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**Government of Bengal**  
**Department of Industries**

**Report on the**  
**Survey of Cottage Industries**  
**in Bengal**

**Second Edition**

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## Preface to the Second Edition of the Survey of Cottage Industries Report.

The Department of Industries has pleasure in presenting the second edition of the Report on the Survey of Cottage Industries originally carried out in the year 1924 and now revised to date as far as possible. The original survey was carried out by the five local officers of the Department of Industries then located at the headquarters of each of the five divisions. These officers were denominated Superintendents of Industries, and were retrenched and their posts abolished in the year 1924, since when the Department of Industries has been without any staff, apart from its weaving and technical schools, in the province and outside Calcutta. In these circumstances, and for the purpose of surveying the position of the widely distributed cottage industries, the department has invoked the aid of the District officers, District Boards and the Calcutta Corporation. These gentlemen and the staff deputed by them for the purpose have rendered the Department and the public a valuable service in this connection which is gratefully acknowledged.

2. In view of what follows it is interesting to note here that the whole of this work has been done by Indian officers, gentlemen, who, because of their trained intelligence and particular experience of the country, are able to give a valuable and unbiassed assessment of the present position of the cottage industries in Bengal. Still further importance can be attached to certain generalisations arising out of the material of this report, inasmuch as it records the work and the opinions of a very large number of officers, distributed all over the province and most of them unknown to each other. Such circumstances remove from the report any possibility of prejudice or bias either in favour of or prejudicial to the status of cottage industries in Bengal.

3. A careful perusal of the report reveals at once the fact that hand-loom weaving is far and away the most important and valuable and widespread cottage industry of the province. From no district or centre is it absent, while in some centres such as Santipur in Nadia, Chowmohani in Noakhali, Sonamukhi, Vishnupur and others, practically the whole population is absorbed in hand-loom weaving and subsidiary occupations as their principal source of livelihood, but almost always with some stake in the land and agricultural operations as a source of food supply. *Hats* (markets) such as those at Ramkrishnapur in Howrah, Chowmohani in Noakhali, and Madhyakul in Jessore, transact business to the extent of many lakhs of rupees every

year both in the supply and sale of mill-made yarn of Indian and foreign origin, as well as in the purchase and sale of finished hand-woven products for local and distant consumption. As far as technique goes the inference to be drawn is, that in spite of an addiction to the cheapest primitive tools and implements and methods, the workers have surprising dexterity and artistic ability. It is to this cause and also because of the fact that the Indian public are so traditionally accustomed to particular styles and sources of their clothing, that notwithstanding all the disadvantages under which he labours, the cottage weaver still retains so voluminous a share of the weaving and clothing business of the country.

4. Another point of interest is the fact that despite the labours of the Serampore Weaving Institute and the district and peripatetic weaving schools which have grown up under its auspices, a very large percentage of the weaving community are still ignorant of, or repugnant to use, the superior advantages of the fly-shuttle loom or the added variety of products made feasible by the use of the dobby or jacquard apparatus or the labour or time-saving value of a warping frame. Valuable as the efforts of the Serampore Weaving Institute, its outlying schools and demonstration parties have been, it nevertheless remains a fact that the attack on the conservative methods of the weaving community requires to be pursued by more forcible and concentrated methods and policy than has hitherto been possible. The Department of Industries is not unaware of this position and both I myself and my predecessors, and the Principal of the Serampore Weaving Institute, have pressed for the means by which a more forcible presentation of improved methods and processes could be made. It must also be said that the lack of the funds necessary for the purpose has been the principal obstacle in the way.

5. Next to hand-loom weaving, the most striking and widespread home industry is that of brass and bell-metal manufacture, i.e., the processes by which the brass and bell-metal, bronze articles for dietary purpose such as lotas, thalis, etc., are made. Here again the value of the business turned over annually obviously amounts to many lakhs of rupees, while the number of persons whose entire livelihood is dependent upon this industry is great. In the Census Report for 1921 the total number is stated to be 36,471. The description of this industry given in the report will show that in general it is carried on under the usual inefficient and make-shift conditions prevailing in an Indian bazar. The apparatus used for casting the ingots as compared with modern foundry practice is bad. The clay crucible and mould is used only once in many cases. Bell-metal articles are beaten out by a gang of hammermen whose number and skill is becoming more scarce as years go by, and in the cleaning and

polishing processes primitive bowstring lathes and scraping tools made out of old files purchased in Calcutta are the order of the day. Our impression is that although the industry has such widespread ramifications and so tight a hold on mufassal life because of its history and traditions, yet nevertheless it is slowly succumbing to the penetration of the aluminiumware now being turned out in factories in Calcutta and elsewhere, which is both cheap in price and satisfactory in use. Our view is that in spite of its inherent advantages the indigenous brass and bell-metal industry will not long retain its present hold, unless it adopts modern and simple power-driven machines and processes such as are available to any enterprising leader of the industry, in the use of oil engines, pneumatic power-driven hammers and modern lathes and polishing machines. The department has worked out a scheme which has been administratively approved by Government for demonstrating certain of these processes using modern labour-saving machinery which the Industrial Engineer hopes to be able to demonstrate in the chief centres of the industry as soon as money becomes available.

6. Again the conditions of this particular industry emphasises a disability which is common to all cottage industries, viz., that the actual industrial processes are carried out by skilful but nevertheless the most ignorant and less socially advanced parts of the population. Very rarely indeed, and that within recent years, has the department come into contact with any cottage industry whatever, in which men of the intelligent and more socially advanced classes take a share, to the extent of having an actual working knowledge of the same. In other words the intelligentsia of Bengal has all too long held aloof from its industrial processes and traditions. It is still our depressing experience that in spite of our technical schools, equipped in some cases with modern machinery, and with facilities open to the best brains and ability of the country passing out of its educational establishments, only with the greatest difficulty can we persuade such young men to take up training in modern mechanics, machinery and power apparatus, and processes, as would enable them to infuse into the cottage industries of the country the new vitality and adaptation to modern conditions necessary for their survival. The workers themselves, and in spite of their dexterity and skill, are encumbered with habits of idleness and ignorance. In many cases in the report it is mentioned that the workers could earn more wages but for their habits. The occasion of a marriage ceremony or a tamasha or any religious observance will dislocate their work for days. On the other hand the intelligentsia content themselves with the roll of mahajan or bepari (middlemen) occupations. These capitalistic and marketing functions are undoubtedly necessary, and carry with them great economic power, but nevertheless when divorced from the actual

practical prosecution of the industry are parasitical rather than integral to it. Times without number the report refers to the baneful effect of the present uneconomic organisation of the cottage industries under the average mahajan.

7. The picture, however, is not entirely of so drab a nature. The department is in contact with at least one instance where the lessons above referred to have been taken to heart. In Comilla some eight years ago a number of bhadrolog young men joined together to establish an industrial concern which they call the "House of Labourers." They began with a small Petter Oil Engine and a few machines obtained with the advice of the officers of the Department of Industries. They applied themselves to the work of manufacturing pruning knives for tea gardens, and steel work for bridges, houses and buildings. They have now erected large workshops adjacent to the Comilla railway station laid out on up-to-date lines for this purpose. They have installed a power plant of approximately 100 H.P. and the Comilla railway station is now to be electrically lit by them. They have recently filed with the Registrar of Joint Stock Companies, Bengal, a prospectus for turning their concern into a limited company with an authorised capital of 10 lakhs of rupees. The value of the business turned over in 1928 is estimated at approximately five lakhs of rupees. In this concern the young men who were its inspiration are not merely exploiters of the mistry class, but each one of them takes off his coat and is capable of doing any job on the floor of the workshops done by the workmen—a psychological and practical difference to the usual conditions prevailing in cottage industries, as such are, at the best merely holding their own, whereas in the case of this concern its usefulness and scope is expanding yearly.

8. Comment on two other industries will suffice for the purpose of this preface. The report makes clear that there is in fact a small cottage or bazar soap manufacturing industry widespread throughout the province. It has a larger vogue in Calcutta and Dacca than elsewhere, but the methods practised are universal throughout the province. The essential constituents of soap, viz., caustic soda and saponifiable oil are mixed together and boiled in crude iron pans over a fire. The apparatus used is of the most kutchha character and the methods of conducting the processes, having little regard for purity of result, are neither efficient nor wholesome. The product of the boiling operation is adulterated with china clay and other constituents, while the final mixture when solidified is shaped in rough spherical balls and cut into squares and slabs. It is then sold to dhobis and other people in the bazar. The Industrial Chemist's section of the department has tackled this industry, amongst others, and a detailed description of the conditions explained above together with a scheme

for improving the industry on lines possible to the small industrialists has been worked out; and I suggest that those who are interested in the same should consult the Department of Industries' bulletin No. 31 for full details. To date over 100 young men have applied for training with a view to taking up and improving this industry. Their training in batches of six every three months is being carried out in the Industrial Research Laboratory.

9. One other industry of great economic interest to Bengal is the tanning industry. Outside Calcutta, it is confined to Chamars and Moochi classes and as the report shows is prevalent all over the province. In general it can be said that its methods are of the most primitive and uneconomic character. Persons who ply the industry lack technical knowledge as well as capital and equipment, while its general conditions are similar to the soap industry just referred to. But here again where intelligent young men apply their brains, character and scientific training, to the exploitation of the abundant hide and tanning resources of this country a wholly different picture results. The department has in Calcutta a tanning institute where research and training in modern tannery methods are given. Those who are interested should refer to bulletins Nos. 3, 15, 20 and 22 and to the prospectus of the Bengal Tanning Institute for further and ample details of the work of this section of the department. In addition to the work of the Institute the department maintains two tanning demonstration parties, and I am glad to record that as a result of their work a number of small tanneries on modern lines have been started, the most conspicuous of which is the Raipura Tannery which has now been working in the Noakhali district for some time. There are also two leather goods shops in Lindsay Street and Corporation Street in Calcutta, where a thriving retail business is carried on by the ex-apprentices of the Bengal Tanning Institute who began the business including tanning operations and the preparation of suit case leather some years ago, with their own influence and enterprise. Many others also have done exceedingly well in hide, leather and the leather goods business.

10. In conclusion, I can only record my conviction that an impartial reading of this interesting survey report will abundantly justify the necessity for the maintenance of a Department of Industries with the object of strengthening and improving the economic condition of the vast numbers of people dependant upon the industries described therein, and to bringing to the practice of such industries the application of modern technique and scientific knowledge with the object of adjusting them both to the needs of the community and to the economic necessities of the time. We are also adapting the training given in the mufassal technical schools with the object of facilitating the



entry of intelligent young men of good family into the industrial career. Our brochure entitled "Opportunities for an Industrial Career for Youngmen in Bengal" should be read in this connection. The department has published in all 40 bulletins on the subjects of the various industries of Bengal. Details of these bulletins will be found at the end of this Survey Report. I commend a perusal of the same to all who are interested in cottage industries and who desire to know what suggestions the department can offer to improve their economic condition.

A. T. WESTON, M. INST. C.E.,

*Director of Industries, Bengal.*

# Report on the Survey of Cottage Industries in Bengal.

## BURDWAN DIVISION.

### Burdwan District.

#### Cutlery Industry.

**Kanchannagar.**—This suburban area of the Burdwan town has long been famous for the cutlery industry, though for some time past the industry has been declining owing chiefly to foreign competition. There are at present about 15 families of Karmakars (mistries) who carry on this industry. There are 8 small factories and some of them employ about two dozen workmen and the one belonging to the late Premchand Mistry possesses a 3 H. P. Hornsby oil engine and some small lathes.

Knives of all varieties, scissors, razors and medical instruments are regularly made at these factories. Ordinarily the rejected cast steel files, which are purchased in large quantities from the Calcutta shops, serve as the starting material. These files are beaten out on an anvil until the requisite thinness is obtained. They are then cut into pieces of the required sizes and forged into shape. The material then passes on to the next workman, who drills the necessary holes. The third workman now improves on it, gives it a handle of horn, ivory or metal. It then passes on to the grinding shop. The first grinding is done on an ordinary grindstone obtained from Sonamukhi in the district of Bankura. The grindstones are turned by manual power by throwing a rope over the axle of the stone and by pulling or revolving it first one way, then the other, by pulling the ends of the ropes alternately. In the factory of Premchand Mistry the stones are worked by power. Further grinding and polishing is done on a finer stone. The last operation is that of polishing with brick dust, charcoal and oil. The finished article is then ready for the market.

The wages of the labourers vary from annas six to annas twelve per diem according to the nature of the work. Articles worth six to eight thousand rupees are manufactured annually in some of the bigger factories. The industry is also carried on at Bonpas (Kamarpara), thana Sahebganj (Sadar subdivision), and Sakhari (thana Khandaghosh).

#### Weaving.

**Village Memari.**—There are altogether six looms in this village employed in the weaving of silk at present, though it is said that formerly the industry was carried on here on a large scale and was in a very prosperous condition. The industry is here in a dying condition and the few who are still engaged in it are thinking of taking to cotton weaving which has become a more paying one. The silk yarn is supplied by the mahajan to the weavers who take back the finished products, weight for weight, without allowing for the decrease in weight during the process of bleaching. The weaver is allowed a bani or wages on the finished products.

Long saris and dhutis are the ordinary fabrics woven. These are generally exported to Madras by the middlemen. The average earning for the best weaver in the village amounts to about Rs. 20 to Rs. 25 per month.

**Village Radhakantapur.**—This is a village about six miles from Memari and was at one time famous for silk weaving. About 15 looms are in operation and the weavers are in similar condition to the weavers of Memari.

**Villages Sripur and Khya.**—There are about a dozen weavers in these two villages, employed in the weaving of tussar. The common products are tussar saris and dhutis which generally find a local market. The weavers find the industry to be a paying one.

**Katwa subdivision.**—Tussar cloth is made at Bagtikra, Ghoranash, Musthuli, Chanduli, Singi, Sribati, Gopekanji and Madhabpur in thana Katwa. Cocoons are brought from Chaibassa, Bahoragora, Mayurbhanja and Singbhum and thread spun locally. Dhutis, saris and thans are prepared by throw-shuttle hand-looms in these villages. The cloths are mostly exported to Madras and are also sold locally. It is reported that on account of cutting of jungle forest in the Singhbhum district sufficient cocoons are not now available and they command a higher price. The industry is therefore deteriorating. Tussar weaving is also carried on at Dainhat, mulberry silk weaving at Jagadabad and Dainhat, and at Dhenu (Monteswar police-station) and Mankar; Kotè cloths are made from refuse tussar.

### Weaving of Cotton.

**Village Buktarnagar, Raniganj.**—There are about two dozen Tanti families in this village, and 50 fly-shuttle looms. These looms are all engaged in producing coarse fabrics (Nos. 16, 20 and 10 counts being used). Each loom produces about 10 yards of cloth a day (12 hours) and the cost of manufacture of these 10 yards of cloth (inclusive of the labour) is about Rs. 2.

Finer cloths (of No. 40 and 60 counts) which are generally worn by the middle classes are not produced by these weavers; as there is a ready market for the coarse cloths.

The fly-shuttle looms are manufactured by village carpenters and they work quite well. The cost is about Rs. 40 for the whole machine complete with accessories, and they last for about ten years with occasional repairs. The average annual cost of repairs is about Rs. 3 to Rs. 4.

**Village Kenna.**—There are about 25 Jollahs in this village who weave coarse cotton fabrics, such as, gamchas and lungis with fly-shuttle looms. The yarn is supplied by a mahajan of village Dashpur in the Hooghly district and the fabrics are made according to his requirements. The weavers get a wage only. The average earning of a Jollah family amounts to about Rs. 20 per month.

**Village Ichapur.**—There are about 30 Jollahs in this village who generally weave coarse fabrics but can turn out finer fabrics if required. Their condition is almost similar to that of the weavers at Kenna.

At Nilpur (Burdwan police-station) country towels, mosquito nettings and quilt cloths are made while the Jollahs of Mongolkote and Bani (near Ganpur) weave coarse cloth on a small scale.

The following places are the other centres of cotton weaving, viz. :—

Mohisgoray, Bidyabatipur, Srikistapur, Selmabad (Jamalpur police-station), Dadpur (Memari police-station), Mertala (Purbasthali police-station), Purbasthali, Bonkaposi bazar (Katwa police-station) Monteswar.

#### Weaving of Woollen Blankets.

**Asansol.**—This industry is carried on at Asansol by a class of people called bhediwalas. There are about a dozen families here who carry on this industry, each family engaging on the average about two male persons in weaving the blankets and two women in spinning and in preparing the wool for the purpose. A male person takes about three days to finish a blanket measuring  $7\frac{1}{2}$  feet by  $4\frac{1}{2}$  feet with the assistance of a woman. The cost of such a blanket is about Rs. 7 and the cost of the raw material is about Rs. 2.

Most of the bhediwalas possess a great number of sheep from which the supply of the raw material for weaving the blankets is obtained. The wool can also be purchased in the market at about Rs. 40 per maund. The spinning of the wool is done as follows:—The wool is washed and dried in the sun. It is then made soft and loose with the help of a bow-string to spin up the fibres and to enable it to be spun more readily. The spinning of the wool is done exclusively by women. A charka of a very primitive type is employed but it appears to answer quite well. The weaving of the blankets is also done on hand-looms of a very primitive design.

The introduction of fly-shuttle looms would be a great help in improving this industry.

#### Boot and Shoe Making and Leather Industry.

**Asansol.**—There are about a dozen boot and shoe-making factories. Each employs about a dozen men and the work is carried on by hand without any help of machinery. They prepare high class boots and shoes of all shapes and sizes which find a ready market on the spot. Leather is purchased from Calcutta but sole leather is supplied by village Chamars on the contract system.

Each shop produces about half a dozen pairs of shoes every day and the profit on a pair is about Rs. 2. The workmen are paid at the rate of Rs. 15 per mensem.

**Sripur.**—There are about 10 families of Chamars in this village who live mainly by cultivation, but they also in their spare time tan hides and skins obtained locally. The process is very crude.

#### Potters' Industry.

**Rupnarainpur.**—There are about 150 families of potters, each employing four men and women on average in the villages of Alldo, Machidi and Ramchandrapur. The potters prepare all kinds of earthenware and dispose of them in the neighbouring marts of Asansol, Barakar and other places.

The oven they use consists of a big hole dug in the earth over which a platform is raised 2 to 3 feet from the ground and is made

of broken pieces of earthenware. An opening is made in the platform for introducing the fuel in the oven. The pots after they have been sun-dried are arranged in a gallery each stratum being covered with a layer of coal, dust straw and mud before another is placed over it.

Coal, which is the cheapest fuel in this locality, is introduced in the oven and fired. The burning operation continues for about 6 or 8 hours with an occasional addition of fuel. The consumption of coal amounts to about 5 maunds for about 120 vessels of big size and the cost of the coal is about Re. 1-6. After the operation is over the pots are allowed to cool and are then taken out.

The loss due to breakage is, however, very considerable. Generally 20 to 25 per cent. of the pots are broken during baking and the breakages are often greater when the kilns are not properly constructed.

#### **Manufacture of Cane and Bamboo Baskets and Chairs.**

**Panagar.**—There are about 60 Domes at Panagar, Prayagpur, and Kakea, who are engaged in the manufacture of chairs, etc., from cane and bamboo. This is their main profession and both males and females take part in the work. On an average a man with the help of his wife earns annas 8 a day and their goods find a ready local market.

#### **Brass and Bell-Metal.**

Bell-metal plates and utensils are made at Dainhat and Begunkola (Katwa subdivision), Purbasthali and Chupi (Kalna subdivision), Jabui, Sahera Bazar, Dignagar, Kaitara, Bonpas Kamarpara (Sadar subdivision).

At Dainhat they are shaped from sheets of brass, while at Begunkola and Ketugram thanas they are made by moulding. For bell-metal utensils Australian copper and Singapore and Penang tin blocks, are bought from Calcutta. They are sold throughout Bengal, Bihar and Orissa, Assam, and United Provinces. Copper dekchis are made at Dainhat.

Brass and bell-metal wares are also made at Chupi near Purbasthali (Katwa subdivision), Kaitara near Galsi (Sadar subdivision).

#### **Manufacture of Conch-Shell Ornaments.**

This industry is carried on at Dainhat, Ghoranash, Gopalpur and Katwa with raw materials from Calcutta and finished products are sold locally. The industry may be improved if a machine saw is used for cutting the rings out of the shells.

### **Birbhum District.**

#### **Mulberry Silk Weaving.**

**Village Baswa, Bistupur.**—The weaving of mulberry silk affords occupation to about 400 families of weavers in the Rampurhat subdivision of the district. Each family on an average has two looms. The principal cloths woven are chadars, long saris (used by up-country women); muca-turbans, and thans for coating and suitings. Figured saris (for which Mirzapur, Baluchar and Khagra, of the Murshidabad

district, are famous) are scarcely ever made in these villages. The use of dye-stuffs is unknown and the finished fabrics are decidedly inferior to those made at Murshidabad.

The silk yarn from which the fabrics are made is chiefly obtained from the district of Malda and occasionally from the neighbouring villages of Gaffail, Joypur, Dangapara and other places where the mulberry silkworm is reared and the spinning of waste silk is carried on.

The people of Ganutia to Tilpara in Bolpur on both the sides of the river Moor rear the silkworm and make yarn, some of which they sell and with the rest they get clothes woven by the local weavers and sell them in Murshidabad and Calcutta.

Each weaver with the help of 3 assistants (women and children generally) can weave 8 to 10 cubits of silk cloth per day of 10 hours and he earns from Re. 1 to Re. 1-8 as his wages. The average income of a weaver, or more correctly of a weaver's family, is Rs. 30 to Rs. 35 per mensem. The weavers are not as a rule hardworking. No opportunity of a holiday is allowed to pass by without a suspension of work.

The mahajan, who lives near a central place where this industry is carried on, is generally well off. He supplies the weavers with raw material and collects the finished products, allowing the worker bani or a wage on each piece of work. The finished goods are sent to Calcutta, Delhi, Lahore and other places where the mahajan has connection with firms dealing in these goods. There are, however, a few weavers who work independently, and dispose of their goods at the nearest marts, or to the beparis who visit the localities occasionally. The reason of the reported decline of this industry seems to be the want of organisation amongst the weavers who in consequence of their poverty cannot stock their goods and send them to more favourable places for sale as the mahajans do.

In the Labpur area silk weaving is carried on in Bhalkuti, Abadanga, Bholas and Dwarki on a small scale. A co-operative society formed at Abadanga to finance this industry failed from lack of cohesion. The Marwaris supply the materials and the workers only get the value of their labour.

### Tussar Weaving.

The weaving of tussar is chiefly done at Tantipara, Karidda and Kalipur in the district of Birbhum. In the first named village there are about 500 families of weavers who are employed in the weaving of tussar and occasionally cotton. In the villages of Karidda and Kalipur there are approximately 400 looms of which about half the number are employed in weaving tussar.

The tussar weavers seem to be comparatively better off than the silk and cotton weavers; the average income of each weaver being Rs. 45 per mensem. The weaver is helped in his work by the women and children of his family and they can weave a sari 9 cubits long in one day.

The raw material is purchased from the markets of Dumka, Chaibassa, Jamtara and other places. The village is regularly visited

by beparis (hawkers), who bring tussar cocoons for sale. The supply of tussar cocoons is not however regular, the reasons being that the tussar silkworm is not reared in these cottages but cultivated and grown in the jungle by the Sonthals, who collect the cocoons in the proper season and bring them to the market. The reeling and twisting of the silk is done exclusively by women.

The finished products, which are chiefly saris, dhutis, chadars and cloths for surting purposes, sometimes find a ready local market, since it is the practice of the orthodox Hindus to wear tussar silk during their religious and matrimonial and other ceremonies. The local mahajans also purchase this silk cloth and export it to Calcutta and sometimes to foreign countries through European merchants.

There is a little tussar weaving also in Labpur Circle and Panchgachia in Rampurhat subdivision.

The weavers are very conservative in their methods, but the Suri District Board Weaving School subsidised by the Department of Industries and the peripatetic schools of Sultanpur and Tantipara also provided by the department afford opportunity to learn new methods including bleaching and dyeing.

### Weaving of Cotton.

**Village Dubrajpur.**—There are about 125 hand-looms engaged in the weaving of cotton in Dubrajpur. These hand-looms are mostly of the primitive type, only about 25 per cent. being fly-shuttle looms. The textures woven are generally coarse (of counts Nos. 10, 12 and 16 only). Each weaver with the help of his wife and children earns Re. 1 daily. The products find a ready market on the spot, and the yarn is supplied by a local dealer. No weaving of tussar and silk is done here, and the weavers, as a whole, are not prosperous.

**Village Sian.**—This village, which is about 5 miles away from Bolpur, contains 15 families of weavers, each family on an average employs two weavers. Fly-shuttle looms are used and the fabrics woven are of cotton. The yarn is supplied by the mahajan who also takes over the finished products. The difficulty in obtaining the regular supply of yarn has prevented the weavers from independently carrying on their business.

**Village Tantipara.**—About 150 looms in this village are engaged in weaving cotton and about 350 more are on weaving tussar. Cotton weaving is practised only by the less prosperous of the weavers, i.e., by those who cannot afford to weave tussar due to limited funds. However, some of the tussar weavers also weave cotton when the tussar market is dull. Of the 150 looms at this village only about 10 per cent. are of the fly-shuttle type the rest being throw-shuttle looms. On an average the cotton weaver earns from Rs. 25 to Rs. 30 per month.

Cotton weaving is also done in other villages throughout the district. The Sultanpur Peripatetic School is affording encouragement to the weavers in that area. The Surul School also does useful work in teaching the best simple methods and introducing fly-shuttle looms. Two jacquard looms have been given by His Excellency the Governor for the use of the Tantipara weavers.

### Manufacture of Brass and Bell-Metal Wares.

**Village Nalhati.**—There are about a dozen families and double the number of actual workers in this place. The wares of this place have more than a local repute on account of their high class finish. The reason seems to be the proximity of the place to Khagra, where the best bell-metal workers of Bengal are to be found. Raw material is supplied by the mahajan and the work is carried on by these families on the bani system. The finished goods are taken by the mahajans and exported to Sahebganj and Calcutta. The average income of a worker is about Rs. 20. The mahajans are well off.

**Village Dubrajpur.**—Brass and bell-metal articles of Dubrajpur are comparatively good enough though not so well finished as those of Khagra, or Vishnupur. There are about 30 families of such workers each engaging on the average 2 men. Almost all castes, viz., Kamar, Hari, Vaishnub have taken to the industry. The mahajan here also plays an important part in supplying the raw material, etc.

The mahajans take the finished produce to such markets as Calcutta, Asansol, Raniganj, etc., and dispose of the same. The condition of the workers is not at all satisfactory, a good worker earning Rs. 25 to Rs. 30 per month; whereas the mahajans seem to be well off. In Tikarbeta village, Illambazar police-station, Sural peasants are employed in the same way.

**Lakshmipur.**—A kind of rice measure, called a pais, is made in this place by only one man. These are really wooden bowls, bound and ornamented with brass work. These pais are very popular owing to their excellent finish and appearance. Europeans purchase them whenever obtainable as curio. They are made to order only. The bell-metal industry in this district suffers to some extent in competition with Murshidabad prices.

### Preparation of Leather and Manufacture of Boots and Shoes.

**Tantipara and Suri.**—There are about 100 Charmakars in Tantipara and an equal number in the Suri town, who prepare excellent boots and shoes to order. Most of the footwear finds a ready local sale although a portion of it goes to Calcutta merchants for disposal. The greater portion of the leather is imported from Calcutta. The Charmakars also tan some of their leather according to local methods for the manufacture of slippers, etc., required by the cultivators and other low class people. A brief description of the native processes of tanning may be interesting.

A hide of, say, about 6 seers weight is kept dipped in a small reservoir of water in which 2 seers of lime have been added. The hides are from time to time taken out of the solution, exposed to the air and the fleshy parts removed wherever possible. This process continues for a week. At the end of this period the hide is again removed from the solution, washed, the hair and the adhering flesh scraped off. A new solution or rather a mixture of about 1 seer and a half of powdered Dhepat or Amlapat is now made in water. The hide is then dipped in this solution for about 3 or 4 days. For its final tanning, the hide is sewn up in the form of a bag within which is put a mixture of Temasi (or Babul, Arjun bark, etc.), in water. The



hide in this condition is hung from the bough of a tree for about a week or so. It is now finished leather.

Attempts have been made to form an association of moochis and to teach them the manufacture of cigar cases, leather bags, etc., and to assist them, a sewing machine has been purchased. The Department of Industries has arranged to train several young moochis at the Bengal Tanning Institute, Entally. Stipends and other facilities have also been offered to them with this object in view.

**Dubrajpur.**—There are about 40 Charmakars in Dubrajpur of whom about half a dozen manufacture shoes. The rest employ their time in making drums such as dhole, tabla, etc., the leather industry with this section being a secondary vocation. The footwear made at this village is of good class. The leather used is imported from Calcutta. The moochis, however, manufacture slippers, etc., for the peasantry out of leather prepared by them according to local method.

**Nalhaṭi.**—One firm manufactures shoes and prepares leather of good quality and finish. Moochis receive instruction and encouragement at a small tannery at Surul.

#### • Manufacture of Lac and Lac Toys.

**Illambazar.**—This is a village within the Sadar subdivision of the Birbhum district and has long been famous for the manufacture of lac alta (paint for ladies' feet) and lacquered articles. It is said that at one time about 200 families in this village were engaged in this business but at present there are two families who manufacture shellac and about a dozen more who prepare lac bangles and toys, etc.

Murshidabad Muhammadans from Jangipur subdivision come to Bolpur side and rear lac on plum trees and take it away when it is ripe. It is reared in Benghatra side and Surul and Raipur villages.

For the manufacture of shellac, the raw lac is carefully separated from the twigs and the insects and other impurities are taken out as far as possible. The whole mass is then powdered and washed in water several times. The soluble dye is thus separated and preserved and the lac proper when dried is put into a long linen bag and heated by holding the same near a small fire. The shellac when liquid is squeezed out of the meshes of the cloth while the impurities remain in the bag. This is done by giving the ends of the bag a twist so as to reduce its capacity and to force the contents out. The dye solution is utilised for the manufacture of alta, i.e., the paint. The impurities referred to above which remain inside the bag during the preparation of shellac is utilised for the preparation of toys, e.g., flowers, fruits, animals and paper weights, etc. These toys are nicely painted and find a ready sale in the market.

The shellac is sent for sale to the Calcutta market through the mahajan, whereas the toys are generally sold in the neighbouring markets. The raw material is gathered from the neighbouring villages of Ushadin, Nandar and Kanpur where it is indigenous.

The earnings of a toy-maker, who are Nuris by caste, come up to about annas 6 to annas 8 daily.

The industry has suffered from competition with earthenware toys of Krishnagar. The imitation fruits are distinctly cheap, clever and decorative. Properly arranged, e.g., in a dark earthenware bowl (soap stone) they make an effective table decoration and would get a larger sale if displayed for sale in some such manner in Calcutta.

#### **Gold and Silver Smithery.**

**Dubrajpur.**—There are 40 gold and silver smiths in this village of whom about 8 have migrated from the city of Dacca. The latter seem to be very prosperous whereas unfortunately the others are not so. The principal reasons for which seem to be that those from Dacca have become prosperous primarily on account of their skill and the good finish they give to their goods.

**Tantipara.**—There are ten gold smiths and three silver smiths here. The goldsmiths are not very prosperous as they do not get much work to do.

#### **Iron Smithery.**

Iron fittings for agricultural use and other implements are made by local blacksmiths for local use.

#### **Potters Industry.**

**Dubrajpur.**—There are about 40 potters in this village who prepare ordinary earthenwares.

#### **Cane and Bamboo Basket and Chair Manufacture.**

**Dubrajpur.**—There are some Dome families (husband and wife) who prepare ordinary morahs and cane chairs.

#### **Manufacture of Sugar as a Home Industry.**

**Kukutia.**—This is a village about 4 miles off from Dubrajpur and was once noted for its manufacture of sugar as a home industry. There are 4 or 5 persons in this village who still carry on this industry as a secondary occupation.

First of all gur is boiled in earthen vessels with small quantity of ashes mixed with it. The scum which separates out is removed with the help of a ladle now and then. After several hours boiling the gur is allowed to cool and is kept in this stage for two or three days until the whole solidifies. This is then transferred into another vessel upon a layer of a particular water weed and another layer covers the surface of the solidified gur. The vessel which now contains the gur has some holes at the bottom. The liquid portion of the molasses now separates and trickles down leaving the sugar behind. The weeds have to be changed now and then and the operation takes a few days to complete. This method is a costly one since the yield of sugar is scarcely more than 25 per cent. of the molasses and the manufacturer at the present moment cannot afford to sell his sugar less than annas 14 per seer. But this sugar has still got a few customers who do not use mill sugar on account of religious sentiment.

## Bankura District.

### Hand-Loom Weaving.

Most of the cotton weavers in this district have adopted the fly-shuttle loom and their condition has been improved thereby.

**Bankura Sadar subdivision.**—The Bankura District Co-operative Industrial Union has 63 weavers' societies affiliated to it with a membership of about 800 weavers. The societies are scattered throughout the whole of the Sadar subdivision. The weavers are stated to be earning from Rs. 16 to 24 per month. The union takes the finished products such as Napkins, bed-sheets, dhutis, saris, suitings, shirts and other silk and mixed cloths. Rupees 40,000 to Rs. 50,000 worth of yarn is advanced by the union to the weavers annually and about Rs. 9,000 is paid as bani or wages for the cloth woven. The union sells the products in the best market available and about Rs. 50,000 to Rs. 60,000 worth of goods are sold annually.

**Patrasayer.**—There are about 250 weavers and the same number of looms. The weavers are at present doing well, each man with the help of his family earns from Rs. 20 to Rs. 25 per month. The Patrasayer weavers generally weave dhutis, saris, gamchas and chadars from yarns of counts from 10's to 50's. Fly-shuttle looms are generally used.

**Vishnupur.**—At this place silk weaving is carried on by about 1,000 families, each family on an average employing two looms. Each operator takes about four days to finish a piece of cloth, 10 cubits long with ornamental border. About 500 pieces of such cloth are produced every day in this town.

A piece of cloth of the above measurement sells for about Rs. 10. The cost of raw material, dye-stuff, etc., is about Rs. 4. So each weaver earns about Re. 1-8 daily. This of course includes the assistance rendered by the family members. Dhutis, Saris, chadars, napkins, muca (turbans) and thans are woven at Vishnupur. Dyed yarns (blue and red) are more generally in demand for which aniline dyes are used, the indigenous dye-stuffs having been discarded.

A greater portion of the finished goods are sent to Calcutta, Bombay and Madras by the middlemen (mahajan), who in most cases advance the money to the weavers for the purchase of raw material. They themselves, however, sometimes find a ready market for their goods.

Silk thread is generally purchased at the rate of Rs. 24 per seer from the local dealers who obtain it from Malda and Murshidabad. The process of dyeing is carried on by the weavers themselves. It consists in dissolving the dye-stuff in cold or slightly warm water, and then steeping the yarns in it for a certain time. The yarn is then taken out, squeezed, dried and again steeped in the dye solution if necessary. These dye-stuffs are sold in the local market.

The looms used are of the throw-shuttle type and no fly-shuttle sleys are used for the weaving of silk-fabrics, as the weavers believe that fly-shuttle looms are unsuited to them since the texture being fine, the silk does not stand the additional strain of fly-shuttle weaving. Some of the weavers are now using jacquard machines to weave cloth with ornamental borders.

The weaving of tussar is also carried on at Vishnupur though not as extensively as the weaving of mulberry silk. Owing to the competition of artificial silk the market is now less favourable.

The tussar silkworm is generally grown in the districts of Manbhūm, Singbhum, Dumka, Giridih, Bankura and at Kalna on the banks of the river. The seed is generally imported from the markets of Chaibassa, Jamtara, Narainpur, Giridih and Dumka. Another favoured centre is Mourbhanj in Orissa. Dealers often visit Vishnupur and the neighbouring centres of weaving with their stock of cocoons and the weavers generally obtain their supplies from them, the current price being Rs. 9 to Rs. 11 per kahan (or 1,280 cocoons).

The yarn is reeled in the following way from the cocoons:—The cocoons are tied in a piece of cloth and then hung over boiling water until they are dead. They are then dried and boiled in a vessel containing water, cattle urine and saji water (or soda) for about an hour. They are then taken out and the floss removed. The cocoons are then ready for reeling. Reeling is done by running off one or two of the strands of silk on to a swift revolved by hand and imparting to it a little twist to bind them together.

**Sonamukhi.**—There are about 200 weavers most of whom weave a mixture of silk and cotton. This cloth is of inferior quality and is sold locally. This industry is suffering even more than the better qualities of silk cloth from the competition of cheap artificial silk. Arrangements have been made to organise the weavers into a co-operative society and for a practical demonstration in silk weaving on fly-shuttle loom to cheapen the cost of production.

#### Cutlery Industry.

**Shahaspur (thana Indas).**—This village was also famous for its cutlery, but the condition of the industry at present is similar to that at Kanchannagar (Burdwan).

About 15 families are engaged in the industry at present and make penknives, razors and scissors of good quality. The methods of manufacture and other conditions are almost similar to that employed at Kanchannagar (Burdwan). The industry has been declining owing chiefly to foreign competition.

The salvation of the industry appears to lie in the introduction of improved and up-to-date machinery so as to save labour and to lessen the cost of production. Besides this, it is getting more and more difficult to secure skilled labour since the industry does not attract new recruits on account of the low wages paid.

#### Manufacture of Conch-Shell Ornaments.

**Bankura.**—There are small communities of about 25 families each at Bankura, Vishnupur and Patrasayer engaged in the manufacture of conch-shell ornaments, namely, bangles, rings, etc. The articles produced are sold locally. The methods of work are similar to those used for centuries at Dacca, but the finishing is not so good. Conch-shells of good quality cannot be obtained locally and as each family purchases its requirements from Calcutta dealers they fail to obtain at low rates as would be secured by larger joint purchases.

### Manufacture of Shellac.

**Sonamukhi.**—This industry was formerly carried on extensively all over the district, but is now on the decline owing to various reasons. At present the industry seems to have concentrated at Sonamukhi and Khatra, there being about 8 small factories in the former place. Each of these factories employs about a dozen men. The methods of manufacture are almost similar to those employed at Illambazar except that the workers of Sonamukhi carry the finishing operation to a stage further, that is, they stretch the sheets of shellac very skilfully till they become as thin as paper forming, what is called, the fine shellac of commerce.

Raw material is generally purchased from the district of Manbhum, the local production having dwindled down almost to insignificance. The shellac market is constantly fluctuating and hence the condition of the enterprisers who take to this industry is precarious.

### Leather Work.

The condition of shoemakers is improving.

At Nutanchati in Bankura town a shoemakers' co-operative society has been organised. Leather of good quality is advanced to the members on suitable terms according to their needs. The shoes and boots produced are of good quality, and, being cheap, have a ready sale.

At Lalbazar in Bankura town, a small community of 20 families of shoemakers earn a good income. They obtain leather from a local dealer but as they pay cash they are not under his control. They generally purchase good leather for their work and are improving the quality of production.

There is no leather work in any part of the district except Bankura town, but at Katulpur some 10 families of shoemakers prepare good slippers from locally tanned leather which have a ready sale.

### Manufacture of Brass and Bell-Metal Wares.

**Patrasayar.**—About 200 braziers work in this place. The articles regularly made are cups and lotas mostly of brass. These are manufactured by casting the molten alloy in moulds prepared of local earth. The methods of turning and finishing are similar to those employed at Vishnupur and other places.

The industry is entirely in the hands of local mahajans who purchase the raw material from Calcutta and send the finished goods to Bankura, Chota Nagpur and Calcutta for disposal. The workmen assemble in shops maintained by the master artisan who in turn is directly in touch with the mahajans and he makes the wares according to the requirements of the mahajans. The daily wages of these workmen vary from annas 6 to annas 12 according to the nature of the work.

**Vishnupur.**—About 200 families, each employing three persons on an average, live by this industry at Vishnupur. The wares manufactured here are preferred for their superior polish and make, and get a ready market at Chota Nagpur, Behar and other up-country places.

The brass and gun-metal workers of this place are controlled by mahajans, who supply them with raw material and take the finished goods from them allowing them a certain wage (called bani locally) on each article. They are kept in such ignorance that some of them do not even know the current prices of the goods they make.

Cast bell-metal is often manufactured from its constituents (7 parts copper and 2 parts tin) by the workmen in their shops and sometimes the alloy is purchased from Calcutta. The alloy is then melted in an ordinary furnace, with the help of bellows and it is cast into moulds which are usually prepared by the womenfolk of the household with the local clay. Each mould is used once only.

After the castings are made they are chiselled, scraped and then polished and sent to the market for sale.

Brass and Bharan are also manufactured locally by using the following alloys:—copper, zinc and lead. It is similarly moulded, scraped and polished. The ordinary varieties of manufacture are dishes, cups, jars and other utensils generally used by Indians.

**German silver.**—Wares of German silver are also manufactured in this place. The raw material (German silver) often comes from Calcutta, but it is sometimes prepared by melting cupro-nickel alloy with zinc (55:45).

**Bankura town.**—The condition of the industry in this place is the same as that prevailing in Vishnupur except that the workmen are not so skilled as the Vishnupur metal workers. There are about 50 workers in the town.

## Midnapore District.

### Weaving.

Cotton weaving is carried on at the following centres:—

Northern part of Debra police-station;

Eastern part of Pingla police-station;

Panskura police-station;

Pataspur and Amarshi in Pataspur police-station;

Contai town and some adjacent villages Ramjibanpur, Ghatal, Haridaspur, Rajnagar, Kuapur, Khirpai and Radhanagar in Ghatal subdivision; and

in many villages in Jhargram subdivision.

The Santals of Dhangri in Jhargram police-station, manufacture cloths for their own use.

**Village Anandpur, police-station Keshpur.**—This village which is about 16 miles from Midnapore, contains a large number of tussar weavers. There are about 400 families of weavers, of whom about 300 are engaged in weaving tussar and the rest in weaving cotton. Each family has two looms and employs two weavers on an average. The looms are, generally speaking, antiquated but a few of the cotton weavers use fly-shuttles. Tussar saris, dhutis and chadars are the usual varieties. The texture is commonplace.

Each weaver of tussar takes about 4 days to finish a length of sari of 9 cubits—the time spent over the preliminary operation being also counted. This brings in a wage of Rs. 3 to Rs. 4, and it is calculated that each weaver can earn about Rs. 25 per month.

