

CHAPTER V

INDUSTRIES

OLD TIME INDUSTRIES

The district of Bhagalpur has been famous for its industrial potentiality since long. Tasar Silk, Dyeing, Salt, Indigo, Glassware were some of the chief industries. There were occupational castes in the past that mainly followed some of the industries.

Besides, there were a number of small-scale industries, some of them are still continuing and have been dealt separately. Distillation has completely disappeared from scene.

Buchanan has mentioned that basket makers were called "Dom Bansphor" who made baskets (*Dalis*), winnowing fans (*Sup*), and fans for cooling the air (*Pangkha*). They also made on special orders umbrellas, screens for doors (*chik*) and large circular basket that serves as granaries (*Dol*).

The tanners belonged to two groups, one who usually made shoes, ropes, drum heads and saddles and cover basket. They were called *Chamar* in western parts and *Muchi* in eastern part.

The second type of the tanners made leather bags for holding extract of sugarcane, molasses, boiled butter and oil.

Numerous distillers were also engaged in distilling wine from *Mahua* flowers. Buchanan has given the method of distillation in his book "An account of the District of Bhagalpur in 1810-11" as follows:—"The dry flowers, with equal to double quantities of water, are put in round earthen pots with rather narrow mouths, and exposed to the weather to ferment. This process is finished in from four to eight days, according to the heat of the weather. The whole fermented mass, flowers and water, are put into a still, and the spirit is drawn slowly off. It is never rectified, and after distillation is always very much diluted with water, owing to which it will not keep above 15 days, and it is best when fresh from the still." Blacksmiths and carpenters were very close to one another in their profession. It was even difficult to recognise them from profession. Those who made the implements of husbandry in some places were known as *Barhai* and in other places as *Lohar*. Some of the workmen were very superior. They made good household furniture. European fashion enthused them to a great extent to improve their art. The articles chiefly made were chairs, stools, couches and bedsteads but some of them also made tables.

It appears from Buchanan's account that boats were also made in this district.

CLOTH MANUFACTURE

Cloth manufacture was one of the important industries. Buchanan Hamilton has given an account of this industry the summary of which is as follows:—

All castes are here permitted to spin, and near the Ganges, it was stated, that a large proportion of the women spin cotton, some all day but most only for a part; and it is employment suited well to the jealousy of the men. The cloth spun is very coarse, and is done by means of the small wheel. The number of women on the whole was estimated at about 1,60,000. But by taking an average of the various reports of the quantity of cotton required, of the thread spun, and of the value of each, it would appear that every woman, one with another, spins annually 16 seers $12\frac{1}{2}$ chhataks of cotton wool (34 lbs. $7\frac{1}{2}$ oz.), worth 6 rupees and $9\frac{1}{2}$ annas and makes thread to the value of 11 rupees $1\frac{1}{2}$ annas, having a profit of 4 rupees and $8\frac{1}{2}$ annas. Women who spin constantly of course make more and more money, who are much otherwise employed, make less. This statement so far as it relates to the quantity and profit belonging to each woman, seems pretty accurate, but the total number of women said to spin can by no means be reconciled with the quantity of raw materials said to be used. It was said, the cotton wool imported amounts annually to about the value of Rs. 2,76,000 which sold by retail, and fitted for spinning, will amount to Rs. 3,45,500; and what grows in the country, including that reared on the hills, may be about the value by retail of Rs. 1,25,000. These, according to calculation, would only employ 71,450 women, who would make thread to the value of about Rs. 7,92,600. About 1,98,000 rupees worth of this will be required for mixed cloth, carpets, sewing, etc., the remainder according to the average of estimates received, would make about 8,32,000 rupees of cloth.

TASAR SILK

This indigenous industry traces its history from long past. In 1810-11, Buchanan in his account has given a detailed description of this industry. Just after a century Mr. J. Byrne, I.C.S., has observed about this industry in his "Bhagalpur Gazetteer", the summary of which is as follows :

About 1810 Dr. Buchanan Hamilton estimated that there were about 3,275 looms at work in the district. Though this number has fallen off the industry is still considered an important one; though the processes of manufacture have not improved, and the looms are as rude as they were at the beginning of the century, being little more than bamboo frames. The kinds of cloth now, as then, most usually made are *dariyas* and two parts of *tasar* of the different colours. The wool is all cotton of one colour, so that the cloth is striped lengthways, being dyed entirely by the weavers in the thread. The pieces are from twenty to twenty-two cubits long, by one and a half broad. A man can weave eight pieces monthly. *Namunas* are pieces from twenty to twenty-two cubits long, and one and three cubits broad. The warp contains about 35 parts of cotton thread and 21 of *tasar*, disposed in stripes of a different pattern from those of the *dariya*. The wool is all cotton. One loom can produce seven pieces a month. *Charkhanas* are about 18 cubits long, and eight-sevenths of a cubit wide. Each loom weaves six pieces in the month. The warp requires ten parts of cotton, and fifteen parts of *tasar* so that the pieces are chequered. *Baftas* are pieces of a uniform colour, dyed after being woven, and of the same size with the *namunas*. The whole warp is *tasar*, the wool is cotton. The foregoing kinds are mostly made for exportation. *Kharsaris*, which are produced chiefly for home use, are like *dariyas*, but of inferior size and firmness, and afford occupation to a larger number of weavers than any other kind. They are made up in pieces about eight feet long and three wide, and are dyed by the weavers, who can make eight pieces a month. The pure *tasar* silk is called *tul*. *Dhupchhaya* is a *bafta* of a bright blue. *Maurkanti* is a white silk figured in blue. *Lahan gowal* is a figured silk worn only by Brahmans, Kayasths and Rajputs. The *koa* or cocoons of *tasar* come from Suri, Bankura, Gaya and the Santhal Parganas. Patwas, Momims, Tantis and Tatamas are the weaver castes most employed in this trade. The winding of the silk from the cocoons is effected by a very simple instrument called a *tariya*. Eight pounds weight of the cocoons are boiled with twice that amount of water, till all the water is evaporated. They are then left to cool, and next day are again boiled. The silk is then easily wound off, strands from five cocoons being generally used to form each thread. For cheaper work three strand threads are used and for better work, seven strand threads. They are twisted with the left hand on the left thigh and wound on the *tariya*.

