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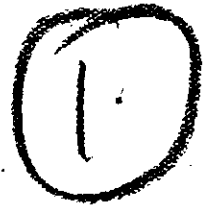


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Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

Naini Tal. District

By  
LOKMANI JOSHI, B.A., LL.B.



ALLAHABAD:

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## FOREWORD.

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NAINI TAL district comprises of three distinct tracts—the hills, the bhabar and the tarai—besides a small portion in the south-west corner which resembles the plains in all respects. The hills and the bhabar are covered with forests. Cultivation is more prominent in the bhabar than in the hills. The tarai resembles the plains in cultivation and trade.

The industries of the hills are confined to (1) fruit-growing, (2) a little leather work, (3) wooden toys, and (4) basket-making. Of these fruit-growing is the most important. Various kinds of fruits are grown, of which apples of several varieties are the most important. Several difficulties experienced by the fruit-growers are mentioned in the report, and remarks suggested to remove them. These deserve special attention. Transport is difficult, while packing has in some cases to be imported from foreign countries. The application of the local man who desires to make packing cases out of "Utish" deserves every consideration. A reduction of postal freight will increase exports considerably, thus bringing enhanced income to the Postal department in the long run. Strong and durable baskets for packing are a necessity and the industry needs to be organized. Labour and raw material are there as well as a demand for them. Capital and organization are wanting. The most suitable material for baskets will have to be selected. Fruit-growers' Association will perhaps be prepared to place large orders for them and to guarantee their continuous sale. It will be worth a capitalist to put himself in touch with the fruit-growers and the forest officers, select the most suitable material and organize the industry.

The utilisation of the bones at Mukteswar should also attract attention. Any bone manure which will be produced will be readily consumed by the orchardists of the hills.

The bhabar and tarai have many important centres of trade with the hillv tribes of Tibet and Bhutan. The trade consists



in exchange of wool, woollen blankets, spices, animals, etc., for grains, oilseeds, sugar, hand-woven cloth and fruits. This trade is very important and existence of many industries in the tarai and the neighbouring districts of Bijnor and Moradabad districts mainly depends upon the trade. An idea of this trade will be formed from the information given in Chapter IV—Statistics.

But the whole report is one story of want of development of the industries for want of capital, organization and transport. More than 1½ lakh maunds of oilseeds are exported from the district which imports both oil and oil-cakes for its own consumption. It has raw hides and skins, tanning material and cheap labour, but exports all its raw material to Cawnpore to get back tanned leather for its own use. It is unable to supply its own needs in cotton, but the only ginning factory exports all its produce to Bombay and the Punjab, compelling the district to import cotton or yarn for its purposes. It produces good wool which finds a sale in the plains, while the district imports blankets from the plains in large numbers for its own consumption. The tarai grows wheat and rice in extensive area, but has no mill to grind wheat or husk paddy. Wood for timber is available, but sawyers have to be imported from the plains. Read wherever one may he finds a repetition of the same thing: difficult communication, unskilled labour, want of capital and information. Ropeways may go a long way to help transport, but more cart roads are wanted. The number of carts have also to be increased by teaching the people how to make them. At present cart wheels are imported from plains at exorbitant cost. Coal is said to exist in the district, but until the mines can be located and worked it is very dear on account of the cost of transport. Cheap hydro-electric power will have to be brought to the chief industrial centres before any headway can be made in the development of the industries. Labour is not only unskilled but also unstable. Industrial schools are a great necessity. A wood-working school at Ramnagar or Haldwani, a textile school at Kashipur and a dyeing school at Kashipur or Jaspur and a blanket weaving school at Kashipur, Tanakpur or Ramnagar are recommended by the Superintendent. Itinerant teachers are

recommended for teaching manufacture of baskets and mats on a cottage basis. A systematic culture of silk-worms and lac, the refining of borax, the rearing of bees for honey, and wax, etc., have all to be popularised. Sawmills should be installed to save labour. There is ample scope for dairies and the district should early build up an export trade in ghi. Grass should be utilised locally.