Some of the weavers take money and yarn in advance from the local mahajans, whereas others work independently. Beparis from Ghatal and Howrah often visit the village and purchase the finished goods. Local mahajans also do a great deal of business.

The following places may be mentioned as the chief centres of silk weaving:—

Anandapur in Keshpur police-station,  
 Nimtola in Ghatal police-station, and  
 Keshiary in Keshiary police-station.

#### Manufacture of Brass and Bell-Metal Wares.

**Village Kharar.**—Of all the places where this industry is carried on, Kharar is the only place where there is any organisation. There are about 100 mahajans in this village, everyone having a workshop of his own. Some of these shops employ as many as 70 to 80 workmen. There is a division of labour and the daily earnings of a workman varies from annas 6 to Re 1-8 per diem according to the nature and skill of work done. The man working at the forge earns the highest amount while those engaged in cleaning and polishing earn the lowest.

Bell-metal thalis are the speciality of this place, but the finish and workmanship of them are not of a very high class. The raw material, viz., copper, tin and also zinc are purchased from Calcutta and sometimes from the Strait Settlements and Japan at wholesale rates. The alloy is prepared in the factory. Sometimes broken bell-metal utensils are collected in huge quantities from the mufassal which are then melted down and are used over again as starting material. All the processes which may be classified as (1) smelting, (2) forging, (3) hammering out, (4) beating out in the cold, (5) scraping, (6) spinning, and (7) polishing are done by hand with the help of crude appliances. Almost all the products are exported to Calcutta, and the quantity exported is said to exceed 50,000 maunds in weight per annum from the village of Kharar alone. The neighbouring villages where this industry is also carried on to any great extent are Udaiganj, Kristopur and Raidanga.

Though the mode of organisation, distribution of labour and other systematic methods by which the industry is carried on are good, it remains a fact that the workers are worse off than the average workers of Vishnupur or Khagra. The mahajans are very rich and thrive upon what is really a sweated industry.

**Patnabazar.**—There are about 25 families at this village each engaging two men on an average, to assist them in the manufacture of brasswares.

The industry is carried on in a poor way and the only items made are brass lotas, garus and cups. Moulds are prepared by the workers themselves from local earth and each family and workshop can turn

out at the most 5 to 6 seers of finished material per day if the moulds have been prepared and are ready for use. The workers earn a wage of annas 12 to annas 14 on each working day.

The workmanship and finish of the goods are not good. Raw materials in the form of broken wares are supplied by local mahajans and they take the finished goods allowing a wage or bani on the weight of the finished products.

The workers are badly off, and many who originally were engaged in this industry have taken to other pursuits such as gold and silver smithy.

The industry is also carried on at Chandanpur in Ramnagar police-station and Gopemahal Ghata, Palaspai, Chandrakona in Ghatal subdivision where jugs, plates, lotas, etc., are manufactured.

#### **Gold and Silver Smithery.**

**Patnabazar.**—There are about 200 smiths representing almost all the lower castes of Hindus who live by this industry. The ornaments manufactured by them are much in demand and the workers seem to be in fairly good prosperity.

#### **Mat Making.**

Mats are made from locally produced grass at the following centres:—

Eastern part of Pingla thana,  
Sabang police-station,  
Mirgoda in Ramnagar police-station,  
Dubda, and  
Negui in Egra police-station.

The products are sold locally and are exported to Calcutta and other places. The industry is flourishing.

The following industries are carried on at the places shown against them and the articles are sold locally:—

Bamboo baskets—Parihati and Muchiband.  
Bamboo chairs—Contai town.  
Babui rope—Parihati and Muchiband.  
Conch-shell bangles, etc.—Midnapore town.  
Molasses (gur)—Rogra in Gopiballavpur police-station.

#### **Hooghly District.**

##### **Silk and Tussar Weaving.**

Sushi and sheosakhar cloth of Dhaniakhali and Horal in the Sadar subdivision and Badanganj in Arambagh subdivision are worth noticing. These are mixed fabrics woven alternatively with silk and cotton yarn. They are all exported to foreign countries through such European firms as Messrs. Walker Goward, Messrs. Shaw Wallace & Co. Babu Abinash Chandra Datta of Dhaniakhali and Babu



Dharmadas Dalal of Arambagh are two principal local dealers who act as middlemen between the workers and the Calcutta firms. The weavers work on bani system, the dealers supplying the yarn. About 200 looms in both the subdivisions are engaged in weaving this cloth. The weavers earn about Rs. 30 a month. The total annual output is estimated to be worth about two lakhs of rupees.

Pure tussar and silk dhuti, sari, ketê chadar are extensively manufactured in the villages of Kayapat, Badanganj, Fului, Kristoganj, etc., in the Arambagh subdivision. There are about 3,000 weavers in these villages and they weave both silk and cotton. The cheap, coloured tussar and silk dhuti and sari woven here known as "chellis" are chiefly used in marriage and other ceremonies by the poorer middle classes. They are sold in Howrah hât and from there go chiefly to the districts of North Bengal. The weavers work on bani system and earn Rs. 40 to 50 a month. The local dealers purchase cocoons from Chaibassa, Midnapore and Bankura districts, and they are reeled by the females who get 4 annas to 6 annas daily for reeling. They also purchase reeled yarn from these districts. The dealers are weavers by caste—they can themselves weave and were once actual weavers. This work is generally done on throw-shuttle looms. There is, however, no reason why silk should not be woven on fly-shuttle. Demonstration on these looms should convince the weavers of the practicability of the suggestion and the weaver boys should be initiated to this sort of weaving before they are too old and their muscles too stiff. The reeling is also done on the primitive process. Improved reeling machines should help the women to earn a little more wages and at the same time bring down the price of manufactured yarn and consequently of finished cloth. The total annual output is estimated at three to four lakhs of rupees.

Local people do not know the bleaching process. This is a great handicap. Rejected silk waste (of tussar) is exported to foreign countries at nominal price, and reimported as high class finished bleached thread.

### Cotton Weaving.

There are two principal schools of dhuti and sari weaving in this district—Faresdanga and "Serampore." The former takes the name from French Chandernagore, where there is a considerable number of weavers. The traders who formerly dealt in this cloth belonged to this locality.

Within the Sadar subdivision there are weavers of this cloth at Shamashpur, Dhaniakhali, Mahmudpur, Allah, Gopinathpur, Gurope and Banna (all in Dhaniakhali thana), and Tantipara (Hooghly town). They weave dhutis and saris of counts varying from 60's to 100's. There are about 500 looms in this area and the weavers work mainly on bani system—bani varying from Rs. 2-8 to Rs. 4 per pair of ten cubits of cloth. A weaver can earn Rs. 20 to Rs. 30 a month. They all use fly-shuttle looms. The warping process is not however as improved as it might have been. Introduction of simple warping machine should save time and labour. These cloths often pass as "Faresdanga" cloth. The borders of this cloth are not however as artistic in design as those of Ramjibanpur cloth. Introduction of the doobby attachment should remove this defect and enable them to fetch a better price. An attempt to form a co-operative society amongst

the weavers of Dhaniakhali failed. Weavers here can successfully resist against any attempt at "sweating" by the mahajans. There are several Muhammadan weavers near Bhasara who weave gamchas only.

There are also a few weaving families in Guptipara, remnants of a fairly large colony. They belong to the "Santipur" school. Only fine dhutis and saris are made. They specialise in artistic borders particularly with tinsel. These weavers of Guptipara, however, decline to use fly-shuttle looms which they allege does not lend itself to the making of special borders. The introduction of the dobbie should be helpful.

**Serampur.**—There are about 200 weaver families and an equal number of looms at Serampur. The fabrics made in this place have a special reputation. Dhutis, saris, gamchas and chadars are the products of the looms and the counts used are 32, 40, 60, 70, 80, 90, 100 and 130.

The industry is in a more flourishing condition at Serampur and the same may be attributed to a great extent to the wholesale introduction of fly-shuttle looms and simple warping machine with the help of which a width or half a width of warp can be reeled off at once.

Of the 200 families as many as 25 work independently, purchasing their own yarn from Calcutta and disposing of the products in Ramkristopur hat (Howrah) and other markets. The rest are under the mahajans and work on the bani system. The average earning of a weaver of this class is said to be about Rs. 35 per mensem.

In the Serampur subdivision, Rajbalhat, Dwarkatta, Haripal, Kaikala, Begumpur, Kharsarai, Mundulika and Serampur town are the principal centres of cotton weaving. Rajbalhat is by far the most important place. Nearly three to four thousand looms are at work in this area—counts varying from 60's to 130's are woven here. Texture is uniform and fine and the designs of border are quite artistic. Striped sari is the speciality of Kharsarai. They use fly-shuttle looms. Higher counts are sometimes woven on throw-shuttle but even 200's yarn has been woven on fly-shuttle. The weavers weave on their own account as well as on bani system. The rate of wages here is much higher than what prevails in the Sadar subdivision. Bani varies from Rs. 3-8 to Rs. 8 per pair according to the counts of yarn used. Every weaver here working on bani system earns Rs. 40 to Rs. 50 a month. The industry is thriving. At Rajbalhat not only the weavers by caste but other castes also, e.g., Brahmin and Kayestha take to weaving.

In the Arambagh subdivision, Badanganj and its neighbouring villages are the important seats for cotton weaving. There are about 3,000 looms in this area and the weavers weave both cotton and silk. Here also as in Rajbalhat area they weave up to 130 counts and earn similar wages of Rs. 40 to Rs. 50 a month, the rate per pair being also nearly the same in both the places, i.e., from Rs. 3-8 to Rs. 8 per pair. Here also there are men of castes other than that of Tanti who have taken to the weaving industry. Mahajans from Ramjibanpur in the district of Midnapore as well as local mahajans deal in these cloths. Mosquito curtains are made in various places in the Arambagh subdivision with imported thread supplied by middlemen to be sold in the Howrah hat. Other centres of weaving in the

neighbourhood are Atghara, Naskaipur, Panalpur, Jajpur Banigachi, Kumirmorah, Antpur, Noagachi, Chandhat, Rashidpur, Ranibazar, Ramnagar and Santoshpur.

A weaver can weave about 8 pairs of cloth in a month. The total annual output of hand-loom made cotton cloth of the district is estimated to be worth between 30 to 40 lakhs of rupees. Howrah hat is the principal distributing mart. Calcutta shop-keepers purchase direct from the local dealers generally on credit, paying twice in the year—once after the Pujas and second time at the end of Chaitra.

### **Cotton Weaving, Bleaching and Dyeing.**

In connection with cotton weaving industry, there are two minor industries carried on in some of the more important centres—

- (a) Bleaching of new cloths by the country washerman. They work for the local dealers as well as for the Calcutta shop-keepers and earn annas 4 to annas 8 per pair of cloth bleached. These washermen do not wash old used clothes.
- (b) Dyeing of cotton yarn black by the Kalakars is another connected industry worth noticing. The weavers use these locally dyed yarn for borders and stripes also.

### **Tape Weaving.**

Tapes are woven with cotton yarn at Nababpur and the neighbouring villages of Serampur subdivision by a number of Muhammadan weavers called "Jolas." These tapes are chiefly used in mosquito curtains. During the Great War these weavers had a brisk business. They are still doing fairly well.

### **Manufacture of Paper as a Home Industry.**

**Kalsa, Gossain Malpara and Mahanad.**—There are two persons, viz., Kadir Buksh and Moniruddin in Kalsa who carry on the manufacture of paper as a home industry. The kagajis of Gossain Malpara and Mahanad are now extinct. Formerly, the industry was carried on extensively in many villages of the district. The following is a list of the villages in which there are still a few kagajis who carry on or know all the processes of manufacture but who have taken to other pursuits as their chief means of livelihood:—

- (1) Chaka near Dwarbashini (Bengal Provincial Railway).
- (2) Kalsa near Dwarbashini (Bengal Provincial Railway).
- (3) Shahbazar Dashghara (Bengal Provincial Railway).
- (4) Neala Pandooah (East Indian Railway).
- (5) Mainam, Amta (Howrah Amta Light Railway).
- (6) Shahabazar Gangashagar, Khatipara and Deulpur in the Sadar subdivision.

The industry, has recently received a stimulus owing to the higher price of mill-made paper and it is said that some people were contemplating to start the business again, after a long time. At the present time only a few hundred rupees worth of articles are produced in a year. The kagajis of this district unlike those of Murshidabad employ

only waste paper and specially the cuttings from book binders' shop as the starting material. Rags, old and worn-out fishing net of sunn hemp, tats and jute, etc., are also used. The industry is carried on only for 4 or 5 months (November to March). In the winter season and during the hot and rainy seasons the workers are engaged in agricultural and other pursuits. The customers are some Marwari shop-keepers who use these papers for making their account books. The price of a quire of paper varies from annas 12 to Re. 1-4. One family on an average turns out paper worth Rs. 100 to Rs. 150 during each working month. The demand for this kind of paper is very limited.

The following is a brief description of the processes:—

*Soaking.*—The starting material is principally gathered from the bookbinding shops of Calcutta, Howrah and the neighbourhood. About 10 seers is first steeped in water contained in a reservoir (called daba locally) in which a small quantity of lime has been added. After a day or two, the mass is taken out and the water is squeezed out from it as far as possible.

*Pounding.*—The whole mass is then subjected to the process of pounding. The operation is carried on with the help of dhenki or the indigenous tread-mill. Three or 4 workmen work on it and this operation, which is the most laborious part of the business, takes about 8 to 10 hours to complete. The mass is then kneaded against an earthen apparatus called mejlish until the whole is turned into a soft consistency. This mejlish is a flat dish made by the country potters and has a rough surface (sprinkled with lime stones).

*Second soaking and washing.*—The mass is again soaked in diluted lime solution in which some saji has been added for about 2 days, then washed in a stream of water or tank holding it in a canvas chadar. The washing is continued until the washing water is clean.

*The preparation of paper.*—The pulp thus prepared is now mixed thoroughly with a large quantity of water contained in a large earthen tumbler called nad.

A fine bamboo sieve which has been fitted in a wooden frame is dipped into this solution, in which the pulp is now suspended in a state of fine division and is carefully taken out by the operator. The sieve with the homogeneous layer of pulp on it is detached from the frame, turned over and lightly pressed against a sheet of paper. The sieve is then carefully taken away leaving the newly formed sheet of paper.

*Finishing operation.*—The sheet is now carefully detached and exposed to the sun for drying on a chatai (a green mat). When dried, it is trimmed and then sized with a thin layer of starch solution (called monda) which is prepared from ushna rice. This is then thoroughly dried.

The paper is now stretched on a wooden board and rubbed with a cylindrical piece of stone, and is then ready for the market.

The industry is less and less attractive, since, as carried out it has little chance of competing with cheap mill-made paper. The demand also is very limited, only some shop-keepers use it for making their account books. The margin of profit, if all labour consumed is taken into consideration is very meagre. The following figures which have

been worked out on information given by the actual workers, will go to show the same:—

| Cost of raw material when carried to the spot.   | Rs. AS. | Outturn.               |
|--|---------|------------------------|
| 1 maund (40 seers on average) .. .. .  | 7 0     | Yielded 80 quires of   |
| Lime 5 seers .. .. .   | 0 5     | paper 20 inches by 12  |
| Saji 2 seers .. .. .   | 0 4     | inches at annas 6 per  |
| Ushna rice 3 seers .. .. .   | 0 12    | quire valued at Rs. 30 |
| Wages of 3 women to work on the tread-mill five days of 8 hours each, will be required to work up 1 maund of raw material—the cost will be 4 annas per diem .. .. .                    | 3 12    |                        |
| Wages of 2 skilled and 1 unskilled men for working actual preparation of sizing, drying, trimming and polishing, etc., 8 days of 8 hours each at annas 12 and annas 6 per diem .. .. . | 15 0    |                        |
|  | <hr/>   |                        |
| Margin of profit on each maund of raw material .. .. .   | 27 1    |                        |
|  | <hr/>   |                        |
| Total .. .. .  | 30 0    |                        |

About 4 maunds of raw material may be worked up in a month by an average family.

#### Embroidery Work.

“Chicon” work (also locally known as kam selai) of requisite fineness is carried on at Babnan, Beta Jetia and the neighbouring villages in the Sadar subdivision by about 500 Muhammadan families—both male and female members doing the work. The female members do it during their leisure hours after finishing ordinary household duties.

The worker who actually does the sewing work is called the “darji,” the man who prints the designs on the cloth is known as “kalamkash,” and ostagar is the man who secures orders from European firms in Calcutta and supplies the fabrics—both silk and cotton according to orders received. Night-gowns, chemises, handkerchiefs, table cloths and pillow-cases are some of the main varieties of their work. These are all of hand-made work and at one time compared very favourably with the machine-made articles of France, Germany, Australia, Switzerland and Japan.

The darji and kalamkash are paid on piece-work system. Female darjis earn about from Re. 1 to Rs. 3 a month. Male darjis earn Rs. 20 to Rs. 25 a month and the kalamkash earns up to Rs. 40 a month. The wages are paid by the ostagar, that is, the middleman between these workers on one hand and the Calcutta firms on the other.

The value of the total output will vary according to the fabric used. The aggregate wages which the workers earn is estimated at one lakh of rupees a year.

Messrs. Dutt Brothers of Chinsura who used to supply these artisans with work have now ceased to do so. Sometime ago these articles found a good market in America, Australia and South Africa and many enterprising workmen used to go to these countries with their bundles and return after 3 or 4 years with considerable

savings. Some of them opened their own shops and agencies abroad. About 20 to 30 passports are still issued in a year to such emigrants.

The chief market is now in Calcutta and the industry is not now in the same thriving condition as it was when the foreign markets were freely open.

#### **Brass and Bell-Metal Work.**

There is a group of brass workers at Gholsara in the Sadar subdivision who work with brass filings and manufacture "ghungurs" (jingles) and small hinges. There are about 37 families of kansaris who carry on this business. All the processes are worked by hand. The value of the total outturn will be about Rs. 15,000 a year. The finished articles are sold at Chetla hat. A co-operative society has recently been formed amongst these artisans for securing greater profits for the workmen. Brass work of Bansberia in Sadar subdivision also deserves notice. The industry here is not however thriving. The articles produced are those for ordinary use and have no special features.

At Bally and Dewanganj in Arambagh subdivision brass and bell-metal work is carried on on an extensive scale. About 300 families of kansaris and other castes also manufacture brass pitchers, jugs and bell-metal thalas, cups, etc. The labour is paid on the contract or bani system and also on monthly wages system. Karikars come from the castes of Bagdis, Duleys, Mahisyas, etc., and a karikar earns Rs. 40 to Rs. 50 a month. Jogardars or assistant karikars earn about Rs. 25 a month. Articles are cast in moulds by melting the metal, received from Calcutta mahajans. Primitive lathes are worked by two men, one drawing the string and the other holding the chisel. The latter is a skilled worker. About three lakhs of rupees worth of articles are manufactured here. The industry is still thriving.

Fishing wheels of brass are made by 4 or 5 families of karmakars at Janai in Serampur subdivision.

Brass and bell-metal bangles and churis are made by 40 or 50 families of Bairagis at Dipa in Serampur subdivision.

#### **Padlock Making.**

At Kumirmorah-Raghunathpur in Serampur subdivision there are about 40 or 50 Mahisya families manufacturing brass and iron padlocks. They get advances from Calcutta shop-keepers and earn about Rs. 30 to Rs. 40 a month. The padlock makers earn good wages.

#### **Wood Carving and Carpentry.**

Ebony sticks, hooka pipes, rulers, disc and roller (for making bread) are manufactured at Badanganj and Kamarpukur in Arambagh subdivision. About 100 families do this work all on their own account. There is a colony of carpenters at Chandernagore who work for the Calcutta furniture shops.

#### **Boat Making.**

At Balagarh and Chandur in the Sadar subdivision there are 32 families of Jelia Kaibartas and Muhammadans manufacturing country

boats of prices ranging from Rs. 150 to Rs. 900. They are used for fishing purposes and also for carrying passengers and cargo. The capacity of a middle sized boat priced at Rs. 600 is about 500 maunds. Two men working for about three months can construct three small fishing boats at a cost of about Rs. 250. They are sold for Rs. 450. Average income of a worker would therefore be Rs. 30 to Rs. 35 a month. They secure orders from Murshidabad district and also from Calcutta mahajans.

#### **Fishing Lines.**

Fishing lines and hooks of Dhaniakhali in Sadar subdivision are specialities. Furfura, Balarambati, Jagatpur are villages in the Serampur subdivision where fishing lines are also manufactured. About 100 families of Kaibartas, Bairagis and Fakirs carry on this business. Fishing lines of various thickness are made of mooga silk. In the factory of Nandalal Adhikari of Boso some 25 men work, whose wages vary from Rs. 15 to Rs. 20 a month. All the processes are worked by hand. The total annual value of the outturn is estimated to be about Rs. 30,000. The finished products are mostly sold locally.

#### **Rope Work.**

In the villages along Bhola, Chandernagore Road, there are a number of factories manufacturing ropes and twines of various thickness out of sunn-hemp and jute. Here also all the processes are worked by hand. Bagdis and Kaibartas supply the labour for this work. Rice starch is used in finishing the articles. Profit is from Rs. 6 to Rs. 12 per maund. The finished goods are sold in Calcutta.

#### **Cheese Making.**

There are two small cheese factories near Rajhat in the Sadar subdivision. This is all what remains of the once well-known Bandel cheese business. The factories belong to Muhammadans and three or four men work in each. The whole outturn is sent daily to a shop in the New Market at Calcutta. The industry is not expanding.

#### **Howrah District.**

##### **Cotton Weaving.**

The principal hand-weaving centres in the district of Howrah may be called extensions of the Serampur area (Hooghly), these being mainly in the northern part of the district within the jurisdiction of thanas Domjur, Jagatballavpur, Amta and Bagnan. The villages of Begri, Banyopara and Khatora in thana Domjur, Khalna in Amta, and Khajurti, Kalyanpur and Karia in Bagnan may be specially mentioned. Coarse and medium fabrics are generally woven at these places and the industry has received an impetus by the increasing demand for indigenous goods.

The chief centres of weaving in the district are Andul and Uluberia and mosquito curtains are woven at Bagnan and a few other important places. For the manufacture of the finer fabrics, imported yarns

ranging from 40 to 150 counts are used, whereas for medium and coarse fabrics Indian mill spun yarns purchased from Suttaputty (Calcutta) are used. The number of cotton weavers employed in the district is 2,592.

Cotton weaving is also said to be flourishing at Jhapordah, Khantora, Begri, Banibon, Gobindapur and Domjur.

The chief market for the products of hand-looms in Southern Bengal is the hât held every Tuesday in Ramkristopur near the Howrah Maidan. The weavers and the mahajans come from Midnapore, Bankura, Hooghly, Howrah, Nâdia and the Jessore districts and on every hât day the cash transactions exceed a lakh of rupees. The major portion of the sale proceeds at the hât are used up in buying fresh yarns which are taken back to the villages by the weavers.

#### **Tape and Newar Weaving.**

During the War when there was a demand for newars and tapes, as the foreign supply was cut short, this industry was organised in some villages on the Howrah-Seakhala line. Tape weaving is done by pardanashin Muhammadan women with a simple primitive loom which is very effective and costs about Rs. 3 only to construct.

During the War about 3,000 workers were employed in this industry. The number is now probably much less but no definite figures are available.

#### **Embroidery.**

A few Muhammadan ladies in thana Domjur and Jagatballavpur employ their spare time in chicon (embroidery) work in embroidering handkerchiefs and fine muslin cloths. In Munshidanga there are 40 persons engaged in chicon work earning about Re. 1-2 per day. The products are sold at Howrah hat and the Calcutta Municipal Market.

#### **Ropes, Cordage and Twines.**

There are some factories in Shalimar, Salkia and Ghoosery for the manufacture of rope and cordage from coir, jute and hemp. It is customary to erect a shed about 300 yards long where the twisting is done. The simple hand machines for hackling, spinning, balling and twisting are all locally made. The major portion of the production is made from Jubulpore hemp and the proprietor of the Hunuman Rope Factory of Shalimar is the biggest merchant dealing in these goods. Other raw materials are used according to the needs of the customers. Occasionally women labour is employed. The ropes turned out in well-managed hand-power factories are said to satisfy all the requirements of the Marine Department.

#### **Leather Goods.**

A number of moochis settled in the thanas of Uluberia, Amta, and Bagnan have been making shoes which compare favourably with the hand-made varieties of Calcutta. Naturally the price is lower and the local bhadralog people patronise them. Tanned leather is taken from Calcutta.



### Locks.

Brass and iron locks are manufactured in Mansingpur (Jagatballavpur thana), Domjur, Hatal and Jujeswar (Panchla thana). They are sold through middlemen who export them to Calcutta. The cheap iron padlocks turned out in Domjur thana are said to find a ready sale. Round about Makardah there are about 150 families who depend on this industry. The industry seems to be a growing one. Ordinary blacksmith's tools are used and the finished goods are supplied to the Calcutta market and are also exported to Bombay.

### Brassware.

Ordinary domestic utensils of brass and bell-metal are made in Kalyanpur and the output is chiefly for local consumption.

### Hookas.

Bagrihat in Domjur thana is famous for its hookas. About 60 families residing in the villages of Begri, Bannarpara, Khalora, Domjur, Jhapordah and Shankaridal are engaged in this industry. The kernel within the cocoanut shell is extracted by cutting into pieces. It is then exposed to the sun to allow the kernel to shrink, after which it is extracted and sold to oil pressers. The husk is then removed by pressing the cocoanut on a spike fixed on the ground. The surface of the shell is scraped by a specially bent knife and is then polished. In imparting the black colour to the hooka a decoction of a special fruit known as "gab" is used, but the recipe is kept a trade secret. Local cocoanut shells being of a spherical shape can be turned only into dubba hookas; but for better qualities of pointed hookas, the cocoanuts have to be imported from Cochin, Ceylon and Singapore. A steady worker can turn out hundred dubbas or 60 of the better hookas in a day and the monthly income amounts to Rs. 20 to Rs. 25. These are exported to Calcutta, the chief market being Natun Bazar and Hookaputty.

### Pottery.

The earth in this district produces the best material and the vessels made stand fire better and last longer. The cooking vessels of Patihal in Jagatballavpur thana and the jars of Sankrail thana are well known and among painted articles, toys of Chandipur, thana Uluberia, the masks, brackets, imitation of fruits and pots made at Domjur and Uluberia are worthy of note; yellow colouring being generally used. Roofing tiles of better quality are produced in Jhapardah, Prasstha and Mawri in Domjur thana.

The industry is stated to be flourishing in the following villages:—

Nalda, Islampur, Gobindapur, Gouripur, Patihal, Jagatballavpur, Utter Jhapordah, Jorehat and Jhapordah.

### Sugar from Palmyra Palm.

The manufacture of sugar from the juice of the palmyra palms was attempted at Kalyanpore under thana Bagnan. The company formed for this purpose however failed to achieve any result though the manufacture of gur by boiling the juice has continued. In Shampur thana this industry is still carried on.

### **Bamboo, Cane and Hogla Work.**

**Cane work.**—In Howrah town and its suburbs and Jagatballavpur the Doms turn out excellent cane articles, viz., chairs, baskets, cradles, etc., and they are sold at Howrah and Calcutta.

**Bamboo baskets.**—Baskets of bamboos are made at Domjur, Patihal, Jagatballavpur, Narna, Makardah and Begri.

**Hogla.**—The reeds called hogla and nal (Karka) are woven into mats and baskets by moochis and doms. Occasionally the mats are made of large size and serve the purpose of carpets. The Uluberia thana is the chief centre of this industry.

## **PRESIDENCY DIVISION.**

### **24-Parganas District.**

#### **Cotton Weaving.**

The chief centres of hand-loom weaving in the 24-Parganas district are Punra, Baduria and Baraset.

Mosquito curtains are woven in Baraset. In Union Boards Hadipur, Deganga and Patharghatta mosquito curtains and napkins are woven by indigenous method and 15 to 20 workers are employed. Raw materials are purchased from Calcutta. The workmen are said to earn about Rs. 50 a month. The condition of the workmen is good and the industry is progressing.

Cotton cloth is also woven in Baranagore by hand-loom with fly-shuttle. Generally English yarn is used by purchase from Calcutta. Fine cloth is produced. Cloths are sold locally as well as in Calcutta. The average income of the workmen is from Rs. 15 to Rs. 20. The condition of the workmen is not good.

Napkin, checkered cloths for mosquito curtains and quilts are made in villages Ekbalpore, Surja Gopalpore in police-station Falta, Diamond Harbour subdivision. At Natagore in the Barrackpore subdivision cotton spinning and weaving has been started by the Khaddar Prasthan. About 30 families send hand-made cloths for sale to Calcutta.

#### **Embroidery.**

The chicon work industry was organised in Baraset and Halisahar by Dutt Brothers of Chinsura in connection with sales depots in Calcutta. Most of the workmen are Muhammadans. In each village a Sardar distributes the work and acts as the middleman between the dealers and the workers. The workers do not depend entirely on this work. Their main stay is agriculture. In village Shibadaspur and Salidaha near Naihati more than 100 families practise this industry in connection with shops in Calcutta.

#### **Tailoring.**

Tailor shops are not only to be found in Matiabruz but the industry extends to almost all the villages in thana Mohestola, especially

Santoshpore, Magurachata and Chandernagore in Sadar subdivision. It is confined to Muhammadan residents who form about 50 per cent. of the total inhabitants.

#### **Rope-making Industry.**

There is a small rope-making home industry at Bhabanipore within the Barrackpore subdivision. Ropes are made from sunn-hemp and jute and sold locally. The workmen earn Rs. 15 a month.

#### **Tanning.**

The small tanneries in the neighbourhood of Calcutta are concentrated in six different centres of which Tiljala with its 170 tanneries is the most important. The other centres are Mollahat in Tollygunge, Shahapur, Durgapur, Gopalpur and Tangra. Altogether about 240 such tanneries are in existence and their daily average production amounts to 1,000 cow hides, 200 buffalo hides, 450 sheep skins and 100 calf skins. The total number of men engaged in the industry is about 1,500. The tanneries are generally located in thatched or tiled huts.

#### **Leather Goods.**

In the North Dum-Dum Municipality in Barrackpore subdivision, leather suit cases and attache cases are made. There are 12 workmen and they earn Rs. 15 a month. The condition of the workmen is not good, as the industry is not flourishing.

#### **Brass and Bell-metal.**

Brass and bell-metal work is to be found in Basirhat and Baduria. Ordinary domestic utensils are made of them.

#### **Locks.**

The famous brass locks of Natagore, 24-Parganas, have suffered from foreign competition.

In the Barrackpore subdivision, in village Seuli Union and Nimta, about 50 persons make locks and keys for steel trunks and wooden boxes. The industry is dying out. Padlocks are also made at Deulia, Khamarpara and Duttapukur in Baraset subdivision. Some 40 men are engaged in this work. These locks are sold locally and in Calcutta and the workmen are said to earn Rs. 45 to Rs. 50 each per mensem.

Locks and keys are also manufactured at Baranagore. This is a new industry and the production is good. These locks are sold in Calcutta and the workmen earn Rs. 15 to Rs. 20 a month. They work whole time.

#### **Basket Making.**

In Narayanpur Union, Barrackpore subdivision, the basket-making industry continues and the baskets have a local demand. About 150 men are employed in villages Narayanpur and Bally in this way. It is a part time industry.

### Calcutta district.

The main industries which are carried on within the municipal limits of Calcutta on a commercial basis are chiefly the following:—

- (1) Weaving of cloth.
- (2) Embroidery.
- (3) Hosiery.
- (4) Laundry work, and dyeing and cleaning.
- (5) Printing of cloths and cloth borders.
- (6) Manufacture of ropes, cordages and twines.
- (7) Manufacture of specially treated fabrics, tracing cloth and waterproof cloths.
- (8) Tanneries.
- (9) Manufacture of leather goods.
- (10) Manufacture of hardware articles, iron safes, canisters, cutlery and surgery instruments, wire netting, steel trunks and boxes, galvanized tanks and buckets, etc., tin toys, locks and brass hinges, boat anchors and chains.
- (11) Manufacture of brass and copper ware.
- (12) Manufacture of umbrella sticks and polo sticks.
- (13) Manufacture of cardboard boxes and envelopes.
- (14) Manufacture of sugar-candy.
- (15) Manufacture of earthenware and pottery.
- (16) Manufacture of soaps.
- (17) Manufacture of hats.
- (18) Manufacture of matches and fireworks.
- (19) Manufacture of baskets, chicks, etc.
- (20) Manufacture of packing boxes, furniture, etc.
- (21) Type foundry and casting of metals.
- (22) Bookbinding.
- (23) Glass blowing.
- (24) Tobacco pressing and packing.
- (25) Biri manufacture.
- (26) Sign painting and scene painting.
- (27) Jewellery, gold and silver smith work.
- (28) Tailoring.
- (29) Oil mills and rice mills and small electrically driven flour mills and dal mills.
- (30) Repair works—motor-cars and carriages, watches and clocks, etc.
- (31) Miscellaneous—manufacturing of ivory and conch-shell articles, weaving of gold threads, manufacture of candles, ink, penholders, nibs and pencils, enamel works, wigs and theatrical requisites.

In addition there are numerous handicrafts, properly speaking home industries, which many middle class families now take up in their spare hours to supplement the resources of the family, such as spinning

of thread, sewing of woollen and cotton garments, lace work, etc. In these cases no outside workmen are employed, whereas in the former class, the work is entirely done by labourers who are paid by daily or monthly wages, or according to the quality and the quantity of work done. Home or small bazar industries form the subject matter of this survey report.

#### **Weaving of Cloth.**

The centre of this industry in Calcutta is in the Simla and Guabagan areas, where there were formerly a quite large number of weaver families. "Simla" dhutis and saris were in great demand at one time, but they have now fallen off in popularity owing to other varieties of similar quality manufactured in the mufassal, finding a demand from consumers on account of comparative cheapness. The cloth is hand-woven on throw-shuttle or fly-shuttle looms, out of imported yarn of fine texture, and is generally made to the order of shopkeepers and retail dealers. These traders provide the material, and advance money to the weavers, and pay the workmen wages for their labour which is calculated on the outturn. There are now altogether only 12 families consisting of about 60 members, inclusive of adults, females and children, who still cling to this industry, and their earnings average from 30 to 45 rupees per month per family.

#### **Embroidery or Chicon Work.**

This industry has suffered considerably owing to a falling off in demand for Indian embroidery through change of fashion and other obscure causes. Messrs. Dutt Bros., of Chinsura, who had a sales depôt in Free School Street and were the largest exporters of this class of articles have had to abandon their depôt. Those workmen, who still adhere to this industry, cater mainly for local requirements but have to face competition with private individuals who, in the present economic struggle, have taken to this handicraft as a supplementary source of income. Cultured ladies of many Anglo-Indian, Indian Christian, and Brahma and Hindu families, who have been properly trained and skilled in needlework, turn out articles which are of a superior order and are brought to the consumers' door by the agency of hawkers employed for the purpose. Some of the tailors of Collin Lane and Garden Reach still do embroidery work which is paid for according to quality.

#### **Hosiery.**

The manufacture of hosiery, i.e., socks, stockings, jerseys, etc., was the outcome of an industrial awakening with an impetus from the Swadeshi movement. It can be managed with a small outlay of capital, if it is undertaken on a modest scale with hand-knitting machines, but the financial return is very poor. The larger factories are driven by electric power and require a larger outlay. Yarns, which are used in the manufacture of articles of hosiery, can be had from the market and are either Indian or imported from the Continent or from Japan, the Japanese varieties being mostly used because they are cheap, but in point of durability they are poor and this circumstance, more often than not, has brought locally made hosiery into disrepute. There are in Calcutta now some 16 factories for the manufacture of hosiery, the

largest being the one established by Mr. N. Bose in the Maniktalla section of the city, where over 100 men are employed. These men are paid by fixed monthly salaries ranging from Rs. 10 to Rs. 60, according to fitness. In other factories the number of workmen varies from 4 to 25 men who are paid by monthly or daily wages, either fixed or as calculated on the outturn, at a rate of between annas 6 and Re. 1-2 for each dozen of articles manufactured, according to the character and quality of the work done. The average earnings of these workmen vary from Rs. 10 to Rs. 30 per month.

#### **Laundry Work and Dyeing and Cleaning.**

A very large number of shops have been established by men of the bhadralog class for dyeing and cleaning cotton and woollen clothings, particularly cleaning and laundry work. These men have no technical knowledge or training nor have they factories of their own but are merely intermediaries between the public and local dyers and washermen, and the profit they derive is that of the middleman. These men gain custom because of punctuality and promptness of service. As the work is done by the agency of local dhobis and dyers, it would be improper to classify such business as industrial concerns; a certain amount of dyeing is, however, done in the old style by manual labour with imported dyes bought from the market.

There are a few power driven laundries and scientifically worked dyeing shops, but so far have not met with great success.

There are two or three factories in Belgachia, which have been established by Marwari firms for dyeing cotton yarns, but their output is negligible in relation to the total demand, the bulk of which is met by supplies imported from Europe, Japan, Bombay and Madras. There appears to be a fair scope for the expansion of this industry if run under the supervision of scientifically trained men. The great need is for capital to make the venture and this is not easily forthcoming.

#### **Printing of Cloths and Cloth Borders.**

There are numerous shops, particularly in or about Bara Bazar, for dyeing cloths, and for printing of cloths and cloth borders, which are run by up-country Muhammadans. The printing is done by hand with blocks, the dyes being bought from the market. This industry exists more prominently at Serampur.

#### **Ropes and Cordages.**

There are altogether about 13 small factories in Ultadanga and Cossipore for the manufacture of ropes and cordages from coir, of which nine establishments are owned by one and the same proprietor. Both men and women are employed in this industry, and they are paid daily wages calculated upon the day's outturn. Only simple hand machines are used for hackling, spinning, balling and twisting.

#### **Specially Treated Fabrics.**

There is one factory for the manufacture of tracing cloth, which appears to be going on prosperously.

The Bengal Waterproof Works established by Mr. Bose are manufacturing waterproof cloths and clothing of quite good quality in the factory in Nazir Ali Lane, Ballygunge, and their articles are in large demand. The National Dye and Waterproof Works at Tollygunj is also meeting a growing demand with success.

### **Tanneries.**

There are altogether about 95 small tanneries in Tiljala and Maniktalla, in which raw hides and skins are cured and tanned. No machinery or appliances are used in these tanneries, but manual labour and the primitive crude processes are only employed. The hides or skins after curing and tanning are coloured, and are finished for the manufacture of cheap footwear, or of harness and saddlery, hand bags, suit cases, portmanteaux, etc. Those who work in this industry are mostly Muhammadans or Chamars.

### **Manufacture of Leather Goods.**

Leather goods of all description, viz., saddlery, harness, boots, shoes, slippers, straps, belts, bags, etc., are manufactured by Indian Mochhis, who are mostly or almost all up-country people. There are colonies of them in the bustees of Mechuabazar, Thanthania, Rajabazar and Tiretta Bazar. These men make the articles to the order of shopkeepers, who supply the material and advance money or material. Some of these workmen are very skilled labourers and their services are requisitioned even by reputed European firms, and the footwear they make finds its way into the best shops and sell very well.

The local shoe trade which was originally a monopoly of the Chinamen of Bentinck Street has within recent years been practically diverted into other channels, in the shops which have been established in and about College Street Municipal Market. These shops are mostly owned by Punjabi Muhammadans but the workmen are all Hindustani Mochhis. Cheap as well as high class fashionable shoes can be had in these shops.

Suit cases and hand bags, etc., of very good quality are also manufactured locally, and sold in Radhabazar, Harrison Road, Sir Stuart Hogg Market, and College Street Market, etc., from which places European dealers also purchase them for sale. The local manufactures have displaced the imported articles to a great extent.

Similarly, locally made saddlery and harness of which the principal market is Lalbazar and Tiretta Bazar are also in great demand. They are made of hides which are locally tanned or imported from tanneries in the United Provinces, though the brass and plated fittings are all locally made by hand. It is largely a bespoke business.

### **Hardware.**

The manufacture of iron safes, trunks and boxes, locks, brass hinges, cast iron articles, wire-netting, tin canisters, galvanised tanks and buckets, etc., tin toys, boat anchors and chains, cutlery and surgical instruments, are all comprised under this head.

There are now altogether 49 workshops or factories within the municipal limits of Calcutta, chiefly in Ultadingi and Maniktalla, where iron safes are manufactured. The workpeople are all up-country men of the Lohar class and no less than 500 men find employment in this industry. The work is all done by manual labour. These workers get wages calculated on the daily outturn, and their average daily earnings vary between 2 and 3 rupees according to the extent and nature of the work. Locally manufactured safes are made of old as well as new imported iron sheets, and as they look very well and wear well, they are in large request. As they compare very favourably in point of price with imported articles they find a ready market throughout the province.

There are in all about 30 workshops in Calcutta in which steel trunks and cash boxes or tin boxes are made which are sold in shops situated principally in Harrison Road, Bowbazar Street, Radhabazar, etc. About 500 persons earn their livelihood from this industry, and their daily earnings average from Re. 1-8 to Rs. 3, according to the quantity and nature of the work done. They are an improvident class of people and consequently are always in want. Imported sheet metal is used in making these trunks and boxes, which are made in different qualities to suit the pockets of all classes of customers. Local manufactures are not inferior to imported goods and they have practically captured the local market.

Locks manufactured locally are of quite good quality, but as there are yet only four factories here, the outturn is very much below the requirement.

Brass hinges are manufactured in about 36 shops by workmen whose average earnings vary from 10 to 15 rupees per week.

Cast iron articles are manufactured locally on quite a large scale by European and Indian firms, who have workshops and small foundries in the Entally section of the city.

There are no less than 23 factories, all in Narkeldanga and Maniktalla in which wire-nets are woven on looms in various designs, from wires imported from Europe, and bought from Barabazar. This industry provides employment for nearly 500 workers, including adult males and children. The working hours are from 9 a.m. to 5 p.m. or 7 to 11 a.m. and from 1 to 6 p.m. and the monthly wages earned by boys average from 4 to 10 rupees and the adults earn 12 to 18 rupees per month.

Nearly 500 people find employment in making tin canisters to the requirements of local oil-mills in Goabagan, Ultadanga and Maniktalla. Canisters are made out of tin sheets bought from the market, and the work is all done by hand, with the aid of a hearth, bellows, etc. The bellows are made locally by men who mostly inhabit Chorebagan in Calcutta.

There are any number of tinsmiths all over Calcutta, who manufacture water tanks, buckets, bath-tubs, mugs, and mud-guards for motor-cars, which are all made of galvanised sheets. The work is all done by hand, and about 2,000 men obtain their livelihood from this industry, their earnings are between Re. 1 to Rs. 2 per day on an average.