Mr. J.G. Cumming, I.C.S., has given a brief economic position of these weavers in his book "Review of the Industrial Position and Prospects in Bengal in 1908"*:—

"Like practically all the cotton weavers, the *tussar* silk weavers are in the hands of their *mahajans*; but they are probably a little better off, midway between cotton weavers and silk weavers....."

He had further stated about the development of this industry in the following words:—

"What the *tussar* weaving industry requires is a flying-shuttle mechanism for working *tussar*. I have tried several dodges myself but have not been successful. Infructuous efforts to introduce a fly-shuttle loom were made at Bhagalpur. One weaver of the Mourbhanj State, Bamdeb Uriya, is asserted to have succeeded; but I could not get this verified. The weavers of Kalipur Kodiya in Birbhum district succeeded only with a cotton warp and a *tussar* weft. The complaint is that the reeds of the sley fray the threads of the warp. The remedy may be in a device in the loom or in improved spinning....."

"Under the head of *tussar* can be considered *bafta* or mixed cloths. This is associated with Bhagalpur. A cotton *chadar* costs ten annas to Rs. 5 and lasts for two years; a *bafta chadar* costs Rs. 3 and 8 annas to Rs. 15, and lasts five or six years. In Champanagar I found that the *mahajans* were sweating the local craftsman; about eight annas was the labour return for four days' work. In Bhagalpur itself the Bihar Trading Company under Kabir Ahmad Khan of Mujahidpur is doing good work in advertising and circulating samples, issuing new designs to the weavers, and in financing them without extortion. This is a method which the middle class capitalist might follow with advantage where there is any colony of weavers who are at present following individualistic methods of purchase of yarn and sale of material."

A detailed description of the present position of this industry has been given later.

GLASS INDUSTRY

Glass industry was also indigenous to Bhagalpur. Buchanan Hamilton has given a detailed description of the manufacture of

*District Gazetteer of Bhagalpur J. Byrne 1911 p.126.

glass bracelets. Mr. J. Byrne, I.C.S. has mentioned that the industrial revolution gave a blow to this industry. An effort was made for the revival and a small glass factory was established at Colgong. The concern had to close down about 15 years back. The cost of getting fine sand from far and the overheads stood on the way and the concern could not stand in the competition.

SALTPETRE

Buchanan Hamilton has given a detailed account of the manufacture of saltpetre. The humidity of this place was favourable for the growth of nitrifying bacteria in wood and cowdung used as fuel which convert ammonia by successive stages into nitrous and nitric acid.

Persons engaged in this industry mostly came from a particular caste called "Noniya". Buchanan observes:—"The actual manufacturers are here called Nuniyas, or Saltmen and are of many different castes. At each furnace are employed from three to five persons, men and women. The latter boil; the former collect earth and fuel, for which they pay nothing. The quantity made in *Chhai* and *Pharkiva* varies from 800 to 1,400 mans, delivered to the Company, according as the season is dry or wet, but the average is about 1,300 mans, the unfavourable years being few. Each furnace, therefore, makes on an average 9 mans 7 sers heavy weight, for which the owners receive 26 rupees 6 annas Arcot); but these are commonly current. Each furnace employs two ordinary families, that is, two married men and their wives...."

Saltpetre had a good market outside India. This industry gradually declined due to the unfair treatment to the Noniyas by the Zamindars. The extraction was also hampered by restriction in the interest of salt revenue which made it economically wasteful. After sometime it got into a stiff competition with the German market. In 1913 India only produced 1/3rd salt of its requirement while 2/3rd was supplied by Germany. The price per maund varied between Rs. 1/8/- to Rs. 3 as a result of which the average per day earning of each Noniya was between -/4/- to -/6/-.

In order to examine and enquire into the matter, an Industrial Commission was set up in 1916 which recommended for some concession but it was very meagre and a temporary relief. The industry could not stand the competition and declined.

DYEING

Dyeing was one of the important old industries of the district. Buchanan Hamilton has devoted pages in his account, to the dyeing

industry and the indigenous dyers of the district. Byrne in the last *District Gazetteer of Bhagalpur* (1911) has mentioned:—

“The following are the chief materials used:—The flowers of the *kusam* or safflower (*Carthamus tinctorius*) ; the flowers of the *singhar* (*Nyctanthes arbor tristis*), and of the *tun* (*Cedrela toona*) ; the leaves of *Indigofera tinctoria* or indigo ; *tairi*, the pods of *Caesalpinia sappan*; the wood of the same tree ; *kath* (catechu or terra Japonica), obtained from *Acacia catechu* ; the root of the *haldi* (*Curcuma zerumbet*) ; the seeds of *Bixa orellana*; the fruit of the *karanja* or *Galedupa Indica*; the bark of the *um* or mango (*Mangifera Indica*); the flowers of the *palas* (*Butea frondosa*); the root of *manjit* or Indian madder (*munjista*) ; *singrif* or vermilion ; *zangar* or verdigris ; *sajimati*, an impure carbonate of soda : and *kassis*, a white and powdery sulphate of iron.

“The following are the principal colours derived. The order given by Dr. Buchanan Hamilton is as follows (1) *Kakreja*, a dark brown, inclining to purple, is obtained by infusing 9 oz. of *tairi* in 10 lbs. of water for two hours ; the greater part of the water is strained off, and the cloth soaked in the remaining dye. Then 1 1/4 oz. of *Kassis* is dissolved in 10 lbs. of water, and the cloth put into the mixture for a few minutes after which it is dried in the sun. Other mordants may be used. Next, 1 1/4 oz. of alum is dissolved in a little hot water, added to 10 lbs. of cold water ; and in this the cloth is thoroughly soaked. Then boil 5 1/2 oz. of *sapan* wood in 30 lbs. of water for six hours, cool the decoction and steep the cloth in it for half-an-hour ; add to it 2 1/2 ozs. of lime, stir quickly, and put in the cloth again. Then wring and dry in the shade. (2) *Agari*, a brown, without any tinge of purple, is produced from 19 ozs. of bruised *tairi*, infused in 10 lbs. of water for about an hour and-a-half ; in this the cloth is soaked, *kassis* being the mordan used. Then, infuse 7 ozs. of terra Japonica in 10 lbs. of cold water ; add a little lime-water, and stir the infusion ; dip into it the cloth, wring it and dry it in the sun. (3) *Uda*, a bright purplish brown, is derived from a weaker solution of *tairi* than is necessary for the last mentioned colour, and is similarly fixed by *kassis*. Afterwards, soak the cloth in the solution of alum, such as is first used in obtaining *kakreja*; and then place it for half an hour in a decoction of 10 ozs. of *sappan* wood, boiled for seven and-a-half hours in 40 lbs. of water, to which a little lime is added. (4) *Baigani*, a shade lighter than the above, and approaching to