A pulp plant ought to be installed in the hills instead of exporting grass all the way from the hills to Titagarh to be pulped there. Mats, baskets and many other minor products can be made out of the silk and other minor produce of the forests.

The district abounds in medicinal herbs of which a small list will be found attached to the report.

Limestone could be worked into lime on a larger scale, while several minerals can be mined with advantage. But the district is lagging behind in general and technical knowledge. It will require special treatment before its industries can be developed. The chapter of industrial possibilities deals with the requirements of the district. Briefly put they are :—

(1) The improvement of communications :—

(a) Roads. The following new cart-roads are recommended :—

- (i) Ratighat to Mukteswar via Ramgarh valley,
- (ii) Bhowali to Ramgarh.

(b) Light railways.

(c) Ropeways.

(d) Extension of existing railways.

(2) The opening of the following industrial schools :—

(a) Carpentry school at Haldwani or Ramnagar.

(b) Handloom weaving school at Kashipur.

(c) Dyeing and printing school at Kashipur or Jaspur.

(d) Blanket weaving school at Tanakpur or Ramnagar.

(3) Arrangements for imparting instructions in—

(a) propagation of lac,

(b) rearing of silk-worms,

(c) jam-making,

(d) packing of fruits,

- (e) manufacture of baskets and mats,
  - (f) scientific culture of bees,
  - (g) dairies.
- (4) Organization of co-operative societies amongst—
- (a) weavers,
  - (b) dyers,
  - (c) dairy farms.
- (5) Arrangements for prospecting for minerals:
- (a) iron,
  - (b) mica,
  - (c) quartz.
- (6) Establishment of—
- (a) rice mill,
  - (b) oil mill,
  - (c) match factory,
  - (d) pulp factory,
  - (e) flour mill,
  - (f) dairy farms,
  - (g) fibre machinery.

The position under which (1) weavers have to pay an interest of Re. 0-2-0 per week per rupee or 600 per cent. per annum, (2) rice is husked at a cost of 5 seers plus half broken rice which together would amount to not less than 20 per cent. of the price, (3) wheat is ground at a cost of 33 per cent. of the price of wheat, (4) cart accessories are procurable at a cost of Re. 100 per set, or (5) milk is purchased by the dealers at 12 seers per rupee to be retailed at 4 seers, must be altered, and even a small attempt to ameliorate the condition of the hillmen should be much appreciated. Difficulties there are many, greatest may be the ignorance and the apathy of the people themselves; but it should only mean larger efforts to carry the light of civilisation to these remote parts of the provinces.

The report has been drawn up on lines similar to others and has been revised by Mr. S. T. Gadre, Industrial Chemist to Government, United Provinces, to whom we are indebted for many valuable suggestions. Thanks are also due to the following

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1. C. A. Mumford, Esq., I.C.S., Deputy Commissioner, Naini Tal.
2. Forest and P. W. D. officers.
3. Pandit Durga Datta Lohani, Ranger, Haldwani.
4. Pandit Kamla Pati Pande, Patwari, Ramgarh.
5. Pandit Basudeva Sharma, Forest Officer, Nepal.
6. Pandit Chintamani Pant, District Engineer, Naini Tal.
7. Pandit Govind Ballabh Upreti, Superintendent Government Secretariat.
8. Pandit Govind Ballabh Pant, Vakil, Naini Tal.

CHAMPA RAM MISRA

*The 6th March, 1928.*

## CHAPTER I.

### INTRODUCTION.

#### 1. — General features of the district.

(i) *Boundaries.*—The boundaries of the district of Naini Tal are —

*North.*—Almora district.

*East.*—Almora district and Nepal State.

*South.*—Pilibhit, Moradabad and Bareilly districts and Rampur State.

*West.*—Garhwal and Bijnor districts.

(ii) *Physical features.*—Physically the district can be divided into the following four parts, which have distinct features of their own:—(1) The mountainous region in the north, (2) the bhabar in the centre, (3) the tarai in the south, and (4) the region in the south-west corner of the district which resembles, in physical features and general conditions, the districts of the plains.