There are about 20 persons in Maniktalla who make tin toys, and in about 12 places, also in Maniktalla, boat anchors and chains are manufactured.



All blacksmiths manufacture iron shoes for draught cattle and also daos and iron articles required for domestic use. Some of these men manufacture cutlery also, the sharpening and polishing being done by electric motor driven grinding stones and polishing wheels. The average earnings of a skilled cutler is between Re. 1 and Rs. 2-8 per day.

### **Brass and Copper Ware.**

The principal centre of this industry is Kansaripara, that is Baranashi Ghosh Street, and its vicinity, and there are also a few in Maniktalla. There are altogether about 110 factories for the manufacture of brass, bell-metal and copper ware, *e.g.*, deckchis, gamlas, handis, gharas, thalas, badnas, etc. The material used is all imported sheets of brass and copper or bell-metal and the shaping of the articles is done by hand, finished and polished on the primitive bowstring lathe, and in the larger factories, by lathes worked by electric motor. Over 1,000 men are employed in this industry who earn 10 to 15 rupees per week. The articles are not sold in these factories, which are only feeders to the shops in Barabazar. A few factories have been started on a large scale, by men who are principal dealers in this line; they engage labourers to do the work, and have fitted up workshops with electric power. The smaller ones are carried on by artisans who do the work by manual labour with two or more men to assist them, from materials provided by shopkeepers and according to their requirements and specifications. The workers are not free to sell the articles to any outside buyer, and as a matter of fact the orders they get from their regular constituents are enough to keep them fully engaged. The remuneration the workers get for their labour is measured by the weight of the articles turned out, and the prices of the articles are also charged at a certain fixed rate on the weight, which varies according to the quality and character of the articles.

### **Umbrella Making.**

The centre of this industry is located in Nebutolla and Champatolah, where no less than 20 factories are now in existence. Only cheap umbrella sticks are manufactured here, *viz.*, those that are made from bamboos. Picked and tender bamboos brought from Chittagong are straightened up and bent by heat, and then smoothed down with sand paper, and ornamented by burning and chiselling, and polishing. Dealers having shops in Harrison Road and Burra-bazar get their supplies from these factories, while the fittings and cloth and furnishing of the umbrellas is done in the Burrabazar shops. The fittings and cloth being imported from Japan or the Continent.

### **Manufacture of Cardboard Boxes and Envelopes and Bookbinding.**

The practice of delivering goods for sale, packed up in cardboard boxes instead of in paper as of old has greatly stimulated the cardboard box manufacturing industry. Dealers in boots and shoes, articles of clothing, jewellery, soaps, hair oils, etc., all now use cardboard boxes, which are made to their order in various sizes, according to requirement, at prices which are charged according to dimensions. The principal centre of this industry in Calcutta is Baitakkhana and

the neighbourhood commonly known as Duftrypara, and Karaya. The workers are all East Bengal Muhammadans, hailing chiefly from the districts of Dacca and Mymensingh.

Practically the same men do also bookbinding work, and are employed in the making-up of envelopes as well. The machinery used is mostly hand-driven. Both adults and boys find employment in the industry and their number is no less than 2,000, and their earnings average between Rs. 20 and Rs. 30 a month. The hours of work are uncertain, and vary according to pressure and urgency of the work.

#### **Sugar-candy Manufacture.**

There are about one dozen factories in Calcutta, in Pathuriaghata and Grey Street, for the manufacture of sugar-candy. Deshi and Java sugar bought locally are used, melting the sugar in big iron pans, over a coke-fed furnace.

Besides these, there are some factories in Cossipore, etc., for the blending of different varieties of sugar, and of refining them, that is by a process of heating and boiling on a furnace, with the application of lime-water, milk-water, and other indigenous methods for eliminating dirt and impurities.

About a thousand men in all are employed in this industry.

#### **Pottery.**

Potters inhabiting the Kumartuli section of the city, which accounts for the name the locality bears, chiefly make idols and roofing tiles, as well as earthenware and pots and jars for domestic use.

There are also potters in Bagmari, Muraripuker and Ultadingi, and Maniktalla, mostly up-country men.

The average earnings of a potter is from Rs. 10 to Rs. 20 per month, and their total number is approximately 1,500.

#### **Soap Manufacture.**

Approximately 400 workmen in all are engaged in the manufacture of soaps which is done in 35 factories, situated mostly in Bagmari, Narkeldanga and Maniktalla. Only three of these factories are owned by Marwaris, and the rest by Muhammadans. Washing soaps of a cheap kind are the main production. Caustic soda, washing soda, kaolin, chalk, cocoanut oil, and animal fat are the ingredients, which are compounded and boiled in big iron pans over the fire, and then when the admixture is cooling down it is shaped usually by hand into rough spherical balls or cut into squares or oblong pieces. No scientific methods or appliances are used and the success of the operations is dependent on practical experience and knowledge. These soaps are indispensable to dhobis and to poor people who do their washing at home. They are sold by the weight and are stocked in all miscellaneous stores and bania shops, the wholesale dealers having shops in Canning Street.

The only factory which manufactures toilet soaps of a decent and wholesome quality in Calcutta is that of the North-West Soap Co. in Garden Reach.

### **Manufacture of Hats.**

Sola hats and felt hats are made in Calcutta, and about 200 men are employed in this trade, who reside in Karaya or Chandney. Most of these hats are sold in the shops in Sir Stuart Hogg Market or in Chandney. The average daily earning of these men is between Re. 1 and Rs. 2, according to the outturn. The sola or pith is indigenous, but the cloth material used for the outer covering of various qualities and description is usually of imported origin.

### **Matches and Fireworks.**

Many small factories or home workshops have attempted the manufacture of matches but owing to lack of expert knowledge and insufficient equipment and organisation, they are practically all in a moribund condition. The match industry is not suited to the conditions of cottage manufacture.

The only firm which has been established in Calcutta for the manufacture of fireworks is the Orient Fire Works, the survivors of Bonbonniere Ltd. This industry is only seasonal, as fireworks articles are in demand largely during the Pujahs, more particularly at Dewali time, and they are used extensively by Muhammadans for the Shab-i-Barat. Innumerable impromptu shops and workshops spring up to meet the demand for these occasions, and any number of private individuals engage for the time being in making rockets, crackers and other varieties, from recipes culled from known books on the subject. It is not possible to estimate or form an accurate idea of the number of men so employed at the time, but there can be no doubt that a very large number of persons find temporary employment from this source.

### **Manufacture of Baskets and Sunblinds or Chicks, etc.**

Baskets are made by Doms and mehtars; men and women of the Bengali Dom class who reside in Domepara in Rambagan, carry on this work as a whole-time occupation, and both sexes of the sweeper or mehtar class devote their spare time in this business as a supplementary resource. Baskets are made in various sizes and designs, and are sometimes dyed in green and pink colour to make them attractive. Prices vary according to size and look. The principal distributing agencies are the shops in Natun Bazar, Sir Stuart Hogg Market, etc. No less than 2,500 people find engagement in this industry, and their average monthly earning is between 5 and 15 rupees.

Chicks and khus-khus purdahs are made by Muhammadan workmen coming from villages near about Amta in Howrah district. The centre of this trade is Tiretta Bazar: Prices are charged at a certain fixed rate per square foot of measurement. These men make new articles as well as repair the old, and their income is between 20 and 30 rupees per month on an average.

### **Manufacture of Packing Boxes, Furniture, etc.**

It is difficult to ascertain the total number of carpenters at work in Calcutta, as they are spread far and wide all over the city and the suburbs. But having regard to the various branches of carpentry

work and the numerous places in which these men find occupation, their approximate total number may be reasonably estimated at 10,000. Their average earnings are between Re. 1-4 and Rs. 2-8 per day. These men are employed in making doors, windows and other woodwork requisites for buildings, articles of furniture, carriage wheels and shafts or bodies, cart wheels and in making packing boxes and wooden casks.

#### **Type Foundry and Casting of Metals.**

There are now in all twelve type foundries in Calcutta, in which printing types are made from type metal melted in iron pans over coal-fed furnaces. The total number of workmen employed in this work is about 250 inclusive of children. The rate of wages for children is between 3 and 5 rupees per mensem and adults get from Rs. 15 to Rs. 25.

There are altogether 32 shops in which various metals are melted and cast into moulds, and articles of different shapes and description made.

#### **Glass-blowing.**

This industry was originally solely in the hands of Muhammadans living in Machuabazar and the vicinity. There are six shops still in this locality, which employ 50 men in all, who make inkpots, kerosine oil lamps and phials of cheap inferior glass. Broken fragments of glass are collected in an iron pan, heated and melted over wood-fed furnaces, and colouring added on to make them tinted, and then blown in liquid form with a blow pipe and moulded into any shape or form. The average earnings of these persons are between Re. 1 and Rs. 2 per day.

#### **Tobacco Pressing and Packing and Biri Manufacture.**

There are in Calcutta 20 factories in which raw tobacco leaves are pressed and packed by hand-presses for export outside India. No less than 200 men work in these factories and earn Re. 1 to Re. 1-8 a day on an average.

There is now-a-days an enormous demand for biris, which has furnished profitable employment to a wide range of men, more specially Muhammadans. The biris are made from powdered tobacco leaves wound up with what is called palas leaves, which can be had locally from wholesale dealers in Rup Chand Roy Street, Armenian Street, etc., who get the supply from certain stations in the Central Provinces. This industry requires but little capital, and flourishes because there is a preference among certain classes of men for this kind of smoke. The average monthly earnings of the persons who are engaged in this industry vary according to output from Rs. 20 to Rs. 40:

#### **Sign Painting and Scene Painting.**

A large number of persons have small shops here and there all over the city for painting name plates, etc., on blocks of wood or tin, for private individuals, professional men, and traders. The prices charged are according to size and design, and in the case of name plates, according to the number of letters.

Besides the above, there are, 22 shops in Harrison Road, Pataldanga and Upper Chitpur Road, which paint stage-canvas, for theatrical scenes.

#### **Jewellery, Gold and Silver Smiths.**

There are goldsmiths' shops in every locality, but the more important centres in which these shops chiefly congregate, are Bowbazar and Radhabazar. Each shopkeeper employs workmen who are given wages varying from Rs. 2 to Rs. 6 on an average per tola according to different designs and description of articles manufactured.

Silver ornaments are mostly made in the Taltolah section of the town, and in Barabazar, while the Bhowanipur area is noted for workmanship in the manufacture of silverware.

#### **Oil Mills.**

There are at present in Calcutta 16 oil mills worked by electric motor power, 43 by steam power, and 29 ghanies or oil mills worked by bullocks. These last are mostly located in Maniktalla, Kalighat, etc., but their number is gradually diminishing.

#### **Flour Mills.**

There are now nearly 170 small flour mills driven by electric motors in Calcutta, of which no less than 90 per cent. are owned by Marwari traders. Wheat is bought from the market and milled, and the product is sold in the shop which also houses the flour mill. The mill is worked by paid labour who assist the owner also as salesman.

#### **Repair Works, etc.**

The repair of watches and clocks is another industry in Calcutta in which some 400 artisans are employed. Most of these workers have learnt the art by their being employed in some of the European watchmakers' establishments and have subsequently set up their own firms.

As regards other mechanical repair work it may be said that in almost every street of Calcutta repair shops equipped with a drilling machine, a lathe and a welding plant are found. These shops undertake the repair of electric fans, motor-cars, sewing machines, cycles, stoves, etc., and earn quite a remunerative return although the competition is gradually becoming keener owing to the growth of the number of these shops. Most of the men who are thus employed at these workshops have been trained at some of the bigger establishments and earn from Rs. 35 to Rs. 80 per month. It is estimated that about 2,000 men are so employed. The machinery installed in these factories is either hand-driven or worked by electric motor.

#### **Electroplating.**

Electroplating is done in several workshops near the Municipal Market, orders for which are received from shops as well as from private customers. Most of the articles are silver-plated as the process is easier and is more appreciated than nickel-plating. It is estimated that 1,500 men are employed in this particular industry.

### Tinsmithy.

Tinsmiths are numerous in Calcutta. These men undertake orders chiefly for the soldering repairs of old utensils, etc., and also manufacture tin pots, canisters, lanterns, lamps, watering cans and many other similar articles. The average earnings of a tinsmith are about Rs. 30 to Rs. 50 per month.

### Miscellaneous.

The more important items under this head are the manufacture of ink, and penholders, nibs, etc. There are four firms, which manufacture inks, of which P. M. Bagchi & Co., of Masjidbari Street, and N. C. Chakrabutty, of Beliaghata Main Road, are the more prominent and have been in this business for very many years. Their inks are in good demand in the market. About 100 workmen engaged on daily or monthly wages, are employed.

The only firm which manufacture penholders, etc., has been established by Rai Bahadur F. N. Goopta, in Balliaghata Road. The number of workmen employed by him includes 160 adults and 35 boys. They are paid by monthly salary, the highest being Rs. 100 and the majority between Rs. 9 and Rs. 50.

One other industry, which supplies occupation to a large body of men is the manufacture of harmoniums, and stringed and other musical instruments. The men employed in this work must have special training in this branch of industry, because in addition to carpentry, the workmen must have a knowledge of tuning and an ear for music. It is difficult to estimate the number so employed.

### Nadia District.

#### Cotton Weaving.

The main centres of the industry in the district are:—

*Meherpur police-station*—Meherpur, Perojpur, Maniknagar and Kola Dafferpur.

*Karimpur police-station*—Natua, Jamsherpur, Dhoradah and Shikarpur.

*Damurhuda police-station*—Kurulgachi, Damurhuda, Jagannathpur and Bhairabnagar.

**Sadar subdivision—Chapra and Ranaband.**—The weaving of coarse cloth and towel, etc., is also carried on at Arangsarisa, and Pitambarpur in Chapra police-station, Nagadi (Nakashipara police-station), Plassey and Chaudanga and the products are sold in the local hats and bazars.

The largest number of Muhammadan weavers, called Jollahas, who make coarse cloth and gamchas, are to be found in Kushtea and Kumarkhali where this industry is in a flourishing condition.

The chief centre of fine cotton weaving is Santipur. This place is noted for its beautifully ornamented dhutis and saris which are made from imported yarns of fine counts.

The weavers of Santipur do not work more than 6 hours a day. The women assist them in the sizing and preparation of the warps.

A peripatetic weaving school has been working here for some time for teaching weavers improved hand-loom work. The weavers are now in the clutches of mahajans and the establishment of co-operative societies is the only feasible way of improving their condition.

Some weaving is also done at Joshra in Chakdah town and also at Nabadwip where some 40 to 45 families of weavers are engaged in making coarse cloth and gamchas. All of them use pit-looms.

There is a weaving factory at Bhabanipur in the Kushtea subdivision with 12 looms belonging to Munshi Mokharuddin Khan, Secretary to the Bhabanipur Co-operative Bank.

There is a Mission School at Chapra where the local people under the guidance of Christian Missionaries have learnt to weave a variety of cloths, viz., thick napkins, dusters, bed sheets, etc.

Foreign yarn of 20 to 40 counts are generally used by the weavers of the Meherpur subdivision. Yarns are locally purchased at Perojpur, Natua and Palashpara at Rs. 13-4 to Rs. 15-4 per bundle of 10 lbs. and that of 40 counts at Rs. 22-8 per bundle. At Santipur in the Ranaghat subdivision, the weavers generally use yarns of 70 to 100 counts and some even use the finer yarns, viz., 140 to 200 counts.

The weavers of the Kushtea and Kumarkhali subdivisions make lungis, small saris, striped chadars, locally known as gantis and gamchas, etc. Coarse cloth, gamchas, lungis, sheets and shirtings are also made in Alamdanga thana of Chuadanga subdivision. A co-operative yarn depot started at Alamdanga in October 1925, has given a great impetus to the industry by making yarn available to the weavers at a reasonable price. Ten co-operative societies have been started in different places in this thana and there is a great demand for the shirtings, bed sheets and dusters produced by them. The industry is progressing.

The weavers of Shikarpur in the Meherpur subdivision prepare good bed sheets with imported yarn and the weavers of Meherpur town and its neighbourhood prepare fine cloths as at Santipur.

The weavers take their finished products to the various hats and market places where they are sold. The largest market for these weavers' cloths are at Kumarkhali and at Patni.

### **Cotton Dyeing.**

A number of persons of the Kushtea subdivision have taken to dyeing as a profession. Indigo dyeing is the speciality of these dyers. Their charges vary from Rs. 2 to Rs. 3 per bundle of yarn of 10 lbs. according to the shade of colour required. These dyed yarns are exported to Dacca, Mymensingh and other districts for the use of the weavers. The dyers generally earn Rs. 15 to Rs. 20 a month. This industry in Kumarkhali is in a flourishing condition.

### **Silk and Tussar Weaving.**

There is one family who manufacture matka and ketê cloths at Palashpara, in the Meherpur subdivision.

Various kinds of silk of superior quality both for suitings and shirtings are manufactured at Plassey out of cocoons grown locally. Cocoons are also purchased from Murshidabad and Malda and the threads are prepared in local factories.

#### **Hosiery.**

Genzi (underwear) and socks are manufactured at Krishnagar, Ghurni, Kushtea and Kaya using hand-knitting machines. The products are sold locally.

#### **Pottery.**

This industry is carried on on a large scale at Ranaghat, Habibpur, Kaitpara and Briddhkole in the Ranaghat subdivision, and at Goari and Nabadwip in the Sadar subdivision, and Parnia and Dhoradah in Meherpur subdivision. In the household earthenware manufactured by them there is no speciality or finish but the potters of Krishnagar (Ghurni), Ranaghat and Santipur deserve special mention. They manufacture Hindu images of superior workmanship. The potters of Ghurni make Hindu idols, busts, imitation fruits, fishes, etc. Clay models of all kinds (excepting the Hindu idols and busts which are made of plaster of Paris) are burnt in order to make them more durable. Casting is also used to a certain extent in the making of fruits and other models of the kind which have a wide market. The clay used for moulding is specially prepared. Plaster of Paris is also used in making busts. About 15 to 20 families are regularly engaged in clay-modelling at Ghurni and Krishnagar. The average monthly income of a potter is about Rs. 35 per month. The images of gods and goddesses are sold at very high prices—higher than anywhere in Bengal. The daily earning of a modeller is Rs. 2. Orders from Europe and America for groups and figures are also received by them. Jadunath Pal and his cousin, Bakkeswar, are excellent all-round modellers. Their models find a market even in European countries. Their average monthly income comes to about Rs. 200.

A co-operative society was attempted but it failed for the obvious reason that this artistic work is carried on by family tradition and is a monopoly of skilled families. Advertisement would greatly help its expansion.

#### **Conch-Shell Bangles.**

The people of Beliadanga and Kutubpur in the Meherpur subdivision import conch-shells from Calcutta and other places and prepare bangles which are exported to Dacca and Rajshahi for polishing and sale at higher prices.

#### **Basket and Kushasan Making.**

Moochis and Doms who carry on this trade all over the district use bamboo and cane for their work. No fancy articles are made anywhere but dhamas are manufactured on an extensive scale. In addition to the adults, children are also employed in the work as it is simple. The average daily income of an adult is 4 to 5 annas. Middlemen supply cane on credit and appropriate the greater share of the income.

Kushasan of very good quality is manufactured at Ranaghat.



### **Bricks and Tiles.**

This industry is carried on on an extensive scale at Ranaghat by Ganguly Bros. and also at Krishnagar and Badkulla. The tiles that are manufactured at Badkulla are almost similar to those made at Raniganj. The industry is flourishing.

### **Brass, Copper and Bell-Metal Work.**

Bell-metal and brass utensils are manufactured at Meherpur and Kushtea, where ordinary household wares are made. The most important centres of brass and bell-metal work are Matiari, Dharmada, Sadhanpara Nabadwip, Bahirgachi Sarak (Nakshipara police-station) Dainhat, Ranaghat and Faridpur in Kaliganj police-station. Mahajans import brass, copper and zinc sheets from Europe and sell them to the actual workers at certain rates per seer—profits varying from 4 to 10 annas according to the quality and kind of work. At Matiari there are about 300 families who are heavily indebted to the mahajans. It is said that about 25,000 maunds of utensils are manufactured at Matiari and Nabadwip which are mostly exported to Calcutta for sale. The polishing of bell-metal at Nabadwip, done with the use of polishing machines driven by oil engines is flourishing.

### **Iron Implements.**

The blacksmiths of Barbakpur and Hogalbaria in the Meherpur subdivision deserve mention for their skill in preparing knives, scissors and padlocks but the outturn is small.

### **Cur Making.**

Gur-making is very extensively carried on in thanas Krishnaganj and Hanskhali, in the Sadar subdivision, also throughout the subdivisions of Chuadanga and Meherpur. It is estimated that about 40,000 maunds of molasses are exported every year from the Sadar subdivision alone.

The manufacture of sugar from date molasses is conducted at Alamdanga, Munshiganj, Jamjani and Jaganathpur in Chuadanga subdivision, but has considerably dwindled in Chuadanga thana owing to the low price of imported sugar and several workshops in the other places have closed down failing to compete with the imported sugar. There is also a big sugar manufacturing factory at Santipur.

### **Carpentry.**

Christian carpenters of Chapra and Goari manufacture a kind of chair locally called Chapra pattern chairs. These chairs are sold at Rs. 4 to Rs. 5 each and are exported to other districts. Cart wheels are manufactured at Santipur in the Ranaghat subdivision and at Bhaluka in the Sadar subdivision. These are sold at Rs. 18 to Rs. 22 per pair.

### **Curing of Hides, Tannery, etc.**

Cattle hides are cured with khari salt while buffalo hides are only dried in the sun before being sent to Calcutta for export. The Moochis also sell them to local aratdars at Kushtea, Koya, Kamalapur,

Talberia, Amla, Alamdanga in the Kushtea subdivision, at Munshiganj, Alamdanga, Chuadanga, Ramnagar, etc., in the Chuadanga subdivision, at Meherpur and other villages near the railway stations.

There is a small tannery at Krishnagar run by a Punjabi merchant who has got a big shoe shop in the Goari Bazar. The bark of the babul tree is generally used in tanning.

There are a large number of Moochis at Ghurni who make shoes. They obtain their leather from the merchants in the bazar and return it in the shape of shoes, the usual remuneration being 12 annas to Re. 1-4 per pair. Boots and shoes are also manufactured with imported leather by the local Moochis at Santipur, Shikarpur, Ranaghat, Chuadanga, Alamdanga, Kushtea, Bheramara, Meherpur, Majdia and Krishnagar and the industry is progressing. They are sold locally and also exported to Calcutta. Leather saddles, shoes and purses are made at Shikarpur and Kazipur in the Meherpur subdivision by some expert Moochis.

#### **Sola Hat Making.**

About 200 to 300 families are engaged in this industry. They are Malakars by caste. In the Sadar-subdivision sola hats are made at Krishnagar and Pally, in Kaliganj police-station. The uncovered sola tops are sold by the actual makers at 6 to 8 per rupee. There are local dealers who purchase and send them direct to Calcutta.

#### **Biscuit and Loaf Making.**

Biscuit and loaf making is done at Krishnagar, Ranaghat and Majdia but the produce is not of a very high quality. The baking industry is likely to progress as there is every sign of people in Bengal taking to a more varied diet than rice.

#### **Bookbinders.**

There are two bookbinders at Goari Bazar who carry on a flourishing business. There are also some bookbinders at Ranaghat, Meherpur and Kushtea.

#### **Tin Box Making.**

This industry is now progressing at Krishnagar.

#### **Blanket Making.**

Blankets are made by a class of men called Bheriwallas who have emigrated from the United Provinces. Two or three families at Goari, 4 or 5 at Majdia, 10 to 15 at Maheshganj, 30 to 40 at Shikarpur are engaged in this industry. These blankets are consumed locally and are sold at Rs. 6 to Rs. 10 each. It takes about 7 days to weave a blanket. Blanket making is also carried on at Krishnagar, Meherpur and Swarupganj and the products are sold both locally and abroad.

### Rope and String Making.

Rope and strings of jute are ordinarily made by agriculturists who grow jute for their own consumption during their spare hours. Women of the poorer classes during their leisure hours are generally employed in rope-making in the Meherpur and Kushtea subdivisions. They are sold by weight which brings in a profit of 1 anna 6 pies to 2 annas per seer.

### Tailoring.

Tailors who cut out and sew garments are to be found in all towns and even in important villages in the district. They make shirts, coats, etc. Only at Krishnagar, Ranaghat, Kushtea and Kumarkhali tailor shops run by master tailors are found. The average earning of a village tailor ranges from 10 to 12 annas a day and those who have sewing machines Re. 1 or more. The average earning of a master tailor is between Rs. 30 and Rs. 50 per month.

### Murshidabad District.

#### Weaving.

Coarse cotton cloth is woven almost everywhere but the fine cloths are made at Simulia, Sirpur and Sonarnudi, while matka and ketê cloths are made at Teyan and Baidpur and are sold through mahajans and locally.

Silk weaving is also carried on at Panchthupi, Muniadihi, Haripur, Margram, Parulia, Gopinathpur, Baluchar and Islampur, the latter being famous for matka weaving. Baluchar silk sari weaving has considerably declined owing to change of fashion, while the lack of capital is another cause.

**Village Khagra.**—Both silk and matka are woven in Khagra, the principal fabrics being saris with borders (often striped and checked), chadars, gown pieces, dhutis and thans for suiting; the latter cloth is generally exported. Matka saris and dhutis are generally coarse and the mixed variety (of matka and khamru) is very suitable for men's suits.

Naksha or fancy weaving is rather rare, and is only done on requisition. The silk (khamru) used is generally local though Malda silk is occasionally imported.

There are about 40 families of weavers in Khagra and Berhampore, each family employing two weavers on an average. There are thus 80 looms, but some of these are partly engaged in weaving cotton. Most of the weavers get money or yarns in advance from their silk merchants and mahajans such as Messrs. D. S. Bhattacharjee & Co., S. S. Bagchi & Co., and others who live at Khagra bazar, and prepare fabrics according to their requirements. The weavers get a wage on each piece. Sometimes, however, the weavers work independently of mahajans, and dispose of their goods to merchants, shopkeepers or mahajans wherever they can command a good price. Some of the Berhampore and Khagra merchants have business connection with Madras, Bombay and Calcutta firms and through them with foreign countries also.

The average weaver can weave about 1 yard of dhuti or sari cloth in a day (of 8 hours) with the help of their family members. This brings in a wage of Re. 1 to Re. 1-8 or sometimes more per day.

In connection with the silk weaving industry, the following observations will explain to a certain extent the difficulties and requirements of the present situation:—

- (1) *Unsatisfactory reeling.*—The workers have no idea of the necessity of using the proper denier of silk for making the different kinds of fabrics, as is the case in the West. The workers do not seem to understand that the texture of their cloth depends on the proper standard and uniformity of thread nor do the reelers follow any uniformity in regard to the number of cocoons required for a yarn of a particular count.
- (2) *Ignorance of the use of dye-stuff and bad finishing.*—The silk weavers of most places and specially in Birbhum have little knowledge of the use of dye-stuffs and their methods of bleaching are also unsatisfactory.
- (3) *Inefficient appliances.*—Throw-shuttle looms are exclusively used for silk weaving as the weavers think that improved looms are unsuited for the purpose of silk and tussar weaving.
- (4) *Exploitation by capitalists.*—The weavers are practically enslaved to the mahajans. The ideas of co-operative work and general co-operation are foreign to them.
- (5) *Want of education amongst the weavers.*—Almost all the weavers are illiterate and their ignorance is proverbial in Bengal. They do not appreciate their own interests and view any activity calculated to help them with suspicion and incredulity. They are devoid of any sense of responsibility and cannot be relied on to execute an order in proper time.

A Government silk weaving school at Berhampore equipped with modern machinery has been established and it is calculated that this school will do an immense amount of good to the whole industry, by bringing home to the workers the defects of their existing methods of work and teaching them the use of improved machinery. A series of demonstrations in silk weaving on fly-shuttle looms and other appliances given in the important centres of the industry, will help very considerably in uplifting the workers and ameliorating their present conditions.

#### **Blanket Weaving.**

Blanket weaving is carried on at Panchthupi and Panchipara in Barwan, Gopalnagar, Alamsahi, Sherpur and Ramnagar and are sold locally. The industry is carried on by a caste called Figirs and the quality of the blanket produced is coarse.

#### **Embroidery Work.**

**Berhampore.**—The embroidery of weaving apparel with silk and cotton thread has almost died out. There are only two or three people left at Murshidabad who know phulbati, zardosi, and kamdani work

and still carry it on. At one time, it is said, this industry afforded a livelihood to more than 100 families in the city of Berhampore. The Muhammadan aristocracy and the more well-to-do citizens of this place always had their costumes embroidered with silk thread. The ornamentations used were mainly composed of flowers, fruits, birds and other conventional designs. The ornamentation of a chapkan with an intricate design took one workman from 8 to 10 months to finish and the wages he earned amounted to as much as Rs. 150 or Rs. 200 for such a piece of work.

Munshi Anayet Hossain and Zaffar Hossain, Khodi Sheikh, Ahamed, who earned name and fame in this art still indulge in it during their spare time. Most of the other families who carried on this work for generations have now given it up.

Some ladies of Muhammadan households even now indulge in this art in their spare time. They, of course, do not work for remuneration, but take pride in having all the clothing of their family members embroidered as far as possible.

**Sujni Work.**—This industry is carried on at Berhampore by the womenfolk during their leisure time. The designs which are composed of flowers, fruits and birds are worked on white nainsook or mulmul with coloured thread and a needle. These are used as bed sheets but are rarely found in the markets for sale.

#### **Salma Chumki and Gota Work.**

There are a few persons at Murshidabad who can make designs of gold threads on velvet and silk cloth. The art is however languishing for want of tape worked in gold and silver threads. Gotamala is also made at Murshidabad but there is no regular market for any of these industries.

#### **Manufacture of Brass and Bell-Metal Wares.**

**Village Khagra.**—The bell-metal wares of Khagra have earned a great reputation for themselves. The high skill and workmanship are the valuable assets of the artisans of this place.

There are about 50 small workshops throughout Khagra and Berhampore, each employing 8 men on an average. The headman is a skilled artisan and is often the owner of the factory. He generally works at the forge. The workmen get a bani (or wage) according to the quantity of the metal each (or a group together) works up during the day, consideration being given at the same time to the nature of the work. The average earnings of a workman amount to about Rs. 22 per mensem.

The headman, who is directly in touch and responsible to the mahajans, earns much more. He is allowed a wage at the rate of Rs. 4 to Rs. 5 per seer on the weight of the finished products, and is responsible for the return of an equal quantity of finished metal, weight for weight, of the raw material supplied by the mahajan, no consideration being made for the wastage of material during the operations. Raw materials are supplied in the form of broken and worn-out wares collected from the mufassal.

The workers of this place, particularly the headman, seem to be much better off than their brethren at Vishnupur, Bankura, Kharar

and other important centres of the industry in the Burdwan Division. The reason being that the mahajans have a lesser hold on the workers and in consequence the workers are also less indebted to the mahajans.

Highly finished thalis, tumblers and cups are the specialities. Tea cups, ash trays, flour vases and many other ornamental wares are to be seen in the Khagra shops.

Bell-metal is composed of two parts copper and two parts tin while the brassware is composed of copper and zinc in varying proportions. In this district the alloys are generally imported from Calcutta. Broken and worn-out wares are also collected from the mufassal and often used as the starting material. Brass jars, lotas, garus, etc., are manufactured by smelting the metal and casting it in earthen moulds, which are prepared by the women-folk generally. Each mould is used once only. As regards the bell-metal wares, such as thalis, cups, etc., these are always beaten out into the requisite shapes by alternately heating the metal in a forge and then hammering it out on an anvil.

The wares are then scraped, chiselled and polished with the help of a lathe and a polishing oil.

The industry is also carried on at Kandi town where the workers are limited in number and their resources are small.

#### **Bamboo Work.**

Cane and bamboo moras (short chairs), bamboo lathis, baskets and screens are made in Murshidabad and sold locally. Bamboo screens (chiks) are also made in Khargram police-station in Kandi subdivision.

#### **Ivory.**

**Berhampore.**—There are five Bhaskar families in Khagra, Berhampore, who are engaged in ivory work. Each of these families employ about a quarter dozen of workers on the average and produce such articles as toy images, vermilion pots, small combs, safety pins, etc. They often find a local sale and sometimes send their produces to Calcutta, Delhi and the Punjab.

Each workshop consumes about 150 lbs. of raw material during the year and this is purchased in several instalments from the ivory merchants of Banstolla Lane, Calcutta. The shop-owners seem to be rich people. Workmen are paid at the rate of Rs. 15 to Rs. 30 per month.

About 20 men at Jiaganj are also engaged in ivory carving.

#### **Steel Trunk.**

A new steel trunk factory has been established at Bhagawangola. Steel trunks and boxes are also made at Simulia in Bharatpur police-station but the limited resources of the workers do not allow them to produce finished articles of high order. At Jiaganj trunks, safes, chests, despatch boxes, tubs, dustbins, etc., are made.

## Jessore District.

### Weaving.

The chief centres of weaving in the district are Kotchandpur, Jessore, Madhyakul, Keshabpur and Rajarhat. Weaving is also carried on in Siddhipasa, Lakshmipasa, Dhandia, Salberia, Attapole, Bidyanandakati and Nilganj; about 130 families of weavers in Siddhipasa have specialised themselves in the weaving of fine chadars, mosquito curtains and coloured check cloth known as "relly dooray." The number of cotton weavers employed in the district is approximately 7,500.

There is a hat at Madhyakul which is held every Friday and the products of hand-loom are sold there. It is situated on the way from Jessore to Keshabpore and is about 18 miles from the former. This hat is chiefly controlled by mahajans who obtain their requirements from the weavers in exchange for yarn and cash and send them to the Howrah hat, Ramkristopur, for sale. This is the chief outlet for the products of hand-loom weavers in this district. The rest is taken by merchants from Faridpur, Bakarganj and other neighbouring districts along the river routes.

### Fishing Nets.

Fishing is an important occupation of the Jessore district. The nets used are made by the fishermen. Yarn or twine used in the making of these nets is spun by means of a takko.

The nets after being woven are immersed in a decoction of gab fruit and oil to render them waterproof. They are sold in Trimohini and Pawahati on hat days.

### Hooka Tubes.

About 100 men are employed in turning out tubes for hookas near Keshabpur. These are exported to Calcutta the chief market being Natun Bazar and Hookaputty.

### Date-Sugar and Gur Industry.

**Sugar.**—This industry is conducted on a rather large scale by the usual indigenous methods in several centres in this district notably on the banks of Kabatak, Nabaganga, Chitra and Bhairab. The names of Kotchandpur, Tahirpore or Tarpore, Chaugacha, Jhikargacha, Keshabpur, Kaliganj, Fultola and Fakirhat require special mention.

This industry has suffered to a great extent on account of the high price of its product in comparison with foreign sugar. The Tarpur sugar works have completely closed and a large number of Kotchandpur works have stopped. The present production at Kotchandpur hardly exceeds 20,000 maunds in place of a lakh of maunds. The industry in its present condition can hardly thrive.

**Gur.**—About 2,500 acres of land in this district are under sugarcane cultivation and gur is made from sugar juice. Most of the gur is consumed by local people and a portion is exported to Khulna, Barisal and Noakhali. The price is Rs. 10 to Rs. 12-8 per maund and the average outturn per acre is 36 maunds. It is progressing.

### **Combs, Buttons and Brooches.**

The manufacture of combs, buttons, brooches and other ornaments from mother-of-pearls and oyster shells at Chaugachi in Magura subdivision is still carried on in a small way.

### **Pottery.**

Apart from the ordinary articles made by the village potters the manufacture of tiles of Raniganj pattern at Amtail, Nohatta Borai and Dorisalai in Magura subdivision and in Benda in Narail subdivision is followed with success.

### **Cart Wheels.**

Cart wheels are manufactured throughout the district and is a thriving industry.

### **Panshi Boats.**

Small panshi boats are made in Bongoan and Narail subdivisions.

### **Nalmats.**

Manufacture of nalmats is a typical part time cottage industry and it exists at Nandoali, and Magura in Magura subdivision.

### **Sola Hats.**

Hats of sola pith are prepared by the people of mali class living in Bazrapur and Kharinsha in Bongoan subdivision and are sold at Ranaghat and other places.

## **Khulna District.**

### **Cotton Weaving.**

The chief centres of weaving in the district are Phultola, Bardal, Moorleganj, Elaipur, Bagerhat, Manguria and Dumria.

Tantis, Jugis and Jolas carry on this industry in many parts of the district, the outturn being mostly coarse cloths which are liked by the masses. The Tantis of Phultola and Jugis of Elaipur, however, produce improved and fine varieties. The latter have recently formed a co-operative society in which joint purchase has been introduced but not joint sale.

The fine weaving done in the Satkhira subdivision is reported to be decaying. For the manufacture of the finer fabrics imported yarns ranging from 40's to 150's are used, while for medium and coarse fabrics Indian mill spun yarns are used.

The number of cotton weavers employed in the district is about 5,000.

**Weaving at Kandarpa, Bagerhat.**—There is a co-operative society here started by two gentlemen. It was started as a home



industry and coatings and shirtings were produced by hand-looms. Dyeing was also done in the factory. The finished articles were much in demand in the market. It was soon found out that hand-loom was inadequate for the purpose, and power looms have recently been introduced. This enterprise is doing well.

#### **Cutlery.**

This industry is scattered all over the thanas Kaliganj and Shamnagore. Daos, scissors, nut-crackers, sacrificial knives, etc., are the chief products. The present products do not enjoy the reputation of the past.

#### **Pottery.**

Excluding from consideration the ordinary earthenware which is made in very many places by the village Kumars, the pots and jars of Kaliganj have earned a reputation beyond their immediate neighbourhood. The black pottery work of Debhatta is decaying for lack of adaptation to modern requirements but the capacious black jars which have very little finish are stated to be very useful.

#### **Mat.**

**Assasuni.**—Mats are prepared out of a sort of reed called malia grass. The products are coarse and the industry maintains a large population of the tract which is known to be famine area of the district. It serves as a subsidiary occupation to the agriculturists.

#### **Conch-Shell.**

The Sankaris of Taltala, Jalalpur and other places carry on this industry on a small scale. The former have formed a co-operative society.

#### **Sugar Manufacture.**

This industry is rapidly decaying, even two decades ago there were numerous factories producing molasses and sugar of different varieties. Now, mention may be made only of Gazirhat, Chuknagore and Patkelghata where this industry is still pursued.

#### **Boat Building.**

This natural industry of the district is not thriving owing to the greater use of steamship communication. The industry is however still alive in Debhatta, Kaliganj, Mohishkur, Mollahat and Bagerhat.

#### **Hooka Pipe Manufacture.**

Naicha (the wooden tube of the hooka) making is an industry of recent growth extensively resorted to by the artisans of Daulatpur and Phultola thanas on the banks of river Bhairab. These are exported in large quantities to Eastern Bengal.

**DACCA DIVISION.****Dacca District.****Cotton Weaving.**

The Principal cottage industry in the district of Dacca is the weaving of cotton. The weavers may be divided into two broad classes, viz., the skilled weavers of specialised cloths, and the weavers who weave cloths for domestic use. Under the former class may be mentioned those who weave muslin, figured muslin, i.e., jamdanis kasidas and fine saris. The weavers of these cloths are practically limited to the Dacca City. Under the latter category come the Tantis, Jugis and Jolas who are scattered all over the district. They weave coarse dhutis, saris, chadars, lungis and gamchas. The Tantis (Hindus), the Jugis (Hindus) and the Jolas (Muhammadans) are the principal castes engaged in this industry. The persons actually employed in weaving are regarded as being more or less inferior in social position. The Tantis practically limit themselves to the weaving of all the finer qualities of cloth and have an abhorrence for agriculture, but the Jugis and Jolas, who generally weave the coarser kind of cloth, have taken to agriculture as a secondary occupation, as they cannot earn a living wage by the manufacture of these cloths.

The mahajans and the beparis supply the weavers with raw material, i.e., yarn, and take over the finished products from them, paying them wages at the lowest rates possible. In fairness to the mahajans it must be admitted that this system is not without some advantage. It saves the weaver the trouble of obtaining his raw material and selling his products. The mahajans often help the man by paying him wages in advance and giving him loans if required. But the fact remains that the major portion of the income goes to the mahajan and the manufacturer, i.e., the actual weaver, is left in poverty and ignorance. A very limited number of weavers are in a position to purchase their yarns from the retail dealers at Dacca and Narayanganj and to sell their finished products direct to the purchaser.

**Dacca muslin.**—Dacca was once celebrated for its muslin. The manufacture of these world-wide famous Dacca muslins has now practically ceased. The cotton for these muslins was formerly grown in the locality. It was spun and woven into muslin at Dacca, but these weavers have died out and with them the industry also. There is little or no demand for these muslins now-a-days. The muslins which are at present manufactured at Dacca are made with imported yarns and are of inferior quality. The imported machine-made yarns vary from 300 to 400 counts. There are at present only 3 Dacca muslin weavers in Nawabpur. These muslins being costly are generally purchased by Rajas and Nawabs on marriage occasions and sometimes by Europeans as curios. It may be said that the muslin industry has practically died out.

**Figured muslins.**—These cloths are known at Dacca as jamdanis. The ornamentation is done during the process of weaving by inserting an extra coloured weft into the cloth to form the figure or ornamentation, the design of which is drawn on paper as a guide to the weaver. The cloth is begun as in the case of an ordinary cloth.

but as the weaving goes on the weaver continuously raises the pattern paper to ascertain if he has approached the place where the design has to be brocaded in and when the exact place is reached he takes his needle (a piece of bamboo with the supply of coloured weft wound round it) and weaves it into the cloth where the pattern is required. Two persons generally work together to save time and labour. The best jamdani is called sheborga jamdani, and its price ranges from Rs. 50 to Rs. 125. Another variety of jamdani called jaladar jamdani having patterns of floral designs woven, as described above, is found in Dacca. A special feature of the jamdani saris is their fine ornamental borders of gold and silver thread, with large fold corner pieces. The jamdani saris, dhutis and uranis are prepared chiefly in Nawabpur and at two or three other houses at Tanti-bazar and Kaltabazar in the Dacca city. These jamdani saris of Dacca are also very largely woven in the interior of the district, viz., at the villages of Demra, Siddhiganj, Katchpur, Dhamrai, Nantee, Terabo and Nawpara. At these villages most of the weavers have taken to agriculture along with their caste occupation and consequently sell these articles cheaper than the weavers of the Dacca town itself. The looms used in the manufacture of these cloths are primitive in construction and the shuttle is thrown by hand.