claret colour, is produced in the same manner as the last, except that the decoction of *sappan* is less strong. (5) *Habasi*, a blood red, is produced by much the same treatment as the above, but alum is freely used, and the *sappan* infusion is prepared in the same manner as in the case of *uda*. (6) *Shotari*, a light brownish drab colour, is obtained from 5 ozs. of terra Japonica infused for a whole day in 1 lb. of water ; in this, when diluted, the cloth is steeped. The mordant is usually *kassis*. (7) For *taranji*, a bright gamboge yellow, 5 ozs. of turmeric are infused in 10 lbs. of cold water. The colour is fixed by alum mixed with 20 ozs. of sour curdled milk. (8) *Asmani* is a light sky-blue, made from 1 1/4 oz. of native indigo infused in abundant water. (9) In preparing *fakhta*, a bluish ash colour, first put the cloth into an infusion of 20 ozs. of *tairi* in 10 lbs. of water, and next into a solution of 2 1/2 ozs. of *kassis* dissolved in a similar quantity of water. Then dry in the sun, and taking an infusion of 2 1/2 ozs. of powdered *haldi* root, steep the cloth in it. (10) In the case of *shishaha*, a pale blue, somewhat resembling the colour of lead, the process is the same as in producing *fakhta*, except that the cloth after being taken from the infusion of *kachur*, is put into an infusion of 5 ozs. of native indigo in 10 lbs. of water. It may be also made by omitting the *kachur* infusion. In the whole of these processes the dyers use well water alone, most of which near Bhagalpur is hard."

SOURCES OF POWER

(The district has no provision for the supply of Hydro-Electric Power. There is no Thermal Station. The only source of power supply is the Bhagalpur Electric Supply Co., with Octavias Steel and Company as Managing Director. This is the main source of power supply in Bhagalpur, Nathnagar, Champanagar and Sabour. The firm gives employment to 141 persons out of whom 118 are labourers. Fuel used for generating electricity is crude oil. Its monthly generation of electricity is given below:—

			Units
November, 1959	..	..	5,07,530
December, 1959	..	..	5,21,060
January, 1960	..	..	5,75,835
February, 1960	..	..	5,68,225
March, 1960	..	..	5,85,233
April, 1960	..	..	6,39,320

The supply of electricity may broadly be categorised into four classes, namely, Domestic, Commercial, Industrial and others. A detailed list of units sold from November, 1959 to April, 1960 is given below:—

		Novem- ber, 1959.	December, 1959.	January, 1960.	February, 1960.	March, 1960.	April, 1960.
Domestic	..	1,42,953	1,37,902	1,45,498	1,50,125	1,52,106	1,78,217
Commercial	..	41,764	43,179	46,642	42,605	42,438	48,041
Industrial	..	1,01,185	1,08,572	1,39,420	1,40,241	1,35,619	1,43,995
Others	..	1,34,577	1,39,295	1,46,146	1,38,325	1,42,680	1,67,458)

The valuation against the total units sold from November, 1959 to April, 1960 is given below:—

		Amount.
		Rs.
November, 1959		1,26,790.34
December, 1959		1,27,336.00
January, 1960		1,36,633.18
February, 1960		1,38,072.52
March, 1960		1,37,880.15
April, 1960		1,58,080.51

It supplies electricity to 5,097 consumers out of which 4,871 belong to domestic group. The power that the present installation of Bhagalpur Electric Supply Company is capable of generating does not appear to be adequate. The city of Bhagalpur has had an enormous expansion in the course of the last one decade. The incidence of urbanisation is still on and there is no doubt that in another 10 years the requirements of electricity will go up much higher. In this connection it may be mentioned that Bihar has tremendously increased its power production in the recent years. In Bihar, the installed capacity of public supply undertakings was 202,978 K W in 1955, the corresponding generation being 440,322 million KW. The installed capacity of the self generating industrial plants was 285,322 KW, 40 per cent higher than the above and the corresponding output was 891,509 million KW.

Vigorous efforts have been made to increase the supply of electricity. In all a total investment of Rs. 10.89 was made during the First Plan period resulting in net addition of 7,000 K.W. of diesel capacity. The benefits of Damodar Valley Corporation system added over 150,000 KW of installed capacity. Progress of Bihar in the field of electrification has been most striking and

successful. The Bihar Government's plan envisages an outlay of Rs. 19.18 crores during the period of Second Plan. Bhagalpur has to play her part in this programme of expansion of electricity the consumption of which is an index of material prosperity and economic upgrading.

A branch office of Bihar State Electricity Board has been opened in Bhagalpur for stretching H.T. and L.T. Line for the supply of electricity in Bhagalpur. Bhagalpur Electric Supply Company is not installing additional generating machines in hope to get power supply from Bihar State Electricity Board on bulk supply basis. Regarding the present low incidence of consumption of electricity it may be mentioned that high rate of electricity has resulted in less consumption of energy for domestic purposes.

A chart of the rates for the supply of energy immediately preceding September 1, 1958, is given below:—

A. Domestic

- (1) *Lighting and combined installations of lights and fans and for motors of 1 B.H.P. or less.*—44 nP. per unit subject to a rebate of 6 nP. per unit for payment of bills within 15 days of date of issues, and provided all previous outstandings have been paid.
- (2) *Domestic Appliances when wired and metered on a separate circuit.*—25 nP. per unit.
- (3) *Unmetered contract lighting.*—Not more than two 40 watt lamps in any installation and burning not more than 5 hours per day at the rate of Rs. 2.50 per month per lamp. Larger size of lamps in proportion.
- (4) *Cinemas.*—The first 420 units per month—37 nP. per unit.

All units consumed in excess of 420 per month—27.5 nP. per unit.