The northern portion of the district is entirely mountainous, the mountains being an outlying portion of the great Himalayan range. There are several high peaks and valleys, the Cheena Peak above the Naini Tal town having the highest altitude. All the big streams which have their origin in this district have their source in these parts. The hills consist of a series of ridges and valleys, each ridge leading to another and each valley generally a stream bed. The upper parts of the ridges are generally covered with forests and on the lower slopes are situated a series of villages with their cultivated fields interspersed with patches of inferior forests. The typical village lies between 3,000 and 5,000 feet in elevation: this represents the commonest elevation and the best land in the hills.

The bhabar is a slightly inclined plain of dry and rocky earth, running from the east to the west of the district. Water is scarce with no wells or springs. Its streamlets are dry in the summer, it abounds in forests and wild beasts and has little

population. But its forests are rich in timber-producing trees, and hillmen migrating here in the winter produce grain and rape-seed with the aid of canals which traverse this tract.

South of the bhabar is the lowland marshy region of the tarai, a great rice tract, full of springs and having an extremely damp climate.

The south-west corner of the district resembles the features of the Moradabad and Bijaor districts and is healthier than the tarai.

### 2.—Area and population.

	Area in square miles.	Population.	Density per square mile.
Hills ... ..	433	60,011	139
Bhabar ... ..	1,279	48,580	61
Tarai ... ..	820	91,553	112
Plains ... ..	189	46,731	247
Total ... ..	2,721 =170,193 acres.	276,875	102

### 3.—Rivers.

Sarda or the Sarju.

Kosi ... ..

Gaula ... ..

Nandhaur ... ..

Dubka ... ..

Ramganga.

} tributaries of the Ramganga.

The rivers carry timber flotillas of which large numbers may be seen in the Sarda, the Kosi and the Ramganga.

### 4.—Canals.

	Length in miles.	Crops irrigated.
Chaugalia ... ..	10	} Rice and rape-seed
Eastern Gaula ... ..	26	
Western Gaula ... ..	56	
Rampagar canal ... ..	26	
Kashipur canal ... ..	30	

The water percolates in the soft soil and does not reach the cultivated area, the channels of these canals are therefore being made pucca, wherever necessary.

The canals are not navigable.

5.—Railways.

*Rohilkhand and Kumaon Railway—*

	Railway stations.
(i) Bareilly-Kathgodam branch...	Kichha, Lalkua, Haldwani, Kathodam.
(ii) Moradabad-Kashipur „ „	Kashipur.
(iii) Lalkua-Ramnagar „ „	Lalkua, Gularbhoj, Bazpur, Sarkara, Kashipur, Ramnagar.
(iv) Pilibhit-Tanakpur „ „	Majhola, Khatema, Chakarpur, Banbasa, Tanakpur.

6.—Roads.

(i) *Cart-roads.*

	Approximate length in miles.
Bareilly-Kathgodam ... ..	60
Kathgodam-Naini Tal ... ..	22
Kathgodam-Ranikhet-Almora ... ..	80

(ii) *Bridle-roads.*

Ranibagh-Almora ... ..	37
Ranibagh-Naini Tal ... ..	14
Ramnagar-Khairna ... ..	100

(iii) *Katcha roads.*

Chaugalia-Haldwani-Kaladhungi-Ramnagar-Bijnor-Hardwar ... ..	80
Melahat-Khatima-Rudrapur-Gadarpur-Bajpur, Sultanpur-Kashipur-Jaspur-Bijnor ... ..	150