**Ordinary Dacca saris.**—The ordinary Dacca saris have got a very fine embroidered border either of gold thread or dyed thread. These cloths are manufactured in the following localities of the town of Dacca:—Nawabpur, Takerhat, Mahajanpur, Kaolipara, Goailara, Lalchand Makim's Lane, Banagram, Wari, Kaltabazar and Tanti-bazar.

These saris are also expensive and vary from about Rs. 5 to Rs. 50.

In the city of Dacca the looms used are also very primitive but they are employed in manufacturing cloths of all kinds and qualities. Since the last few years, however, a few of the weavers have adopted dobbie and draw-boys in conjunction with their primitive looms to expedite the ornamentation of their dhuti and sari borders. The yarns are of various counts up to 400's, the higher counts being used only in the manufacture of muslins. In manufacturing plain bordered cloths, threads of 100 or 120 counts are generally used and are obtained in the local markets. A weaver can weave  $2\frac{1}{2}$  to 3 cubits of ordinary cloth per diem. They generally work from 7 to 12 a.m. and from 3 p.m. till dusk. In most cases the mahajan advances the money and material. If the sale price of a dhuti be taken at Rs. 5 the manufacturer usually gets Rs. 2 and the middlemen Re. 1, the price of the material used being Rs. 2. Dacca saris are also made at Abdullapur, Dhamrai and Baliati. The weavers at these villages have taken to agriculture as their secondary occupation and hence they can sell their products cheaper.

**Ordinary dhutis, saris, etc.**—As already stated the ordinary coarse dhutis, saris, chadar, lungis, gamchas, etc., are manufactured by the Jolas and Jugis who are scattered all over the district of Dacca. The centres of this industry are in the following villages:—Abdullapur, Mireswar, Kumarbhog, Kazirpagla, Medinimandal, Dakshin-paiksha, Haldia and Simulia in the Munshiganj subdivision; Demra, Siddhiganj, Nawpara, Rupsia, Algi, Ghorashal, Mulpara, Harihardi, Sanmandi and Sultansadi in the Narayanganj subdivision; Rohitpur,

Sivarampur, Rajapur, Dhamrai, Mukshudpur, Dohar, Sutarpara, Joypara, Raipara, Barrah, Galimpur, Bakshanagar, Bardhanpara, Paragram, Fathenagar and Konda in the Sadar subdivision; and Bhatara, Jagannathpur, Garzana, Baliati and Rajarkalta in the Manikganj subdivision.

There are about 2,000 weavers engaged in weaving in the Sadar, 1,200 in the Manikganj and 13,000 in the Munshiganj subdivisions.

In the villages mentioned above, chadars, dhutis, saris, lungis and gamchas are manufactured on hand-looms. Of recent years the output of such cloths have much increased owing to the large demand from outside. The popularity of these cloths is due to the fact that they satisfy the taste of the middle classes who are the chief consumers of these commodities. The weavers use imported yarn especially of British make which they purchase in the open market. An ordinary cloth which in pre-war days cost Re. 1 or Re. 1-2 for the yarn now costs him Rs. 3. These cloths would formerly sell at Rs. 4, but now at Rs. 6. The result is that a weaver who earned Re. 1-4, cannot now earn more than annas eight to ten per day as it takes him at least 5 days in completing a 10 cubit cloth including the time required for setting up the warp, which requires at least 2 days, and 3 days to weave it. The weaver takes up a set of 8 cloths together and it takes 40 days to finish the whole set. Thus, if he sells at Rs. 6 per piece it fetches him Rs. 48 and he has to pay Rs. 3 per piece for the price of the yarn, i.e., Rs. 24 for 8 pieces, leaving Rs. 24 as his remuneration for labour, which means that he earns 10 annas a day of 7 or 8 hours. This is the income of an expert weaver which is much above the average. The ordinary weavers cannot earn more than 6 annas a day. The weaver works at the loom practically the whole day with intervals of rest. Generally he starts at 6-30 a.m. and works till 10 or 10-30 a.m. Then he goes to the bazar for buying the necessaries for his daily consumption, works an hour or so at midday till his food is prepared and then takes a little rest and is again at his loom from about 3 p.m. till dusk.

In the district of Dacca the weavers mostly use pit-looms. Fly-shuttles have also been introduced to a limited extent through the medium of the Peripatetic Weaving School. The domestic hand-loom made by Messrs. Hattersley & Sons are used only in the villages of Satirpara, Algi, Mulpara, Sultansadi, Harihardi and Sanmandi and Ghorashal in the Narayanganj subdivision. Many students and men of the bhadrolog class have purchased fly-shuttle looms and have commenced working as weavers since employment is difficult to get. Some of them have also extended the use of fly-shuttle looms among the local weavers.

The Narayanganj Iron Works and the Sarma Iron Works of Dacca make automatic fly-shuttle looms and repair the parts of Hattersley's loom when out of order.

There is no organisation for the sale of the cloths among the weavers. They either sell direct to the purchaser or make it over to the shopkeeper who advances the money. In the latter case it is sold a little cheaper. The shopkeeper or the middleman makes a profit of 2 annas in the rupee on the purchase price. The manufacturer gets nothing but the value of his labour. Very few of the actual manufacturers sell direct to the purchasers at the neighbouring hat.

The present economic condition of the weavers is far from satisfactory. The main reason is that even if the workers work hard they cannot earn sufficient for their livelihood and the maintenance of their families. The distress is not so keenly felt in the rural areas where the cost of living is less. The income of an expert weaver is 10 annas a day of 7 or 8 hours, whereas the ordinary weavers do not earn more than 6 annas a day by working the whole day.

The general condition of the industry can be improved by removing the present shortcomings which are as follows:—

- (1) None of them can work during the rains as they cannot set up the warp outside.
- (2) Want of knowledge as to the actual price of yarn cloth and market.
- (3) More fly-shuttle looms should be introduced in the villages.
- (4) The use of dobbies and jacquards should be spread wherever possible.

To improve this industry it is suggested that the opening of co-operative societies among the weavers in each of the principal weaving centres and also industrial banks in each thana from which yarn could be supplied to the actual manufacturers on more favourable terms than at present, should be encouraged. A sale depôt should also be started in each subdivision. The industrial banks should purchase their output from the weavers. They should pay a certain percentage of the price to the weavers in cash and forward the stuff to the sale depôts which will sell them. The weavers should be paid in full as soon as their cloths have been sold after reserving a small percentage of commission to meet the working expenses of the banks and the depôts. This system, if satisfactorily worked out, will do away with the middleman and will no doubt improve their general economic condition to a great extent. One industrial co-operative union has been started in Dacca on these lines.

Industrial banks should also supply to the weavers improved looms, warping machines, etc. (with which the maximum work may be done with a minimum of labour), at cheap rates and on the hire-purchase system.

Weaving schools should be started at each of the district headquarters where dyeing, bleaching, spinning and weaving on improved lines should be taught.

### **Dacca Embroidery.**

This includes all varieties of embroidered muslins, tea and table cloths, kumarbands, turbans, handkerchiefs, etc. This is a specialised branch of needle-works. It consists of fine embroidery done in relief on white cloth or linen. The groundwork of these embroideries is generally woven in villages Shannara, Dagar, Beliswar. The peculiarity of Dacca embroidery is that it is never done with cotton threads. The designs are always worked out with silk threads (either mulberry silk or muga silk from Assam) on pure cotton or bafta (i.e., cotton and silk) cloths. When the material used, as groundwork, is a white cotton cloth, Assam or muga silk is invariably used, but when the designs are to be raised on garad, or tussar, Murshidabad silk

yarns are used. Another peculiarity of the Dacca embroidery is that the designs to be worked out are printed on the cloths with wood-blocks.

There are two varieties of embroidery done at Dacca, namely, (1) the chicon work proper, and (2) kasida. The fundamental difference between these two embroideries is that in the case of chicon work the designs are worked out with twisted silk-threads, while in the case of kasidas the ornamentation is done with untwisted muga silk thread.

The chicon work proper is done by the cottage workers at Demra, Narisha, Matuail, Siddhiganj, Nawpara to orders placed with them by the mahajans of the Dacca city. In these villages the work is mostly done by women of all classes, a large percentage of them being widows. Some of it, however, is done by males belonging to the cultivating class during periods when they have nothing to do in the fields. The Basaks, Tantis, Goalas, Pals, Baniks and Shahas, who are permanent residents of the town, devote much of their time to making kasida cloth. These cottage workers supplement their ordinary income by doing this work during their leisure hours which consists of 2 or 3 hours a day. Their average earning in normal times is Rs. 4 to Rs. 5 per month and the utmost a single karikar can earn after doing his domestic duties is Rs. 7 to Rs. 8 only. There are three classes of people who are directly engaged in this trade. They are the (1) mahajans (capitalists), (2) ostagars (middlemen) and (3) karikars (the actual cottage workers). The mahajans are not like ordinary money-lenders. They are directly engaged in the trade, and they are the people for whom the work is done by the karikars at their own homes. At present all the mahajans belong to some big Basak family of Nawabpur in the city of Dacca. The mahajan enters into a contract with the ostagars to supply him with a required number of articles at a certain piece-rate. The ostagar takes over the silk threads and the cloths with designs printed on them from the mahajans and distributes them to the karikars and is responsible for the completion of the work. The remuneration given to the karikars varies according to the quality of the work required to be done. The ostagars collect the articles from the karikars as soon as they are finished and make them over to the mahajans when payments are generally made.

There is little demand for these articles in India. The mahajans generally export these articles to Turkey, Arabia, Algeria, Tunis, America and Paris. Sometimes the mahajans send their goods direct by postal parcel and sometimes through firms at Calcutta and Bombay. The industry was in a prosperous condition some 50 years ago, but at present it is practically moribund. Formerly there were from 100 to 150 mahajans engaged in this trade, but now there are only half a dozen of them, of whom only 3 or 4 firms are doing the business on a moderately large scale

The decay of the industry is due to the following causes:—

- (1) The kasida turban was in great demand in Turkey some years ago and was the head-gear of the people. Since the introduction of fur caps which have replaced the kasida pugrees, the export to Turkey has declined to a very considerable extent.
- (2) The people of Bagdad have established the industry in their own country and the turbans are now being made there.

- (3) The participation of Turkey in the last war and her joining hands with the Germans had the effect of practically stopping the trade with Turkey in these cloths.
- (4) The Luxury Bill passed by France prohibits the import of all articles of luxury from foreign countries and their chicon and kasida works have been included in the list of luxuries.

### Conch-Shell.

The chank industry is one of the oldest industries in Dacca. The bangles prepared from the chank have from ages been looked upon as indispensable articles of dress in the case of married Hindu women. Thus the demand for these bangles, coming from almost all the Hindu families has kept this industry alive. These bangles are used all over the country, and in every district there are people who make them. The chank bangles of Dacca are distinguished from the bangles made elsewhere by their superior workmanship. The shells are also made into churis, bracelets, chains, rings, buttons and similar articles. The better class bangles are set in gold with pearls, rubies and other precious stones, which enhance their price and beauty. A set of churis, two for each hand, are worn by the better class Hindu ladies. The price of a set of plain churies varies from annas 10 to Rs. 4, but when ornamented with gold and set with rubies, etc., its price is considerably enhanced.

This industry is in the hands of the Shankharis who form a distinct caste by themselves. Some are very rich but the bulk of the people are poor. They live in Shankharibazar, which is in the city of Dacca. It is a narrow darF lane crowded on both sides by small shops where the manufacture as well as the sale of the bangles is effected. About 2,000 people are engaged in this industry. In the village Krishnapura in the Manikganj subdivision 3 persons do conch-shell work and earn on an average of Rs. 10 per mensem.

The chank industry of Dacca is carried on practically on a factory basis. The bangles have to pass through different stages in the process of manufacture. One man does not complete all the processes himself. The spiral core inside the shell is broken out by a person who is expert in this particular work and does not assist in any of the other stages of manufacture. The man who cuts the shells is an expert in his job and he limits himself to this work. After the shell has been cut into rings the polishing of the outer surface is done by rubbing it on a flat sand stone, and the inner side is polished by rubbing it against a sand covered mandril. The polishing of the bangles is sometimes done by boys. The ornamentation of the bangles is done by expert karikars with fine simple tools. From one shell usually four bangles are made but sometimes one shell is cut into six or eight bangles depending on the size of the shells. The two middle bangles form a pair. The two side bangles cut from one shell form a set with two sides one cut from another shell. Rings, buttons, small figures, etc., are made out of the parts that are left after the bangles have been cut out. Out of the spirals beads are made. The filings and chippings of the shells are sent to Malda and other places where the people purchase it at Re. 1 to Re. 1-8 per maund for making lime. The filings obtained in the process of manufacture are said to cure small-pox and are also used for medicinal purpose.

The conch-shells which form the raw material of the industry come from several places, viz., Ceylon, Madras, the Travancore coast and the Baroda State. The largest supply, however, comes from Ceylon but the Travancore coast and Baroda State supply a specially good quality of shells known in the local market as "Doani" and "Surti," respectively. The total annual purchases from these two sources is about 20,000 shells as compared with 10 to 11 lakhs from Ceylon and about 5 lakhs from Madras. The Dacca workers prefer white shells to those of a reddish hue. Travancore shell therefore ranks first on account of its colour and uniform size. The next in demand are the shells obtained from Tuticorin and Baroda. The Dacca Shankharis do not care much for the Ceylon shells on account of their reddish colour, but they are utilised in the making of lower grade bangles, etc. The shells obtained from the Ramnad fishery, although said to be slightly inferior in quality to the Tuticorin shells, are also used by the Dacca workers. To sum up: the largest supplies are obtained from Tuticorin and Ramnad; those from Baroda and Travancore follow next, but in point of quantity they are negligible. The total quantity of conch-shells supplied to the Dacca market from different sources is from ten to twelve lakhs annually.

The three Madras firms, viz., O. S. M. Mahammad Tambi, J. N. Saik Mahammad and K. Venkatasalam Chetty, control the supply of Ceylon, Travancore and Baroda shells; while Messrs. J. B. Dutt and Hemchandra Kar control the supply of the Tuticorin and Ramnad shells. Recently the Shankaris have formed a co-operative society called the Sankha Shamabay Samity. The Department of Industries has evolved a machine for the cutting of the conch-shell bangles by a disc driven by mechanical power and a demonstration of its work has been given successfully at Dacca. As a result several such machines have been installed and are at present working at Dacca. The Department also helped the co-operative society in procuring Tuticorin shells direct from the Madras Fishery Department at a concession rate for several years.

#### Button Industry.

**Mother-of-pearl buttons.**—The manufacture of mother-of-pearl buttons is another important cottage industry of the district of Dacca. There are about 50 people who make these buttons at home in the villages of Narinda, Faridabad, Ekrapur and Sutrapur. The chief place of business, however, is at Nangalband and the principal villages where these shell buttons are manufactured are situated within a short distance from each other in the Narayanganj subdivision. In villages Nangalband, Lalati, Kamargaon, Jindhara, Tajpur, Madhabpasea, Kuchharitra Malikpara Kaivtala and Barapara about 2,000 people are employed in the manufacture of buttons. At these villages buttons of various kinds are manufactured and men, women and children work at them. The work of button making is largely done by women. The men merely cut out suitable pieces from the shell and the rest of the work is done by women. Besides the above there are a large number of amateurs who make buttons during their spare time. These cottage workers thus supplement their income by making buttons.



In Eastern Bengal the principal fisheries are situated in the small rivers, canals, bils and tanks. The central pearl and shell market is at Demra in the district of Dacca. The shells are either bought direct from the fishermen or from merchants in Demra, Dacca city, Nangalband and Narayanganj. The Sylhet shells are sold at Rs. 3 to Rs. 4 a maund; the shells taken from the Tugar river are sold at Re. 1 to Rs. 2 per maund.

The instruments used by the workers are very crude and their method of work is simple; the instruments include—

- (1) a pair of cutting pliers,
- (2) an ordinary file,
- (3) a hand drill with bits of different designs,
- (4) a hand drill for making the holes,
- (5) a small hand-driven grindstone mounted in a wooden trough containing water in which the stone revolves,
- (6) a wooden box or a small packing case about a foot high which serves as a low table for the operator who works sitting on the ground. This is covered with a piece of gunny which serves to secure the buttons during the grinding, drilling and other operations.

In preparing the buttons, the operator first cuts the mussel shells with a pair of cutting pliers into pieces about  $\frac{1}{2}$ " to 1" square. These are then placed on the piece of gunny cloth which is spread over the wooden box. This gunny cloth prevents the pieces of shells from slipping during the operation of cutting and drilling. The pieces of the shell are marked or partially cut with the end of the hand drill and bit. The edges are next trimmed off with the cutting pliers, or with a file and finally they are rounded off and finished by means of grinding stone; the button being held with one hand and the stone rotated with the other. Two or four holes are then drilled in the buttons according to requirements. The principal market for the manufactured buttons is at Nangalband where markets are held every Friday. All the button-makers in the manufacturing villages bring their products to this market for sale. Some of the button workers however bring their buttons for sale to the Dacca market in the hope of getting a higher price for them.

In the town of Dacca there are a good many middlemen who advertise themselves as manufacturers of mother-of-pearl buttons. As a matter of fact they are not manufacturers. Whenever they secure an order from outside they go to Nangalband to buy buttons as far as possible according to samples which they supply to their customers. Sometimes it happens that they do not get buttons exactly like the sample ones supplied by their customers. The result of this is that the customers get dissatisfied. The middlemen then change the names of their firms, and by substituting new names secure fresh business. The buttons as manufactured by the cottage workers are not of uniform shape, size and thickness nor are the holes in the buttons equidistant from each other. To remedy these defects the buttons manufactured should be standardised and there should be a sale depot. The formation of a co-operative industrial society amongst these cottage workers is essential, before any general improvement in the manufacture and sale of the shell buttons can effectively be introduced.

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But the question of finance is a difficult matter. In addition to pearl buttons, various kinds of ornaments such as ear-rings, nose-pendants, hair ornaments and watch chains are manufactured from mother-of-pearl shells in the suburbs of the Dacca town. These however are not made on a large scale. If large quantities are required, they have to be specially ordered. Most of the instruments used in the manufacture of buttons are also used in making the other articles referred to above as ornaments, the only additions being a special drill and a few files.

**Horn buttons.**—There are about 100 people engaged in manufacturing buttons from horn at the following places of Dacca city, e.g., Choudhuribazar, Amligola and Nawabganj. They are all Muhammadans by caste. The buttons are made from the solid portions of the horn. They use practically no machinery. The horn is first chiselled off to give it a cylindrical shape. It is then fixed by means of a clamp to a hollow horizontal spindle fixed in bearings round which passes a fiddle string by which it is made to rotate. Buttons are cut out of the solid horn by bringing a chisel to bear against it while revolving. The polishing is done with a leather dipped in a composition of charcoal and oil which is brought into contact with the buttons on the lathe while revolving. This gives the buttons a polish. No buffing is done. The holes in the buttons are drilled by a bow-drill. The cottage workers obtain the solid portions of the horn from the local manufacturers of horn combs. The buttons are well made but there is very little demand for them. These button-makers also make toys and snuff boxes nicely engraved from solid horns.

**Metal buttons.**—Gold, silver and brass buttons are manufactured by Messrs. S. N. Basak & Sons, at 35/36, Nawabpur, Dacca. There are about a dozen persons employed in this industry. The process of manufacture is kept a secret. The raw material is said to be obtained from Calcutta. The finished buttons are sold through agents.

**Horn combs.**—There are some 40 people at Amligola and Churihatta in the suburbs of the city of Dacca, who manufacture horn plates. They are all Muhammadans by caste. They get their supply of horns from the wholesale merchants in Calcutta. The process of making horn plates previous to their being made into combs is very simple. The hollow portion of the horn is separated from the solid by cutting it transversely with a hand saw. The solid portion is disposed of for the manufacturing of horn buttons and toys, etc. The hollow portion of the horn is then cut longitudinally into 2 pieces. These pieces are then put on a charcoal fire. When the horn is sufficiently heated and has become soft it is flattened with iron tongs. When the horn is partially flattened out and is still soft some heavy weights are put on it to flatten it further. The charred portions of the horn plate are then removed with an edge after the plates have cooled down. From these horn plates buttons and combs are manufactured.

Buttons from horn plates are made at the Narayanganj Button Factory and the Dacca Coronation Button Factory.

There are 50 cottage workers in Churihatta, a suburb of Dacca, where they make combs from horn plates. They cut the horn plate to the required size and then with a hand saw the teeth of the comb

are cut. Sometimes, some of the combs are ornamented. They are then finished and polished by rubbing them with a brush dipped in oil and charcoal powder. These combs are very strong. They have an extensive sale in the mufassal villages.

### Match Industry.

In the district of Dacca safety matches are manufactured by the following firms:—

- (1) Govinda Match Factory at Paikpara, Narayanganj.
- (2) The Narayanganj Industrial Company, Narayanganj.
- (3) The Bharat Mata Match Factory at Dacca town.

They use a hand machine devised by Dr. Nandy of Comilla for the making of the match splints and boxes. The total number of labourers engaged in these factories is about 60. Besides these workers there are a large number of poor villagers, especially women and children, who are employed on piece work (e.g., pasting match-boxes and labelling the same, etc.) in connection with this industry.

The wood used for the sticks and boxes is chhatian, kadam, debdaru, barun and simul. Three machines are generally employed. They are practically the same in principle. The first machine slices the wood into the required thickness of the match sticks. Several of these slices are then placed one above the other in the second machine which cuts them in match sticks. The third machine slices the wood for the match-boxes and makes them with a partial cut where the folding is to take place for the four sides of the box. The match sticks or splints when cut from the block of wood are long enough for two. These splints are then tied together into bundles and put over a heated iron plate to carbonise the ends. The ends are then dipped into liquid paraffin wax, for about a quarter of an inch from the ends. After this the bundle is united and the sticks are arranged in frames to be tipped into a prepared paste containing the igniting substance, e.g., manganese dioxide, potassium chlorate, sulphur and fine sand and glue. The tips are then allowed to dry a little after which the sticks are cut into two equal pieces. The match sticks so prepared are dried in the sun and are then put into boxes. The paste on the prepared surface of the boxes contains red phosphorous, manganese dioxide and glue. The matches are stored for a month or so before they are sold to the public. The daily outturn is 8 or 10 grosses.

The system of framing the sticks previous to tipping process is rather laborious and tedious.

Neither the match heads nor the striking surfaces of the box are damp-proof. When the matches are struck or rubbed against the prepared surface, the match heads come off and the paste on the striking surface rubs away. If the matches are stored for 3 or 4 months the match heads seem to improve a little but they are not perfectly damp-proof and the match sticks get dirty, their lustre disappears and fungus growth develops on them.

As regards the wood the proprietors of factories generally get their supply from distant places and collect a sufficient quantity for one year's consumption. When the wood gets too dry, the sticks cannot be cut from it easily.

The manufacture of matches as a cottage industry with the aid of hand machines cannot stand in competition with the large factories employing up-to-date machinery and steam power to drive them. It is doubtful if these small factories in Dacca work continuously.

### Brass and Bell-Metal Industry.

In the town of Dacca there is a colony of braziers and copper-smiths at Thataribazar who make bell-metal ware for domestic use. In the interior of the district the industry is carried on at the following centres:—Brahmangaon, Dhankunia, Lohajang, Firingibazar, Abdullapur, Sholaghur and Dhamrai.

The total number of persons engaged in this industry is about 2,000.

The artisans are both Hindus and Muhammadans. The Hindu colony originally migrated from Murshidabad, and the Muhammadan artisans who have now set up independent shops were workmen in the employ of the Hindu artisans.

There is a class of men called Paikars who travel through the mufassal villages and collect rejected utensils which they make over to the mahajans. These mahajans get the old utensils melted down and made into new ones by remelting and beating out.

The following are the common domestic utensils manufactured:—

- (1) Bell-metal rekabis (dishes) of different sizes.
- (2) Bell-metal thalis of different shapes and sizes.
- (3) Bell-metal cups and bowls of different shapes.
- (4) Brass-metal pitchers of different sizes.
- (5) Brass-metal ghatīs (lotas) of different sizes.
- (6) Brass-metal spoons of different sizes.
- (7) Brass-metal bowls of different sizes, etc.

Bell-metal utensils are exclusively made by melting down the metal of old vessels. Of all the alloys made locally "bharan," a mixture of copper and zinc, appears to be the principal one. The two methods usually followed in the manufacture of these utensils is (1) the hammering out, (2) casting into moulds. The first is almost exclusively resorted to in the district. The braziers with the help of their hammers and furnaces, heat and beat out the plates to any shape they want. The majority of the workers in bell-metal, brass and copper utensils suffer from the same disadvantage as the weavers, and are not in direct touch with the actual consumers. This industry is almost entirely in the hands of the mahajans.

Mahajans, paikars and manufacturers are the different classes of men who take part in the brass and bell-metal industry. Excepting the mahajans the other classes are paid on the dadan (advance) system. The mahajans are the capitalists and advance money. The average income of skilled and unskilled workers is stated to be approximately Rs. 40 and Rs. 15 respectively. There is a big centre of trade for brass articles at Lohajang, Dhamrai and Thataribazar. The brass is bought in sheets from Calcutta.

The makers cannot sell the utensils independently, as owing to the dadan system they are under the control of the mahajans to whom they have to supply all the articles prepared by them. The whole output of the workers is made over to the mahajans and as they supply

the raw material, pay the wages of the workers, naturally claim the goods. Local shops do not advance capital to the manufacturers, but they do so to the mahajans and get their things through them.

It is clear from the above that the most important help which this industry can receive would be in the direction of the better adjustment of capital and labour. If the industry is to flourish it is necessary to improve the financial position of the artisans and free them from the clutches of the mahajans. It will be of little avail to teach the artisans more improved mechanical methods, if the lion's share of the profits is to be appropriated by the mahajans. The establishment of a co-operative society among them and the starting of an industrial bank is the first thing necessary to improve the industry.

### Soap Industry.

**Toilet soaps.**—These soaps are manufactured by Mr. Takeda, a soap expert. His workshop is at Hatkhola. He makes scented toilet soaps of various shades and colour. To make these soaps he uses cocoanut oil and caustic soda which are imported from Calcutta. He has a few boiling pans and hand machines for cutting and stamping the tablets. For ordinary purposes these soaps are quite good, and also very cheap, but they are not quite neutral. These soaps have a good sale amongst the middle classes and the poorer people.

**Washing soaps.**—These soaps are manufactured at Imamganj Narinda, Baburbazar, in the city of Dacca, where about 60 persons are engaged. They manufacture ordinary crude washing soap, locally called Bangla Saban. Babu Madhusudan Saha Bhowmick of Dakshin Maisundi has been doing business on a manufacturing scale and Babu Nishi Kanta Roy of Dasore village in Manikganj has been making soap for sale by the cold process and has been giving demonstrations. It is stated that a worker can easily earn Rs. 30 a month by this occupation.

The chief ingredients for the manufacture of Bangla Saban are—

- (1) fat and oil,
- (2) caustic soda,
- (3) silicate of soda,
- (4) washing soda, and
- (5) talc or China clay; these are imported from Calcutta.

Apparatus generally in use is—

- (1) single-bottomed iron pans,
- (2) hand paddles made of iron,
- (3) iron spades and trowels, and
- (4) earthen cups.

**Process.**—At Dacca as wood fuel is much cheaper than coal it is used commonly to feed the fires. Big iron pans or cauldrons are used for boiling the oil and fat. They generally make use of the cheapest oils and fats, e.g., mowha oil, mustard oil, cocoanut oil, in fact any oil or fat which can be obtained cheaply in the market. These oils and fats are never purified. They put the oil or fat into the boiling pans, as they are obtained from the market. Caustic soda solution is gradually poured over the oil and fat after they are heated

This caustic soda is of low grade quality and of varying strength. The soap-makers never make use of any hydrometer to measure its strength. They have just a rough idea about the quantity of caustic soda required to be used for a given quantity of fat and oil. No heed is paid to the purity of water used in making the caustic solutions. As soon as the caustic soda solution is poured into the heated oil and fat, the contents in the pan is constantly stirred to prevent "fobbing." The soap is then allowed to boil for 7 hours. Occasional stirring is necessary to prevent the soap from getting charred by excessive heat. When the boiling is nearly complete they subject it to a rough test and as required the oil or soda solution is added and the boiling is continued. When the boiling is nearly complete the fire is put out and the soap is allowed to settle. No salting is done at all. After a day or two the fire is kindled again and the soap is heated. Then filling materials, e.g., silicate of soda, washing soda, talc or China clay are mixed with the soap according to the quality of the soap required. Small quantities of the semi-solid soap is put into earthen moulds to give it the necessary shape. These washing soaps, far from being neutral, contain all the impurities originally contained in the ingredients. However the soaps have good washing properties and they command an extensive sale in Dacca, Mymensingh and Assam.

The soap-makers generally have shops of their own where they do wholesale and retail business. They also have selling agents all over Bengal for the disposal of their soaps.

#### **Paper Making.**

In the village of Arial under Tangibari police-station there is a class of people called Kagojis who used to make paper by hand. It is said that some 20 or 30 years ago, seven or eight hundred families living in the vicinity were engaged in this industry and made a living out of it. At present only a few families are employed in paper-making but not as a whole-time occupation. The process of paper-making as locally done is as follows:—

Jute fibre is principally employed for this purpose. It is mixed with pure lime generally obtained by burning shells. For one maund of jute 7 or 8 seers of lime are diluted with water and the fibres are mixed and allowed to steep in the solution. The jute is then taken out, dried and pounded in a dhenki so as to reduce the fibre to pulp. The pulp is then put in a sack and immersed in water so as to remove the lime. When the pulp is freed from the lime, it is put into a large receptacle containing water, which is agitated so as to dissolve it and to allow the particles of jute to be in suspension. A specially constructed sieve with raised edges is introduced into this mixture with the result that the particles of jute in suspension are deposited on the sieve which when raised allows the water to drain off leaving the pulp on the meshes of the sieve in the form of a sheet. This sheet of fibre is then lifted up from the sieve and is placed on a smooth mat or board and allowed to dry.

The next process is the starching of the paper and this is done by passing it through a starch solution made of unboiled rice. The paper is again dried after which it is compressed, polished with a hard smooth stone, cut into sizes, packed into reams and sold in the market. This paper is chiefly purchased by astrologers, horoscope-makers and the local bookbinders, as it is said to be stronger than the machine-made

paper and not so easily destroyed by insects. The cost of the paper is Rs. 5 to Rs. 6 per ream depending on its quality. From one maund of jute 5 or 6 reams of paper are made and it takes 3 men 8 to 10 days to prepare it.

### Articles of Leather.

In the town of Dacca a gentleman named Promodaranjan Bose manufactures high class leather goods at his own residence at 19, Hatkhola Road, Takatooli. He started this industry about a few years ago and has invested about Rs. 3,000 in it. He employs 7 workmen of whom 3 are up-country cobblers, 2 Muhammadan duffries and 2 Hindus who do the finishing and glazing. Their average pay is about Rs. 35 per month. The average output of leather goods is from 50 to 60 cases per month. These include leather trunks, suit cases, ladies' bags, wallets, fancy writing cases, etc., and the quality of the goods is such that they are greatly appreciated and patronised by both European and Indian gentlemen. The sales are conducted through his friends and acquaintances.

The Rishis and Muhammadan Kashais purchase cow hides and goat skins from the villages. They cure these hides with salt and mud and sell them to the hide merchants of the Dacca town. Sometimes these hides and skins are partly tanned with vegetable tanning materials. Out of these tanned leathers the Rishis make sandals and slippers which they sell in the local market. They are generally not of good quality and finish. There are about a dozen Rishi families in the town of Dacca who make good boots, shoes and slippers which are much cheaper than the imported articles. The Moochhis of Lakshmibazar in the town of Dacca make durable shoes of good pattern and quality from chrome leather purchased in Calcutta. The trade of finished articles has for some time past been in the hands of Muhammadan dealers. As the city of Dacca is one of the chief centres of the hide trade it is one of the best places for tanning industry.

Beraid and Kamarangichar in Sadar subdivision have a good business in raw hides which are cured locally. Shoes of an inferior quality and slippers are made at Saturia and Khalsi in the Manikganj subdivision and in some villages of Sadar subdivision. The Department of Industries gave a demonstration in the improved methods of tanning at Beraid in 1928.

### Boat Building and Carpentry.

Dacca being a riparian district most of the land is flooded during the rains and the country boat is the only means of communication. Boat building is in consequence a lucrative occupation and boat-makers are to be found in almost every village.

The chief manufacturing centres of such boats are the following:—

*Munshiganj subdivision.*—Rohitpur, Jibanandipatti, Autashahi, Tastipur, Dorabati, Bejgaon, Nagarbhag, Sindurdi, Rana, Jurashar, Kalikal, Pakira, Rajanagar, Nayanagar, Tegharia, Bharalia, Nagerhat, Bhagyakul, Jasaldia, Medinimandal, Bahar, Bandegaon, Telirbag, Haldia, Sainhati and Brahman-gaon.

*Manikganj subdivision.*—Duragram, Saturaia, Narikuli and Kalta.

*Sadar subdivision.*—Singara, Jantrail, Bandura, Rohitpur, Mukshudpur, Narisha, Dohar, Sutarpara, Jaypara, Galimpur, Bakshanagar and Nawabganj.

About 2,800 people are thus engaged in this industry who are Sutradhars and Namasudras by caste. The secondary occupation of all the boat-builders and carpenters is agriculture.

They purchase timber from the wholesale timber merchants at Lohajang, Haldia, Deulbhog in the Munshiganj subdivision, Keraniganj, Kumarganj, Nawabganj and Bandura in the Sadar subdivision, and Saturaia in the Manikganj subdivision.

It takes about a week or so to make a small dingi and about a month to make boats of bigger sizes. The dingis are sold at Rs. 10 to 15 each and the price of big boats ranges from Rs. 50 to Rs. 250. (All of them use simple tools which are repaired and sharpened by themselves.) The average monthly income of a boat-builder is approximately Rs. 30.

Dacca city is famous for its "house" or green boats and they are purchased by most well-to-do persons who have to travel inland during the monsoons. Dacca mistries are in requisition all over the province either to build or to supervise the building of such boats. A fairly comfortable "house" boat can be constructed for about Rs. 2,500 or so.

Carpenters are to be found in the villages mentioned above. They use foreign as well as country-made tools and their average income is approximately Rs. 30 or a little higher. The town carpenters generally make articles of furniture whereas the village carpenters generally spend their time in constructing corrugated iron sheds, doors, windows, etc.

### Pottery.

Potters are found all over the district. The chief centres are in the following villages—

*Sadar subdivision.*—Galimpur, Jafrabad, Sultanganj, Sibpur, Rayerbazar, Simulia, Mamlamir, Golla, Narisha, Bakshanagar, Dohar, Bardhanpara, Barrab, Jantrail, Sakiarpara, Jatrabari, Syampur, Harirampur and Churain.

*Manikganj subdivision.*—Kayannara, Nihalpur, Khaliabad, Gopalpur, Daulatpur, Nilua, Khalsi, Rauha, Mirzapur, Baruria, Mahadebpur, Baulikanda, Azimnagar, Lanta, Bharoria, Sutarlari, Boyra, Dhankora and Gopinathpur.

*Munshiganj subdivision.*—Pashail, Autshahi, Gaupara, Madhyapara, Dakshin-Charigaon, Tantar, Srinagar, Singpara, Fegunashar, Furshail, Kanaksar, Nagerhat and Bengaon.

*Narayanganj subdivision.*—Nagadiki, Birbaghber and Chandanpur.

The total number of persons engaged in this industry is about 8,000. The potters purchase their clay at Rs. 50 to Rs. 100 per bigha. They purchase sand at Rs. 25 or Rs. 30 per 100 maunds in parts of the district where sand is not available. With the help of



the potter's wheel, earthen pots of different kinds are made. They are then dried in the sun and burnt. There is about 30 per cent. breakage in the process of burning. The beparis purchase their articles from the potters and take them for disposal to the villages and neighbouring districts where there are no potters. The beparis exchange their articles for paddy and sometimes receive cash payments for the articles sold. The potters as a class are all Kumars. In the town of Dacca alone there are about 400 families of potters. Their average monthly earning is approximately Rs. 20. There is not much scope for the improvement of this industry unless they learn the higher branches of pottery and try to make cups, saucers, jars, etc. With the growth and prosperity of the people these earthenwares are being gradually replaced by metal utensils of copper, and bell-metal and enamelled wares for daily household use.

#### **Pati Making.**

This industry is carried on at the following villages of the Dacca district:—Dhaidia in Tangibari thana, Fegunashar and Rajdia in the Sirajdigha thana, and Bidgaon and Banari in the Rajabari thana.

The total number of persons engaged in the industry is about 200 and the monthly average income of each worker is about Rs. 15.

Each family has got about a bigha of land to grow mat grass (motra). The males till the land and do sundry other work, while the females weave mats by hand. A mat of the best quality (10' x 6') is usually sold at Rs. 5 and ordinary mats are sold at Rs. 3. Hindu widows of the lower classes sometimes engage themselves in this industry but they are paid very low wages by the Pattikars who supply the raw materials.

The patis are never manufactured on a commercial basis, but they are generally meant for local consumption. The workers are very poor and are in need of pecuniary assistance. Their condition could be improved if a suitable market was found for them where they could sell their goods readily and at more lucrative prices. At present they come to the town with 10 or 12 patis and hawk them from door to door. Those who are well-to-do sell their stuffs at the neighbouring market or hat.

#### **Oil Cloth Industry.**

In the city of Dacca oil cloths are manufactured by the Standard Oil Cloth Company. The proprietor of the firm is Babu Supati Ranjan Nag. His workshop was formerly situated at his own residence at 20-A, Raja's Dewri, but it has recently been removed to Wari. Mr. Nag has invested some Rs. 500 in this business. He has engaged 2 workers at Rs. 7 per month and allows them free food and lodging. Nagpur drill cloth or American drill cloth is generally used. The drill cloth is dipped into a mixture of zinc oxide, boiled linseed oil and another chemical. Winter green is used to counteract the smell of the linseed oil. The drill cloth when impregnated with the water-proofing material is stretched in the shade to dry. It is then rubbed with an emery pad and finished. Colouring matter is used to give different colours to the finished cloth. The retail price per yard is Rs. 2-8 and the wholesale rate is Rs. 2-4. These waterproof cloths have good markets at Dacca and Chandpur. It is also sold in other parts of this province to a limited extent.

Another oil cloth factory has been started at Malkhanagar village in the Munshiganj subdivision by Babu Bhupati Nath Bose. The material manufactured by him is also of good quality. The retail price per yard is Rs. 2-8 and the wholesale price is Rs. 2-4. It is reported to be flourishing.

### **Jute Weaving and Rope and String Making.**

Gunny bag making is done in the villages of Krishnapur in the Narayanganj subdivision, Kalma, Bashail and Noadda in the Tangibari thana and in the Munshiganj subdivision by a class of men known as Kapalis. About 120 people in the above villages are engaged in this industry. These people spin jute twine by hand and weave gunny cloth. Their products are quite good but the price does not compare favourably with mill-made gunnies. There is no caste prejudice against this industry. Women are not employed except in parts of the Narayanganj subdivision. A villager unless he is well-to-do makes his own ropes and strings.

About 40 men of Bakta in Konda Union make gunny bags by spinning jute twine and weaving gunny cloths. Their income is stated to be Rs. 15 per month approximately.

Ropes are made for sale at Binodpur, Khalsi, Kumuria, Bishnupore, Baniajuri, Durgabari, Bijuri and Khalaspur in the Manikganj subdivision.

### **Goldsmiths and Silversmiths.**

A large number of people of this district are employed in this business, not only in the city and interior of this district, but in many places in Eastern Bengal. Dacca goldsmiths are famous for their superior workmanship. They are to be found in the following villages of:—

*Munshiganj subdivision.*—Pashail, Firingibazar, Nagarkasha, Bejgaon, Kukutia, Malapdia, Ichhapura, Srinagar, Benodpur, Rekabibazar and Mirkadim.

*Manikganj subdivision.*—Daragram, Safulli, Pathrail, Gangalalpur, Baliati, Bhatra, Kazikola, Daulatpur, Jaidebpur and Hijuli.

*Sadar subdivision.*—Galimpur, Sonabaju, Hagradi, Meghula, Kaliganj, Paragaon, Kaundia, Syampur, Bathuni, Demra, Jafrabad, Rohitpur, Basta, Fathenagar, Nawabganj, Barrah, Narisha and Jantrail.

*Narayanganj subdivision.*—Ghosegaon, Gotasia and Arahazar.

About 300, 500 and 200 persons are engaged in this industry on a small scale in the Manikganj, Munshiganj and Sadar subdivisions respectively.

Dr. Taylor says: "The Dacca workman excels in filigree work. They make bracelets, neck chains, ear-rings and other ornaments and also vessels for attar and rose water, all of which are sent to different parts of the country." There is in Dacca two definite castes of gold and silver workers. The industry was formerly in the hands of Swarnabaniks but now the Karmakars have the monopoly. Dhobis, Napits, Kumars, Basaks and even Mussalmans are engaged in the trade. In the matter of ideas they are conservatives. The average

earning of an ordinary worker is approximately Rs. 30 a month. The rate for simple silver work is annas 4 a tola. For fine work as much as Re. 1-8 per tola is charged. For gold work Rs. 2 to Rs. 5 is demanded. For fine work the charge is sometimes Rs. 15 per tola where there is a chance of a diminution in weight.

### Blacksmiths.

The village blacksmiths make daos, sickles, axes, spades, khantas and nails of various sizes. Some people can make scales and hammers. The manufacture of iron implements and tools is carried on on a comparatively large scale at the Srinagar police-station in the Munshiganj subdivision. The blacksmiths are also found in the following villages:—

*Sadar subdivision.*—Kadamtali, Subhadya, Mushankhola, Chowhat, Dhamrai, Srifaltali, Ramnagar, Bakshanagar, Gobindapur, Dekra and Rohitpur.

*Manikganj subdivision.*—Safulli, Kayannara, Kazikola, Daulatpur, Jhitka, Lesraganj, Boyra and Sutarari.

*Narayanganj subdivision.*—Pravakardi, Manahardi and Cotasia,  
*Munshiganj subdivision.*—Bahar, Firingibazar, Autshahi, Kandapara, Kukutia, Madhyapara, Makoohati, Kola, Routhbhog, Ichhapura, Srinagar and Kalikal.

About 200 men of Manikganj and about 300 men in Sadar are engaged in this industry.