- (5) *Factory Lighting.*—When the consumption for lighting does not exceed 10% of the total offtake—

All at 30 nP. per unit.

Units consumed for lighting in excess of 10 % of the total offtake will be charged for at the standard lighting rate.

6. *Compound lighting.*—30 nP. per unit subject to a minimum of Re. 1 per month per unit.

B. Industrial

(7) Power on flat rates-L.T.—

(a) Restricted hour use.—23.50 nP. per unit.

(b) Unrestricted hour use.—30 nP. per unit.

(8) Power on Two Part Tariff.—

(a) *L. T. Supply.*—A charge of Rs. 10 per K.V.A. of maximum demand per month, plus the following unit charge:—

First 5,000 units per month—19.75 nP. per unit.

All units in excess of 5,000 per month—18.25 nP.

Subject to a rebate of 33 $\frac{1}{3}$ % on the total energy bill for restricted hour use.

(b) *H. T. Supply.*—At the option of the company for large Industrial consumers guaranteeing a minimum monthly payment of Rs. 250.00 transformer and all high tension equipment being provided by the consumer and energy being metered at low tension—

A charge of Rs. 7.00 per K.V.A. of maximum demand per month, plus the following unit charges:—

First 10,000 units per month—18.25 nP. per unit.

All units in excess of 10,000 per month—15.75 nP. per unit.

Subject to a rebate of 33 $\frac{1}{3}$ % on the total energy bill for restricted hour use.

Energy for Factory lighting up to ten per cent of the total monthly offtake will be allowed at the above rate. Any consumption in excess of ten per cent will be charged for at the standard lighting rate.

LARGE SCALE INDUSTRIES

Regarding the industries and manufactures of the district of Bhagalpur it may be mentioned that there are no Mining or Heavy Industries, e. g., Collieries, Ship Building Industries, Manufacture of Machine Tools and Automobiles, etc.

In spite of a convenient water front for miles and fairly satisfactory Railway communications, Bhagalpur has not also got any

large scale industry, e.g., Textile Mills, Jute Mills, Sugar Factories, etc. It is rather peculiar that there could not have been at least a Textile Mill because Bhagalpur has a fairly well developed cloth industry as one of the principal small scale industries. It is said that Bhagalpur has got the largest colony of Marwaris in Bihar and their number and importance come only second in comparison to the Marwari Community in Kanpur. Practically every Marwari is a businessman and it is a proverb that "there is no poor Marwari". There are Marwari firms in Bhagalpur district who have been there for generations and who have sunk lacs of rupees in business. If Kanpur could be the centre of the large scale industries of Textile Mills there is no reason why Bhagalpur could not have been also developed into a centre for large scale industries. Silk which has been an indigenous industry of Bhagalpur district is at a stage of a highly developed small scale industry and with the pooling of resources, initiative and organisation it is difficult to believe that silk manufacture in Bhagalpur could not have been developed as a large scale industry. There is no dearth of suitable sites in the umlands of Bhagalpur and there would not have been a dearth of skilled or unskilled labour. It appears that a lack of initiative has stood on the way of the development of a large scale industry of silk in this district. Similar observations may also be made regarding the development of a Sugar Factory in Bhagalpur. Round about Bhagalpur, in Colgong, Amarapur and other areas a considerable quantity of sugarcane is grown and investigation shows that the possibility of a Sugar Mill as a large scale industry in the district cannot be ruled out.

INDUSTRIES AND MANUFACTURES OF THE DISTRICT

Small-scale and Cottage Industries

Silk Industry—Bhagalpur has been a noted venue of silk industry since long. At present Bihar produces the largest quantity of Tassar silk in India. About 36,000 persons mainly members of Scheduled Tribes rear Tassar silk worms. About 80,000 *kahans* (one *kahan*-1280 cocoons) of Tassar cocoons are produced in the State, which give 1,60,000 lbs. of reeled yarn and 1,20,000 lbs. of Tassar waste.

10,000 handlooms are engaged in weaving Tassar silk. Tassar silk producing about 42,84,000 yards of pure Tassar and mixed fabrics value approximately Rs. 1.5 crores. There is an appreciable demand of Tassar silk fabrics in U.S.A. and other foreign countries. During 1958-59 Rs. 6,00,000 worth Tassar silk fabrics had been sent to U.S.A. only from Bhagalpur which is the biggest silk weaving centre in Bihar.

At present about 15,000 yards of Tassar silk fabrics valuing Rs. 1,25,000 are exported from this State every month. These statistics indicate clearly the resources of Bihar for silk industry in general and the district of Bhagalpur in particular.

Rearing of silk worms is done in different parts of Bihar but weaving is exclusively done in this district.

Different types of silk goods and spun silk fabrics, e.g., Shirting, Coating, Stole, Bedspread, *Chadar*, etc., are exported to different countries, specially to Sudan, West Germany, Switzerland, United States of America and Canada. Stoles and bedspreads are generally not manufactured out of pure silk and 60/2^s M/S Tassar, 210/2^s M/S Mulberry, 100/2^s M/S Tassar and 60/2^s Mulberry are the counts generally used.

An approximate price of the different good varieties has been given below:—

Shirting	..	..	Rs. 8 per yard.
Coating	..	..	Rs. 12 per yard.
Stole	..	..	Rs. 12.50 per yard.
Bedsheet (3½ yd. × 64")	..	..	Rs. 48 each.
<i>Chadar</i> (3 yds. × 52")	..	..	Rs. 25 each.

India does not hold any monopoly in this field. She has to compete with different countries, e.g., China, Central Asia, etc., in this field.

It is for this reason that there is the need for standardization of the product and there should be constant efforts to improve the type of goods produced.

From the statement submitted to the Central Silk Board by the Superintendent, Government Silk Institute, Nathnagar the present position in tabular form is shown:—

		Handlooms.	Powerlooms.
1. Total no. of Looms		11,000	205
2. No. of Looms engaged in weaving pure silk fabrics.		1,300	30
3. No. of Looms engaged in artificial silk fabrics		1,600	15

TOTAL CONSUMPTION OF RAW SILK ON LOOMS DURING 1959.