## 7.—Principal industrial places and markets

Place.	Existing industries	Possible industries.	Remarks.
(i) Naini Tal	Shoe-making, leather boxes, saddlery, making of gold and silver ornaments, Kashmiri caps, butter-making and wooden toys.	Has generated hydro-electric power, a portion of which will be available for industrial purposes, can therefore develop many industries with the aid of this cheap power.	Summer seat of United Provinces Government, grain and fruit market imports of which include shawls, pattoos, namdas, Persian carpets, furs from Kashmir and cloth, both foreign and Indian mill-made. Has a lymph dépôt at Patwa Langarh, 7 miles from the town.
ii) Bhowali	..	Is a suitable place for fruit market.	His Highness the Nawab of Rampur is constructing large buildings which will increase trade. Hydro-electric power can be supplied from Naini Tal.
(iii) Bhim Tal.	Has fruit gardens. Tea cultivation was tried, but had to be given up owing to labour trouble.	Fishing and other industries can be easily started.	Is situated in the midst of beautiful lakes, is more level than Naini Tal.
(iv) Mukteswar.	Fruit gardens. Extensive potato cultivation. Imperial Bacteriological Laboratory for preparing serum. Good roofing slates are quarried and red mud for burning surkhi is found at a distance of 2 miles. Mica sheets and quartz are also found here.	Mines abound here and rock crystals are also found. The whole ridge is supposed to be full of iron ore.	Inhabited by Sons, a class of people versed in mining.
(v) Ramgarh	Fruit and potato cultivation. Iron ore is found here.	Fruit industries and making of boxes and baskets. Iron mines can be worked.	..



## NAINI TAL DISTRICT.

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Place.	Existing industries.	Possible industries.	Remarks.
vi) Hal- dwani.	A flourishing market for grain and rape-seed, pottery, basket and rope-making, cream-making.	Oil-pressing, timber, furniture making, catechu-making, lime burning, cement making, tanning, paper mills.	Is a station on the Rohilkhand and Kumaun Railway. Is connected with roads with Bareilly, Naini Tal, Ranikhet and Almora, and other parts of bhabar. A big market place. Labour is available throughout the year.
(vii) Lalkua	Dairy farms (cream making), mal making, timber mart.		A station on the Rohilkhand and Kumaun Railway.
(viii) Tanakpur.	Is the principal trading centre of the eastern Kumaun and is one of the most important marts for Nepal and Tibet trade. The imports from Nepal consist of minor forest produce, fibres, turmeric, grain, ghee and spices, and those from Tibet of raw wool, borax, woollen articles, and ponies. The exports to Nepal and Tibet consist of cotton piece goods, metal, hardware, salt, refined and unrefined sugar and tobacco.		Is a station on the Rohilkhand and Kumaun Railway, 80 miles from Pilibhit.

(ix) *Ramnagar*—On the bank of the Kosi river, is the greatest lowland mart of western Kumaun. Borax is refined here for export. Iron vessels are manufactured on a small scale and exported to the hills. The trade of Ramnagar consists

chiefly in turmeric, chillies, grain, hardware, timber, sugar, cloth, coarse blankets, salt and tobacco. The Bhotias from both the districts of Almora and Garhwal and Tibetans and the Garhwalis flock in large numbers to this place for trade purposes. The labour is very cheap here. A market is held here every week on Sunday.

(x) *Kashipur*—Has a large trade in cotton piece-goods which is estimated at one crore of rupees annually, has a ginning factory, is a centre of hand spinning and handloom weaving, is an important grain market with two flour mills, sugar and jaggery are manufactured here, is a station on the Rohilkhand and Kumaun Railway.

Is considered to have an ideal climate for cotton spinning by power, which can be supplied from Ramnagar. Chauti fair here is attended by traders from Moradabad and Meerut in which horses, donkeys, a large number of ponies and other imported articles are sold. Tharus, Bukshas and other tarai inhabitants flock to the fair.

(xi) *Jaspur*—Is a centre of dyeing and printing where chintz, lehafs and jharans are printed. Sugar and cotton are grown in good quantities. Should have a dyeing and printing school.

(xii) *Sultanpur*—Grows chillies and cotton. Is a railway station.

(xiii) *Khatema Bazpur, Kichha, Gadderpur and Satarganj* are great rice-producing centres. Babul trees grow in abundance in this tract.

#### 8.—List of ferries of the tarai.

River.	Ferry.	Pargana.
Kosi	... Tanda	... Kashipur.
Dabka	... Kelklera	... Bazpur.
Bhakera	... Mohanpur	... Gaddarpur.
Dhosa	... Gaoghat	... Rudarpur.
Lohiya	... Jhankot	... Bilheri.