The implements in use are of the most primitive kind consisting of a blow-pipe bellows, a hammer and an anvil and a few other minor accessories. The work is done in batches of two working together. Each batch can make 5 or 7 seers of nails working 8 or 10 hours a day. Spades and nails are also imported from abroad and have a better finish than the local articles. The local made articles are cheaper and so do not suffer much from competition. The blacksmiths earn Rs. 15 to Rs. 25 a month.

### Braid Making.

There are a few braid-making factories in the town of Dacca. These braids used to be imported from Austria in pre-war days. The persons engaged in this industry are all local people. Their wages vary from Rs. 3 to Rs. 15. The thread is obtained locally and is imported from Cawnpore and Calcutta. The braid manufactured is sold locally and is also exported to Calcutta, Rangpur, and Madras.

### Fishing Nets.

In the district of Dacca fishing nets are made in the following villages:—

*Manikganj subdivision.*—Daragram, Safulli, Atipara, Krishnapur, Nihalpur, Ujanpara, Basantapur, Mendipur, Brahmananda, Kodalia, Dubail, Paikpara, Katipara, Sanbandha, Satori, Kati-gram, Sonka, Baraid, Gopinathpur, Jabra, Baniajuri, Baulikanda, Bishnupur and Khalsi.

*Sadar subdivision.*—Charakhali, Baktarnagar, Narisha, Baliarket, Beliswar, Bathuni, Srirampur, Sutrapur, Jatrabari, Galimpur, Dohar, Basta, Bakshanagar, Bandura, Jajira, Rohitpur, Churain and Ishakabad.

*Munshiganj subdivision.*—Srinagar, Chur Chayet, Kanaksar, Samsuddi, Brahmangaon, Bhagyakul and Bahar.

East Bengal is very rich in fisheries and a large number of the people who are Jalias, Malos and Nikaris by caste live by catching and trading in fish. Fishing nets are made by the fishermen themselves and this industry is localised in the above villages. They do not generally sell their products but make nets for their own use. With them the making of nets is a secondary occupation—their principal one being fishing. The smaller nets are made from prepared threads obtained locally from the bazars or hats and from the town. The bigger nets are made of hemp-thread which the fishermen twine themselves from hemp obtained from outside the district.

These nets are made both by males and females during their leisure hours.

About 1,300 men of Munshiganj, 500 men of Sadar and 800 men of Manikganj subdivisions are thus engaged in this industry.

#### Sealing Wax.

Messrs. S. Douche & Sons of Bahadurpur Lane, Faridabad, Dacca city, manufacture sealing wax as a home industry. The proprietor of the firm is Babu Sachindra Chandra Das. He has invested about Rs. 10,000 in this industry. The number of labourers employed is 15 of whom one is a male and the rest females. The only male worker is paid at the rate of Rs. 13 per month, the female workers get from Rs. 7 to Rs. 9 per month. The working-hours are from 6 a.m. to 3 p.m. As regards the raw materials used in the manufacture of sealing wax, Mr. Das gets (1) shellac from Assam and Messrs. Angelo Brothers of Calcutta, (2) rosin from Bareilly and calcium sulphate, cinnabar, vermilion and ultra-marine and other colouring materials from Calcutta. The process of manufacture is kept secret. The quality of the goods manufactured is good. The daily outturn is about 8 maunds. The principal markets for the finished articles are at Dacca and Calcutta. The firm has secured contracts to supply sealing wax to the Bengal Nagpur and Assam Bengal Railways. The wholesale price is Rs. 6-12 per gross and retail Rs. 9.

#### Gur Making.

Molasses (gur) is prepared by boiling the juice extracted from sugarcane. This industry is carried on on a big scale in parts of Narayanganj, Munshiganj and North Sadar subdivisions. Iron presses supplied by Messrs. Renwick & Co., on the monthly hire system are available at Munshiganj from where they are distributed to the interior of the subdivision. Out of gur various preparations locally known as tilai, kadma, and batasha are made. Sugar is extracted from date palm in Jhitka and the neighbouring villages of Manikganj subdivision and it is known as hazari gur. This is the best

kind of gur available in the district and commands a ready sale on account of its white colour. It is sold at 8 annas per seer of 60 tolas. Panchsar and Rampal in Munshiganj, and Mukshudpur, Narisa, Benukhali and other places on the side of Padma river in the Sadar subdivision are some of the centres of gur manufacture. Sugarcane is pressed on a commercial scale at Manipur farm and on a small scale in Daulatpur and Harirampur police-stations in the Manikganj subdivision.

### **Basket Making.**

This industry is ordinarily carried on by low caste Hindus and sometimes by Muhammadan Karikars in the following villages of Dacca:—

*Munshiganj subdivision.*—Marichadi, Imamchar, Telkhira, Autshahi Gawpara, Baherkuchi, Kakaldi, Kaykirtan, Rathbari, Fegunashar and Sialdi.

*Manikganj subdivision.*—Lesraganj, Jhitka, Simulia, Mahadebpur, Kanchanpur, Dubail and Dhulsura.

*Sadar subdivision.*—Sadapur, Nayabari, Barha, Jajira, Konday, Barukhali and Maghula.

They make baskets, cane boxes, chairs, easy-chairs, trays, luncheon baskets, moras, fans and fish traps. The males and females utilise their spare time in the manufacture of the above articles. They buy bamboo at 4 or 6 annas a piece and the turnover gives them a profit of 3 to 4 annas.

One hundred persons in Manikganj and about 100 more in the Sadar subdivision are engaged in this industry.

The baskets are made for local consumption and small sales in the neighbouring markets or hats.

### **Bookbinding.**

At Bengabari and Lesraganj Bazars in Manikganj and at Nawabganj in the Sadar subdivision there are bookbinders' shops.

### **Tailoring.**

Tailors are to be found in practically all the bazars and hats of any importance throughout the district. Srinagar, Mirkadim, Lohajang and Taltala of the Munshiganj subdivision, Nawabpur, Rohitpur, Jinjira of Sadar and Jhitka, Lesraganj, Gheor, Aricha in Manikganj subdivision, are the centres. Altogether there are about 300 men in Munshiganj, about 50 in Manikganj and about 500 men in Sadar subdivisions working as tailors. When the business is more than one man can cope with, the tailors ordinarily employ assistants on Rs. 12 to Rs. 14 a month each. Sometimes the tailor's shop is owned by a person who does not know the trade himself. To carry on the work successfully he employs a head tailor who usually gets Rs. 20 a month.

## Mymensingh District.

## Weaving.

Cotton weaving is carried on in a large scale in Bajitpur and at other places in the Tangail subdivision and Bajitpur in the Kishoreganj subdivision. In both these places very fine chadars, dhutis, saris and other cloths are manufactured by hand-loom. Recently the output of such cloths has increased owing to a large demand being made for them by neighbouring districts. The popularity of these cloths is due to the fact that they are fine and look well. The Bajitpur weavers use 120 to 250 counts of yarn for fine cloths. The time taken for setting up the warp is generally 3 days. Women and children do this work. They work the looms almost the whole day, i.e., from morning till noon and from 2 or 3 p.m. till evening. Sometimes they work at night also. The women and children prepare the thread and set up the warps. In the Kishoreganj subdivision the weavers dispose of the finished articles themselves, and do not employ any middleman. The profit varies from annas 8 to Rs. 2 per piece. There is also a co-operative society of the weavers at Bajitpur (Kishoreganj). Some of the weavers have now taken to fly-shuttle looms. The weavers use foreign imported yarn which they purchase in the open market. In days gone by this subdivision manufactured the world famous "ab-i-rowan" and Dacca muslin but the class of weavers who were specialists in this line has practically disappeared.

The weaving of fine cloth is carried on by the Tanti or Bysack weavers in many localities among which Bajitpur may be specially mentioned.

Owing to the abnormal increase in the price of cloth, many weavers who were otherwise engaged, e.g., in cultivation, have turned their attention to weaving, and the introduction of fly-shuttle looms among the weavers has also lent to the increased production of cloth.

There are at present three classes of weaving, viz., coarse, medium and fine. The Nath and Jugi classes mostly weave coarse cloth. The Karikar and the Zola class does the medium weaving while fine weaving is carried on solely by the Tanti or Bysack weavers. The yarn used by these three classes ranges between 10 to 300 counts.

The yarn market is not a steady one, and the price fluctuates with the demand. The chief markets for the purchase of such yarns are Dacca, Bhairab and Mymensingh.

The chief weaving centres in Mymensingh are:—

*Kishoreganj subdivision.*—Bhatgaon, Katiarchur, Kuliarchar, Barapara and Satal in police-station. Kishoreganj, Nitarkandi, Bhagalpur and Dilalpur in police-station Bajitpur.

*Tangail subdivision.*—Bajitpur, Bhatikura, Nalshonda, Pathrail, Kabilpara, Bhalkutia and Bannafair.

In the Tangail subdivision the weavers get the supply of yarn in two ways:—

- (1) directly through the merchants; and
- (2) through the mahajans.

Those who work independently, i.e., buy and sell at their discretion, purchase yarn directly from the yarn merchants at the local market or at the outlying hats. They are somewhat better off than their brother weavers who cannot carry on their profession independently for want of capital. These weavers get the supply of yarn from mahajans at prices somewhat higher than those prevailing in the market. Consequently they cannot make much profit by selling their products in the open market. They are therefore obliged to make over their products to the mahajans.

With a capital of Rs. 70 a weaver can earn from Rs. 15 to Rs. 30 a month according to his ability and to the nature of the looms. In many places in the interior of Tangail subdivision fly-shuttle looms have been introduced by the peripatetic weaving instructor there. In the Netrakona subdivision the weaving industry is mostly confined to the Garos who make their own yarn of cotton grown in the hills. The principal market for cotton is in the Garo Hills. The cloths made are generally 5 or 6 cubits long and 2 cubits wide and it takes generally 10 or 12 hours to make one. They are made for home consumption and are not offered for sale. At Netrakona, Satarasree and Sandikona some persons have now taken to fly-shuttle looms. At Sandikona and neighbouring villages endis are made by Naths. The threads, etc., are obtained locally but they are a little inferior in quality than those of Assam.

In the Jamalpore subdivision gamchas for local use are made in Madarganj and the industry is limited to a few families. Many people in the neighbourhood of Islampur and Dewanganj Circles rear endi worms and spin fine yarn.

Indigo dyeing is carried on at Tangail by some Muhammadan dyers. They cannot make any black or red dyes. Indigo-dyed yarn is used in saris, dhutis, lungis and mosquito curtains, etc. No other dyes except indigo are used to any appreciable extent. In the Kishoreganj subdivision they dye the yarn by the pigments purchased from the markets and purchase dyed yarn also.

### Rope and String Making.

This industry is carried on in the district of Mymensingh by a class of men known as Kapalis. These people twist jute twine by hand and weave gunny cloth. Having regard to the fact that almost every cultivator in East Bengal produces jute, there are possibilities in this industry and it involves no caste prejudice. Formerly in the Mymensingh district jute strings and ropes were used and manufactured, but cocoanut coir ropes and strings which are imported from outside have displaced them altogether. Hemp strings and ropes are largely manufactured at Bhairab and in the neighbouring chur lands. The dragging ropes (goon) for boats are made on the Megna side and near Sadakpur and Lundia and Khalapara in the Kishoreganj subdivision. The place is locally known as Goonghat. In the Tangail subdivision ropes are made on a small scale for binding the bales of jute. The ropes are generally 1 inch thick and 50 cubits in length. Two men can prepare 50 lengths in one day. About 1½ seers of jute are required for each length. The wages paid for rope-making varies from Re. 1-9 to Re. 1-2 per 100 length. Children also assist in this work.

### Mustard Oil.

Mustard oil is widely manufactured in this district. The mill used is known as ghani and it is driven by a bullock. It can crush half a maund of seed daily. Three-tenths of the seeds used is the average produce in oil. The Teli (oilman) gets one third of the oil and the cakes as the price of his labour when the seed is not his own.

### Dairy Produce.

The so-called Dacca cheese is made on the bank of the Dhanu at Itna in the Kishoreganj subdivision. It is a seasonal industry and the cheese is exported in large quantities. It is a kind of hard cream cheese, made in balls like the common Dutch variety. During the cheese-making season the people from Dacca who know cheese-making flock there and stay till the season is over. Local men do not know the process of manufacture.

Astagram in Kishoreganj subdivision was once famous for the Zainshahi cheese. It seems to be a dying industry. On account of the rise in the price of milk, it has not been a very profitable business and consequently people from abroad hardly visit Astagram side and Haur area for cheese-making. Some local people know the process of manufacture but lack of enterprise and capital is chiefly responsible for its moribund condition. The formation of co-operative societies in suitable centres is required to prevent the industry from dying out.

### Biscuit and Loaf Making.

Loaf-making is carried on at Bhairab, Bajitpur and Kishoreganj. It is done by the Hindus. They do not use any machine for kneading flour and do the work by hand and ladle. The outturn is not of a high class but is good enough for common use. Some persons of Kishoreganj, Comilla and Sylhet have biscuit shops at Netrakona, Kendua and Mohanganj.

### Bookbinding.

Bookbinding is done by a few duffries at Kishoreganj, Bhairab and Bajitpur. There are also two bookbinding shops at Sherpur, three or four in Jamalpur (Sadar) and two at Netrakona. The rise in price of paste-boards and marble-papers greatly affected their business.

### Carpentry.

In the Kishoreganj subdivision Bajitpur carpenters are famous for their work. They make good engravings. The kurani, bedsteads, chairs, etc., are examples of good work of high quality. They also prepare various fancy articles of wood, e.g., spectacle-cases, clock-brackets, teapots, etc. The work is done by several families and has been carried on for generations. There is no expanding demand for the production and the carpenters are therefore gradually taking to



other occupations. Hooka tubes are also manufactured here and in Austogram police-station.

### **Copper and Bell-Metal Industry.**

There is no copper manufacture in this district. In the Jamalpore subdivision Islampur is famous for bell-metal utensils. In Dariabad and Gangpara there are some Kansaris who make fine bell-metal articles, amongst whom Jagat Chandra Karmakar of the former village and Prasanna Kumar Karmakar of the latter are experts. The workers who are poor sometimes attend to private orders but they are generally in the hands of the mahajans who give dadan (advance). In Sherpur police-station there are three or four shops where these utensils are made. The articles are very heavy and hence very costly. Bell-metal dishes, plates, cups and glasses and other utensils are a product for which Islampur, in Jamalpore subdivision, has a widespread renown. Kagmari and Magra in the Tangail subdivision are important centres and articles worth Rs. 50,000 and Rs. 1,00,000, are exported annually. In Islampur the average monthly earning of a skilled labourer is from Rs. 16 to Rs. 20. The manufactured articles in these places command large sales even in distant parts of the province. The composition of the alloy is considered a trade secret.

### **Tailoring.**

Tailoring is carried on at the following places. In the Kishoreganj subdivision—Kishoreganj, Hossainpur, Karimganj, Bajitpur and Bhairab. In the Netrakona subdivision—Netrokona, Mohanganj, Barhatta, Kendua, Teligati and Durgapur.

People get their supply from the above places. The master tailor and workman are one and the same person, who, with the members of his family and relatives, work together. Some employ workers who receive a monthly pay of Rs. 10 to Rs. 25. In the two big tailoring shops at Netrokona the cutters receive Rs. 30 to Rs. 40 per month. The members of a family divide the profit. The tailor receives order, purchases cloths, and the workmen are employed in cutting and sewing. The master-tailor is generally also a good cutter.

### **Pottery.**

Pottery is an ordinary industry carried on by a class of people called Kumars found almost everywhere in the district. In the Kishoreganj subdivision pottery is extensive in Austogram. Some of them in addition to handis, saras, etc., make rings for wells. A few families in the Katiarchar police-station know a little of salt glazing and they make beautiful dolls and idols. Some potters manufacture boyums of different sizes. They are sold mostly at Kishoreganj. A few boats come from Dacca and Narainganj up the Megna and Dhanu rivers and they sell their articles by the amount of paddy they can each contain. In the Netrokona subdivision, owing to the quality of the soil, the potters cannot make durable wares and they therefore cannot compete with the articles brought in large quantities from Dacca. In the Tangail subdivision the potters of Bashail are adepts in turning out human figures, images of gods and goddesses in clay.

### Pearl Fishing.

Pearl fishing is done by a class of people known as Badias. They live in boats and go along the banks of the Megna river collecting oysters. They do not dive in water to get them. There is no systematic organisation for the purpose. A few families of Badias are settled in Dilalpur, Sadakpur, Austogram, Nikli and Bangalpara in the Kishoreganj subdivision. There are local johuris who purchase the pearls from those who fish them. They fix the price and export them to Calcutta.

### Basket Making.

There is no organised business in basket-making but cane baskets are largely manufactured by Garos and other people almost all over the northern part of the district. The texture of the old-fashioned cane pataris (which serve the purpose of a steel trunk) of Sherpur in the Mymensingh district bear testimony to the skill of the workers. There is a village known as Bethuapara in Char Iswardia in police-station Kotwali, where there are some families who make a special kind of cane box using cane obtained from Garo and Susung Hills which is very popular. In the Tangail subdivision basket-making is carried on on a somewhat elaborate scale at Baghil and Banniafoir. There is considerable demand for split-bamboo mats which are prepared among others by the Doms near Saya. In the Kishoreganj subdivision no cane baskets or dhamas are prepared but doles used for storing paddy and rice are made by the cultivators with strips of bamboo woven in the nature of mats. They are sold in bigger hats, e.g., Karimganj, Kathiadi, Hossainpur, Kishoreganj, Bajitpur and Bhairab. In the Netrakona subdivision these are largely manufactured by Garos and Hajengs of Kalmakanda and Durgapur. Split-bamboo mats, called dharis are prepared almost throughout the subdivision by cultivators and specially by those near about Madanpur. Dolas are prepared by the Naluas of Netrokona and jaria and bamboo mats and dolas are sold in large quantities at Netrokona and Jaria hats. Patis are also made near about Mohanganj and sold at the Mohanganj bazar. Every cultivator in the Netrokona and Jamalpore subdivisions knows something of basket-making. They also make their own fishing traps. If the labour is organised and the manufacturers are given an opportunity they can make baskets of any shape and model to order.

### Sugar.

Sugarcane cultivation is done extensively by individual cultivators. The sugar is of a crude kind, yellowish in colour, and retains the smell of sugar-juice in it. The molasses is filled in a gunny bag which is tied tight. The bag is then squeezed between two bamboos and the fluid portion is thus extracted. This sugar is consumed locally. Sugar is also made from sugarcane juice to a great extent in Jamalpore police-station in the Jamalpore subdivision. This sugar is sold at Rs. 8 per maund.

Batasha, gur (molasses) and kadma are manufactured at Bhairab, Shararchar, Bajitpur and Kishoreganj and they are in great demand by local people.

### Match.

In the Mymensingh district matches are manufactured by the following firms:—

- (1) *East Bengal and Assam Match Factory*.—The factory is located at Sehara, Mymensingh, with a branch factory at Sherpur in Jamalpore subdivision. It is worked with hand-power machines. The factory does not manufacture splints but purchases ready-made splints locally and from Calcutta. The factory was established in May 1922. Its approximate daily output is 17 to 20 gross in the Mymensingh factory, and 14 to 18 gross in the branch factory at Sherpur.
- (2) *Dayamoyee Match Factory*.—The factory is located at "Akhilnibash," Hari Krishna Roy's Lane, Mymensingh. The factory was established in 1924. It is also worked with hand power. The factory manufactures its own splints using Indian woods, also occasionally purchases ready-made splints from Calcutta. Its approximate daily output is 10 gross.
- (3) *Tiger Match Factory*.—The factory is located at Sridhar Babu's lodge, Muktagacha, and only manufactures splints out of Indian wood.

There is also a match factory in the Tangail subdivision with a hand machine in which local woods are used.

### Manufacture of Iron Implements and Tools.

Blacksmith's shops are spread all over the district. They make daos, sickles, axes, shovels, ploughshares, spades etc., for domestic use. Generally they are made to order. Iron and steel are purchased in the local market. Often the raw material required is supplied by the person who orders the articles in the shape of broken and unserviceable old articles. They can supply them at a rate cheaper than that of the finished and imported products. In the Kishoreganj subdivision the good polish and finish of daos and bathidaos make them attractive.

### Faridpur District.

#### Cotton Weaving.

The principal localities inhabited by the weavers in the district of Faridpur are the following:—

*Goalundo subdivision*.—Mirgi, Maishala, Jasai and Kankhali-Dayarampur, in Pangsa police-station; Panchuria, Maururi, Dhunchi, Kharkhanapur, Alladipur and Kaijuri, in Rajbari police-station; and Mathurapur, Gajna and Jamalpur, in Baliakandi police-station.

*Madaripur subdivision*.—Bahadurpur, in Sibchur police-station; Motbari, Telikandi, Srirampur, Badarpara and Adampur, in Madaripur police-station; Kartickpur, in Badarganj police-station and Deora

*Gopalganj subdivision.*—Betgram, Nilakhi, Char Narayandi, Kayulia in Gopalganj police-station; Tantikanti, Gohala, Muniorkandi, Bhatara and Nanikshir, in Mukshudpur police-station; Sitaikanda, Bandabari, Punnabari, Atharabari, Tarashi, Falshi, Kokhuja and Gachapara, in Kotwalipara police-station; and Tarail in Kashiani police-station.

*Sadar subdivision.*—Bhanga.

Rajbari, Pangsa and Baliakandi have been long known for the production of chintzes for coating and shirting pieces and also bed sheets on an extensive scale but this branch of the industry is dying out gradually as it cannot compete successfully with the mill-made production of similar articles.

The weavers of Deora produce excellent cloths especially saris and they are sold at the nearest markets in large quantities.

The weavers are mostly Jolas, Mallicks and Karikars and there is a limited number of "Yogis" also. They make the coarser varieties of dhutis, saris, curtains, lungis and gamchas. The majority of the weavers in this district are free from the control of mahajans, and the average income of a weaver may be estimated at about Rs. 22 per month.

Several hand-loom and small power-driven factories were started in this district at Bilashkhan Madhyapara (Palong) Ganga Nagar and Madaripur during the non-co-operation days. The Madaripur factory has been closed down; while others are also faring badly, owing chiefly to comparatively high overhead charges and labour difficulties. The Madhyapara factory has now taken to weaving "endi" and "muga" and also mixed fabrics. This gives the advantage of a higher margin of profit.

The supply of yarn in the Goalundo subdivision is obtained from the Kumarkhali hat which is in the Nadia district, and where the largest amount of cotton yarn is sold in the district. The price of yarn per bundle of 22 moras is Rs. 14. In the Madaripur subdivision a bundle of thread of 28 counts cost Rs. 14. Out of this five pairs of cloths are made which sell at Rs. 5-12 per pair. It takes 16 days to make five pairs of cloths. They generally take 10 to 12 hours to set up the warp of a pair of cloth and a pair of 6½ yards dhuti or sari can be finished in one day and a pair of full size (10 yards) cloth in two days. They work from morning to evening with an interval of 2 or 3 hours, in the middle of the day, for their midday meals, etc. The women assist in setting up the warps and in the making of yarns and winding on pirns for the shuttles. The weavers dispose of their produce in the local markets where they have both wholesale and retail sales. They generally make a profit of 12 annas per pair of cloth by retail sales and 9 annas by wholesale sale. The profit of middlemen generally comes to about 2 to 3 annas per pair of dhutis or saris.

Faridpur, specially in the subdivision of Goalundo (Rajbari), produces a fairly large quantity of chintzes, striped and checked cloth pieces for coats and shirts. Their prices range from Rs. 3 to Rs. 8 a piece according to the quality of cloth. The pieces are 10 to 13 yards long and 27 to 30 inches wide. On account of hard competition with foreign made stuff of cheaper qualities, there is less demand for these local made cloths.

Bed sheets of very fine quality are also made by the weavers of Rajbari (Goalundo subdivision) and are sold at Rs. 5 each.

In the Madaripur subdivision the cloths are sold by the weavers themselves in hâts.

Dyes are not used by the weavers but they use dyed yarn. No fine or ornamented cloths are made in this district.

#### **Hosiery.**

There is a hosiery factory in Faridpur Bazar which produces stockings which are liked and purchased by the public in large quantities.

#### **Basket Making.**

Baskets are generally made by the Domes to a limited extent as a secondary occupation. There are some persons in the village Saursha in Pangsa, and Arkandi and Matlakhali in Baliakandi, also in some villages in the Madaripur area, who make cane articles such as tiffin-baskets, chairs, teapoy, etc., but the outturn is small.

The industry provides secondary occupation to Rishis, Doms and also some Muhammadans. The industry is capable of development as there is an abundant local supply of cane and bamboo.

#### **Leather Manufacture.**

Practically no tanning is done in this district but the Rishis do a certain amount of hide curing. The hides are obtained locally from dead cattle for which generally nothing has to be paid. The cured hides are used almost entirely for the manufacture of musical instruments such as drums, etc., while a small quantity is said to be exported for tanning.

#### **Brass, Copper and Bell-Metal.**

Bell-metal and copper utensils are not manufactured at all in this district. At and near Palong about 60 to 70 families are engaged in making brass utensils from imported brass sheets. The chief centres for such articles, are Nara, Bilaskhan, Dasarota, Katalbari and Baghia, in the Palong area. Old brass is also melted and then cast into utensils for domestic use. There is no outside demand for these articles because they cannot compete favourably with articles manufactured elsewhere.

The method of work in vogue is crude and antiquated. The industry is not now confined to the bona fide braziers, such as the Karmakars and the Kangsa Baniks but has already extended amongst other classes of the Hindu community and Muhammadans.

The introduction of up-to-date appliances, designs and processes of moulding is necessary to enable this industry to hold its own against imported articles.

#### **Pottery.**

There are potters in every part of this district except in Goalundo Ghat police-station. They prepare ordinary cooking vessels, water-pots, clay-toys, etc., and there is no special feature to be reported regarding the work of the potters. During the paddy harvesting season boatloads of earthenware are taken to Bakarganj district, where they are bartered for paddy with good results.

The method of work is antiquated and the process of firing is wasteful, the breakage being more than 30 per cent.

A tile factory was run at Domesnar (police-station Palong) on up-to-date lines for several years but this has now been closed down though the industry is stated to have been a paying one. Another small factory is now being worked at Kartikpur by the local Kumbhakars.

### Sugar.

Sugarcane and date juice extraction is carried on on rather a big scale in Pangsa police-station for the preparation of gur, and the principal villages where this is done are Habaspur, Nirgi and Kalimohar in Goalundo subdivision, and Gobindapur, Khoajpur, Bhotnaji, Kalkini, Mathabhanga, Benodepur and Kartickpur in the Madaripur subdivision; also in the thanas of Gosaihat, Kalkini, Palong and Bhedarganj.

The manufacture of sugar is done in the Goalundo subdivision at Sonakandar and Lakshikhole. The factory consists of a few huts and two or three big iron pans for boiling gur. Gur is purchased from the market in earthen pots. It is poured on a bamboo sieve to separate sugar crystals from the mother-liquor. These sugar crystals are covered with a moss known as algæ for the purpose of decolorisation.

The mother-liquor, i.e., liquid gur, is put into big iron pans mixed up with a little water and then boiled down and concentrated. It is afterwards poured into an earthen pot which has a small hole at the bottom but which is closed at the time. Crystallisation slowly goes on and when it is almost complete it is covered with a moss algæ, and the hole at the bottom is opened. After a day or two the surface layer of the crystal is decolorised and is scraped off. Fresh water algæ are then put over the underlying layer of the crystals and the process is repeated till all the sugar crystals are perfectly white. The mother-liquor which trickles down through the hole at the bottom of the pot is received into an earthen vessel and is called "chitagur." It is used for mixing with tobacco leaves for making chillum tobacco or tamak.

### Smithery.

There are blacksmiths in every part of this district. They make agricultural implements such as ploughshares, scythes, etc., and household implements as spades, dao, khonta, etc. In the Goalundo subdivision there is a custom of paying to the blacksmith 4 katas\* of paddy for one plough and scythe supplied to the agriculturist. Raw material is purchased from the local market. Cheap axes and spades of foreign make are also sold in the market and are more in demand as the high prices of the local article is a bar to their greater sale.

There is also a large number of goldsmiths who manufacture gold and silver ornaments. The workmanship is only commonplace.

### Conch-Shell Industry.

There are about a dozen people at Palong who manufacture conch-shell ornaments of rather inferior quality. There is however a good demand for these articles as they are much used by Hindu women.

\* Bengali measure: 1 kata = 2½ sberis.

### Rope and String Making.

There is no regular cottage industry in rope-making in the Goalundo subdivision. The women in their leisure hours prepare jute string locally known as tauta. In the Gopalganj subdivision jute-weaving is done in villages, Kashalia, Gunahar and Bayaikhola in the Kotali-para thana.

In the Madaripur subdivision jute strings and sacks are made in Durgabardi village in Rajor police-station, and Aisar-Kamalapur in Kalkini police-station.

### Carpentry.

A great bulk of the Namasudra community of this district earn their livelihood by working as carpenters. They do not usually take any systematic training and their workmanship is not good but they find occupation in the construction of corrugated houses. Recently a few shops have been opened at Madaripur for the manufacture of furniture. The carpentry shop attached to the Mission Industrial School at Faridpur turns out high class furniture using modern wood working machinery.

### Pati Making.

Another important industry consists in the manufacture of mats (pati) from motra grass which grows abundantly in damp marshy places. They are manufactured in fairly large quantities in the Sadar subdivision of Faridpur and also at Manakhan in police-station Lonesingh by a class of people called "Patials." The sital patis (mats) made in the Sadar subdivision of the Faridpur district, though not so fine as those made in Sylhet, are very useful and extensively used and the industry is a fairly paying one.

### Kantha Work.

The kantha work industry was started under the auspices of the Home Industries Association, Faridpur. The method of work is as follows:—

- (1) Yarns are purchased from the market and made over to the local weavers through the agent with instructions regarding the making of the cloth. If required suitable cloth is purchased from the market also.
- (2) The finished cloth is brought back from the weavers and it is then bleached. The bleached cloth is cut into required sizes and then distributed to the women by the agent with instructions as to its design. Coloured threads are also purchased and given to the women to embroider them with.
- (3) The finished articles are collected and brought back when their labour, price, etc., are appraised. All payments are made by the agent. The articles are then sold through private agencies.

The bed sheets, table cloths, wrappers and other things turned out are said to be popular.

**Bakarganj District.****Weaving.**

**Cotton.**—The chief centres are Gabkhan, Kirtipasha, Uzirpur and Jhalakati in Jhalakati thana, Nyiamati in Patuakhali thana, Siddakati and Nalchiti in Nalchiti thana, Banoripara and Baisari in Pirojpur subdivision, Madhabpasha in Barisal. Fine cloth is woven at Uzirpur, Banoripara and Siddakati. The weavers of Madhabpasha make mosquito nets both white and coloured, and have earned quite a good reputation for themselves among the middle classes. The Mugs of Khepupara also make a coarse cloth for their own use on their primitive looms. Three or four factories have been started at Barisal with fly-shuttle looms and one of them is working very well.

Cotton weaving is also carried on at Bhola, Muliand, Dhandoba, Patihar and Chandsi in Gournadi police-station.

The students of the Deaf and Dumb School, Barisal, prepare gamchas (towels) and dhutis, purdahs as well as beautiful woollen winter cloth and excellent silk tussar cloth. The Portugese Mission at Padri Sibpur has started a weaving school where shirting materials are made. In the Sundarbans the Mug women make excellent cloth for home use.

**Jute.**—There is a class of people called Kapalis who weave gunny bags from jute. The most important centre in Bakarganj is Gournadi at which there are about 25 villages. The other important centres are Patihar, Chandshi, Janglapatti, Barhi, Tarakupi, Despatti, Satla, Billagram, Chotadulali, Katakasthala, Illa, Gorakshadubi, Sarifabad, Bagshirhal, Dumuria, Boisha, Khanjapur, Shaora, Hafania, Kumardaba and Murihar. These villages contain about 740 families. The Kapalis get their supply of jute locally while a few grow their own jute. They are Hindus by religion. There are mahajans also who help them with loans. Bags larger than 27" by 72" in size cannot be made on their looms, which are very primitive and the method of weaving is very slow. Gunny-making is not the primary occupation of the Kapalis. This jute weaving is done by the women also in their leisure hours. The industry has long been in vogue among the Kapalis, but as the profession is not a paying one the Kapalis have also taken to agriculture. A loom does not cost them more than Rs. 2-8 to Rs. 3. Each bag requires  $\frac{3}{4}$  seer of jute and the production does not exceed one bag per day of 10 to 12 hours. Three or four bags are sold for Re. 1. Thus the average profit of workers does not exceed more than annas 2 to annas 3 per day or Rs. 5 per month. By the effort of the Department of Industries, some improvement has been effected in this industry. Improved spinning machines have been constructed and their working has been demonstrated among the Kapalis. Improved looms have also been made and worked among them. The Kapalis appreciate the demonstrations but progress in adoption is slow.

**Dyeing.**

Yarns are dyed at Chandshi, Torkey (Gournadi police-station) and Jhalaki. The industry is confined to a few persons only.



### Spinning of Fibres.

For the purpose of weaving gunny bags the Kapalis spin the jute by means of the takko or spindle. One seer of jute can be spun in a day. In Bakarganj jute ropes are manufactured to some extent and sold locally. A hand-spinning machine has been devised by the Department of Industries and demonstrated among the Kapalis who appreciate it.

If the demonstration of jute spinning and weaving is made at all the centres of jute cultivation in this district and the Kapalis are induced to adopt improved methods, there is no reason why these people should not be able to supply the local demand for rice bags, etc. There is enough scope for the formation of co-operative societies among the Kapalis and they are disposed to join them.

### Carpentry.

In Bakarganj the carpenters are mostly Namasudras by caste. There is a saw mill at Jhalakati which makes planks for packing cases from Gengwa wood for export to Calcutta.

### Boat Making.

In the Bakarganj district a good deal of boat building is done, especially at Debaikhali and Syampur in Mehendiganj thana and at Ghanteswar near Agarpur. Large cargo boats are constructed at Barsakhali and Sohagdal. Dingi boats are built all over the district and specially at Jhalakati. The Mugs also make hollow canoes out of Keora wood.

### Pati Making.

The Paitryas of Jhalakati thana, and Helencha and Rangasri in Bakarganj thana are well known for weaving pati. The workmen are called Paitryas in Bakarganj. They are Hindus.

Coarser mats are made in the district of Bakarganj from a reed called "nal" (Arendo Tapalis). These are locally called "chas" and are sold at annas 10 to annas 12 a piece. These are also exported to other districts. Besides their ordinary use, the mats are also utilised as dunnage for boats. The subdivisions of Pirojpur and Patua-khali are important centres. The Mug women in the Sundarbans also produce mats.

### Hogla.

This is a char reed from which a rough mat is made. It is used by the poor as bedding. Hogla matting is a special product of the Bakarganj district and is made throughout the district. Jhalakati does a special trade in it and it is exported to Calcutta and other places. That mat is made of different sizes and sold at annas 4 to annas 12 each. It is also utilised in the making of bags for exporting dried fish. A man can earn from annas 4 to annas 8 per day. The weaving of these mats is generally done by women in their leisure hours and is a supplementary occupation.

**Fans.**

Fans are made from palmyra leaves. Jhalakati and Barisal in the Bakarganj district are important centres. These are sold at 15 to 20 per rupee and it is said that about 1,000 men are engaged in this industry.

**Ketaki or Kea (Screw Pines).**

It grows extensively in a wild state all over the district. The Mugs of Khepupara make a kind of mat and a basket of it.

**Blacksmiths.**

High class cutlery is made at Uzirpur and Barapaika in Bakarganj. The blacksmiths of Patuakhali and Nalchiti also make quite good cutlery. Special saws for the cutting of conch-shells are made at Uzirpur. There are about 6 families employed in this work only. The Barisal Cutlery Company produce excellent knives, scissors, buckets, etc.

There is a shop at Barisal making an inferior quality of steel trunks. There is not much of a market for these articles.

**Soap Manufacture.**

Country soaps are manufactured by a few persons at Muladi, who obtain the raw materials from Dacca and sell their products in the Barisal market.

**Horn Work.**

In Bakarganj, this industry is carried on to some extent. The chief centres are Barisal, Bhola, Amtali, Patuakhali and Galachipa. The workers are all Muhammadans and come from Dacca. They get their supply of horn locally as well as from Dacca at Rs. 10 to Rs. 12 per maund. The artisans purchase 2 to 3 maunds of horn at a time. Fifteen to twenty maunds of horn are consumed by each shop in the year. Seven or eight seers of horn are required for 40 combs which are sold at annas 4 to annas 5 each. Two to three days are required to make 40 combs. The shavings of the horn are sold at Dacca at Re. 1 to Re. 1-4 per maund. Difficulty is experienced in the process of manufacture in the sawing, and cutting out the horns. The teeth of the combs are cut by sawing. The polishing is done by scraping. The men work very hard, from early morning till 8 o'clock in the night. The average daily earnings of a man varies from annas 12 to Re. 1 according to season and the demand for the goods.

**Lime.**

Jhalakati is a well-known market for the sale of lime used for human consumption with betel. Shells are found in large quantities in the beel area in the surrounding villages. People collect them in small boats and they are brought to the lime burners and dealers for sale.

### **Tanning and Leather Goods.**

Tanning is done to some extent at Barisal and at Nalchiti by the local Chamars, according to indigenous methods. Good shoes are also made in the Moochi shops at Barisal and Jhalakati.

### **Pottery.**

The chief centres of this industry are the thanas of Nalchiti, Gournadi and Mehendiganj. There is a brickfield at Barisal. The potters who are Kumbhakars by caste earn a fair amount of money by the making of images of Hindu gods.

### **Fish Oil.**

The fishermen of the Barisal coast, Nalchiti, Chandramohonerchar and Kaliganj in the Bakarganj thana manufacture oil from sharks caught by them during the rains. The yield is from 5 to 10 maunds a month during the months of July to October. The oil is prepared in a crude manner by boiling down the liver of the fish in an earthen jar or an iron pan. A co-operative society, if formed among the fishermen, would help them.

### **Cur Making.**

Gur from cane is made in this district specially at Muladi, Gournadi and the Bakarganj thanas. Some of the manufacturers use three roller machines which they get on hire from Messrs. Renwick & Co.

Gur from date-juice is mostly made in Bakarganj. The patali gur of Gabha, Banoripara and Gournadi thana is well known in the district.

### **Oil-Pressing.**

Cocoonut oil is manufactured at Bhola, Amani and Nalchiti. There are three oil mills in the district, one at Jhalakati, one at Nalchiti and the other at Bhola. The oil mills if managed and worked properly should pay well as the raw material is plentiful and it can be had at very favourable prices.

### **Rice-Husking.**

Rice-husking is done by means of dhenkis in almost all the villages of the district. There are three rice mills—two at Jhalakati and one at Jirakati. They are driven by power. Engelburg hullers are used.

### **Hosiery.**

There are 4 hosiery factories in the district chiefly employed in making hose. Two of them are at Bhola, one at Patuakhali and another at Barisal.

### **Possibilities of New Industries.**

Cocoanuts are available in abundance in the district. The manufacture of cocoonut oil and coir rope could be taken up as the conditions are most favourable for their success.

Betelnuts are plentiful in the district. The Mugs manufacture maghi supari at Nalchiti and Paterhat in Sadar subdivision of the district and at Bhola.

#### Dry-Fish.

In the chars Rangabali and Kookuri-Mookuri and others in the south of the Patuakhali subdivision good dry-fish is made from local chingri and other kinds of fish.

### CHITTAGONG DIVISION.

#### Chittagong and Chittagong Hill Tracts.

##### Weaving.

**Cotton weaving.**—The chief centres of the industry are Satbaria, Gasberia, Dolghat, Patiya (police-station Patiya), Katakhal, Noapara, Madarsha, Fateyabad, Hathazari, (police-station Hathazari), Mahmudbazar, Dhemsha, Satkania (police-station Satkania), Mirsharai, Tetaiya, Janardanpur, Bamantala, Mahajanhat (police-station Mirsarai), Rangunia (police-station Rangunia), Cox's Bazar, Ramu and Chakaria (subdivision Cox's Bazar), and Chandraghona and Rangamati (district Chittagong Hill Tracts). The weavers are to be found scattered over almost all the important villages. Some of these weavers earn their livelihood entirely by weaving while others make it a supplementary occupation of agriculture.

The persons or castes of people engaged in the industry and chiefly subsisting on it are known as Tantis, Jogis and Jolas. The first two are Hindus and the last Muhammadans. But even amongst these classes the Jogis and Jolas do a certain amount of cultivation as a secondary occupation. The impetus given to weaving by the non-co-operation movement has succeeded in stimulating the industry to a certain extent. The weaving and spinning of khaddar has however received a setback on account of the low price of machine-made cloth against which the industry has to compete. Many small weaving factories and schools have been established in the district of Chittagong and the fly-shuttle loom has been rapidly introduced among the weavers who formerly used nothing but the indigenous throw-shuttle looms. It is estimated that the number of fly-shuttle looms now working in the Chittagong district is about 6,000.

The fine fabrics, produced by the Tantis, are woven entirely from imported yarns, while the coarser varieties are produced generally by the Jogis, Jolas and the bhadralog class from hand-spun yarn for the weft and mill yarns in the warp. A noticeable feature of the hill people known as the Chakmas, Maghs, Tripuras, Mrungs and Kukis is that they spin their own yarns with the charka from cotton grown locally and weave it into cloth on looms made entirely of bamboo. It is said that about 14,000 of these primitive looms are working in the Chittagong Hill Tracts. It would be a difficult task to replace them by fly-shuttle looms as the latter looms could not easily be accommodated in the huts of the people nor would they be as portable. The yarn is generally spun from cotton grown on the hillside

by the villagers themselves and they have their own methods of dyeing with various dyes.

The looms used by the weaver classes in the Hill Tracts cost not more than Rs. 10 or Rs. 12, on account of the fact that all the parts, with the exception of the sley, are made of bamboo and are constructed by the weavers themselves.

No organisation exists for the supply of yarns to the weavers at whole-sale rates, nor has any provision been made for the sale of their products in the Chittagong districts. Binni cloth, made from cotton of a natural brown colour, is the speciality of this district, and the demand for it is constantly growing, owing to the religious sentiments of the people attached to its use. The economic condition of the weaving classes has improved considerably; a whole-time weaver now earns from Rs. 20 to Rs. 25 per month whereas formerly his income hardly averaged Rs. 15.