		Lbs.	Kgms.
Imported		..	..
Filature (Indigenous)	..	1,000	563.5925
<i>Charkha</i> (Indigenous)	..	3,000	1360.7775
Total ..	..	4,000	1924.3700

TOTAL PRODUCTION OF FABRICS ON LOOM DURING 1959

Pure silk.	Handloom.	Power Loom.
	Yards.	Metres.
(a) Tassar	6,25,000	5,71,500
(b) Eri	1,08,000	98,755.20
(c) Mulberry	1,20,000	1,09,728
(d) Muga	Nil	Nil
Total pure silk fabrics	8,53,000	7,79,983.20
Mixed fabrics	34,56,000	31,60,166.40
GRAND TOTAL	43,09,000	39,40,149.60
	2,69,200	2,37,012.48
	80,400	79,004.16
	1,72,800	1,58,008.32
	Yards.	Metres.

VARIETIES OF SILK FABRICS PRODUCED IN THE STATE DURING 1959.

238

BHAGALPUR

Serial no.	Varieties of fabrics.	Price per yard.	Price per metre.	No. of looms.	Serial no.	Varieties of fabrics.	Price per yard.	Price per metre.	No. of looms.
							Rs.	Rs.	
1	Tassar silk shirting	Rs. 5 to Rs. 6 per yard.	Rs. 5.44 to Rs. 6.56.	1,300	1	Mulberry silk shirting.	6	6.56	30 looms.
2	Tassar silk coating	Rs. 9 to Rs. 10 per yard.	Rs. 9.75 to Rs. 10.88.		2	Mulberry silk coating.	12 per yard.	13.12	
3	Tassar silk <i>saree</i> 5 yds. x 46 inch each or 4.572 metres.	Rs. 26 to Rs. 30 each.	Rs. 26 to Rs. 30 each.						
4	Mulberry silk <i>saree</i> price with-out border for printing.	Rs. 6 to Rs. 8 per yard.	Rs. 6.56 to Rs. 8.68						
5	H/S Tassar Twill Thaa 54" width.	Rs. 12 per yard.	Rs. 13.12						
6	Silk <i>chadar</i> 3 yds. x 54" or 2.7432 metre.	Rs. 20 to Rs. 30 each.	Rs. 20 to Rs. 30 each.						

MIXED SHIRTING.

Serial no.	Varieties.	Price per yard.	Price per metre.	No. of looms.
1	Mixed shirting ..	Rs. 2.50 to	Rs. 4.37.	Rs. 2.75 to
2	Mixed coating ..	Rs. 4 to	Rs. 4.37 to	Rs. 6.56.
3	Mixed <i>chadar</i> 3 yards x 64" each.	Rs. 8 to	Rs. 8.72 to	Rs. 13.12.
4	<i>Sarees</i> 5 yards x 46" each ..	Rs. 9 to	Rs. 9.81 to	Rs. 19.62.
		Rs. 18 each.		
1,600				
1	Mixed shirting	Rs. 1.50	Rs. 1.66	Rs. 2.50.
2	Mixed coating	Rs. 3.50	Rs. 3.81	Rs. 6.56.
		Rs. 6.		

AN APPROXIMATE PRICE OF THE DIFFERENT GOOD VARIETIES FOR 1959 AND 1961 IS AS FOLLOWS :—

1959.

1. Shirting	..	Rs. 5 to Rs. 9 per yard.
2. Coating	..	Rs. 9 to Rs. 14 per yard.
3. Bedsheet (3 1/4 yards X 64")		Rs. 50 each.
4. Chadar (3 yards X 52")	..	Rs. 25 to Rs. 35 each.
5. Stole	..	Rs. 10.50 per yard.

1961.

1. Shirting	..	Rs. 13 only per yard.
2. Coating	..	Rs. 17 only per yard.
3. Stole	..	Rs. 12.50 only per yard.
4. Bedsheet (3 1/4 yards X 64")	..	Rs. 55 each.
5. Chadar (3 yards X 52")	..	Rs. 32 each.

Rearing

There are exclusively four kinds of silk worms, namely, Eri, Tassar, Mulberry and Muga. The last kind of silk worm is not reared in Bhagalpur.

Rearing of Eri Worms.—Eri silk is the cocoon of an insect which feeds on castor leaves. Eri worms were natives of Assam. They are bred entirely indoors. The worms are hardy. They thrive best in a warm and moist climate from July to December and in February and March. For their rearing, the best time is during the rains when the temperature and humidity vary from 75° to 85° F. and 85 to 95 per cent respectively.

Eri worms are multivoltine and are completely domesticated. Five or six crops can be taken in a year. The eggs hatch on 7th or 8th day after oviposition from March to November. From December to February, they hatch on the 13th to 21st day after oviposition. Eggs hatch regularly without the application of artificial heat.

The eggs are kept in a perforated box or in a piece of cloth or paper. They change into light blue colour before hatching. Tender and soft leaves are put over the newly hatched worms. They crawl up to feed upon them. The leaves are turned upside down after about ten minutes to enable crawling upon of sufficient number of worms. Then the leaves are transferred to a tray with the worms.

The full grown worms pass a semi-liquid excrement. They stop feeding, loose in weight and size and begin to wander about the tray from 9 to 12 A.M. Those worms also wander about which remain for long time without food. The matured worms should then be picked up and kept in the spinning baskets.

One layer of dry leaves, straw or grass, wood shavings or crumpled paper, etc., is put in the basket. Over the layer about 100 worms are placed and again another layer of spinning medium is put over the worms. One basket of the diameter and depth of about 1½ feet and one foot respectively can accommodate about 500 worms. The worms begin to spin at night. The cocoons are picked up after 5 days in summer and eight days in winter and they are spread in one layer over a tray for the emergence of the moths. The worms can spin in deal wood boxes and even on trays. An average cocoon is 1½ inch long and ¾ inch in diameter. The moths begin to come out on the eighteenth day in summer. The duration in winter is about 35 to 40 days. The female has bigger and thicker body. But the males are more active.

In the afternoon the moths are collected and 250 of them are kept in one basket with a lid over it. They would pair at night. Next morning the paired worms are kept in a separate basket. The same afternoon, the males are forcibly separated and thrown away. The fertilised females are kept in a basket for laying eggs. The females are thrown away next morning and the eggs are scraped off with a stick or with the fingers. Cocoons are very much attacked by enemies and for protection they should be kept in closed baskets hung from a string.