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**9.—List of fairs attended by above 5,000 peoples.**

Fair.	-Date.	Place.
Dol or Krishna Janam Ashtmi.	<i>Bhadon Sudi</i> 8th or 9th ...	Naini Tal, Bhim Tal.
Nanda Ashtimi	<i>Bhadon Sudi</i> 8th to 11th...	Ditto.
Chitra Sila ...	<i>Maghi Amawas</i> and <i>Pha- gun Badi</i> 14t.	Kathgodam and Kota Pahar.
Bhimeswar ...	<i>Sawan</i> 2nd ...	Bhim Tal.
Kailas ...	<i>Kartik Badi</i> 14th	Dhani Raw Patti.
Ramlila ...	<i>Kuar Sudi</i> 1st to 12th ...	Nearly in every pargana.
Chaiti or Bal Sundar.	<i>Chait Sudi</i> 1st to 15th ...	Kashipur.
Zahar Aulia ...	<i>Bhadon Badi</i> 9th ...	Do.
Gurasi ...	<i>Ditto</i> 12th ...	Do.
Atairiya ...	<i>Chait Sudi</i> 15th ...	Rudrapura.
Balemiyan ...	<i>Jeth Badi</i> 1st to 5th ...	Kailpuri.
Ghat fair ...	<i>Kartik Purnamashi</i> .	Melaghat on Sarda.

## CHAPTER II.

DESCRIPTION OF AND SUGGESTIONS FOR THE IMPROVEMENT  
OF VARIOUS INDUSTRIES.

## 1.—Building material.

(i) *Limestone*.—Lime stone is found all over the Kumaun division, both in immense masses exhibiting various shades of colour and structure, and as local tufa deposits. There are small patches of lime stone scattered throughout the district. Lime is manufactured at Naini Tal, at Simulkba, Baitalghat and Dhikuli near Ramnagar. Two kinds of lime stone are used in the tarai, the superior one being obtained from quarries at the top of the hills, while the inferior quality is the tufa deposit obtained in the nalas (rivulets) of the tract itself.

Chuna Khan lime in the Ramnagar Forest division is considered to be one of the best quality in India. It is quarried in a few places. It has been given by the Forest department on three years' lease to a contractor for Rs. 11,500 per year. About 75,309 maunds of lime was exported during the year 1920-21. About 93,000 maunds of lime was exported this year from Haldwani, Ramnagar, Tanakpur and Bajpur to the Bohilkhand division and Delhi.

Boulders of lime stone are found in the Naligarh, the Kosi, the Bhakra, the Nihela and the Gaula rivulets of the bbabar tract. They are given on contract by the Forest department. The lime produced from these is considered to be of inferior quality. Mixed with surkhi it is used for making mortar. Lime is burnt at Fatehpur near Haldwani.

The Chuna Khan lime can compete with the best Katni lime which is so much in demand throughout the province. The burning of lime is done in a primitive way and most of the lime is exported direct from the quarries. If good kilns are started

profitable industry in lime and cement can be built up. Mica and quartz are found in Mukteswar.

(ii) *Stone*.—Good building stone can be procured almost all over the hilly portion of the district. At Naini Tal, the stones used for building are lime-stone and clay-schist. On bhabar split boulders answer the purpose of bricks. Roofing slates are also found in many places.

Experiments on mining at a small scale were carried on by Government and private companies in the fifties and sixties of the last century. For reasons which led to the failure of these schemes the reader is referred to Minerals and Minerology by Mr. Atkinson.

Mr. Atkinson thought in 1872 that it was doubtful whether iron manufacture would pay at Ramgarh, as the ore, though of the finest quality, lay at a considerable distance from forests of any considerable magnitude. However, large forest areas have come into existence in Ramgarh now, owing to the intensive policy of forest reservation followed by Government, and there should be no dearth of firewood now. Improved appliances and methods of work have since been invented and as the proposed ropeway is being introduced in Kumaun and transport facilitated, several difficulties which were experienced in the past should disappear now. If hydro-electric power is generated and utilised in the hills there will be no necessity for coal. Capital will then be the only thing wanting to establish a good mining industry in the district.