The introduction of fly-shuttle looms, warping machines, and multiple shuttle sleys if more widely introduced would increase production to a considerable extent. In this connection it may be said that there appears to be a great future for the establishment of co-operative societies. The organisation of weavers' societies, and yarn stores for the supply of yarns to weavers at a cheap rate, and the establishment of cloth depots for the disposal of the finished products, would go a very long way to prevent profiteering by middlemen. The establishment of weaving schools in the larger centres of this industry, to teach the weavers improved designs, and the use of improved machines, will also benefit these industrialists very considerably.

**Silk.**—The chief centres of silk weaving are Cox's Bazar, Ramu, Teknaf, Maishkhali and Chalaria in Chittagong and Rangamati in the Chittagong Hill Tracts. Pure silk is not woven to any great extent, but the fabrics are generally inter-mixtures of silk and cotton. Fly-shuttle looms have not as yet been adopted at any of the above places for silk weaving. Some years ago Government at the request of the District Magistrate, Chittagong, established a weaving school at Cox's Bazar. The school was well attended by the Mug weavers, but although the women learnt the use of the fly-shuttle looms, its adoption in the village was prohibited by the Mug merchants due to a rumour that was circulated that the Government intended to tax the people and to destroy the local silk weaving industry. When it was found that the women were forbidden to use the sley, and that those who had purchased them had destroyed them, the weaving school was removed to Zorwargunj where it is doing good work. The local mahajans import silk from Calcutta, Rajshahi and Murshidabad, collect cloths from the weavers, and then export them to Rangoon and Akyab. Instead of purchasing coloured silk as was formerly the practice, the merchants now buy ordinary silk, dye it themselves and then distribute it to the workers for weaving. Silk lungis are sold at Rs. 15 to Rs. 30 a piece depending on their size and texture. The workers among the Mongs are exclusively women because according to an old social custom with the Mongs, the obligation of discharging all the duties in connection with the maintenance of the family devolves on the females instead of the male. The workers accordingly can only devote their leisure time to weaving. The production of the looms is

first utilised in clothing the family, but should there be any surplus material over, it is sent for sale. Not less than a lakh of rupees worth of silk and cotton goods are manufactured annually by the Mongs.

### Cotton Ginning.

There is a ginning factory at Chittagong managed by Messrs. Ralli Bros. They buy cotton from Chandraghona in the Chittagong Hill Tracts and Assam. After ginning and baling the cotton, they export it to America. This cotton is short in staple very harsh in feel and mixes quite easily with wool. It is in consequence greatly in demand, and Americans are regular buyers of it. About a lakh of maunds of cotton is exported annually. Recently Mr. P. K. Sen of Chittagong established a ginning factory as an experimental measure with 3 ginning machines driven by power. He hopes to be able to increase the number of the gins as early as possible.

In addition to power ginners there are some men called Dalniwallas, Muhammadan by caste, who purchase kapash and gin it by hand gins, locally called charkas or kerkis. These gins consist of two small wooden rollers one of which is actuated by a handle while the other roller, which is being mounted in bearings above it and in contact with it, also revolves when the handle is rotated. Cotton to be ginned passes through the rollers leaving the seeds behind as the top roller is heavily weighted and in such close contact with the lower roller that the seeds cannot pass through and the cotton is consequently plucked from the seed. The hand gin has one advantage: the fibres are not so much injured as is done in power gins. Some of the Dalniwallas, who chiefly live in the villages of Madarsha, Katakhal and Fatiyabad (police-station Hathazari), control a very large number of workers, chiefly women, who devote their leisure hours to this work and are given in return, for their labour, the cotton seeds as wages. These Dalniwallas have in consequence become quite wealthy. A woman worker in this way earns some thing like Rs. 4 to Rs. 5 per month during the working season which extends from December to June. It is said that about 8,000 workers are employed in the ginning of the crop which averages about 25,000 to 35,000 maunds of kapash, the approximate value of which is Rs. 2,50,000. This cotton is either sold at Chittagong or is exported to Calcutta.

The hand-ginners would be greatly benefited if co-operative credit societies were organised to supply them with kapash on credit and if they were allowed a proportionate share of the profit after the cotton was ginned. The female workers, who are as a rule ignorant seem satisfied with their small earnings which they spend on ornaments and clothing.

### Spinning of Fibres.

**Cotton spinning.**—Cotton is grown chiefly in the Chittagong Hill Tracts, and the method of cultivation is known as "jooming." A great part of the cotton after being ginned goes to America and Calcutta for sale, while a portion of it is sold locally to the hand-spinners. The chief centres of hand-spinning are thanas Mirsarai, Patiya, Fatikcheri, Satkania and Chakaria. The number of charkas working in the district is estimated to be about 20,000.

Kapash or cotton before it is ginned sells at annas 5 to annas 8 per seer and after being ginned and spun into yarns its price varies from Re. 1-8 to Rs. 3-8 per seer according to quality. The average worker is generally able to spin about  $\frac{1}{4}$  to  $\frac{3}{8}$  of a lb. of cotton per day of 12 hours, the counts of which vary from 6's to 40's. The spinning of yarn is done chiefly by women and is sold in the open market at considerably lower prices than mill-spun yarns.

Chittagong is the chief mart for yarn. There is, however, no organisation for the sale of the commodity. The amount of cotton spun into yarn is difficult to estimate, as the work is done by women in their spare time and the yarn spun is not marketed but is woven into cloth.

**Jute.**—About 50 families at Agrabad in the town of Chittagong are engaged in making ropes from jute imported from other districts. The workers are chiefly Muhammadans. They devote only their spare time to this occupation. The men make the ropes while the women prepare the fibres previous to spinning. The earning of a family, by this means, averages about Rs. 180 per year.

The ropes made, generally consist of three strands. The strands are spun into lengths by means of revolving spindles placed horizontally between 2 bamboos and rotated by means of hand. The finished products are used in sailing vessels and there is a fair demand for these ropes. The better qualities are purchased by rope dealers at Chittagong at Rs. 30 to Rs. 40 per maund.

**Sunn-hemp.**—Ropes and twines for fishing nets are the chief products made from sunn-hemp. The fibre is first carded or heckled by drawing it over bamboo or iron spikes fixed vertically. It is then spun into yarn by means of rotating spindles. The work is generally done by men assisted by women and children.

The chief centres of this industry are Bardona, Rupkania, Madarsha, Jaliapara, Ratanpur and Khankhanabad within the Sadar subdivision, and Chakaria, Teknaf, Kutubdia in the Cox's Bazar subdivision. There are about a thousand Hindu and Muhammadan families employed in this work during their spare time. The strings and twine are used in the manufacture of fishing nets.

As is generally the case with all cottage industries the mahajan monopolises the largest share of profits. He is the agent who imports the raw material from Calcutta, Dacca, Sitakund and other places, distributes it among the workers, collects the finished products, after paying the labourers only a nominal wage, and profits enormously by exporting the article to Rangoon and other places. The earning of the actual worker does not exceed Rs. 15 per month.

### Fishing Nets.

In addition to the local fishermen belonging to the villages of Juldi, Ratanpur, Khankhanabad (Sadar subdivision), who make their own nets, there are about a thousand Muhammadan families scattered about the villages of Satkania, Dhemscha, Madarsha, Bardona, Sonakania (Sadar subdivision), who supplement their primary occupation, viz., agriculture, by making fishing nets. These nets are made either of hemp twine or foreign thread spun into twine of 3 or more strands by an arrangement similar to a spinning wheel. These

threads are sometimes sized and spun generally by men assisted by boys, but the making of the nets proper is generally done by women in their leisure time. Among the Muhammadans there are beparis or mahajans, who collect these nets from the actual workers to whom they sometimes supply thread, and export them to Rangoon. The following are some of the various kinds of nets used:—

The phelan is a small conical net of from 1" to  $\frac{1}{4}$ " mesh used for catching prawns or small fry. It costs Rs. 4-8 to Rs. 5-8 according to size and quality.

The hatua or tangya jal is a larger phelan, costing Rs. 10 to Rs. 15.

The balain is a  $1\frac{1}{2}$ " meshed net staked out in rivers for hilsa, etc. It costs Rs. 4 to Rs. 4-8.

The patani is a big 2" meshed net similarly used. It costs Rs. 18 to Rs. 20.

The jhanki chhatki and dang are casting nets costing from Rs. 2-8 to Rs. 14. The first has a  $\frac{1}{4}$ " to  $\frac{1}{2}$ " mesh and the other two a larger mesh varying from  $\frac{1}{4}$ " to  $1\frac{1}{2}$ ".

The bar jal is used for netting tanks and costs from Rs. 30 to Rs. 50 upwards. It has a 3" mesh.

The dharma jal is a small net suspended from a bamboo and dropped into pools and khals to catch small fry.

The ber jal is a big sieve, costing from Rs. 100 to Rs. 150.

The behandi jal is a big stake net of 3" mesh. It costs Rs. 250. It is used on sand-banks for sea and river fishing.

The phanda jal is a long narrow net used to catch phanda fish. Mesh  $1\frac{1}{4}$ ".

The tana jal is a drag net worked by 2 men, its mesh is  $1\frac{1}{2}$ " in size.

### Carpentry.

There are about 20 cabinet-making establishments in Chittagong each employing about 10 to 15 men whose pay ranges from Rs. 20 to Rs. 30. The timber supply is obtained from the Hill Tracts and Rangoon; and the manufactured articles, though of superior quality are inferior in finish compared to the Calcutta product. Wood-carving is also done by some of these carpenters and for such work they generally use Gamar or Jarool, Chambel and Narkuli wood. The total value of the finished products per year averages a lakh and a half of rupees. The village carpenters, who are mainly agriculturists, manufacture doors, carts, cart wheels, ploughs, dhenkis, ordinary tables, chairs, almirahs, etc., and earn about annas 8 to annas 12 per day.

### Loom Manufacture.

Looms being now-a-days much in demand, their manufacture is forming a profitable occupation for many carpenters. At Zorwarganj shuttles and bobbins are also manufactured from a kind of wood called Kanak and these find a ready sale.



### Boat-Building.

Boats, of which the sampans constitute the principal variety, are extensively built in Chittagong. The chief centres are Ashurasta in Chittagong, Kalarpole on the Nyaphari channel and the villages on the banks of the Sankha and Halda rivers including Kolagaon and its adjoining villages. Dug-outs and Kondas are generally built in the Chittagong Hill Tracts and are exported from there to Chittagong and Noakhali. The other varieties of boats built are—

*Chota Saranga.*—This is a dug-out costing Rs. 25 to Rs. 30 and carrying up to 8 maunds. This boat is paddled by one man.

*Bara Saranga.*—It is a big dug-out roofed with bamboo matting, it carries 100 maunds, costs Rs. 140 and requires a crew of 3 men. It is chiefly used for traffic in the canals and shallow water.

*Bharutya.*—It is rather bigger than a saranga and has a movable roof. It carries 100 to 150 maunds and costs Rs. 160. It requires three men to propel it.

*Ad-balam.*—It is a larger dug-out with plank bulwark fastened to the side with cane. It carries from 150 to 200 maunds. It costs from Rs. 180 to Rs. 200 and requires a crew of 5 men.

*Gadu.*—It is larger than the ad-balam although similar in construction. It carries from 200 to 300 maunds. It costs from Rs. 250 to Rs. 300 and requires 7 men.

*Balam.*—It has an extra plank along each side and carries from 200 to 300 maunds. It costs from Rs. 250 to 300 and requires 7 men.

*Jalyano.*—It is larger than the gadu. It is used for deep-sea fishing.

Besides wood a special variety of cane called Bhudun, which is found in Arracan and Ramu (Cox's Bazar subdivision) also forms a valuable raw material for boat-building. It is sold at Rs. 2 for 100 split pieces each 9 feet long.

Boats of different sizes, costing Rs. 1,60,000 roughly, are constructed annually in Chittagong.

### Ship-Building.

Ship-building is an ancient industry of the district. The carpenters who are considered to be expert at ship-building, belong to a hereditary class of Sudras (Hindus) and are inhabitants of Goashail-danga (police-station Double Moorings). Some Muhammadans have also taken up this profession. In all there are about 200 families, scattered along the banks of the Karnafuli from Chaktai to Halisahar, who are reported to be expert ship-builders. The workers earn Re. 1 to Rs. 5 per day of eight hours according to their skill.

Before the building of a brig is undertaken the design is marked out on the ground and a small wooden structure with ribs, keel, etc., is set up. The construction is performed in different stages as stated below:—

- (1) Carpentry and wood work.
- (2) Caulking which consists in the setting up of ridges and the filling up of gaps, etc.

- (3) Mast and sail making.
- (4) Sheeting with copper and brass.
- (5) Ornamental works, such as the setting up of glass panels, construction of cabins, etc.
- (6) Varnishing and painting.

The building work for a moderately large brig which invariably commences on an auspicious day, takes about six months to finish employing in all some 150 to 200 hands working 8 hours daily. A fairly large number of boys are generally employed on the work for the purpose of helping as assistants.

The launching ceremony is a matter of much concern with the owner as it is considered unlucky if the brig gets stuck up or damaged on its way down to the river.

These vessels sell readily in Bombay, Ceylon, Malabar Coast and Coconada. Some of the merchants of Chittagong also get sea-going vessels of various capacities built from time to time either for themselves or for sale. These vessels or brigs are used as cargo boats and during the recent years several such have been constructed and launched. The registered tonnage of these boats varied from 89 to 646. The largest vessel, viz., one of 646 tonnage was built for Mr. A. R. Dubhash and is known as the "Star of Chittagong." It was launched in 1918. It is reported to have cost about Rs. 60,000 and was sold for Rs. 80,000.

Improvements in the manufacture of these vessels were suggested by the Shipwright Surveyor, Chittagong, who was given a sum of money by the Department of Industries, Bengal, for constructing the model of a ship and demonstrating its superiority to the local boat-builders. The model was much appreciated by the ship-builders, but no steps seem to have yet been taken to adopt the improvements suggested.

### **Bamboo.**

The chief centres of the bamboo-mat industry are the villages in Satkania Khas Mahal, Gaurisankar hat, Charati, Narain's hat, Fakir's hat and Lambor hat. It thrives as a cottage industry on either side of the Dolu river in Chittagong.

The mats, woven with finely split bamboos can be made to any desired size. The ordinary specimens known locally as chattais and dharis generally measure 36" by 54" and 54" by 90", respectively, and are sold for 3 annas and 5 annas per piece. They are collected from house to house by merchants and are exported to other districts, Burma and foreign countries for dunnage in ships. The value of the goods yearly produced comes to about Rs. 10,000.

The hill people of Chittagong and Chittagong Hill Tracts are also clever in basket-making. The baskets are extensively used in packing cotton and grains for export from Chittagong and Chittagong Hill Tracts. The cultivators utilise their leisure hours in making baskets, lais and chalanis, etc.

### **Umbrella-Handles.**

Bamboo umbrella-handles are manufactured in a factory at Sitakund. The bamboos are collected from Chandranath and other neighbouring hills and are supplied to the factory at Re. 1-8 per thousand, the royalty charged by Government is paid by the factory. Formerly raw bamboo sticks (locally known as Bazali or Molaï) were exported in large numbers to Calcutta for the making of umbrella-handles from the Mirsarai Hills, Chittagong.

The sticks are first selected and classified according to grades; the sticks are next straightened by heating them over a fire, cleaned and smoothed by sand-papering. One end of the stick is then filled with sand and closed with cow-dung previous to bending it. An iron instrument made in the form of the crook of an umbrella is then heated and the stick is placed over it and is gradually bent into the required form. The heated iron, chars the bamboo on the inner side and the fibres contracting from the crook. The loose end of the crook is then tied to the stick of the umbrella to prevent it from straightening out until it cools down and sets properly. The subsequent processes are the sand-papering, marking and the polishing. The marking is done by burning marks on the bamboo with a blow-pipe flame. The final process is the varnishing which is done with shellac varnish. The working season extends from February to August. Three to four gross of handles are made daily. The wholesale price of a gross of handles of assorted sizes is Rs. 10.

The factory employs about 15 to 20 men, who are paid on the contract system. Their wages vary from Rs. 15 to Rs. 45 per month according to the work done by them. With the training of the local people in the industry, the necessity of importing workmen from Calcutta, which was formerly the practice, has been dispensed with.

Cane walking-sticks are also manufactured at Sitakund from a special kind of cane which is sold at Re. 1 to Rs. 2 each. Raw canes are also collected by the local people from the forests and are sold at annas 4 to annas 8 each. Some of the villages under police-station Patiya are also centres of the industry. These canes are to be found in places up to the Sankha river. They are polished, fitted with brass ferrules at both ends and are sold at annas 8 to Re. 1-8 per stick according to the size and thickness of them.

### **Reeds.**

Excellent mats, known as Sital-patis, are made from reeds called Paitra (*Phyrrnium dichitranim*) which grow abundantly in damp places near Satkania, Narain's hat, Lambor hat, Raozan and Nila in Chittagong. The prices of these mats which are generally (7' x 5') vary from Re. 1-2 to Rs. 6 according to quality. Sital-pati mats find a ready market in Burma, Calcutta and other places.

### **Sola.**

The workers usually belong to the Malakar or Mali class of Hindus, who have acquired the hereditary or exclusive privilege of manufacturing garlands, etc., for ceremonial use in Hindu marriages from sola. The plant grows in water up to a depth of six feet. The

thicker portions of the stem to a length of 2' to 3' from the root are cut off. The pieces are then tied into bundles and stored until dry. After removing the bark, the pith is cut into shapes as required. It is sometimes peeled into thin sheets, not much thicker than note paper by means of a knife. During the Muharram festival decorations are made of this pith and used on the tazias.

#### **Kurup.**

Umbrellas are manufactured from the leaves of a plant locally called Kurup which is available in Chakaria. Of the two varieties manufactured, one is fitted with a straight bamboo handle and the other called Jongra has no handle but is shaped conically to fit the head and serves the purpose of a hat. The manufacturers are generally Muhammadans. Kurup leaves are exported to Daulatganj and Noakhali where they are made into umbrellas and the finished article sells at Re. 1-8 to Rs. 2 according to quality. About Rs. 5,000 worth of these leaves are sold annually.

#### **Blacksmithy.**

The village blacksmith, an indispensable entity in villages is responsible for the manufacture of agricultural implements and other household articles and owing to the nature of his work he is so far unaffected by foreign competition. He earns on an average Rs. 15 to Rs. 25 per month. Some blacksmiths of Chittagong manufacture daos, bolts, nuts, etc., and do ordinary repair work. Occasionally steel trunks are also made by them but owing to the superiority and cheapness of the imported article, they are not much in demand. Number of the employed men in this industry is about 300.

There also exists an iron foundry and engineering workshop at Chittagong fitted with some machinery driven by an oil engine. Orders for sugarcane crushers and repair work of sorts are executed at this factory.

#### **Tinsmithy and Repair Workshop.**

Tinsmiths who are found in every mufassal place of importance turn out ordinary lamps, jugs, etc., by utilising kerosine oil tins. A factory also has been established at Chittagong to manufacture buckets from corrugated iron sheets, wall lamps and other petty brass articles. The average monthly income of a worker at this factory is about Rs. 18.

**Brass.**—There are eight shops at Chittagong employing in all about 40 men, which manufacture brass hookas by remelting old brass articles. The finished articles sell at Rs. 2-8 to Rs. 2-12 per seer. The finishing and polishing, etc., of the hookas is done with files and on crude hand power lathes. The hookas are a speciality of Chittagong and find a ready market locally and are also exported to other parts of Bengal.

#### **Hide Curing, Tanning and Leather Goods.**

**Hides.**—Hides are exported to a large extent to Calcutta, Dacca and Burma. The more important hide centres are Panchalaish, Bibirhat and Amjarbag where about 40 merchants are to be found

who collect hides from slaughter-houses or from individual dealers and cure them with salt. The wet-salted hides, called Meshki, sell at Rs. 15 to Rs. 20 per maund, while dry-salted ones at Rs. 25. The market, however, fluctuates from day to day.

**Tannery.**—The most important centres of tanning are Zorwarganj, Chittagong and Raozan. There is no regular tannery to be found in the district and the ordinary tanning work that is undertaken is done by isolated groups of Rishis, Muchis and Chamars, the former two classes being inhabitants of Bengal and the latter of up-country. They are more or less self-supporting. The liming process takes some 15 to 25 days and the deliming for which rice gruel is mostly used, takes some 6 to 10 days. The tan-stuffs used are Sonaloo, Kerfa, Goran bark and Myrabolans, etc., and the whole process takes about 2 to 3 months. The tanning demonstration given by the Department of Industries, Bengal, at Chittagong was much appreciated by the local Chamars and some of them have actually taken to chrome tanning. Number of men employed in this industry is about 150.

**Boots and shoes.**—Boot and shoe making is done on factory lines at Chittagong. In a factory at Anderkilla in the town of Chittagong, the Mochis employed earn Rs. 15 to Rs. 25 monthly. The leather is obtained from Calcutta. At Chittagong local Chamars make rough shoes and slippers from bark-tanned leather for the use of the poorer classes.

#### Pottery.

The industry employs a large number of people in the district. The chief centres are Bibirhat, Kalipur, Satgar, Kadalpur, Bajalia, Halisahar, Mirjapur, Kusruskhul, Teknaf and Maishkhali, where cooking pots, water jars, tobacco pots, hookas, etc., are manufactured. At Bibirhat rough earthen tea cups are also made. A potter earns on an average about Rs. 12 to Rs. 15 per month.

Bricks are manufactured at Bibirhat, Nasirabad, Dampbara, Sitakund, Bhatiyari. At Bibirhat in Chittagong, there are about 20 families engaged in making ordinary tiles. The finished product is not of good quality but finds a ready sale in the neighbouring villages. The workers are all Muhammadans and are primarily agriculturists.

#### Tailoring.

There are many tailors in Chittagong. They may be divided into two classes—

- (i) Those making garments, etc., from cloths supplied by the customers.
- (ii) Order suppliers—those who make garments on order from stock of cloth kept in their shop.

Both classes of shops employ a master tailor and a few paid tailors at monthly salaries varying from Rs. 20 to Rs. 35. Cutters are also employed in some of the big shops who are paid at the rate of Rs. 50 to Rs. 60 per month. The income of a master tailor who keeps a shop varies from Rs. 50 to Rs. 100 per month. There appears to be no system of home-work in these shops. Most of the tailors are local Muhammadans who come to their duty at 8 or 9 a.m., and sometimes

work up to 11 p.m., according to the pressure of work. There are also a few such shops owned by Hindus who are mostly men from other districts. In most of the shops Singer's sewing machines are used and they are obtained generally on the hire-purchase system. The garments made at these shops are shirts, coats and punjabis. The sewing charges of which vary from annas 8 to Rs. 2, while special orders are executed according to the material used. Five to six hours are required by a tailor to make a shirt or a punjabi. The rent for each shop varies from Rs. 10 to Rs. 25 a month. The second class of tailors, i.e., the order suppliers, get their cloths from local Marwari shops, where a big stock of cloth is always kept. A would-be tailor receives his training in one of these shops. He is generally apprenticed to a shop either owned by a relative of his or where his relative is employed. When he has learnt something of his trade he is either employed in the same shop on monthly wages or if he has got the necessary capital he opens a new shop. The result of this practice is that the tailoring business is continually extending in the district and employing an increasingly large number of men. During the paddy harvest time some of the Chittagong tailors go to Akyab with their machines for 3 or 4 months to make clothing for those who go there to cut paddy, etc., and thereby earn quite decent sums. This sometimes causes a shortage of tailors even in the town shops. There is yet another class of tailor who lives in Haldarpara near Chakbazar in Chittagong. They carry on their work at their own houses. They generally make plain nainsook or khaddar caps with or without embroidery—the embroidered cloth for these caps is imported from Delhi and other places. They do not keep any regular establishment. They do the sewing, etc., with the help of their family members. These caps are consumed locally. Some are also exported to Noakhali and the southern parts of Tippera. Each cap is sold at 1 anna 6 pies to 2 annas, the cost of cloth for each being 6 to 9 pies. The whole village practically consists of tailors of this kind, there being about 100 to 150 families subsisting on this particular work.

#### Chemical Industries.

**Sati.**—This is a kind of food prepared by pulverising the roots of the sati plant. The plant is found in abundance all over the district. In many houses a small quantity of the food is prepared, but in such cases the roots are not wholly utilised. The process of manufacture in use is as follows:—

The roots are collected and washed. The outer skin is peeled off with a knife and it is then rubbed against the rough side of a piece of tinned iron. (The roughness is produced by piercing the piece of tinned iron with a nail.) The pulp thus made is placed in a vessel with sufficient water and stirred thoroughly. The fibrous matter is separated by filtering the mass through a piece of cloth. The water is allowed to remain in the vessel along with the pulp and the sediment is separated by decantation after a day. The process of washing is repeated until the bitter taste disappears. The food is sold in the market at annas 6 to annas 8 per seer. As the industry is not profitable and the process is tedious it is practised by women in their leisure hours during the winter season. There was a factory at Chittagong which used to make sati food by pulping the roots by

means of a disintegrator and causing water to circulate through the mass during the time of pulping by a force pump. The machinery was driven by an oil engine. The factory could not continue the work for want of a regular supply of raw material, though the industry appeared to be a profitable one. To keep a factory working, large quantities of raw material is needed but as this plant has not as yet been cultivated, the collection of the roots is a difficulty and so the industry can only be carried on on cottage lines. The sati plant grows abundantly in a wild state, and is to be found in almost every village.

**Soap.**—Soap is manufactured only at Chittagong in this district. There is a small factory in the town of Chittagong known as the Islamabad Soap Factory, which makes washing soaps and inferior qualities of toilet soaps. Workmen are employed in this factory on a monthly salary of Rs. 15 to Rs. 20 each. It is gradually enlarging its business and is said to be doing well.

**Paper.**—There is a village by the name of Kagjipara in Patiya thana in the district of Chittagong, where paper-making is still being carried on by a few families as a supplementary occupation though in former days almost all the villagers were employed in this industry. The papers made by them were of very inferior quality but they were used by Government, the zamindars and the schools as they were never touched by book-worms. Some of the documents written on these yellow papers in 1200 Magi Survey (1839 A.D.) are preserved in the collectorate record room and are still in good condition. With the introduction of machine-made papers of various kinds, this cottage industry has practically died out. Only a few men in the village are now making papers which are used in making kites and book covers. Some local zamindars, however, use these papers now and then in their offices. In the village there are only 10 to 15 men who can do the work well. Five or 7 men working for 8 hours a day can make 100 sheets of paper. Kite papers are sold at about annas 4 per quire and annas 8 per quire of yellow paper.

These rough yellow papers are now made from sunn-hemp which is purchased at Rs. 12 to Rs. 20 a maund according to quality. The supply of this raw material is got from the neighbouring villages. The fibres are cut by hand, mixed with lime and then pounded in a dhenki and reduced to pulp. The pulp is then put into bamboo baskets which are dipped into a tank containing water. The pulp is trampled by workmen and reduced to powder which then finds its way through the meshes of the baskets into the water. The water is next agitated and it becomes turbid. The pulp is gathered on a bamboo sieve in sheet form and is then placed on a smooth block of wood. The sheets are then separated and dried in the sun. The process is a very tedious one and requires a good deal of skill. The paper is polished and dyed. For polishing, the sheets are rubbed with a piece of stone soaked in mustard oil. For yellow colour they use sulphide of arsenic (harital), the proportion being 1 tola or  $\frac{1}{2}$  oz., for a quire of paper. The arsenic is mixed with rice gruel and the papers are soaked in the solution and dried. Women and children also assist in the above operations. There are some women who unaided by men can perform all the processes. About 8 seers of rice gruel or starch is required for every 100 quires.

### Sugar Making.

**Cane.**—Sugar is not manufactured in this district, but molasses or gur is made. The chief centres are Sitakund, Bariyadhala, Mirsarai, Dhoom, Rangunia and Kundehat in Chittagong. The three-roller crushing machines with iron rollers are gradually replacing the indigenous sugarcane crusher which consists of two long wooden rollers mounted vertically geared into each other by threads cut at the top of each roller. One of these rollers is made to revolve and the other being geared to it also does likewise. The sugarcane is passed between the rollers and crushed and the juice which is thus extracted flows into a receptacle. It is then boiled and allowed to cool. Messrs. Renwick & Co. of Kustia have got agencies all over Eastern Bengal and supply crushing mills to the cultivators on hire at Re. 1 to Re. 1-4 a day.

### Oil-Pressing.

Kolus or oilmen are scattered all over this district. They extract oil from mustard and til seeds with the country-made ghanis. Locally produced oil is always preferred by the people to mill-made oil but the former cannot compete with the latter as the cost of production is greater. Chalmugra and castor oil are manufactured at Chittagong by Mr. P. K. Sen with a hand hydraulic press. There is also a steam-driven oil mill at Chittagong.

### Possibilities of New Industries in the District.

There is a great possibility of starting a tannery at Chittagong. Hides are exported in large quantities from the port of Chittagong. Tanning material is available in the forests and there is a good market for leather at Rangoon. If a tannery with up-to-date machinery is opened here, there would be no difficulty in the disposal of the finished hides and leather goods.

Raw materials for paper pulp, such as Ekra grass, bamboos and nals, etc., are available in large quantities in Chittagong and the possibilities of establishing a paper mill here are very favourable.

At Chandraghona and in the Chittagong Hill Tracts there are no factories of any sort. Earthenware, tin and iron utensils are imported from other districts. These industries could be profitably carried on at Chandraghona and Rangamati.

Small weaving factories with power looms could be established with advantage in the important centres of the district.

### Tippera District.

#### Weaving.

**Cotton.**—The chief centres of cotton weaving are Tantipara, Maijpara and Burdair (in the Brahmanberia subdivision) and Dhanti, Pihar, Dishaband, Bagmara, Budhar, Jashpara, Mainamati, Gunjar, Kalikapur, Gunabati and Jorkaran (in the Sadar subdivision) of the district.



**Mainamati.**—About 300 families are engaged in weaving fine cloths. Checks of various patterns suitable for lungis, shirts, punjabis and suitings are made here. Mosquito nettings and Jam saris of fairly good quality are woven at this place. The weavers are also acquainted with twill weaving and some of them know the weaving of fine and thin cloths.

In Tantipara there are about 40 families who weave fine cloths from imported yarns—tanjabs, trandams, pugris, chadars, dhutis and saris are the chief products of the looms. These fabrics are exported to Dacca and are sold there as Dacca cloths. Ordinary weaving with fly-shuttle looms is done by about 20,000 weavers and their products have both local and outside sale.

The weavers of Sarail and Kalikacha in the Brahmanberia subdivision make dhutis and chadars of good quality and sell them from Rs. 20 to Rs. 25 per pair.

**Kalikapur.**—There are about 20 weavers in this locality who weave saris and dhutis from imported mill-made and home-spun yarns varying from 20's to 40's. The yarns are purchased locally or are imported from Comilla. The finished fabrics of coarser variety are sold locally and the finer fabrics are sold to Comilla merchants at rates varying from Rs. 5 to Rs. 8 per pair. Fly-shuttle looms are not readily taken up, but with the increased demand for country-made cloths they are trying to introduce improvements in their primitive looms.

**Cunabati and Jorkaran.**—About 20 families of weavers are engaged in these villages in turning out coarse cloths from home-spun and mill-made yarns which they get from Feni and Comilla. The finished products find a local market. The weavers as usual prefer the primitive looms to fly-shuttles.

**Daulatpur, Mathabanga, Ramkrishnapur, Srinagar, Chanderchar, Nilakhai and Manipur in Homna police-station.**—About 100 families of weavers are engaged in these villages in weaving coarse cloths such as dhutis, saris, lungis and gamchas both from home-spun and mill-made yarns. The outturn is not very large and the finished products find a ready market in the locality. Besides the professional weavers, some Muhammadan families have taken up the industry as a supplementary occupation. The weavers prefer fly-shuttle to the primitive looms but are handicapped for want of sufficient capital.

Besides the above centres, about 200 weavers are engaged in the south of Comilla in weaving coarse cloths such as dhutis, saris, gamchas, etc. These are sold locally and are also exported through merchants to other districts.

**Jute.**—The chief centres of the jute weaving industry in this district are Rammohan (Sadar), Homnabad parganas, Shibnagar, Rajmangalpur, Mirpur and Dharmanagar (thana Kashba), Shibpur and the neighbouring villages within the jurisdiction of Nabinagar thana and Bholakot (thana Nasirnagar). The workers engaged in this industry are all Kapalis. The finished products are similar to those of Barisal and the methods of weaving and the disposal of the finished products are almost the same as those followed by the Barisal Kapalis. This industry is dying out in the Brahmanberia subdivision.

### Spinning of Fibres.

**Cotton.**—The impetus given by the present movement to hand-spinning and hand-weaving has induced many persons to take to spinning and it is estimated that about 10,000 spinning wheels were working in this district in recent years.

**Jute.**—Jute spinning is carried on by the Kapalis of the district with the takko and the yarns produced are used in making gunnies.

### Hooka Making.

This industry has been in existence at Comilla from time immemorial and is mainly confined to Muhammadans. Many of the workers solely depend upon this industry while there are others who take it up as a supplementary profession, depending mainly upon agriculture. The shells are obtained from Dacca, Bakarganj and Noakhali, without any husk, at prices varying from Rs. 10 to Rs. 60 per thousand according to quality. These are then shaped and polished by simple hand tools. They are dyed black with tari-pods and ferrous sulphate, etc. The nature of the dye and the process of dyeing is kept a secret. About Rs. 5,000 to Rs. 6,000 worth of these shells are used up every year and the value of the finished products is about Rs. 10,000. These hookas are generally sold at Dacca, Sylhet, Brahmanberia and Assam. The economic condition of the workers is far from satisfactory.

### Naicha Making.

Naichas are manufactured in Comilla and its suburbs. There are about 40 workshops in which about 200 workmen are engaged. The workers are mainly Muhammadans. The wood is obtained from the Hill Tippera forests at Re. 1 per c. ft. and it is turned into the required shapes by means of primitive hand lathes. The preliminary shaping is done by ordinary carpenter's tools. The naichas are dyed black. About Rs. 5,000 to Rs. 9,000 worth of raw material is worked by the men annually. The chief markets are Dacca, Mymensingh, Jalpaiguri, Brahmanberia and Assam. The workers earn about annas 12 a day.

### Boat Making.

Dingis (cargo boats) are made to some extent in thanas Homna, Bancharampur, Nabinagar and Sarail of the district.

This business is increasing in volume and importance both in Brahmanberia town itself and Chandura and Budhanti in Brahmanberia subdivision.

### Articles of Bamboo, Cane and Sola.

Hill people in the district are very skilful in making bamboowares. Baskets of various sizes and shapes are made from split bamboo and are used in exporting cotton and food grains.

**Khalpa or chatai from bamboo.**—The chief centres of this industry are Kalikapur and Burichang. About 35 to 40 men in Kalikapur are engaged in this industry. The bamboo is obtained from Hill Tippera

and the finished articles are exported through middlemen to Dacca, Narainganj, Calcutta and Chittagong. The average income of chatai-makers varies from Rs. 8 to Rs. 10 per month.

In Burichang about 300 workers are engaged in this industry. Chatais are made from split bamboos. The economic condition of the workers is far from satisfactory. The workers are entirely under the influence of mahajans who advance money and get the men to work under a contract system at a certain fixed rate. The finished articles are exported to Dacca, Narainganj, Chandpur, Lohajang and other important places.

Umbrella-handles are also made from bamboo in the district and there are two factories at Brahmanberia, manufacturing the same. These are also made at Singerbeel and in tracts along the hills. Most of these home-industry products find local sale but some are exported. This industry is gradually growing and increasing in volume.

**Cane.**—At the Comilla Jail all sorts of articles are made of cane. In the villages of Konda, Binuti, Malai, Ranidia, Jinadpur, Meruna and Uttardhantalia in the Brahmanberia subdivision also various kinds of cane articles such as cane bags, tiffin-baskets, trays, chairs, etc., are produced. These are in no way inferior to those imported from Japan. The articles are exported to Calcutta and are sold at the following prices:—

Double-flapped bags—

| Bags. |    |    |    |    |    | Rs. | A. |
|-------|----|----|----|----|----|-----|----|
| 16"   | .. | .. | .. | .. | .. | 3   | 9  |
| 15"   | .. | .. | .. | .. | .. | 3   | 2  |
| 14"   | .. | .. | .. | .. | .. | 2   | 9  |
| 12"   | .. | .. | .. | .. | .. | 2   | 2  |

Baskets.

|     |    |    |    |    |    |   |    |
|-----|----|----|----|----|----|---|----|
| 18" | .. | .. | .. | .. | .. | 1 | 4  |
| 20" | .. | .. | .. | .. | .. | 1 | 6  |
| 24" | .. | .. | .. | .. | .. | 1 | 12 |
| 26" | .. | .. | .. | .. | .. | 2 | 2  |

Single-flapped bags—

| Bags. |    |    |    |    |    |   |    |
|-------|----|----|----|----|----|---|----|
| 16"   | .. | .. | .. | .. | .. | 2 | 9  |
| 15"   | .. | .. | .. | .. | .. | 2 | 5  |
| 14"   | .. | .. | .. | .. | .. | 2 | 3  |
| 12"   | .. | .. | .. | .. | .. | 1 | 10 |

Suit cases—

|     |    |    |    |    |    |   |   |
|-----|----|----|----|----|----|---|---|
| 16" | .. | .. | .. | .. | .. | 1 | 5 |
| 18" | .. | .. | .. | .. | .. | 1 | 8 |
| 20" | .. | .. | .. | .. | .. | 2 | 2 |
| 22" | .. | .. | .. | .. | .. | 2 | 5 |
| 24" | .. | .. | .. | .. | .. | 2 | 9 |

Cane baskets are also made at Sengaon, police-station Chandpur.

**Reeds.**—Patis of ordinary type are made in large quantities in some of the villages near Comilla from a kind of plant (motag) which is grown extensively in the villages of Udiapur, Seriamina and

Bishalgarh and Hill Tippera. The finished products are sold to Comilla merchants as well as to local customers at wholesale and retail rates. Sital-patis, which are of finer qualities, are made to some extent in the villages at Etharpur and Asrabpur (police-station Chandina) of the Brahmanberia subdivision, and Paikasta and Kutubpur (police-station Chandpur) in the Chandpur subdivision.

Caps from the palmyra fibre are made by Muhammadan women in their leisure hours and are sold at prices ranging from annas 3 to annas 12 according to quality.

#### **Brass Articles.**

The chief centres of this industry are Brahmanberia, Ramchandrapur, Maijpara, Betgarh, Mogra, Badurgarh and Pandhan-Khanbazar. In Brahmanberia alone there are about 50 houses concentrated in one place and known as Kansharipara. The workers are called Kansharis and are Hindu by caste. The brasswares such as kalsis, ghatis, degchis, etc., are made out of imported rolled sheets and are exported to the neighbouring districts. Old brass articles are also melted down and are beaten into sheets for making the bottoms of the brass vessels. There are some rich Kansharis who do not work themselves but employ labour and have the goods made at their houses. The average income of an artisan varies from Rs. 15 to Rs. 20 per month. The workers as usual are very conservative and do not like to take to any improved methods of work. There is a Braziers Sale and Supply Society at Brahmanberia which is registered under the Co-operative Act and financed by the Central Co-operative Bank. The Society got a loan of Rs. 7,000 from Government free of interest. The workers work at their homes in Kansaripatti and send the finished goods to a shop started by the society at Brahmanberia Bazar.

#### **Mother-of-pearl Buttons.**

Buttons are made from mother-of-pearl shells in many of the villages of Tippera specially at Ramcharanpur and Ranidia in the Brahmanberia subdivision. The shells are bought at a nominal price from fishermen who carry on pearl-fishing in the Meghna river.

This industry is not flourishing due to the importation of cheap foreign articles.

#### **Tanning and Leather Goods.**

Hides are exported to Dacca and Calcutta from Tippera to some extent. There is, however, no organised tannery in the district, but the village Moochis tan the hides by the ordinary bark-tanning process and make inferior shoes and slippers for the poorer classes. The chief centres are Comilla, Chandina, Chandpur and Brahmanberia.

#### **Pottery.**

The important centres of this industry are Hariipur, Budhanti and Brahmanberia. One Sarat Chandra Pal of Hariipur manufactures earthen bottle-filters. The smaller ones sell at annas 10 each while the larger ones are sold at Rs. 5 to Rs. 6 each. Sand and powdered charcoal are mixed and used as the filtering surface. The industry is done on a small scale and the process of manufacture is kept a secret. There is also a tile factory at Brahmanberia.

The potters near about Akhaura also make tiles for local and outside supplies. There is a tile-making factory started by Mr. J. C. Roy about 3 miles to the north of Brahmanberia which does a fair amount of work.

#### **Safety Matches.**

There were about 8 factories in Tippera equipped with Dr. Nandi's machines, all of which have been closed down for want of a ready market for the products which could not compete with mass production factory made products in quality and price.

#### **Hosiery.**

There is a hosiery factory at Comilla manufacturing underwears. Six men are employed in this factory and the outturn is about 2 dozen daily.

One hosiery factory has been started at Brahmanberia and an oil engine has been brought to work the machinery.

Ganjee (underwear) and stockings, etc., are also made on hand machines at Shilandia, police-station Chandpur.

#### **Dry-Fish Industry.**

This is an important industry of this district having centres in the southern side of the Brahmanberia subdivision and in the Daudkhandi thana of the Sadar subdivision. The method of drying is primitive and the fishermen are slow to adopt new processes. In Daudkhandi thana the industry is mainly carried on by fishermen from Sylhet and Mymensingh districts. The yield ranges from 30,000 to 40,000 maunds and it sells at Rs. 17 or Rs. 18 per maund. A kind of fish oil is also prepared in a crude form by boiling down the liver of the fish in an earthen jar or an iron pan. The oil is sold at Rs. 12 to Rs. 13 per maund and is used for lighting the earthen lamps.

#### **Iron and Steel Articles.**

In the Sadar subdivision and in Brahmanberia there are blacksmiths who manufacture high class daos, fishknives, pruning knives, spades and other agricultural implements. Some blacksmiths of Medda and Ramchandrapur manufacture high class cutlery. There is a power-driven factory workshop called the "House of Labourers" at Comilla which manufactures high class pruning knives for use in tea gardens as well as other articles on a commercial scale. It also undertakes steel construction work, buildings and bridges. It has received widespread patronage and promises to become a local industry of considerable importance. Iron safes are manufactured at Puran Bazar, Chandipur, but not on a very large scale. Buckets and trunks are made at Mognitooli, Monharpatti and Kandirpar in the Sadar subdivision of Comilla.