Rearing of Tassar (Anthores Mytritta) Worms.—The life cycle of the worm is divided into four parts.

The egg is the primary stage in the existence of silk worm life. On the 7th or 8th day after oviposition, the worms come out of eggs. Then they are put on the tree where they begin to eat. The worms feed on the tree, grow and mature in about 35 to 55 days according to season.

From July to October Tassar moths emerge out of seed cocoons on the 15th to 25th day. The seed cocoons harvested after October-November crop are pierced by moths. After a long period of 5 to 6 months one fertilized female tassar moth lays 200 eggs on average.

Tassar worms are generally attacked by the diseases like flachere and grasseri. After they fall victim to these diseases, they fall down or hang by their hind legs.

Trachina fly, hornet, wasp, ants, kites and rats kill and eat the worms. There is no particular organisation for rearing. Rearing is not congregated in a region or division. The rearing is done by indigenous people spread all over the district.

A better organisation for rearing is indicated. Several grainage station should be established under the Research station and from these grainages, disease-free eggs should be distributed. The rearers should be given proper prices. Training centres should be started to train personnel and trained candidates may be given a cash help to start and stick to rearing.

There are acute marketing difficulties regarding tassar cocoons. There is no arrangement for the poor rearers to sell their cocoons at fixed rates. They easily become victims in the hands of middle men due to poverty and sell at low prices.

As a remedy, Government cocoon centres should be started which may ensure stability of price. Co-operative societies for rearers may be opened. State protection for the poor artisans is so needed that they may not fall prey to the oppressing hands of the *Mahajans*.

There are severe difficulties in reeling of cocoons and spinning its waste. Before actual reeling the tassar cocoons are required to be boiled out freely so that the filaments may come out freely. The tassar cocoons are very hard. It takes a long time to dissolve the hard crust of cocoons and make the filaments easily reelable. This is done by reelers at home. The process is very lengthy and tedious. They do it by boiling the cocoons. It is generally done in the oven of their cooking *chula*. It takes about 10 days for proper boiling of cocoons. Then the filaments are wound on the *Natwa*. It takes a long time to reel a *chittak* of thread. The production is crude and very low. Spinning is done by means of spindles of *Dhera* which takes long time to spin a seer of thread.

To remove these difficulties proper training centres should be started to impart technical knowledge of different sections. For want of factory for reeling and spinning the procurement of reeled and spun tassar yarn is a difficult task. The purchaser has to move door to door for purchasing the yarn. The Mahajans bargain and take the advantage of the market. Starting of reeling factory equipped with modern Reeling-cum-Twisting machines and spinning factory may help in overcoming the difficulties which purchasers have to face.

Marketing process of silk goods may be organised for controlling the exploitation by middlemen engaged in this business for which an opening of a sale emporium may be suggested.

Bhagalpur district has a vital potentiality of silk which should be handled very carefully and cautiously. Its proper exploitation may help much in earning foreign exchange which is so important for an under-developed country like India.

BUILDING INDUSTRY

The incidence of urbanisation in Bhagalpur district has been remarkable. Bhagalpur, Sultanganj, Banka and Colgong have expanded enormously and other townships are coming up. The more availability of cement and steel have led to a change in the pattern of the houses. Instead of mud and brick houses more of reinforced brick and reinforced concrete houses are being built. There has been a great expansion of Government offices at the District and Subdivisional Headquarters and a number of institutions have now been located in Bhagalpur. Bhagalpur has now been made the Headquarters of a University. All this has led to a sizeable population being engaged in what may be loosely described as Building Industry.

This Building Industry has spread to many of the rural areas as well. The location of the block headquarters at important villages has led to the construction of a number of pucca houses for Block Development Office and residential houses. The well-to-do villagers have also come to appreciate better houses to live in and R. B. and R. C. houses with modern comforts are coming up in many villages.

The Building Industry has kept engaged people in different types of work. Broadly speaking they are brick layers, carters, truck owners and drivers, masons, carpenters, etc. Stockists of coal, bricks, cement, lime, iron, rods, etc., have cropped up in the urban areas. It is understood that there are now 21 brick kilns in the town of Bhagalpur alone, out of which 8 are at Mohallas Manbharra, 4 at Nathnagar, 4 at Kanori Bazar, 3 at Laloochak and 2 at Khanjarpur. Besides, there are brick kilns at Sultanganj, Banka, Colgong and other townships. The craze for brick-built houses in the rural areas has led to a very large number of brick kilns in rural areas. On a rough estimate more than 600 persons are engaged at the brick kilns of Bhagalpur alone.*

It may be mentioned here that after the earthquake of 1934 there was a craze for building light structures and attempt was made to manufacture Raniganj tiles near Champanagar. But as mentioned before as more cement and steel rods were available people took to brick, cement and steel for building stronger houses and Raniganj tiles fell into disuse. Similarly the manufacture of country tiles (*Khapra*) in the urban areas has considerably declined

*The 1951 Census figure of 1,509 males and 465 females in this Trade is an under-estimate.

because of the increase in demand for houses of cement and steel. Corrugated sheets and Asbestos sheets are also largely used for roofing.

Building Industry will receive a further encouragement now that schemes for housing the lower income group and small income group have been sponsored by the Government. The State is giving loans to further such schemes. To cope with the demand for more bricks loans are being given to the brick kilns and better arrangement for coal, cement and steel are being made.

BIRI INDUSTRY

✓Biri industry keeps occupied more than two thousand persons most of whom are biri manufacturers (about two thousand approximately). There will also be a couple of hundreds of men engaged as Driers, Packers and Tobacco Cleaners. It is peculiar that both the ingredients of the outer leaf and the tobacco are imported from outside. There are a few dealers hailing from Gujrat who deal in export of Biri. There is also a very large consumption of biri within the district. The Minimum Wages Act is not strictly enforced so far as the wages are concerned.✓

MISCELLANEOUS

✓Among industries other than indicated earlier, mention may be made of Oil Mills (12), Soap Manufacturing Units (6), Engineering Establishments (7), Gur and Khandsari (8), Hume Pipe Manufacture (1), Printing Press (9), Hosiery Mill (1), Flour Mills (42), Dairy Farm (2). The following is a list of industries established or developed within the last five years with the help of Government :—

Printing Press (4), Gur and Khandsari (2), Leather Industries (6), Carpentry (5), Poultry Farm (4), Small Dairy (7), Brick kiln (4), Dyeing and Printing (2), Ceramic (1), Foundry (3), Blacksmithy (3), Weaving Handloom (7), Brass Metal (1), Motor Parts repair (1), Colour Industries (2), Engineering (1), and Fabricating (10). Some of these industries are typical cottage industries. Handloom weaving is another cottage industry which gives occupation to a few hundreds of families. There are a few other small cottage industries like furniture manufacture, turning out ordinary pottery goods, making of leaf plates, etc. Bhagalpur district supported the Bengal Potteries of Calcutta for a pretty long time with the basic material of excellent clay from Patharghatta and the neighbourhood in Colgong P.-S. Owing to protracted litigation the quarrying of the clay has been stopped.