## 2.—Chemicals.

(i) *Borax*.—It is not found in the Naini Tal district, but it is brought down by Bhotia traders, and sold at Ramnagar, Haldwani and Tanakpur.

Haldwani and Tanakpur export raw borax aggregating 15,000 maunds annually to Ramnagar, Cawnpore, Howrah, Delhi and Jagadhri. Raw borax is refined at Ramnagar and about 7,000 maunds are annually exported to Howrah, Delhi and Cawnpore.

*Refining*.—There are 5 factories at Ramnagar refining borax. Each factory is working with a capital of between

Rs. 10,000 and Rs. 15,000 and employs from 10 to 20 labourers. The average price of raw borax is Rs. 20 per maund and that of refined borax Rs. 30 per maund. The working season is from November to March.

*Process.*—Ten maunds of raw borax are placed in shallow tubs and covered with water to the extent of a few inches; to this is added a solution of about a seer of lime dissolved in two seers of water and the whole mass is well stirred every six hours. Next day it is strained on sieves or cloth.

The residue is again dissolved in two and half times its weight of boiling water, and about 8 seers of lime is added. It is again filtered. The solution is then evaporated and subsequently crystallised in funnel-shaped vessels usually of phul. The loss in weight is about 20 per cent. Borax is used in medicine and arts. It is also used as a flux for soldering in goldsmith's shop and combined with shellac as a varnish. Its principal use is however in the manufacture of coloured glass, enamel and glazed substances.

(ii) *Sulphur.*—Hot springs popularly known as sulphur springs exist at Naini Tal and Kathgodam. It is not known whether they contain any sulphur and, if so, in what quantities.

### 3. —Food Grains.

The rabi crops in the hills are wheat, barley, mustard, rapeseed, linseed and masur (lantils), and in the bhabar tarai are grown in addition to these, gram and inferior rice (ganara). The kharif in the hills consists of rice, maize, millet, e.g., marua, mandira, beans, e.g., urd, bhat, ganat, peas, gurunsa, til (sesamum), bhangire, potato and china, and in the bhabar tarai sesamum, maize, sugarcane, china, rice, juar, bajra and sal rice.

The jinswar reports issued by the Director of Land Records do not include the crop of the hills. It is therefore difficult to give accurate figures for the area under each crop and the output for the hills, but a large quantity of grain is imported in the hills from the bhabar, tarai and the plains. In every patti each family imports about two maunds of grain every week from bhabar.

Migration from the hills to bhabar for a portion of the year stands in the way of extensive cultivation in the hills. Another difficulty in hill cultivation is the ravages caused by wild animals.

The urd (beans) is largely grown in Ohhakata, Kota and Kosian pattis of the district and it is considered to be superior to the urd imported from the plains. The grain is of a black colour and is used as pulse. Wheat is largely grown in Ohhakata, Kota and Kosian pattis and is of superior quality. The best rice called Bansmati, Sal and Hansraj is grown in Kosian.

The total acreage under grains in bhabar and tarai is 179,538 acres, and the total outturn of the important crops for the year 1921-22 was about 89,412 tons.

Grain.	Acreage.	Outturn in tons of 2,240 lbs.
Rice ...	101,488	61,635
Wheat...	54,965	23,626
Linseed ...	1,917	342
Rapeseed ...	21,168	3,809

As already stated the major portion of the food-grains grown in bhabar and tarai is exported to the hills. About a lakh maunds of food-grain was exported by rail in 1921-22 to the plains, the chief stations being Rohilkhand division, Allahabad and Kasganj. An extensive export trade is also carried on bullock carts for which no exact figures are available. The best rice in bhabar is grown in Fatehpur 8 miles from Haldwani. Most of the rice is sent to the Rampur State for it is said that it is used for the table of His Highness the Nawab of Rampur. In fact a few rice fields at Fatehpur are reserved for His Highness.