#### **Umbrella-Making.**

This industry is conducted on a small scale at Brahmanberia and also at Comilla with imported cloth and sticks, but sticks are mostly supplied locally.

**Noakhali District.****Weaving.**

**Cotton.**—The chief centres of cotton weaving are Feni. Chhagalnaiya, Parasuram, Begumganj, Fatepur, Lakhipur and Chandraganj. Dhutis, Saris, gamchas, checks and coloured cloths both of coarser and finer varieties, suitable for shirting and coating, are woven. Lungis of superior quality dyed with fast colours are woven in the villages near Parasuram, Feni and Lakhipur. Mosquito nettings, both white and coloured are woven in the suburbs of Feni and Lakhipur, but those of Choumuhani are of superior quality, and have a reputation in the market. Feni has of late become a notable centre for khaddar cloths, which are exported to Calcutta and other places in large quantities. At Choumuhani also business on a large scale in locally woven cloth is transacted on hat day.

There are some weaving schools in the District, of which the one at Begumganj financed by Government and District Board deserves special mention.

**Wool.**—Sandwip has made satisfactory progress in the matter of blanket weaving. Rugs made of Cawnpore and local wool combined seem to be really good, while ordinary blankets and prayer seats made of pure local wool have already won a reputation. There are a large number of sheep in the island of Sandwip, which yield wool for this purpose. Government arranged for a demonstration to stimulate the development of this industry which offers a very fair prospect in future.

**Jute.**—There are about 50 houses in Nateswar (police-station Begumganj) and about 40 houses in Hatripur (Senbag police-station) engaged in making gunny bags.

**Spinning of Fibres.**

**Jute.**—Kapalis spin jute for gunny bags, etc. Jute ropes are also made at Choumuhani and sold locally.

**Cotton.**—Coarse and fine yarns locally spun are available in the markets of Feni, Chhagalnaiya, Parasuram, and Sonagazi. These are exported outside the district. It is estimated that 22,000 charkas are working in the district.

**Reeds.**—Sital-patis, chiknis, and chatais are made in the villages of Motabi, Fazipur, Parasuram and Chhagalnaiya for export as well as for local use.

**Carpentry.**

Good carpenters in this district are rare. Most of the local men doing merely ordinary business. Hence cabinet makers generally employ Hindu carpenters of Tippera, and Muhammadan carpenters of Chittagong on monthly wages varying from Rs. 20 to Rs. 30 per month. The Hindu carpenters of Swarupur and Gopalpur are noted for their workmanship. Sandwip carpenters are known for their skill in making elaborately carved bedsteads, which find favour with the better class villagers. Indian sugarcane presses, which were formerly made in Chhagalnaiya are gradually disappearing and making room for foreign iron presses.

### Blacksmiths.

There are blacksmiths in almost all important bazars in this district. Most of them manufacture cutlery of everyday use, i.e., daos, spades, sickles, etc., which are sold locally.

The blacksmiths of Dattapara are famous for their skill in manufacturing cutlery decorated with brass ornamentation. In Noakhali town some blacksmiths make bolts and nuts, and do ordinary repair work.

### Brassware.

Five shops in Noakhali town, and two in Feni manufacture badnas, cap-moulds, and trays. Noakhali badnas have a reputation of their own and command extensive sale. The artisans are the natives of the district. A worker can finish 3 cap-moulds in 2 days. It is usual to take 16 or 17 badnas at a time, and to finish the whole batch in about a fortnight. The articles are generally disposed of wholesale. The cap-moulds are sold at Rs. 2 to Rs. 2-8 each and badnas are generally sold at Rs. 2-8 to Rs. 3-8 per seer according to quality.

### Pottery.

The important centres are the villages of Champaknagar and Andharmanik under police-station Chhagalnaiya, and also Attakora and Parakot, under police-station Ramganj. Earthen garus, Badnas, sankis, cups and other small articles of pottery are generally manufactured.

### Chemical Industries.

**Soap.**—There are two soap factories in south Hatiya and one at village Amanulla in the island of Sandwip, that manufacture washing soaps from cocoanut and Punnal oil.

**Safety matches.**—There were three factories, which have now all disappeared.

### Sugar-Making.

Rab-gur is manufactured in Sandwip in fairly large quantities. Gur is also manufactured near Feni and Chhagalnaiya and Sonagazi. Of late the industry has developed in the Government Estate Char Bangsi.

Sugar-candy is made at Lakshmpur on a small scale, and sold locally.

### Oil-Pressing.

**Punnal oil.**—This oil is extracted from a fruit called Punnal which grows in the island of Sandwip. The chief centres are Sandwip, Madarhat, Maitbhanga, Bhuaishat and Chowdhuri's hat. The industry is an old established one and is carried on by Muhammadans who are inhabitants of the island. In all about 25 families are engaged in it. The fruits are purchased from the market at 2 or 3 annas per seer. They are decorticated and the kernel after being dried are put into ordinary ghanis and the oil is extracted from it. About 2 maunds

of dried fruit yields a maund of oil, which is sold at Rs. 22 to Rs. 24 per maund. The total annual output is about 3,000 maunds. The oil was formerly used for burning but is now utilised for making soaps. It is also exported to Dacca, Chittagong, and Hatiya Island. The oil cakes are used for fuel, and also for the making of tikkas for smoking. It is sold at 1 anna to 6 pice per seer.

**Mustard oil.**—The Kuloos press oil from mustard seeds, and sell it directly to customers at Feni, Sinagazi and Fulgazi, Dattapara, Nandigram and Charbangsi.

**Cocoonut oil.**—It is manufactured for household consumption through a very crude and protracted process. The yield of cocoonut in this district is fairly large. Attempts may therefore be made to introduce scientific method in the manufacture of this oil.

#### Buttons.

Buttons were formerly made at Durgapur. The industry has now disappeared.

#### Tanning.

There is a tannery under the Raipur Co-operative Industrial Union which was established on July 3, 1924, as a result of a demonstration by the Department of Industries. The business is showing signs of development. The leathers tanned are sent to Calcutta for sale.

Tanning on a small scale is carried on, in the old fashion, by the cobblers of Kishoreganj bazar. They also manufacture shoes for local use.

Sufficient quantity of hide is available in the chars, and islands within the district.

#### Coir-Making.

There are great possibilities for this industry in the district of Noakhali; and particularly in the islands of Sandwip and Hatiya, abounding in cocoonuts; a demonstration in coir-making in Sandwip islands, has already led to some progress being made in this direction.

### RAJSHAHI DIVISION.

#### Rajshahi District.

##### Brass and Bell-Metal Industry.

**Nator subdivision, Kanaikhali and Paluapara villages.**—About 16 men of the Bairagi class are engaged in the making of bell-metal spoons of different shapes and sizes. Old bell-metal wares to the extent of about 52 to 53 maunds are used as raw materials, the approximate value of which comes to Rs. 2,700 per year. The quality of the articles produced is fine and they are well finished and are much appreciated by the public. The weight of the finished product is about 50 maunds per year and their approximate value is Rs. 10,000.



The old wares are melted in crucibles specially made. Charcoal produced locally, is used as fuel. The requisite quantity of metal for the making of a spoon is put in a crucible and a number of such crucibles are arranged in the furnace for melting. The solid mass from the moulds is then beaten out, filed, scraped and finally polished by hand.

The tools used are very simple, such as hammers, anvils, files forceps and scraping tools. They require very little repairs. Special tools are made locally out of old files.

At the end of 1921 these workers were organised and a co-operative society was started. The society got a loan of Rs. 400 from the National Central Bank with the help of which they have been able to get out of the clutches of the mahajans. Before the formation of a co-operative society a worker used to earn about Rs. 20 per month, but his present income comes to about Rs. 25. The workers could still further increase their income, if they devoted more energy to their work. These brass-workers get the supply of their raw materials from local dealers: The finished product is disposed of to the local bell-metal and brass ware dealers and also to private customers. Sometimes these wares are supplied to the Co-operative Stores Depot in Calcutta, according to the orders they receive. The workers have no other occupation.

**Budhpara village.**—The brass and bell-metal industry of Budhpara is carried on on an extensive scale. There are about 42 workshops and quite a number of men are engaged in this industry.

Raw materials are supplied by the mahajans who receive the old wares partly from beparis and partly from Calcutta. The people here do not make new alloys but use old wares as their raw material. The total quantity of raw materials consumed in a year is about 1,730 maunds, the approximate value of which comes to Rs. 76,000. The raw materials consist of 1,250 maunds of bell-metal, 420 maunds of brass, 33 maunds of bharan and 27 maunds of zinc.

Bell-metal thalas (big plates) and cups, bharan tumblers, and brass pitchers, big pots (handis), pans, etc., of different shapes and sizes are made.

#### Process of Manufacture.

**Bell-metal.**—Old wares are broken to pieces and put in crucibles which are made locally. A crucible is used only once. It is placed in a furnace and heated by charcoal firing for about 5 or 6 hours when the materials melt and are sufficiently liquid. The crucible is taken off the furnace and a hole is punctured on its side and the molten mass is poured into a series of small earthen pots smeared with oil. A little salt and borax powder is sprinkled over the molten mass before being poured into the small earthen pots to form ingots. This is done to clarify the metal. The ingot is called khuti. The khutis are heated and beaten out. Bell-metal cannot be beaten out unless it is hot so the process of heating and beating out is carried on several times until it is given a definite shape. The beating out of the material is very laborious and requires the services of six men at a time. One holds and manipulates the metal piece (khuti) on the anvil and 5 men hammer alternatively. If a man or two of this gang of hammerers remain absent from work, the others have in

consequence to remain idle. The final shaping of the material is done by light hammering.

After the metal wares have thus been beaten out, the articles are scraped with sharp tools made from old files. The final scraping and polishing are done on country lathes.

Bell-metal is extremely brittle and it requires careful handling as any crack or breakage cannot be mended unless it is melted again. All wares are done in one piece as the metal cannot be welded together. The wastage in the course of manufacture is from 3 to 5 per cent.

**Brass.**—The process of manufacture is nearly the same as that of bell-metal. Zinc  $6\frac{1}{2}$  per cent. by weight is mixed with old brassware before melting, and it requires about 12 hours' heating in the furnace. In most cases several ingots are beaten out, made into different shapes and then welded together. This metal is easier to handle as holes or breakages can easily be mended. The brass articles are cleaned and polished on a lathe. The wastage of this metal in the course of manufacture is 6 to 8 per cent.

**Bharan.**—This is a metal which is neither bell-metal nor brass but is a mixture of both. The articles manufactured consist chiefly of cups and tumblers. The articles are made by casting in moulds. They are then scraped and polished on a lathe. A crucible is used for a single casting. A number of such crucibles, with the requisite quantity of raw materials in them, are placed in the furnace and the metal contained in each crucible is just sufficient for a single casting.

### System of Organisation.

All workshop-owners, with the exception of 6 or 7, are in the clutches of the local mahajans, and have to depend on them for the supply of their raw materials and for the sale of the finished goods. The workshop-owners are compelled to receive big advances from the mahajans in addition to the supply of raw materials as they are required to pay the salaries of their workmen in advance, without which labourers for this purpose are not available. The mahajans supply raw materials and receive the finished goods in return after paying the cost of production called *bani*, the rates of which depend upon the quality of the articles produced. It is said that the workshop-owners, who are the experts, are worse off than the daily or monthly wage earners. The mahajans themselves get fairly good profit on the capital they invest. Their profit comes to about 12 to 15 per cent. The collection and disposal of the raw materials, the selection of new designs, etc., and the final disposal of the finished products are all organised and managed by the mahajans. Reports show that the number of workers is decreasing, the reason being that the rate of *bani* or wages has not increased in proportion to the increased cost of production as well as the cost of living. The profits they now make though much increased are hardly sufficient to allow them to live as they did before. These economic, strained conditions are prevalent everywhere.

The workshop-owners are not responsible for anything else but to find suitable labour, and to manufacture the articles while the mahajans have to do everything else. These mahajans dispose of their goods to shop-keepers, beparis and also export them to other places, sometime for cash and sometime on credit. They also collect old wares through the same sources.

The industry was at one time entirely in the hands of Kansaris but subsequently the Kaivartas and Muhammadans also took up the business as it was found to be very profitable.

The workshop-owners experience great difficulty in procuring workmen particularly for the beating out of the metal which is very hard work. At least a day's rest after every 3 or 4 days' work is necessary.

The total yearly production at Budhpara is about 1,200 maunds of bell-metal wares, 400 maunds of brasswares and 30 maunds of bharan wares, the approximate value of which is Rs. 2,00,000.

**Kalam village.**—There are nearly 44 workshops and about 160 men engaged in brass and bell-metal industry. The men are mostly Kansaris and Muhammadans who have no other occupation.

Raw materials consumed yearly amount to about 800 maunds old bell-metal wares, 870 maunds old brasswares, 50 maunds zinc and 52 maunds old bharan, the value of which would be about Rs. 60,000.

Thalas, cups, tumblers, pitchers, pans and handis of different shapes and sizes are made at the above village.

The total yearly outturn is 750 maunds bell-metal wares, 850 maunds brasswares and 50 maunds bharan wares—the approximate value of which comes to Rs. 1,80,000.

The process of manufacture and the organisation for the disposal of the finished products are similar to those described under village Budhpara. The workers here, however, seem to be more in debt to the mahajans and their condition is worse. Many of the workers, having been deprived of their property, are reported to have fled from the villages.

#### **Abstract.**

The total yearly production of brass and bell-metal wares in the district of Rajshahi is nearly 3,330 maunds, the value of which comes to about Rs. 3,50,000 to Rs. 4,00,000.

#### **Matka Weaving Industry.**

The yarn produced from pierced cocoons is called matka. The spinning of yarn is done by women with takko. At present practically speaking the whole of the yarn consumed in the district of Rajshahi comes from the district of Malda. The yarn received by the weavers is first bleached with soda or saji and the ash of banana plant. By bleaching, the yarn loses about 33 per cent. of the weight. It is then sized with khai starch, made into warps and woven on very primitive looms.

There are only 8 villages in the Sadar subdivision where matka weaving is carried on. The weavers are Tantis by caste.

| Names of villages. | Number of looms. |
|--------------------|------------------|
| Dakra Raipur       | ... 9            |
| Chandan Sahar      | ... 16           |
| Hajrahatti         | ... 10           |
| Bharatipara        | ... 4            |
| Nandangachi        | ... 2            |
| Palashi            | ... 3            |
| Panikumra          | ... 13           |
| Keugachi           | ... 7            |
| Total              | ... 64           |

Rearing, reeling and weaving of matka are also carried on on a small scale in Charghat and Paba police-stations. The outturn is small and the products are sold locally as well as in the adjoining districts.

There are in all 50 families with 64 looms in the district. The looms are of the throw-shuttle pattern and are chiefly made from the tar palm wood. Good carpenters are not available for making looms. Experts from the district of Pabna visit these villages to supply reeds or to repair them for the weavers.

The raw yarn consumed yearly in the district is about 50 maunds and its approximate value is Rs. 28,000. Yarn made in this district is about a maund per year. The art of matka yarn spinning in this district is practically dead as pierced cocoons are not available. At one time the matka yarn in this district was considered to be of excellent quality but now it is with difficulty that the yarn is obtained.

Matka chadars, thans of 10 yards in length, and dhutis and saris with red silk borders are made from these yarns. On an average 1,500 pairs are produced annually, the value of which is about Rs. 45,000.

#### System of Organisation.

The yarn dealers of Malda visit the above villages and sell the yarn to the weavers usually on credit. The weavers dispose of their finished product mostly to the agents employed by the mahajans for cash. Sometimes they receive "dadans" as well. The mahajans, after collection, sell the goods in the local markets of Rajshahi and also export some quantity to Calcutta. In pre-war days a large quantity of matka cloth used to be exported to the Punjab and other places but this business is practically stopped due to the abnormal rise in the price of these goods. For example, a pair of cloth which used to cost only Rs. 9 to Rs. 10 has gone up to Rs. 22 to Rs. 24. Necessarily there is no demand for them now. The weavers are as a rule idle, are not inclined to work to their full capacity and have a tendency to make more profit by doing less work. If an order is placed with them they do not keep up to the standard and the goods are seldom delivered in time. The average income of a weaver is Rs. 20 to Rs. 23 per month. These weavers could easily increase their income by about Rs. 5 to Rs. 7 per month if they would work to their full capacity.

### Blanket Making Industry.

**Keshabpur-Veripara village.**—There is only one village where blankets are made in the district. About 12 to 15 families are engaged. They are up-country men settled here for a long time and are Garoli (Veriwala) by caste. The female members with the help of children do the spinning of yarn and the male members do the weaving, washing and milling. Everything is done by hand. Raw material, i.e., sheep's wool, is imported from Bhagalpur, Calcutta, and other places and the price ranges from Rs. 40 to Rs. 65 per maund as reported by the people themselves. Most of these people have a secondary occupation, mainly service. Wastage of wool during the course of manufacture including dust, etc., comes to about 35 to 40 per cent. Long pieces in small width of about 22" are woven. No looms are used. Several pieces are then stitched together. Finally the blankets are finished by washing with water and treading at the same time to loosen the wool in order to make the article appear like a compact woven sheet. The prices of blankets vary from Rs. 4 to Rs. 12 a piece. About 500 pieces are made yearly. The average earning by this pursuit comes to about annas 4 only per head per day. The profit being very small, most of the people do this work in their spare time, i.e., whenever they are off from their other duties. The weavers do not find much difficulty in selling these goods in winter. Some are sold locally and the rest are purchased by blanket dealers who come to the places in winter. The weavers make blankets throughout the year but they experience great difficulty in storing their goods during the damp hot season when the blankets and wool are very much affected by insects. The use of dried Nim leaves in the folds of blankets has been suggested for storing. Nim leaves have a great germinicidal effect and cost nothing.

Woollen blankets are also manufactured on a small scale at Rajshahi town from the country sheep wool and there is considerable demand for them. The method of production is crude and the price is comparatively high.

### Cotton Weaving Industry.

**Naogaon subdivision, Dokachi village.**—There are about 37 to 40 families engaged in cotton weaving with about 26 fly-shuttle pit-looms and about 20 country looms. These people get looms from Kushtea and Santahar. Cultivation is the primary occupation of most of them. They produce gamcha, dhuti, lungi, and mosquito curtain pieces. They get their yarn from local markets and hats. The sizing and warping is done in the usual country way. The yarns used are from 16 to 32 counts. On an average a loom is worked only 6 months. About 7,000 lbs. of yarn is consumed in a year. Usually the weavers dispose of their finished goods in the local hats. The people are giving up using throw-shuttle looms and are taking to fly-shuttle pit-looms with roller shuttles.

**Ishabari village.**—There are in all about 15 families with 15 country looms (small) used by men of advanced age, all of whom are fairly well off but cultivation is their main occupation. The weavers of this village formed themselves into a co-operative society. The supply of yarn and the disposal of finished goods are managed by the Co-operative Sale and Supply Society of Naogaon. The yearly consumption of yarn of 16 to 32 counts is about 2,800 lbs.

**Bilkristopur village.**—There are about 28 families with 10 fly-shuttles and 20 country looms. Cultivation is the primary occupation of these workers. The yarn consumed is about 3,000 lbs. yearly and the counts of yarn are 20's to 40's. Fourteen persons of this village are members of the co-operative society. The members have the benefit of the supply of yarns and the disposal of their finished products from the Co-operative Sale and Supply Society of Naogaon. The non-members manage their affairs like the people of Dokachi village.

**Lohachar village.**—There are about 12 families with 7 fly-shuttle and 10 country looms. Cultivation is the primary occupation of most of them. The yarn consumed yearly is about 2,200 lbs. of 16's to 40's. The supply and disposal of the finished goods is done through mahajans.

**Rajapur village.**—There are about 32 families with 30 fly-shuttle and 6 country looms. Cultivation is a secondary occupation and is followed by the majority of these people. The yarn consumed yearly is about 8,000 lbs. of 20's to 50's. About 25 persons have joined the co-operative society of the village. The means for the supply of yarn and the disposal of the finished goods are similar to those of the village Bilkristopur.

**Raninagar-Pubpara village.**—There are about 18 families with 20 fly-shuttle looms. Cultivation is a secondary occupation for most of the people. About 4,500 lbs. of yarn 20's to 40's are consumed yearly. The co-operative society of 18 members has gone into liquidation. The members of this village also used to get the benefit of the supply of yarns and the sale of finished goods through the Co-operative Sale and Supply Society of Naogaon.

**Raninagar-Paschimpara village.**—There are about 36 families with 27 fly-shuttle and 10 country looms in the village. Cultivation is the secondary occupation of most of the weavers. About 9,000 lbs. of yarn from 20's to 40's are consumed annually. The co-operative society, consisting of 35 members, has gone into liquidation. The members of this village also used to get the benefit of the supply of yarns and the sale of finished goods through the Co-operative Sale and Supply Society of Naogaon.

#### Abstract.

Abstract of villages Dokachi, Ilshabari, Bilkristopur, Lohachar, Rajapur and Raninagar (Naogaon Subdivision).

Families—180.

Fly-shuttle looms—120.

Country looms—80.

Quantity of yarn per year—36,500 lbs.

Counts usually used—16's to 50's.

Cotton weaving is carried on in many of the small villages and the weavers are scattered throughout the district and no reliable data can be had of them.

The weavers, however, have realised the advantage of fly-shuttle looms and the number of them is increasing daily. A weaver's income

comes to about Rs. 25 a month. The Inspector of Industrial Co-operative Society, who is stationed at Naogaon, is also a weaving expert and gives instruction to the local weavers who are members of the society, in making of new patterns and designs. The weavers of the above villages are all Muhammadans. The approximate value of raw materials comes to Rs. 50,000 and that of the finished product would be Rs. 80,000 per year.

### **Tanning and Shoemaking.**

**Sadar subdivision, Shipaipara village.**—Three or four persons out of 35 of the same class are engaged in the art of tanning. These people are up-country men, who have settled here for generations, and are Moochi by caste.

Cow and buffalo hides are generally used for tanning and both raw and dried hides are used. Only one half of a hide at a time is done by each individual, as the earthen pots used for steeping purposes are small.

The goods are soaked in pure water and cleaned. Lime paste is then applied on the flesh side and left overnight. The hides are put into the lime pot and handled every day. Liming goes on for about 20 days. The hides are unhaired and soaked in water for some time and then fleshed. Unhairing is done by means of a country butcher's small knife while the side is spread on a flat piece of wooden plank. Fleshing is done with the aid of a broad khurpi. The goods are then washed and put in fresh tan liquor composed of pounded myrabolan only. After 3 or 4 days fresh tan liquor is made and the goods are steeped in this for 5 or 6 days and tanning finished by the bag method. In a bag they put chopped parasite plants, which grow on mango trees. When thoroughly tanned the goods are washed and dyed, cow hides are generally tanned and coloured black by iron sulphate for manufacture of boot uppers. For tanning, sometimes calf skin is used and both tanning and shoemaking are done by one man who tans the leather for his own consumption. The methods are very crude and much material is usually wasted. The outturn is extremely small and a man can earn by this industry about Rs. 15 to Rs. 20 only per month.

**Nator subdivision, Lalpur village.**—There are 15 persons engaged in this industry.

Here the process of tanning is almost indetical with the one described as adopted in the above-mentioned village, Shipaipara, with the exception that the workers of this locality do not tan their goods by the bag method, consequently the leather produced is under-tanned, and much inferior in quality. The villagers overcome this under-tanning by applying a solution of khari salt to the flesh side of their half-tanned leather. By virtue of its capacity for retaining a considerable quantity of moisture the hide remains soft but only temporarily; so shoes made from such leather become in the course of use very hard and shapeless when this artificial application of salt is washed off. The villagers use their production of leather for the making of shoes. They manufacture leather to a limited extent but the whole production is negligible as they also import leather from Calcutta. The total outturn of shoes is nearly 1,800 pairs per year. These goods are disposed of locally. If there be an accumulation of

goods, the villagers take the articles to Nator where they are sold. Bristle stitching is not used.

The industry is not centralised and is difficult to localise.

#### **Steel Trunk, Suit-cases, Boxes, etc.**

This industry has come into existence in the Rajshahi town proper during the last 5 or 6 years and is gradually growing. The raw materials are obtained from Calcutta and the products are consumed locally bringing in a fair amount of profit.

#### **Carpentry.**

Bullock cart wheels are manufactured with babul wood and the products are consumed locally as well as exported. The methods of production are slow and crude and require improvement. There is a good demand for these wheels.

#### **Gur-Making.**

This is made all over the district. Some sugar candy is also made from gur by crude methods but no sugar. The products are sold locally as well as exported.

#### **Pottery.**

**Tile-making.**—This is an infant industry carried on in a crude style and on a very small scale at Tanore in imitation of Raniganj tiles.

**Earthenwares.**—Earthenware pots, plates, etc., as well as rings for wells, are manufactured by the crude methods and are in great demand. Selection and preparation of clay and the process of manufacture require improvement.

#### **Cane and Bamboo Work.**

Cane and bamboo baskets, darma mats, chairs, etc., are made in several villages on a small scale and are sold locally. With better training both the quality and outturn might be improved.

### **Dinajpur District.**

#### **Weaving.**

Cotton weaving is carried on mostly in the following places:—

*Khansama police-station.*—Khansama.

*Birganj police-station.*—Debirbazar and Jharbari, Dangapara.

*Thakurgaon police-station.*—Gorea, Kesarbari and Baragaon.

*Baliadangi police-station.*—Jaunia, Shabazpur, Gohalgari and Khasiadanga.

*Ranisankail police-station.*—Bhandara and Ranisankail.

*Kotwali police-station.*—Raniganj and Chinirbundar.

*Itahar police-station.*—Chabhote, Thibila, Jalligram Namtar, Bhabanipur, Shahabhita, Dhansal and Bhorote.



The main centres of the industry are Debirbazar, Jaunia, Shabazpur, Chinirbandar, Ranisankail, Khansama, Kesarbari, Ranirbandar, Churamon and Borote.

The probable number of looms in the district will be 2,000 and there are very few fly-shuttle looms.

The industry is confined mostly to Hindu Tantis, Jugis and Polias; the number of Muhammadans is very limited.

About 27 per cent. of the weavers have additional income from cultivation or other business.

The yarn used is mostly English. Japanese yarn is used in some cases. It is procured from Calcutta by big yarn dealers and distributed to all places mostly through middlemen. Sometimes the weavers borrow money at a high rate of interest to purchase yarn or to meet expenses for family ceremonies. As a rule the weavers are encumbered.

The weavers generally work for 6 to 8 hours a day. The children and women assist them in setting up the warp and winding the bobbins in their spare time.

It may roughly be stated that yarn, both grey and coloured, to the value of Rs. 9 lakhs is consumed yearly in the district of Dinajpur for the manufacture of cotton fabrics.

Ordinary kapas, photas, lungis, chadars and gamchas are generally made. Dhutis and mosquito curtain pieces are also woven in some places within Itahar police-station. Yarn of 14's to 24's is mostly used and yarn of higher counts up to 50 is also used to a very limited extent.

It may roughly be calculated that cotton fabrics to the value of Rs. 13 lakhs are annually manufactured in the district.

The finished fabrics are put in the market by the weavers themselves and by the middlemen in almost all important parts of the district.

The most important centres of trade are Lahirihat, Bochaganj, Gorea, Khanshama, Raiganj, Dhonkol and Patiraj.

The average income of a weaver is only Rs. 15 per month.

The weavers of the district have not yet taken to fly-shuttle looms and their method of making warp is primitive. They do not make long warp and consequently they are required to make warp at short intervals. The people like to have heavy coarse goods which are consequently heavily sized. Considerable improvements can be effected in cotton weaving in this district if arrangements are made to teach weavers to handle fly-shuttle looms, to make long warp by improved methods and to size yarn in shanks effectively in a simpler way. There is a considerable demand for this kind of locally made coarse fabric and the demand would be greater if the articles could be made cheaper. Almost the whole of the produce is consumed by the people of the district.

Silk endi is manufactured on a small scale in villages Khalakhali, Ruhia and Barshalupara in Thakurgaon subdivision from endi yarn available there. The raw material is available in a very small quantity and is sold in the market. Bhutia people come in the cold season and purchase endi yarn for their use.

### Jute Spinning and Weaving of Coarse Quality.

Jute spinning and jute weaving are carried on more or less throughout the district by the women members only and the income thus earned becomes their private fund. The spinning of jute is done on a frame something like the Monipur loom. The chats are brought by individual persons to hats where they are collected by merchants. The principal hats where these kinds of chats are collected are Lahirihat, Bochaganj, Fakirganj, Kathihar Sibganj and Alwar. There are three merchants of Lahirihat who collect this kind of chat to the value of two lakhs of rupees from that hat alone. It is reported that three merchants of Lahirihat and three merchants of Dinajpur town export this kind of chat to the value of Rs. 4,00,000 every year. The chats are sent to Calcutta where they are baled and finally exported to Bombay for packing cotton. Each chat costs about annas 8.

It is doubtful whether the makers of these chats make good profit but whatever is earned during their spare time is a gain to them. Moreover, in the majority of cases, the makers do not pay for the jute but produce it on their land. The male members do not grudge a little amount of jute taken by their female members to make a little income of their own. There is considerable doubt whether the people will invest something to begin with in order to improve the condition of the industry by having improved hand-loom and hand-spinning machine for the purpose, unless a number of such machines are distributed free by Government, or by any organised party.

Chats of a little finer quality are also made for the purpose of meeting the local demands. They are used by the people for spreading and covering purposes. No estimate of its production could be made.

Finer kinds of chats are available at Dhonkol, Pathiraj and Sarai hats. These chats are also made by the women members of the cultivators and are sold in hats. They are used for spreading and covering. Spinning of yarns for such kinds of chats is done by takko. A large number of these chats are made in many places within Raiganj, Kaliaganj, Bansihari, Kushmandi and Itahar police-stations. They are also made at Kaharol, Kangaon, Harirampur, Daulatpur, Gangarampur and everywhere in the Thakurgaon subdivision. Most of these chats are used by the people of the home district. It is reported that a few are exported to Bihar.

### Gur and Sugar Making Industry.

Gur is made from sugarcane juice all over the district. It is made on an extensive scale in many places within the jurisdiction of Birganj, Pirganj and Patnitola police-stations; also at Kaharole, Bochaganj, Raniganj, Ghoraghat, Nawabganj and Phulbari. There are depots of Messrs. Renwick & Co. and other firms at various centres. These firms hire cane-crushing mills to the cultivators. The mills hired are mostly three-roller mills. Several families combine together to hire a mill between them and this system enables them to make the full use of the mill. A pair of bullocks are required to drive a mill. It is reported that when the bullocks are very strong about 60 per cent. of the juice can be extracted but usually about 50 per cent. of the juice is extracted. The juice is boiled in shallow iron pans and

the pressed out cane stalks are used as fuel. Most of the gur produced is consumed by the people of the district. A portion is exported to Dacca and Faridpur by boat and to Rajshahi and Malda by carts. In one place within the radius of 6 miles there is an extensive cultivation of sugarcane. The area under cultivation would be about 30,000 acres. The average outturn of gur per acre from the existing varieties is about 40 maunds per acre. The facility for transport is by carting. The place is about 15 miles from Dinajpur town. There is a river within this area but only navigable for about 10 months in a year. The total production of gur is about 40,000 tons. The area may be considered as the best place for any scheme for sugar refinery. An experiment may be made to crush the canes by mechanically driven mills which may increase the outturn by about 50 per cent.

Sugar is manufactured in villages Sonkati and Ruhia in Thakurgaon police-station from treacle available locally, but the production is very small and is not sold in the market.

#### Hides.

Hides are cured at Dinajpur and Raiganj and are sent to Calcutta for sale.

#### Cart Wheels.

Cart wheels are made by carpenters of Salwood purchased locally or imported from Siliguri and other places in the Dooars and are sold in fairs, hats and locally.

#### Smithery.

Tyres of cart wheels, kurals (hatchets) basilas, ploughshares and other articles of husbandry are made at Patnitola, Kotwali, Porsha and Raiganj which meet local demands. The raw materials are purchased from mahajans who import them.

### Jalpaiguri District.

#### Cotton Weaving Industry.

The most important cottage industries of the district is cotton weaving which is being carried on mostly in the following places:—

*Sadar police-station.*—Paharpur, Balapara and Mandalghat.

*Titalya police-station.*—Titalya.

*Moynaguri police-station.*—Dharampur, Kristanagar, Ballirpara, Halpahree, Jorpahree, Patgram, Chengrabandha and Bholpati.

*Boda police-station.*—Kharija, Magura, Jatanpakree, Meerghar, Amtala, Kajipara and Jholia.

The important centres of this industry are Paharpur, Titalya, Kristanagar, Meerghar, Ballirpara and Jholia.

The industry is mostly confined to the Hindu Tanti class; the number of Muhammadans engaged in the industry is very limited.

Twenty per cent. of the weavers have additional income from agriculture or other business.

The probable number of hand-loom will be 1,750 and they are mostly old country looms. The fly-shuttle looms have not been taken up by the weavers of the district due to their ignorance and prejudice.

The yarn used is mostly English. It is procured from Calcutta by Marwari dealers and then distributed to the weavers, sometimes directly and sometimes through other local middlemen; 14½'s to 24's yarn are generally used. Yarn of higher counts up to 50 is also used to a certain extent.

Weavers purchase yarn on credit from Marwari dealers direct. Sometimes they purchase yarn from local middlemen on credit on terms of repayment in cash or on condition of selling the finished product direct to the local middlemen, who are, as a rule, well-to-do persons of their own class. Sometimes the weavers borrow money at a high rate of interest to enable them to purchase yarn or to meet the expenses of occasional family ceremonies such as marriages, etc. The weavers generally work for 6 to 8 hours a day. The children and women assist them in setting up the warp and winding the bobbins in their spare time.

It may roughly be stated that yarn both grey and coloured to the value of Rs. 8 lakhs is consumed yearly in the district of Jalpaiguri for the manufacture of cotton fabrics.

Ordinary photas, lungis, chadars and gamchas are generally made. They are used by the local people, who use rather coarse fabrics.

It may roughly be calculated that cotton fabrics to the value of Rs. 12 lakhs are annually manufactured in the district.

The finished fabrics are generally put in the market by the weavers themselves or through the middlemen in almost all hats. The great centres of such trade are Boda, Pachagarh, Debiganj, Maynaguri and Titalya.

The average income of a weaver by cotton weaving is about Rs. 16 per month. The weavers are, as a rule, not better off than ordinary cultivators.

The weavers of the district still make their warp by natai and size the warp by stretching, which prevents them from making long warp at a time. The weavers are of opinion that sizing could not be made so good when it is done in shanks. The people are in favour of having heavily sized goods. Considerable improvements can be effected if arrangements are made to teach the weavers to handle fly-shuttle looms, to make long warp by improved methods and to size yarn effectively in a simpler way. There is a considerable demand for local made coarse fabrics and the demand would be greater if the fabrics could be made cheaper. The greater portion of the produce is consumed by the people of the district and the balance by the people of the Dinajpur and Rangpur districts.

### **Jute Spinning and Weaving Industry.**

Jute spinning and weaving is carried on to a certain extent by the women cultivators in the western parganas. It is done mostly by the people of Debiganj and Boda side. The chats are of coarse type and collected in hats by middlemen for export. The merchants of Domar do a considerable business in this trade. The makers of these chats do this work during their spare time and whatever is

earned during the spare time must be considered as a gain. In the majority of cases the makers do not pay for the jute which they take from their produce of land.

### **Sugar and Cur Making.**

In the villages round about Pachagarh and Rajganj thanas sugar and molasses are made from sugarcane. The manufacture of sugar is almost extinct.

### **Rangpur District.**

#### **Satrancha Weaving Industry.**

**Rangpur Sadar subdivision.**—Satrancha weaving is carried on in the four following villages commonly known as Nesbatganj:—

In Parbatipur village 5 men are engaged in the work. About 900 lbs. of yarn of 8's to 10's are consumed per year and the value of the finished products is about Rs. 1,200.

In Pirijabad village 16 men are engaged in the work. About 2,700 lbs. of yarn are consumed yearly and the value of the finished products is about Rs. 3,700.

In Damodarpur village 10 men are engaged. The yearly consumption of yarn is about 1,800 lbs. and the value of the outturn is Rs. 2,400.

In Barabari village 6 men are engaged. The yearly consumption of yarn is about 1,100 lbs. and the value of the outturn is nearly Rs. 1,500.

Neither loom nor reed is used, and the warp is worked by healds only. Two or three or more men work at the same time. The weft is worked out by hand after the type of solid border weaving, and is finally placed in position by beating with iron comb. When the work with a single weft is finished by all the workers on the same piece, a heald is raised and another weft is worked out and so on. This is a very slow process and 2 men working the whole day can only finish a piece of satrancha 7' 6" in three days. The average earning per head per day by this work is from 4 to 5 annas only. Yarn of 10 counts is used for warp and 8 to 9 counts for weft. Yarn is procured from the local markets. Satrancha is generally made according to size and quality as ordered by the dealers. Designs are worked out by yarn of three main colours, deep blue, light blue and red. Grey yarn is used only for warp and coloured yarn for weft. The dyeing of yarn is done by the workers. Deep and light blue yarn is coloured by indigo and red by synthetic dyes purchased from the bazar. It is interesting to note that these people cultivate indigo plants on their own land. Indigo for their own purposes is made by ordinary methods of steeping, fermentation and churning for oxidation. The indigo is preserved in paste form, and used as required.

The dyeing of yarn is done by a mixture of banana plant ash, lime, gur and indigo. During the War the work of this industry was practically stopped for want of yarn but the work is again being gradually taken up. The main occupation of the Muhammadan workers is cultivation.

The total number of men employed in this industry is from 35 to 40. The annual consumption of yarn comes to about 6,500 lbs. and the approximate value of the outturn is Rs. 9,000.

All weavers are Muhammadans and cultivation is their main occupation.

Their economic condition appears to be good. The industry is very limited. Goods are prepared according to orders received from dealers, but there is not so much demand for this stuff in view of the abnormal rise in prices. It is reported that cheaper fabrics from other provinces are displacing the local product.

### Cotton Weaving Industry.

**Kurigram subdivision, Patilapur village.**—In the village there are nearly 50 families having 33 country looms. All are Muhammadans and most have cultivation as a secondary occupation. Both coloured and grey yarn of 16 to 40 counts are procured mostly from Calcutta and Kushtea by an influential person of the village, and sold to the weavers, but sometimes yarn is got from Ulipur as well. Lungis and dhutis in small quantity but principally gamchas (napkins) are made. The total quantity of yarn consumed is about 7,000 lbs. per year and the produce is sold in Ulipur and Thetrai hats. Occasionally cloth dealers come to the village and collect the goods by house to house visitation.

**Khamarkishorpur village.**—Only 5 to 6 families with 6 country pit-looms are engaged in cotton weaving. They get yarn from Ulipur and about 1,300 lbs. of yarn are consumed yearly. Other conditions are similar to those of Patilapur village described above.

**Nilphamari subdivision, Dimla village.**—There are only 2 families with 3 country looms in the village. Lungis, commonly known as fotas, are made of coloured and grey yarn. Stray looms are found in villages here and there.

The industry is worked on a very limited scale in this district. It is being carried on in partially concentrated form in two villages within the jurisdiction of Kurigram subdivision. The looms operated there are limited to about 40, all of which are old pattern country looms. There are solitary looms here and there in the district, but no account of them could be taken.

### Silk Weaving.

Endi cloth is woven at Karipur, Sundarganj and Belka in Gai-bandha subdivision.

### Cigar Making Industry.

**Sadar subdivision, Chengamari village.**—Tamizuddin Sarkar of the above village has learnt this art under the guidance of Demonstrators deputed by the Department of Agriculture, whose aim is to

introduce cigar-making as a home industry and all his family members participate in the work. His production is about 1,500 cigars per week and these are disposed of locally.

The industry is only in its infancy and the products are far from being satisfactory. Unless a central organisation is formed with proper arrangements for grading and aging cigars after they are collected from the rollers, there is very little hope of improvement in the quality of cigars. The central organisation will have to arrange for sale as well. If the proposed cigar factory comes into existence it may be in a position to act as the central organisation.

### **Jute Spinning and Chat Making Industry.**

The industry is being carried on by a large number of persons, mostly women, members of the cultivators' families, in the subdivision of Nilphamari. A few neighbouring houses in the villages of Goybari and Nadabesh are found where jute spinning and chat weaving are carried on. Practically speaking no elaborate appliances are required for the purpose. No reed or loom is used and the warp is worked out by healds. Workers fit up their small appliances outside their houses and the whole contrivance is taken inside the house when not required. These chats are used as a substitute for blankets both for the purpose of spreading and covering. The business is brisker during winter. Rough statistics are collected from the principal markets of these goods and the goods are mostly sold in the hats of Boragari, Sathibari and Nautara, their number would be from 15,000 to 20,000 pieces and their value comes up to Rs. 18,000 to Rs. 25,000. Chats of very fine texture are also available but are not made unless ordered. Ordinary chats, the prices of which range from Re. 1 to Re. 1-8 per piece, are usually made and generally available. The villagers purchase raw materials either in the shape of spun or raw jute and sell their finished products in the local hats.

### **Ivory and Horn Works.**

**Kurigram subdivision, Panga village.**—The art of ivory working at Panchgram Khandikarpara (Panga) is practically dead. At one time there were about 16 or 17 persons engaged in ivory, horn and wood work. They used to be mainly supported by rich people for whom they did fancy work with ivory. The main production used to be done at rich men's houses on the monthly wage system and tusks were supplied to the workers but now for want of such support and encouragement the art is lost. Expert workers are now all dead and young men have not taken up the work and tusks are not available. At present 3 persons work with wood, and buffalo and deer horns. They make mostly kharam (wooden sandals studded with horn pieces), horn bangles and bowlas for a couple of months or so and then dispose of the produce in the markets. Their main occupation is now cultivation and no good ivory articles could be found in their houses even for samples.

### Brass Work Industry.

Utensils are manufactured at Gomnati in thana Domar and Jhunagach Chapmani in thana Joldhaka in Nilphamari subdivision.

### Shoemaking Industry.

**Rangpur town.**—About 50 shoemakers are engaged in this place and manufacture footwear. They come from the Arrah district and live with their families and turn out about 20 pairs of shoes a day, i.e., about 7,000 pairs per year. Leather is got from Calcutta. Both vegetable and chrome tanned leathers are used for uppers and Julundhar buffalo leather for soles. One worker has a sewing machine and does stitching of uppers and charges on the piece-work system. Most of these people go back to their homes in the early part of the rains and come back again in the beginning of summer. They know their business pretty well.

### Wooden Utensils.

Wooden utensils are made at Bagduar, police-station Mithapukur in Sadar subdivision.