There are no particular industrial arts but it may be mentioned that the dyeing and printing of Bhagalpur silk *sarees* manufactured, dyed and printed in Bhagalpur district and other types of silk lengths transcend purely utility considerations.

INDUSTRIAL POTENTIAL AND PLANS FOR FUTURE DEVELOPMENT

Silk.—Bhagalpur is known for its silk industries and attempts are being made in this regard to develop this industry. The long felt desire of the people will be fulfilled by a spun silk mill at Bhagalpur which will be started during the Third Five-Year Plan period. This Mill will supply the spun silk yarns to the Mills of this area.

Besides, there is a proposal to instal one sizing plant which has already been purchased and it is hoped that due attention will be paid to instal the plant in near future which will be helpful for weavers who are being supplied power looms and also for the silk mill owners of this place.

Eri Supply station.—One Eri seed supply station is going to be started in Bhagalpur. Site has already been selected at two places one near Bhagalpur Central Jail and the other near Kabirpur but it has not been finalised as yet. Attempts are being made to acquire the land before the close of this financial year 1961-62

Marketing Facilities.—For providing marketing facilities of the products of handicrafts, there is proposal to start one handicrafts emporium in Bhagalpur as early as possible.

The above mentioned schemes are expected to be executed in near future in the public sector. Besides, in the private sector one silicate factory is likely to be started soon in Colgong area.

So far as the question of industrial possibility is concerned the following industries stand a good chance in this district.

Ceramic Industries.—China clay of Patharghatta, Colgong and Samukhia, Banka is best suited for ceramic industries. Cheap labour and transport facilities are also available. Hence a ceramic factory can be started near Colgong.

Dairy Farms.—One big dairy could be started in North Bhagalpur. There is a good prospect in this respect.

Bone Mills.—One small bone mill could be started conveniently in Bhagalpur. Bones are available in abundance here and are transported to Calcutta in each month. If these bones can be used locally, it will be of great help to the local people.

Fertiliser made out of bones will be of benefit to agriculture. There is a proposal to give subsidy to bone mill products provided the fertiliser produced by the bone mills are marketed through the Co-operative Department.

There are also good prospects for sponsoring a concern for manufacturing nuts and bolts, wire drawing plants and wire nail making units.

The river front is now hardly used for transport of manufactured goods. This is because steamers and scheduled crafts do not ply now by the Ganga touching Bhagalpur. The Steam Navigation and B.I.S.N. Companies have closed down their steamer services a few years back.

A small provision was made in the First Five-Year Plan. This period was really for preparation. Considerable provision, however, was made in the Second Five-Year Plan and since 1957 the development of small scale industries has been taken up in right earnest. In 1957 an Industries Office was created on district level in Bhagalpur with a view to execute the programmes of cottage, small scale, khadi and village industries. The District Industries Officer has been given a staff and he has to take the following measures :—

- (i) To impart training to the artisans and their wards in improved technique and to settle them in trade.
- (ii) To impart training of highly skilled nature in order to produce technical personnel.
- (iii) To extend credit facilities to the needy and prospective industrialists.
- (iv) To help industrialists in procurement of raw materials.
- (v) To provide technical advice where needed.
- (vi) To give protection to small industries against heavy industries by means of stores purchase preference rules.
- (vii) To organise exhibitions in order to acquaint the artisans with the modern development of industries.
- (viii) To provide marketing facilities to the artisans.

A number of Training-cum-Production Centres have been started where the trainees are given monthly stipends. Such centres started are Wool weaving (1), Carpentry (5), Tailoring and

Cutting (5), Knitting and Embroidery (1), Durrie weaving (1), Linseed Fibre (1), Blacksmithy and Tinsmithy (2), Cotton weaving (1), Dyeing and Printing (1), and Leather (1).

Besides the T.C.P. Centres a number of model schemes have been taken up by the Industries Department for purpose of imparting training in different trades. The Blacksmithy Centre in Bhagalpur has been functioning since April, 1958 and imparting training for one year and is particularly meant for trainees of scheduled castes and scheduled tribes. The Government Silk Institute at Nathnagar gives training in sericulture up to diploma standard. A Civil School of Engineering and Leela Dip Narain Industrial Training Institute at Bhagalpur give training up to diploma and certificate course in different trades of engineering. A Government Aluminium Wares Factory located at Bhagalpur has an installed capacity for 300 lbs. of aluminium utensils per day. It has started functioning since August, 1959 but is facing difficulties for raw materials. A Government Dye House has been started at Nathnagar to provide facilities to the weavers at Nathnagar and Champanagar in getting their yarns dyed at a reasonable fixed rate. A Fruit Preservation Scheme under the supervision of Fruit Preservation Officer, Agriculture College, Sabour is being financed by the Industries Department and has been producing jelly and syrups. A Linseed Fibre Research Scheme sponsored by Dr. Richaria, an Ex-Principal of Bihar Agriculture College, Sabour is still at research stage. Dr. Richaria has now left the State. Dr. Richaria had expected that various types of articles like cloth, toys, paper, durries, etc., could be made out of linseed straw after converting it into fibre. He had obtained satisfactory preliminary results. There are four sub-stations of this research scheme in different parts of Bihar controlled by the District Industries Officer, Bhagalpur.

There are six Eri Demonstration Centres at Birpur, Naugachia, Gopalpur, Pirpainty, Sabour and Akbarnagar. Disease-free layings are distributed among the villagers free of cost and cocoons are purchased from rearers on cash payment by the Government Silk Institute, Nathnagar. At Katoria a Tassar Seed Supply sub-station has been started to supply disease-free layings of tassar to the rearers.