There are no rice hulling or wheat grinding mills in bhabar or tarai. The need for such mills there is apparent. Ten seers of paddy yield 6 seers of rice. For hulling one maund of rice a labourer has to be paid 5 seers of rice and half of the amount of broken rice. The Tharus have to send their wheat to a great distance for grinding it into flour, and have to pay one-fifth of the amount of wheat ground as transport charges and

one-seventh to the mill-owner as his charge for grinding. There is great need for a wheat-grinding mill at Khatema.

There are transport difficulties at Khatema also. Carts are few, as there are no carpenters. Cart wheels and other accessories have to be purchased from Bareilly and Pilibhit for Rs. 100 per set. A carpentry shop at Khatema will help the industry much. The carpentry class attached to the Vernacular Model School does not impart instruction in making carts. Some facilities for training in making of carts and cart wheels are needed. Want of an adequate number of fire-arms, acts against an extension of cultivation in Bhabar and Tarai. Although fire-arm licences are issued on a more liberal scale than in the hills, yet the number is not sufficiently large.

#### 4.—Leather.

(i) *Tanning*.—There is no tanning industry in the district. Bhimtal has seven families of tanners who work on a very moderate scale. Naini Tal Municipality has a slaughter-house. In 1921-22, 1,515 cows, 1,018 oxen, 159 buffaloes, 5,462 sheep, and 5,292 goats were slaughtered to supply the local demand for mutton and beef. No use is made of blood and bones. Fat is sold locally. Gut and casings are sold to Messrs. A. D. Mire and Co., of Calcutta. Besides these, hides and skins of cattle dying a natural death are also available. The cattle census showed 38,000 buffaloes, 121,000 cows, and 16,000 goats and sheep in the district. Formerly large herds of cattle used to be brought here by Gujars for grazing in the forests, but restriction imposed on the lopping of trees in Bhabar and Tarai has prevented them from visiting the place in recent years.

The Forest department is contemplating a removal of the restriction. About 10,000 maunds of hides and skins, bones, and horns were exported in 1921-22 to Cawnpore, Agra, Bareilly, and Delhi. These figures do not include consignments below 50 maunds in weight. There are no records in the Forest department of the hides and bones collected in forests, but it is estimated by forest officials that about 2,000 maunds of hides and skins and 2,000 maunds of bones are collected annually in .



the forest area. Hides are usually exported sun-dried, except in the rains, when they are salted and air-dried.

A royalty of 4 annas per skin and 8 annas per hide is charged for collection of hides and skins from the cattle-farms within the forest area.

Prices of hides and skins are—

			Rs.	a.	p.
Cow hides	...	...	6	0	0
Buffalo hide	...	...	8	0	0
Goat skin	...	...	2	0	0
Sheep skin	...	...	0	12	0

*Tanning materials.*—Babul bark, lime, myrobalans, sal-bark, oak-bark, beras, *aunlas*, turmeric, etc., are available for tanning and dyeing.

A few curriers cure skins of wild animals shot by shikaris.

(ii) *Shoe-making.*—Naini Tal has about 20 shops where boots and shoes, suit-cases, and saddles are made. Each employs five to 10 men. The income of a shop with five workmen is estimated to be Rs. 200 per mensem. Leather is imported from Cawnpore and Saharanpur to the extent of about 300 maunds annually.

#### 5.—Miscellaneous.

##### (i) *Gorochan.*

It is derived from the horns of cows and is sold in bazars for use as medicine in diseases of children.

##### (ii) *Fishing.*

The picturesque group of lakes, Naini Tal (4,701' long, 1,518' broad), Bhimtal (5,580' long, 1,490' broad), Malwa Tal (4,480' long, 833' broad), Naukucchiya Tal (3,000' long, 2,250' broad), and Sath Tal (3,350' long and 1,050' broad) are full of fish and good sport is obtained here. These have been properly conserved for many years and since 1921 they have been put under the control of a fishing committee. Only one lake is opened at a time by turns for bottom fishing where food is used for baiting and barley meal is allowed for attracting the fish; more than eight fish per rod may not be caught in a day, and only 12 licences are given at a time. Every lake is open to fly fishing; trawling is not allowed, and the above restrictions respecting the

catch and the hours of fishing are enforced on all. Many sportsmen have begun to doubt the utility of these rules. Until trawling and fishing with live bait, maize and fruit, etc., was forbidden, fishing used to repay the sportsmen and professionals. This, I think, should again be permitted, but what is called "snatching" should be forbidden. So long as the catch per day per rod is limited to eight fish as it is at present far from doing harm, I think it would do good. In rivers and streams, fishing is permitted to adjacent villages and it is entered in their record of rights.