### Bogra District.

#### Cotton Weaving Industry.

Cotton weaving is the only cottage industry of the district other than silk weaving and is being carried on in several villages within the Sadar, Gabtali, Shibganj and Adamdighi police-stations.

The important centres of this industry are—

*Sadar police-station.*—Jogaipur, Dashtika, Somoil, Satsimla, Lakshipore, Fulbari, Kristopur, Manpara and Rahimabaz.

*Adamdighi police-station.*—Bamnigram, Lakshmikole, Saraswati, Mehonpur, Gudamba, Muradpur, Kesharta, Satingaon, Saul, Dhamaill, Raikali, and Dattabaria.

*Gabtali police-station.*—Maliandanga, Kalakopa and Joybhoga.

*Shibganj police-station.*—Panchadas, Palikanda, Saidpur, Damgaro and Malahar.

The important centres of this industry are Somoil, Dashtika, Bamnigram, Lakshmikole, Mohonpur and Satingaon.

The industry is confined mostly to Muhammadan Momins and Jolas who are now styled as Karigars. There are also some Hindu Tantists and within the jurisdiction of Adamdighi, Shibganj and Sadar police-stations.

Almost all the Muhammadan weavers add to their income by cultivation.

The probable number of hand-looms would be 1,000. The people have taken to fly-shuttle looms to a large extent. The number of such looms is daily increasing.



Yarn is procured from Calcutta by Marwari dealers and then distributed through middlemen. Sometimes the weavers purchase yarn from local hats. Yarn of 16 to 40 counts is generally used and yarn of higher counts up to 60 is also used to a certain extent.

Condition of the weavers here is much better than it is in the adjoining districts. The women and children assist weavers in making warp and winding bobbins. The average income of weavers from this source is Rs. 15 to Rs. 25 per mensem.

Dhutis, chadars, chheetas, khadis, gamchas, gauze curtain for mosquito net and lungis are made. Full sized dhutis are rarely made but chheetas and khadis varying in length from  $2\frac{1}{2}$  cubits to 5 cubits and gamchas for which the demand is great are made in large quantities. The finished products are put in the local hats for sale.

Cultivation is the primary occupation of a large number of weavers. Many professional weavers have given up weaving and taken to agriculture and other more profitable occupations. The rise in prices of yarns sometime back and the profitable prices of jute and other agricultural produce are in a great measure responsible for this decline in this industry. Further the efforts made during the non-co-operation movement to introduce weaving in non-professional families have ended in failure and such looms are now lying idle.

There are 18 weavers' co-operative societies in the district but their work is more that of a rural bank than of industrial societies.

Formation of weavers' industrial societies on a co-operative basis and introduction of fly-shuttle arrangement will go a great way to revive the industry.

### Silk Weaving industry.

Silk weaving is carried on by 7 or 8 Hindu families of Malatinagar (Bogra town). There are only 16 hand-loom at work. The industry is in a moribund condition. The weavers get their supply of raw material from Rajshahi filature works and also from the Marwari silk merchants of Beldanga in the Murshidabad district. A weaver, with a helping hand, can weave about 4 to 5 pieces of cloth per month. Silk saris, dhutis and chadars are made. The approximate outturn of the place is about 5,000 yards of cloth annually, the value of which would be about Rs. 16,000. Formerly the business was very flourishing. The produce is entirely used by the people of the district.

Much improvement of the industry can be effected if fly-shuttle looms attached with doobby for border designs be introduced. It is expected that the weavers will have a greater margin of profit if they can produce more in shorter time by taking to fly-shuttle looms in the place of the old country looms. The price of these goods has gone up very high due to the abnormal rise in the price of raw silk and the people can hardly afford to pay so high a price for a piece of cloth. Consequently, the weavers are compelled to sell their produce, keeping a low margin of profit. If the fly-shuttle looms can be introduced and if the weavers can effectively use them, it may give a fillip to the industry.

### **Gur Making.**

This industry is carried on a large scale in police-station Shibganj, Joypurhat, Gabtali and Panchbibi. The machinery and other appliances are obtained on hire from Messrs. Renwick & Co. and other firms from different centres opened by them for the season and are sublet to smaller cultivators on daily hire system. The outturn depends on the area of land a cultivator could spare for sugarcane cultivation, and varies from 5 to 25 maunds per family, which is sold in the local marts, a part being retained for the cultivators' own consumption.

### **Mat Weaving.**

Weaving of mats known as shops is carried on by over 200 families in Chatin, Dhekra, Tarapur, Prannathpur, Malsan and a few other villages within the jurisdiction of Adamdighi police-station. Rushes are grown in swamps and ditches and collected when mature. Mats are woven during spare time, when there are no agricultural operations to engage attention.

### **Pottery.**

There are about 400 families of potters in the district. The chief centres are Shekherkhole, Rampura, Mahishaban, Uttamarcheo and Sankarpur.

The potters prepare all sorts of earthenware, and dispose of them in the neighbouring mart. The condition of the potters on the whole is good.

### **Carpentry.**

In Bogra town finished articles such as chairs, tables, benches, almirahs, taktaposh, etc., are made and sold at the houses of carpenters. They are also brought to the bazar for sale. The local Edward Industrial School has a carpentry class where furniture of good quality is made and students taught.

### **Hand Punkhas.**

Hand punkhas from tal leaves are made in Dupchanchia thana near Talore. These are sold in the town of Bogra and in the mufassal hats.

### **Pabna District.**

**Cotton.**—Cotton weaving is the most important of all cottage industries in this district. It is carried on more or less throughout the district. There are nearly 100 villages where cotton weaving is done.

The names of villages where 100 or more looms are in use are given below:—

| Name of village.     | Total number of looms. | Number of fly-shuttle looms. | Number of old country looms. |
|----------------------|------------------------|------------------------------|------------------------------|
| Delua .. .. .        | 1,700                  | 18                           | 1,682                        |
| Khukheri .. .. .     | 600                    | 30                           | 570                          |
| Randhunibari .. .. . | 500                    | 100                          | 400                          |
| Tamai .. .. .        | 500                    | 225                          | 275                          |
| Shuhagpur .. .. .    | 500                    | 2                            | 498                          |
| Panchlia .. .. .     | 400                    | 150                          | 250                          |
| Shibpur .. .. .      | 200                    | 200                          | .....                        |
| Ruknia .. .. .       | 300                    | 7                            | 293                          |
| Sadullapur .. .. .   | 300                    | 197                          | 103                          |
| Enayethpur .. .. .   | 255                    | 225                          | 30                           |
| Gaschapri.. .. .     | 250                    | .....                        | 250                          |
| Raghabpur .. .. .    | 100                    | 100                          | .....                        |
| Bagdi .. .. .        | 100                    | 100                          | .....                        |
| Chala .. .. .        | 200                    | .....                        | 200                          |
| Bejghatti .. .. .    | 200                    | .....                        | 200                          |
| Dighalkandi .. .. .  | 200                    | 200                          | .....                        |
| Aminpur .. .. .      | 200                    | 200                          | .....                        |
| Betil .. .. .        | 150                    | 150                          | .....                        |
| Mashunda .. .. .     | 150                    | 150                          | .....                        |
| Dokachi .. .. .      | 140                    | 80                           | 60                           |
| Nandanghati .. .. .  | 113                    | 3                            | 110                          |
| Ghoradaha .. .. .    | 100                    | 41                           | 59                           |
| Gangarampur .. .. .  | 100                    | 20                           | 80                           |
| Nischantapur .. .. . | 100                    | 100                          | .....                        |
| Maharajpur .. .. .   | 100                    | .....                        | 100                          |

The main centres of cotton weaving industry are as follows:—

*Serajganj subdivision.*—Delua, Shohagpur, Tamai, Ajugahra, Manikpur, Sachapur, Randhunibari, Enayethpur, Chhotadhoor, Basantipur, Gaschapri, Dighalkandi, Betil, Daulatpur, Am-danga, Sthal, Pachila, Machimpur and Lakshikola.

*Sadar Subdivision.*—Aminpur, Mashunda, Manikdia, Chalasa, Sibpur, Gopalpur, Nischintapur, Chittalia, Tingacha, Sadulla-pur, Daripara, Mulgram, Haripur, Singa, Pailanpur, Jagan-nathpur, Buthor, Baludiar, Raghabpur, Sibrampur, Ekdanta, Khukheri, Dogachi, Chaukibari, Santhia, Kuchia-mora, Atarkula, Tarabaria Lakshipur, Bera and Faridpur.

The probable number of hand-looms will be 10,000 of which the number of fly-shuttle looms will be about 3,000.

The industry is confined to Muhammadan Jolas. There is a small number of Hindu Tantis near Pabna town and other places.

About 10 per cent. of the weavers have agriculture as their secondary occupation.

The yarn used is mostly English. Japanese yarn is used in some cases. It is procured from Calcutta and sometimes from Kushtea (Nadia) by big yarn dealers. It is then distributed all over the district at great centres through the middlemen. 20's, 22's, 24's, 26's,

32's and 40's yarns are generally used. Yarn of 60's to 120's is also used to a limited extent by a few Hindu weavers who turn out fine cloths.

The weavers generally purchase the yarn on credit from the middlemen at a high rate of interest. Sometimes they get yarn on credit at a low price if they are ready to sell the finished products to the middlemen. Sometimes the weavers borrow money at a high rate of interest to enable them to purchase yarn. They are rather irregular in repaying the same every week. The income of a weaver when helped by his family members varies from Rs. 15 to Rs. 20 per month. By the adoption of the fly-shuttle looms the income of the weavers has increased and varies from Rs. 20 to Rs. 25 a month.

The weavers generally work 6 hours a day, 3 hours in the morning and 3 hours in the evening. The children and women assist the weavers only in setting up the warp and winding the bobbins in their leisure hours, after finishing their household duties.

It may be roughly stated that yarn both grey and coloured to the value of Rs. 50 lakhs is consumed yearly in the district for the manufacture of cotton fabrics.

Ordinary cloths for women and children, gamchas, chadars and lungis are generally manufactured; fine dhutis, saris and shirtings are made by a few Hindu weavers. Formerly very fine cloths used to be made in large quantities but now-a-days fine cloths are only made in the villages of Sadullapur, Nischintapur and Aminpur within Sadar subdivision and Gachapur, Chhoto Dhool, etc., within Serajganj subdivision.

It may be roughly stated that cotton fabrics to the value of Rs. 80 lakhs are produced annually in this district.

The finished fabrics are generally sold to the middlemen and the villagers in the hats. Sometimes the middlemen collect from the weavers' houses.

The great centres of trade for local made cloths are—

- (a) Ekdanta, Mathura, Sujanagar, Banagram, Dhulauri, Kashi-nathpur, Pailanpur, Bhangra and Demra in Sadar subdivision.
- (b) Delmarhat (Belkuchi), Shohagpur, Shahajadpur, Koijuri and Ajugacha in Serajganj subdivision.

The standard of living for both the weaver and his neighbouring agriculturist is the same, but the former appears to be better off.

The weavers, as a rule, do not like agricultural work but those who want to raise their social status and dislike being called Jolas are gradually taking to agriculture; the number of such people is very limited.

Yarn is dyed locally. As a rule the weavers purchase coloured yarn. Indigo dyeing is mostly prevalent. The industry has expanded considerably in the district during recent years. This is due to the rise in the price of English and other foreign cloths and it

is doubtful whether it will keep up its position when the price comes down.

**Jute.**—A special class of Hindu weavers known as “Kapalika” weave jute yarns.

There is one jute press owned by one Ram Sundar Shah where one hand machine has been installed.

### Hosiery.

There are 9 hosiery factories in the town of Pabna and their names are noted below:—

|                  | Machines working. |
|------------------|-------------------|
| Silpa Sanjibani  | ... 11            |
| Shaha Brothers   | ... 5             |
| Lakshmi Hosiery  | ... 5             |
| Bharat Mungal    | ... 2             |
| Silpa Samavaya   | ... 3             |
| Radha Krishna    | ... 8             |
| Harinath Hosiery | ... 1             |
| Textile factory  | ... 3             |
| Knitting factory | ... nil.          |

Average production per machine is 6 to 6½ dozens per day. There is another factory at Himayatpur at a distance of 3 miles from Pabna town.

### Rope and String Making Industry.

The rope and string making industry is carried on to a very limited extent in the district by a class of people called Jalia Kaivartas on the riverside of the Serajganj subdivision and on the Bera Nakalia side of Sadar subdivision. In all about 600 persons are engaged in this industry. Generally they make string called goon from sunn-hemp. Such strings are used for towing boats and can only meet local demand. The sunn-hemp required for this purpose is purchased from paikars, who bring it to the string-makers' houses for sale at a rate of Rs. 5 to Rs. 8 per maund. The paikars at the same time purchase the triply strings for sale.

Single-ply strings are first made by Takko both by males and females. The Kaivartas generally work 7 to 8 hours a day and earn about Rs. 10 per head per month. Their women add to their income by making fishing nets during their spare time. During jute season these people are sometimes engaged by jute firms for making ropes.

### Pottery.

Pottery is carried on by Hindu Kumbhakars in the Serajganj subdivision. They generally manufacture earthen vessels but some also prepare excellent idols and dolls. Generally the Kumbhakars go round with the products in boats during the rains and sell them in exchange for paddy, by which means they derive quite a fair income.

### Basket Making Industry.

This industry is carried on more or less all over the district by Moochis known as "Betuas," Doms and Patnis. The baskets, commonly called dhamas, are made of split canes and are exported to Rajshahi and Calcutta through middlemen. A worker earns about Rs. 8 to Rs. 10 per month by making dhamas which are sold from annas 4 to annas 12 each, according to the quality and size. They are made in sizes to contain from 3 to 15 seers of grain.

Generally the females are engaged in this work.

### Pati Making.

"Sital-pati" is prepared in this district by Hindus who are known as "Patita" in Jhawal near Kalia Haripur railway station. About 100 people are working, but the industry is gradually declining.

### Paper Manufacture.

Hand-made papers are manufactured by the Muhammadans known as Kagazis at Kendapara in Serajganj subdivision. They generally sell these papers to Marwari mahajans who use them for their account books. The usual price of these hand-made papers being 14 annas per quire; they cannot compete with the machine-made papers and thus the industry is decaying. At present about 25 persons only are engaged in this industry.

## Malda District.

### Brass and Bell-Metal Industry.

**English Bazar.—Brass.**—There are about 20 men engaged in this industry all of whom are Kansaris (Hindus). Raw material is imported brass sheet and the amount consumed is about 110 maunds valued Rs. 8,000. The only articles manufactured are lotas, known as Saidulapur lotas, which are much liked. Nearly 100 maunds of finished lotas are made annually, the approximate value of which is Rs. 11,000. The local mahajans advance the raw materials, and receive the finished goods, paying bani (cost of production for them). These people in addition to this manufacture, do a good deal of repairing old wares. This industry was practically closed during the War when sheet metal was not available.

There is another class of brass-workers who come from Bonpas of the district of Burdwan, and work for 7 months in a year from November to May. They are about 12 in number and Karmakar by caste. They produce also brass lotas by casting in moulds. The lotas are finally filed and cleaned. The raw material used is about 80 maunds of old wares the value of which would be nearly Rs. 2,000. The quantity of lotas produced would be about 75 maunds, worth nearly Rs. 3,500. In this case also the mahajans play a similar part.

**Kaligram (Kharba police-station).—Brass.**—There are 30 men in 14 families engaged in this industry. These people too prepare lotas only and are all Kansaris. About 180 maunds of raw material valued

at Rs. 9,000 is consumed annually, and the quantity of finished product is nearly 170 maunds valued approximately Rs. 12,000. All the workers get their supply of raw material from the mahajans and work under wages system.

**Kansharipara village (Nawabgunj).—Bell-metal.**—There are 30 workshops and about 250 persons engaged in this work, of whom some are engaged in hammering. Some of these men have secondary occupations such as paddy harvesting, and mango business during the mango season. Others have no other secondary occupation. Almost all the workers here are Hindu (Kansaris).

Raw materials are supplied by the mahajans who get the supply partly from their beparis and partly from Calcutta and the greater portion of the raw material consists of old wares. When there is any scarcity of old wares the people here make an alloy from a mixture of 5 parts copper and 2 parts tin, which metal the mahajans get from Calcutta. It is estimated that about 100 maunds of new alloy is made out of a total production of about 2,300 maunds. The quantity of raw material required for this place would be about 3,000 maunds valued about Rs. 2,10,000.

Only thalas (big plates) of different shapes and sizes are made.

The process of manufacture is similar to that described under the brass and bell-metal industry of Budhpara village, Nator subdivision, Rajshahi district, with the difference that the goods are delivered to mahajans without working on a lathe, i.e., before the final scraping and polishing. There are about 40 lathe workers in the village of Bilpara, who exclusively do the work of final scraping and polishing of thalas received from mahajans direct.

**Tools.**—Ordinary forge, hammer, anvils, forceps of different shapes and sizes, files, chisels and scrapers, etc.; all are very simple, and require few repairs, which if necessary are done locally. Small tools for scraping and chiselling are made locally from old files.

About 2,900 maunds of finished goods are yearly manufactured, the approximate value of which would be Rs. 3,25,000.

**General organisation and labour system.**—All shop-owners are deeply involved in debt to the mahajans and from them they get their supply of raw materials. The shop-owners make advances to their workmen. A band of hammerers (6 men) works alternately in 4 shops. As some of those hammerers go out during paddy harvesting time, and are engaged in the mango business during the mango season, and as sufficient fresh labourers are not available to replace those who leave (owing to the extremely hard nature of the work), the work shop owners experience great difficulty in recruiting hammerers and the business suffers considerably.

**Brass.**—There is only one workshop dealing with brasswares. Two men are engaged in the industry. The production is about 50 maunds a year valued at about Rs. 2,500. They make kalsi (pitcher), karai (pan) and handi (boiling pot). The cost of raw material would be about Rs. 1,200. Pitcher tops are made by casting, then by beating into shape.

**Sankarbati, Char Jot Protap, Majpara, Bilpar, Ajaipur.—Bell-metal.**—There are only 20 workshops in which 130 men are engaged. The workers are all Muhammadans. They prepare cups and spoons of different sizes. Spoons of superior quality are being made by some of

the Karikars and they have commenced preparing thalas also. System and organisation of work are similar to those of Kansharipara village, with the difference that as a rule monthly wage labour is not employed but the system of exchange of labour is in vogue (i.e., if a man requires the service of 5 men for a day at a time he gets his work done by having a loan of labour of 5 other workers and he returns the labour by working a day to each of them. This system is called Gata). Goods are delivered to mahajans in the completely finished condition. Only old wares are used as raw materials and no new alloy is made. The quantity of raw material consumed is about 1,000 maunds yearly, valued at nearly Rs. 70,000. About 975 maunds of finished goods are produced, the approximate value of which would be Rs. 1,35,000. The shop-owners of these villages are not much indebted to mahajans.

**Brass.**—About 600 men are engaged in 130 workshops making kalsi, spoon, pan-diva, etc. All are Muhammadans.

Raw materials, organisation and system are similar to those under "bell-metal" of the same village and the gata system of labour is prevalent. There are 6 big and 8 ordinary mahajans in Nawabganj town, who advance the workers money and raw materials, and receive finished goods, paying the cost of production called bani.

There are about 100 Muhammadans and 20 Hindu beparis (smaller dealers) working under the mahajans.

The Muhammadan beparis without payment take delivery of various goods of which 65 per cent. is local produce and 35 per cent. imported goods in the months of August and September and go out in boats or carts to Barind, and the interior of the districts of Malda, Dinajpur and Rajshahi, i.e., within about 60 miles radius. The beparis sell these goods either by exchange for old wares, or for cash, or both; but most of the goods are sold on credit to individual customers. The beparis on return hand over to the mahajans the old wares and a little cash. These beparies go out again with a small quantity of fresh goods from the mahajans, sell the goods for cash or by exchange, or by both, and realise the prices of credit sale from the customers in the months of December and January, and come back and settle up accounts with the mahajans. Similarly, the Hindu beparis go out in October and November to make dadans, as they call it, and realise the prices in April and May. By this dadan system through beparis the mahajans dispose of about 75 per cent. of their produce, and the remaining 25 per cent. is disposed of locally, or by supplying orders to Rajshahi, Dinajpur, and Purnea by direct transaction on cash payment. Thus by this system the mahajans manage to sell goods of local produce worth Rs. 3,60,000 and imported goods to the value of nearly Rs. 2,00,000. This system is risky. Advances of large quantities of finished goods are given to beparis most of whom have not sufficient property to offer as security for the value of goods received from the mahajans, and occasionally the mahajans lose by this system. These utensils are required for social functions, etc., at a time when the people are in want which necessitates credit purchase. Mahajans are satisfied if they get a return of 12 per cent. on the invested capital and this rate cannot be considered too high when the risk taken is considered. Of course the beparis have no fixed price for their goods, and they in some cases are compelled to make much profit, in order to cope with the risk that exists under the present system of credit sale.



About 12,000 maunds of raw materials at a cost of about Rs. 3,60,000 are consumed per year.

The quantity of finished product is about 11,850 maunds, the approximate value of which is Rs. 7,10,000.

About 75 per cent. of the workers of Sankarbati get their supply of raw materials from the local mahajans and though they are not heavily indebted, their economic condition cannot be said to be satisfactory. There is a credit society with 19 members and also a limited company in the village of Ajaipur. Out of about 1,000 workers only 40 are shareholders of the limited company. Hence very little capital is available from the two institutions within an area where about 4½ lakhs of rupees worth of raw material is consumed annually.

With a view to facilitate the supply of raw materials required by the artisans and to dispose of the finished goods to their best advantage, an attempt is being made to convert the limited company into a Co-operative Purchase and Sale Society on a fairly large scale.

### Silk Reeling Industry.

Silk reeling is the most important industry of the district. It is being conducted on both a small and a large scale. The dried cocoons are procured from hats and also from rearers direct. Reeling is entirely conducted on country ghais.

The dried cocoons, after being steamed, are put into boiling water contained in a basin heated by direct firing. Each basin is operated by a Katani, who takes the thread from the cocoons and throws it over the ghai. A boy turns the wheel and so winds the yarn. The following table will show the villages where the industry is mainly carried on:—

| Name of village.        | Number of families. | Number of reeling basins. | Maximum number of men engaged. |
|-------------------------|---------------------|---------------------------|--------------------------------|
| Englishbazar thana—     |                     |                           |                                |
| Rajanagar .. ..         | 17                  | 70                        | 160                            |
| Lakshmipur .. ..        | 70                  | 233                       | 520                            |
| Amriti .. ..            | 7                   | 46                        | 75                             |
| Pirojpur .. ..          | 21                  | 68                        | 145                            |
| Fulbari .. ..           | 4                   | 12                        | 28                             |
| Bibigram .. ..          | 17                  | 37                        | 85                             |
| Hyderpur .. ..          | 40                  | 116                       | 250                            |
| Mirerchak .. ..         | 17                  | 59                        | 135                            |
| Mehedipur .. ..         | 5                   | 12                        | 28                             |
| Makdampur .. ..         | 2                   | 7                         | 16                             |
| Purapara .. ..          | 2                   | 4                         | 9                              |
| Bashbarikaltapara .. .. | 3                   | 8                         | 18                             |
| Bangelgram .. ..        | 1                   | 8                         | 18                             |
| Atgama .. ..            | 2                   | 14                        | 20                             |
| Raipur .. ..            | 8                   | 31                        | 70                             |
| Gopalpur .. ..          | 2                   | 10                        | 13                             |
| Shakarma .. ..          | 5                   | 20                        | 25                             |

| Name of villages.    | Number of families. | Number of reeling basins. | Maximum number of men engaged. |
|----------------------|---------------------|---------------------------|--------------------------------|
| Kaliachak thana—     |                     |                           |                                |
| Agamilki .. ..       | 1                   | 12                        | 27                             |
| Alipur .. ..         | 1                   | 10                        | 22                             |
| Nazirpur .. ..       | 7                   | 11                        | 25                             |
| Shersnahi .. ..      | 1                   | 22                        | 50                             |
| Brommottra .. ..     | 2                   | 4                         | 9                              |
| Chandpur .. ..       | 3                   | 54                        | 125                            |
| Sujapur .. ..        | 70                  | 132                       | 300                            |
| Lilampur .. ..       | 1                   | 12                        | 27                             |
| Bakharpur .. ..      | 17                  | 130                       | 300                            |
| Lakshampur .. ..     | 4                   | 120                       | 270                            |
| Mahampur .. ..       | 11                  | 26                        | 70                             |
| Bamangram .. ..      | 14                  | 26                        | 70                             |
| Baktiarpur .. ..     | 1                   | 2                         | 5                              |
| Chashpara .. ..      | 37                  | 72                        | 165                            |
| Gandarvapura .. ..   | 5                   | 10                        | 22                             |
| Goyeshbari .. ..     | 97                  | 205                       | 470                            |
| Golabgunj .. ..      | 5                   | 124                       | 290                            |
| Charianantapur .. .. | 4                   | 60                        | 130                            |
| Total .. ..          | 504                 | 1,787                     | 3,992                          |

The number of ghais shown above include those concerns which are conducted on a large scale. It may safely be stated that there are nearly 2,000 ghais in the district, as stray ghais in isolated villages might have been omitted. The industry is very unsteady as the reelers entirely depend upon the local production of cocoons, as cocoons cannot be procured from other places. No proper estimate of the yearly outturn of silk can be made in the absence of reliable statistical figures of outturn. Figures are not available even from owners of ghais which are very irregularly worked. It is reported that the average yearly outturn per ghai is about 2 maunds of raw silk. The maximum capital required for each ghai is Rs. 200.

Practically speaking the business is entirely in the hands of Marwari merchants, who advance money to reelers to purchase cocoons which become available at different seasons. The reelers stock dried cocoons which are gradually worked out on ghais. This stocking of cocoons necessitates the reelers having a fair amount of capital in their hands. This capital is advanced by merchants who depend upon good faith. Marwari merchants in return receive the silk generally at current market rates. A microscopic part of the total silk produced is consumed by the silk weavers of the district. The approximate consumption of the district is 55 maunds only. It is reported that Malda silk to the extent of about 400 maunds is being consumed by the silk weavers of Bishnupur and Birsingha in the district of Bankura. The great bulk of silk goes to Madras. It may be mentioned here that the local merchants dispose of silk mostly by post to merchants of Berhampore (Ganjam), Trichinopoly, Salem, Triplicane, Masulipatam, Travancore, Secunderabad, Belgaum, Surat, Sujanagar (Gurudaspur), Mobarakpur (Azimgarh), Bijnour, Amritsar, Anantapur (Madras and Southern

Maharatta Railway), North Arcot, Bangalore, Tanjore, Bhandara, Akyab, Kayts (Ceylon), Chittagong, Bankura, Benares and other places.

It is interesting to note that business is conducted on the credit system which raises a great obstacle to fresh parties wishing to take up this business.

A co-operative silk union has recently been started and has been registered under the name of "Bengal Silk Union Limited."

### Matka Weaving Industry.

**Englishbazar thana, Goyeshpur village.**—Six families with 6 country pit-looms are engaged in matka weaving. The workers are all Tanti by caste, and have no other occupation. Mostly chadars and saris are made. Matka yarn is procured locally from Marwari dealers. About 300 seers of Matka yarn valued at Rs. 4,500 is consumed yearly. The approximate price of the finished goods comes to Rs. 6,000 per year, and is disposed of to local dealers, the number of weavers is too small for co-operative organisation to be commenced.

**Jyot village.**—There are three establishments with 13 fly-shuttle and one country looms in this village. Chadars, saris, dhutis and thans are made. In all about 40 persons, including boys, are engaged on monthly wages. The proprietors are all men of means and get their supply of matka yarn from Jalalpur, the centre of the business and from the local dealers.

The yearly consumption of raw materials is about 800 seers at a cost of Rs. 10,500. The approximate value of the finished product is Rs. 20,000. The goods are made according to orders and sold to individual customers and local dealers.

The establishment of Babu Narendra Nath Roy, post-office Kotwali, is especially worth mentioning, as he is very particular about the uniform quality of his produce, and for this reason he is patronised by many influential customers of the town. This is practically the only place where matka cloth of uniform quality is available.

It may be noted here that though fly-shuttle looms have been successfully introduced, still the production does not seem to be promising. The outturn is only  $1\frac{1}{2}$  to  $1\frac{1}{2}$  yards per day of 8 hours.

**Sibganj thana, Narattampur village.**—There are about 33 families of weavers (operating about 55 country looms) engaged in weaving matka dhutis, saris and chadars. Of these 55 looms, 18 (belonging to 11 families) are being worked independently, i.e., without the help of mahajans. Most of the people have land (from 3 to 50 bighas a family), which are cultivated on the adhi system. All of them are Tanti by caste.

**Mohanbag village.**—There are only three families with 6 country looms in this village. All are dependent on mahajans and are Pundari by caste. They have no secondary occupation.

**Sionagar village.**—There are only 2 families of weavers with 2 country looms. They are Pundari by caste, and have cultivation as a secondary occupation.

**Dewanjagir village.**—There are only 4 families with 6 country looms. All are Malo by caste and have no secondary occupation, and are dependent on mahajans.

*Matka weaving in Sibgunj thana, Malda district.*

| Name of villages.   | Number of families. | Number of looms. |
|---------------------|---------------------|------------------|
| Narattampur .. .. . | 33                  | 55               |
| Mohanbag .. .. .    | 3                   | 6                |
| Sibnagar .. .. .    | 2                   | 2                |
| Dewanjagir .. .. .  | 4                   | 6                |
| Total .. .. .       | 42                  | 69               |

As the above four villages are situated near each other and lie within the jurisdiction of Sibganj thana, the general condition of the work and business are embodied in the body of the report.

**Raw materials.**—Matka yarn dealers come to these villages from Jalalpur side and yarns are purchased in small lots, sometimes on a cash basis and sometimes on credit. Yarns to the extent of nearly 3,000 seers, valued at about Rs. 40,000 are consumed yearly.

It may be stated here that yarn loses about 33 to 35 per cent. of its weight during the process of bleaching.

**Finished product.** Saris with red borders, dhutis, chadars and thans to the extent of about 20,000 yards, valued roughly Rs. 50,000, are made annually. Fifty per cent. of the produce is sari and dhuti, 33 per cent. chadar and 17 per cent. Than.

**Weavers' income.**—The average income of a weaver helped by female member of his house hardly exceeds Rs. 15 a month. Actually it varies from Rs. 12 to Rs. 14 per month.

**Organisation of sale.**—A considerable portion of the produce is bought by local people. Mahajans dispose of a portion of the product to smaller whole-sale dealers who come to these localities to make purchases, and a larger portion to known shopkeepers of English Bazar, Rajshahi and Calcutta. It may be stated here that some of the weavers also conduct purchase and sale of finished products.

**Difficulties.**—(1) As the yarn is made by hand from pierced cocoons in takko, it is hardly uniform. The weavers pay higher prices for it and no assortment is possible when purchase is made in small lots.

(2) Considerable difficulty in making warp during rains is experienced.

(3) Most of the weavers sell off their produce to local mahajans at a price less by Re. 1-8 to Rs. 2 per piece than otherwise they would get.

**Suggestions for improvement.**—The weavers' income may be increased by about 50 per cent. if they are induced to organise themselves into a co-operative society, on lines detailed below:—

- (1) The society should conduct the purchase of matka yarn in big lots, which should be distributed amongst members after proper assortment, either on sale or loan system.
- (2) The society should undertake to receive all finished goods brought by members, and organise their sale as is at present done by the mahajans.

- (3) The society should make the necessary arrangements for shades and other improved appliances for making warp particularly during the rainy season, at a central place convenient to all members.
- (4) In addition to the above the society should also do the work of a rural co-operative bank.
- (5) Attempts should also be made to introduce fly-shuttle looms provided they are found suitable for all purposes after proper demonstration.

### Pure Silk Weaving.

**Sibganj thana.**—There are 5 villages at close quarters in Sibganj thana where pure silk weaving is carried on. This is one of the most important industries of the district of Malda. Statistics of looms, families, etc., are given in the table below. All the weavers are Tanti by caste, except one Muhammadan family with four looms. The looms are old country pattern with primitive arrangements for making border designs.

| Name of village.       | Number of families. | Number of looms. | Yearly outturn in terms of sari. |
|------------------------|---------------------|------------------|----------------------------------|
| Puratan Alidanga .. .. | 12                  | 23               | 850                              |
| Nutan Alidanga .. ..   | 11                  | 19               | 700                              |
| Sibganj .. ..          | 1                   | 3                | 75                               |
| Dewanjagir .. ..       | 12                  | 28               | 975                              |
| Hazaridanga .. ..      | 20                  | 39               | 1,500                            |
| Total .. ..            | 56                  | 112              | 4,100                            |

**General condition.**—Out of 56 families 22 work quite independently of mahajans, 12 work partially helped by mahajans and 22 families are entirely dependent on mahajans. The condition of most of the weavers is fairly good, and some of them are fairly rich. Twenty-seven families have lands, varying from 3 to 400 bighas, cultivated mostly on the adhi system. Some of the rich weavers are themselves mahajans.

**Raw materials.**—Silk of the better qualities produced in the Malda district is consumed and the yearly consumption is estimated to be about 1,500 seers of silk valued about Rs. 35,000. The raw silk loses about 20 to 25 per cent. of its weight during the process of bleaching.

**Finished product.**—Saris with plain and designed borders, dhutis and chadars are made, but saris are in greatest demand. Total yearly outturn, in terms of sari, is nearly 4,000 pieces, valued at about Rs. 70,000.

**Weaver's income.**—The average income of a weaver, helped by women members of his family, is about Rs. 24 to Rs. 25 per month, excluding the cost of dyeing, rewinding and twisting of silk for warp, and also cost of making warp. The cost of dyeing, rewinding, twisting and warping comes to about Re. 1 per piece.

**Special features of work.**—There is a band of about 5 workers in the locality whose business is to make the warp for the weavers. Wages of such men average about annas 12 per day. There is another

class of special workers whose business it is to do only twisting of yarn for warp. The wages of a man helped by a boy for twisting comes to about Re. 1 a day. A band of men who do twisting for weavers will number 10 men and 10 boys more or less. Both warpers and twisters are all Muhammadans.

Weavers dye their own yarn, all colours except black. They get their yarn dyed black in Murshidabad. It is reported that the lac-dyeing of silk is still known to some of the most senior weavers but this method is not practised now.

**Organisation of sale.**—It is reported that 50 per cent. of the produce is consumed by people of the district, and 50 per cent. goes outside. Mahajans collect the goods and dispose of them to merchants of Rajshahi and Calcutta. Sometimes sales are made to small wholesale dealers who go from place to place to dispose of the fabrics. The weavers, who work quite independently of mahajans have no stable business connections. They have not sufficient means to stock materials in large quantity, but sell their goods to any customer to suit their convenience.

**Capital required.**—The minimum capital that is required to work a loom independently is nearly Rs. 325.

**Difficulties.**—(1) Want of sufficient capital by a large number of weavers is felt.

(2) Great inconvenience is experienced in making warp during the rains.

(3) Occasional outbreak of fire causes havoc in this industry, as the houses of most of the weavers have thatched roofs.

### Cotton Weaving.

**Kharba thana.**—Kharba, Manihanda and Cobindapur.—There are about 80 families with 100 primitive looms engaged in this industry. They prepare mosquito curtain cloth only. The quantity of raw materials consumed annually is worth about Rs. 25,000 and the approximate value of finished articles is about Rs. 30,000. The industry is on the decline in the area. The organisation of co-operative societies is essentially necessary.

**Kaliachuck.**—The industry is thriving here. The weavers have adopted working with dobby attachments for their looms: about 100 looms are so equipped.

**Shibganj thana.**—Harinagar, Laharpur, Rasulpur, Satrajitpur, Jahangirpur.—There are about 80 families with 90 pit-looms engaged in this industry. They prepare bed sheets and coarse cloth.

### Katari Weaving Industry.

**Englishbazar thana, Shahapur, Bala Nageswarpur villages.**—**Description.**—Katari cloth is a fine coloured fabric made out of a

combination of silk and cotton. Pure silk yarn is used for warp and fine cotton for weft. Red, yellow, deep-blue, patched yellow silk and black cotton yarns are commonly used. To meet special orders silk yarn for both warp and weft is also used but such demand is extremely limited.

**General condition.**—The weaving of this fabric is carried on in several adjoining villages by Muhammadan weavers for 6 months during the year. It is reported that the weavers cannot carry on their work during the rainy season due to the damp state of the atmosphere and also during very hot days owing to frequent breakages of yarn. During the mango season almost all remain very busy with the mango go business and not a single loom can be seen working. Seventy-five per cent. of the weavers have lands varying from 5 to 100 bighas in extent, cultivated on adhi system.

**Statistics.**—Thirty-six families with about 60 country pit-looms in the above villages are engaged in the industry. All the weavers are Muhammadans.

**Raw materials.**—About 400 seers of Malda silk (the approximate value of which comes to Rs. 8,000 and about 1,000 lbs. of black cotton yarn of 60's and 120's (the value of which comes to Rs. 3,000) are used.

The local weavers themselves dye silk yarn and the cost for dyeing dye-stuff, and other materials used is about Rs. 2,300.

**Finished product.**—All goods are woven in Thans of 8 yards in length and 27 inches in width. The yearly outturn is about 2,000 Thans, the value of which is Rs. 10,000. All goods are of nearly the same pattern though under different names according to the arrangement of the coloured warp.

Katari cloth has no local sale. It is exported to foreign countries through Bombay merchants. As the demand of this article has been decreasing for the last 2 or 3 years many have given up the industry and closed their looms.

### **Spinning Wheel for Waste Silk and Matka.**

A new type of spinning wheel for spinning waste silk and matka also has been recently introduced by the Department of Industries in silk areas. It has facilitated spinning of waste silk and matka. About 70 such wheels have already been introduced amongst the people of Mohonpur, Kaliachak and Bholahat Circle.

### **Tanning and Shoemaking Industry.**

**Hyderpur village (Englishbazar).**—Nearly 22 persons are engaged in tanning on a very small scale by crude country methods, hides and skins being locally procured. Liming is done in earthen vessels. After unhairing and fleshing, the pelt is washed in water and steeped first in Babul pod and secondly in Teri pod liquors. Tanning is finished by the bag method with chopped parasite plant grown on

mango trees. They generally do tanning for 3 months and are engaged in shoemaking for 6 months. Shoes are stitched with leather and are of Munda type, the uppers being of natural tan colour leather. Each person with the help of women members of his house makes about 20 pairs a month. There is a ready sale for this class of shoes, and beparis purchase the products in big lots during the mela time, an average price for a pair of shoes being only Re. 1-12. The approximate value of the total outturn comes to Rs. 5,000 only. The economic condition of the tanners appears to be quite good.

During the mango season for three months almost all of these people engage in the mango business, which is very profitable and for which capital is always available.

These people are not willing to make a better class of shoes, as they do not expect local customers to pay higher rates.

They are not inclined to combine for the purpose of joint work without which no improvement is possible.

Demonstrations in the improved processes of chrome tanning have been given by the Department of Industries and some of the moochis have been trained on the spot.

### **Darjeeling District.**

#### **Cottage Industries.**

Manufacture of blankets, khukris, bamboo-baskets and wooden pots is carried on in this district on cottage industry lines. In the opinion of the Deputy Commissioner, Darjeeling, improvement in all these industries is desirable, but as the demand for these articles is so far limited, almost exclusively, within this district, it is feared, that the cost of further attempts for the improvement of these industries may not be commensurate with the actual increased volume and value of business accruing. Whether such a pessimistic view is justifiable, remains to be seen; for, unless these industries are systematically investigated, their possible resources tapped, it is too early, either to predict any fruitful result, or to subscribe to the view put forward by the Deputy Commissioner.

The knitting of coarse woollen socks and comforters (a long, narrow woollen scarf) is done by women. The goods are available in the markets of Darjeeling district and are purchased by the people of the district.

Weaving of coarse chadars and laishampies is carried on by Bhutëa women and Terrai weavers to a very limited extent. In view of the scattered condition of the industry it is difficult to suggest ways and means by which the industry can be improved unless detailed census is obtained. It seems that the introduction of fly-shuttle looms will improve matters but it is doubtful whether the people will take this up, as they will be required to learn the modern weaving technique, which is quite different from their existing method. The discontinuance of the weaving of cotton fabrics in the Kalimpong Industrial School shows the apathy of the people to take to modern methods of weaving.



**Sadar.**—There is a Khukri Factory at Ghoom under the title of "Ajab Singh & Sons." About 10 people are employed for manufacturing Khukris. The khukris are sold locally and are also supplied to Military Departments all over India. There are also 5 or 6 shops which only make sheaths for khukris to meet the local demands.

There are 5 or 6 families at Bhutia Busty the members of which weave Tibetan durries. In all about 20 people are engaged in this work. The products are sold locally and also sent to different parts of India on orders.

**Kurseong.**—There are about 500 women at Kurseong who knit woollen socks and comforters mostly for home consumption. Of those about 50 women sell such socks and comforters in local markets where the customers are mostly local people. Locally purchased imported woollen thread is used for preparing the said socks and comforters. There are also about 25 women who use locally purchased cotton thread for weaving cloths by hand-looms, which are used solely for home consumption. The products are rough and can hardly fetch any price which is worth the labour in the local markets.

**Siliguri.**—Hand weaving industry exists only at Phansidewa. There are 13 houses of weavers and about thirty persons are daily engaged in the work. They purchase yarn from the local markets and the weavers (women mostly) prepare the yarns for weaving. The actual weaving is done by men. The principal products are saris, photos, bed sheets and awlans (chadar). The average earning of a weaver is annas eight per day.

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37. ক্ষুদ্রায়তনে নিত্য ব্যবহার্য ধোবী ও বার সাবান প্রস্তুত প্রণালী। ডাঃ আর. এল. দত্ত, ডি. এসসি., এক. সি. এস., এক. আর. এস. ই., ও তিনকড়ি বহু, বি. এসসি., প্রণীত।
38. Manufacture of Shellac, by Dr. R. L. Datta, D.Sc., F.C.S., F.R.S.E., and Tinkari Basu, B.Sc.
39. Care and Management of Small Boiler Plants, by S. C. Mitter, B.Sc. (Eng.), London.
40. সাবান প্রস্তুতের জন্য চর্কি শোধন করা, এবং অপরিশোধিত চর্কির পরিত্যক্ত অংশগুলির উদ্ধার সাধন করার উপায়। ডাঃ আর. এল. দত্ত, ডি. এসসি., এক. সি. এস., এক. আর. এস. ই. প্রণীত।