The State Government has sanctioned a scheme of introducing 150 powerlooms in order to encourage the weavers concentrated at Nathnagar and Champanagar. Each loanee of powerloom will be given an advance of Rs. 1,000 as working capital repayable in five annual instalments.

Many of the schemes mentioned above are still at their initial stage and it is not expected that much will be achieved within a short time.

Regarding credit facility to needy and prospective entrepreneurs steps have been taken by the State Government.

Before the introduction of State Aid to Industries Act, 1956 very few persons were benefited under Bihar and Orissa State Aid to Industries Act, rather it may be said that benefit availed by them was negligible. In order to extend credit facilities to a large number of entrepreneurs the aforesaid Act was simplified in the year 1956. Since the introduction of the Bihar State Aid to Industries Act a large number of entrepreneurs have been advanced industrial loans and/or machineries under the hire purchase system. A sum of Rs. 1,19,700 has been advanced cash loan to 71 individuals including four industrial co-operative societies on district level. Besides, a sum of Rs. 2,56,500 has been advanced from the State headquarters to 21 entrepreneurs in shape of cash and hire purchase terms. Over and above this, 100 sewing machines have been distributed in 10 C.D. Blocks at the rate of 10 sewing machines in each C.D. Block on hire purchase system of loans repayable in five equated annual instalments.

In most cases loans advanced have been utilised properly and in those cases where loans have not been utilised properly steps are being taken to pursue the utilisation of loan and/or to terminate and realise the loaned amount under the terms of agreement.

ASSISTANCE TO INDUSTRIALISTS IN PROCURING RAW MATERIALS

In this respect it may be mentioned here that names of industrialists are recommended from this office to the Directorate for the issue of essentiality certificates in order to enable them to import the raw materials. Besides this, names of those units which use soda ash and caustic soda for the manufacturing of silicates and soaps, are recommended to supply them these raw materials at controlled rate. Names of units using different types of coals in their factories are also recommended for obtaining coal at controlled rate. Registered fabricators are supplied steel and iron at controlled rate from the iron and steel stockists on the recommendation of this office.

PROTECTION TO SMALL INDUSTRIES AGAINST HEAVY INDUSTRIES

Small Industries are given protection against heavy industries by way of their registration and marketing under stores purchase preference rules. The products of registered small-scale industries are given quality preference and 12 per cent price preference to the products of heavy industries in case their products are purchased by any Government departments. On district level the District Industries Officer has been included in the purchase committees formed in different departments of the Government functioning at the district level to safeguard the interests of the small-

scale industries. So far 12 small industries have been registered under stores purchase preference rule and the names of 7 such small industries have been recommended from this office for registration.

Technical Advice.—There are a large number of model schemes for small-scale industries which are supplied to the prospective entrepreneurs when needed. Sometimes their cases are referred to State Headquarters and Director, Small Scale Service Institute, Patna, for technical guidance.

Khadi and Village Industries.—It will not be out of place to mention here that under Khadi and Village Industries 113 Co-operative societies are functioning in this district and out of which 63 have been assisted financially by the Bihar Khadi and Village Industries Board. Most of them are working smoothly.

Export of Tassar Silk.—In these days of acute dollar shortage in our country, it will not be out of place to mention here that due to efforts of this department at Bhagalpur, Tassar Silk products and exporters have been able to export tassar cloth to U.S.A. amounting to Rs. 9,20,840 in 1958-59 and Rs. 12,16,180 up to February, 1959-60.

LABOUR AND EMPLOYERS' ORGANISATIONS

Bhagalpur district is not very well industrialised. The employers have not got very effective organisations. There are, however, two such organisations, one at Bhagalpur and the other at Naugachia. The Eastern Chamber of Commerce with headquarters at Bhagalpur claims to represent the employers in cloth and silk industry and other kinds of commercial and industrial interests. The Cloth Merchants Association with headquarters at Naugachia is concerned about the interests of the cloth dealers of Naugachia. Many of the big merchants of Bhagalpur district are members of the Bihar Chamber of Commerce with headquarters at Patna. It is rather peculiar that Bhagalpur with a very large number of employers should not have a well organised employers' organisation.

Regarding Labour organisations, there are quite a number of them. They are all rather small organisations and it is rather unfortunate that generally it is taken that they are more conscious of their rights than their obligations. Some of these labour organisations make themselves occasionally felt by threatening strikes complete or partial. Some of these organisations are reported to have a very small membership. Some of these labour organisations are—

- (1) Bhagalpur Silk Mills Karmachari Sangh, (2) Bhagalpur Water Workers' Union, (3) Bhagalpur Electric Supply Workers' Union, (4) Bhagalpur Press Employers' Union, (5) Khadya Utpadan Mills Karmachari Sangh, Bhagalpur,

(6) Bhagalpur Municipal Employees' Union, (7) Zila Biri Mazdoor Union, Bhagalpur, (8) Nagar Safai Mazdoor Sangh, Bhagalpur, (9) Cinema Workers' Union, Bhagalpur, (10) Motor Karmachari Sangh, Bhagalpur, (11) Bhagalpur Rickshaw Drivers' Union.

In the sphere of labour welfare, the Labour Department of the State Government actively encouraged the organisations of the employees and employers to meet in cases of any dispute. Voluntary Labour Welfare Centres as the joint efforts of the employees and the employers have been started at Bhagalpur (Jogsar) and at Sultanganj. The former biri workers engaged in silk factories are the beneficiaries of the Labour Welfare Centre at Bhagalpur while the workers in rice and oil mills and the Sultanganj distillery are the beneficiaries at Sultanganj.

The Labour Department of the State Government has sponsored "B" type Labour Welfare Centre at Bhagalpur. The Employees' State Insurance Act is expected to be extended to Bhagalpur shortly. At present the Provident Fund Act is in operation covering all the employees of the factories having 20 and more workers. With the extension of the Employees' State Insurance Act it is expected that there will be an Employees' State Insurance Hospital with a staff of qualified doctors which will confer great benefit to the workers. Simultaneously there will be a full-fledged Labour Welfare Centre with the different branches. The subject of Industrial Labour Welfare has been covered elsewhere.