened and co-operative credit should be brought within the easy reach of all these artisans.

Marketing—Ignorance, lack of easy means of communication, poverty and the machination of financiers—all these are responsible for inequitable distribution of products of village industries in all markets. So the artisans do not get their fair price for their articles. Small cottage workers do not know the markets for their products and do not produce more, the markets do not get supply of the needs. Efficient co-operative marketing organisation alone will solve that difficulty. Further, Government themselves constitute a big market. Considerable amount of money is spent by the Government and the local bodies for purchase of articles required for their offices and servants. All textile goods like uniforms, putties, etc., and leather goods like shoes and boots and stationery articles like ink, gum, etc., can be purchased from the products of cottage industries. Estimates may be made of the requirements of Government and necessary action be taken to get all their requirements that can be easily produced here, from the cottage industries of the Province, even if the cost of the articles is a bit higher at the beginning. This is a sort of protection to the cottage industries. And the Government, by so protecting the cottage industries will be only carrying out its legitimate duties of providing employment to the people and in so doing it will enhance its own revenue in course of time. Even from the narrow point of view of improving its own finance it is the bounden duty of Government to provide protection to these cottage industries by constituting itself a big market for the purchase of these articles even at a higher cost. I further recommend that necessary measures be adopted to convert all the raw materials available in the Province into finished products before they are exported.

VII. CONCLUSION

Ours is a land of food and fibres, of natural resources, rich in minerals, forests and the treasure of jewels in the sea. There is no reason why we cannot improve our materials condition by properly organised efforts.

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