Night fishing with lights, netting, poisoning with wild berries, and the method of bounding up the streams, and suddenly decreasing the water, and hitting the fish with sticks were, and in some places even now, are the favourite methods of the hill people.

The lakes are closed to all fishing from 1st November to 30th March. There is no necessity for this; fly fishing is impossible and if anyone fishing with bait can catch a few fish in a month he is fortunate. The chief enemy of fish in these lakes is the black grete or diver.

Half a dozen of them in the winter can do greater destruction than all other creatures combined.

There are trout hatcheries near Bhowali, but the temperature of the water in these lake is not cold enough to introduce them here.

There are some trouts in Naini Tal lake that have survived the voracious mahaseer; mahaseer fish used to be put in these lakes, 15 years ago, but owing to natural increase and conservation the lakes are well stocked now.

Fish used to sell ten years ago at 6 annas per seer; they are not to be had now under Rs. 2 per seer. Professionals, who are financed by a Naini Tal contractor, are unable to pay off their advances owing to the fish not taking *atta*. Nine bottom fishers in Sat Tal in May got an average of one seer each per day. In June eight men got an average of 1½ seers per day. These are the best months for fishing. The season licence is only for Rs. 25, even then the professionals find it unprofitable.

Ringal reeds sold formerly at Rs. 2 now cost Rs. 5. They are considered excellent by the Europeans for fishing. Drag nets, small nets with weights attached and thrown from the shoulder, conical baskets without bottom, are the hill-men's methods for catching fish in rivers and pools.

The net revenue from these lakes from 1918-21 was Rs. 528 per year.

Fishing is also done considerably in the Tarai and Bhabar. The Tharau is a great lower of fish.

(iii) *Forest produce.*

(a) *Charcoal.*—Charcoal making is another minor industry of the district. Kilns for burning charcoal are constructed in the forests. Logs of green fuel wood are piled in heaps, fired and covered with mud and stones to prevent air from entering into the kiln. About a hundred maunds of charcoal are burnt in one kiln; no bye-products are recovered. Charcoal from babul, oak, and khair trees is considered superior to that of other trees. Other wood utilised for the purpose is Rhodasendron. A large amount of coal left after local consumption is exported to the plains from Bhabar regions. About 7,000 maunds of charcoal and fuel are exported by railways, chiefly to Bareilly, Dhampur and Muttra.

(b) *Dyeing and tanning substances.*—The forests of Naini Tal district abound in dyeing and tanning materials. Such materials or the trees yielding them are classified by the Forest department as minor produce. The principal substances are briefly described below. They are all exported.

*Babul.*—Babul tree abounds in Gadarpur, Bazpur, Kicha, and Kaladhungi. On an average 5,000 trees are sold every year for Re. 1 to Rs. 2 per tree. One tree yields about ten seers of bark which is used both for tanning and dyeing purposes and is exported to Cawnpore and Delhi. The wood is used for making cart wheels and charcoal. In 1921-22, about 11,000 maunds of the bark were exported by rail from Bazpur.

*Catechu.*—Khair or catechu is obtained from *Acacia catechu*. The bark of the tree is used as fuel for boiling catechu. Wood is cut into little chips and boiled in earthen pots or occasionally

in large cauldrons, until the fluid becomes as thick as syrup, when it is taken off and cooled. Kilns are generally constructed near streams. Between 12 to 16 pots are used in one kiln. The first pot is filled with chips and water. When the water begins to boil, it is poured into the second pot where it is boiled for a short time and is then poured into the third pot. The process is repeated until the last pot is reached, by which time the fluid has attained the required consistency. The last pot is then removed from the kiln and its contents are then poured into a hole dug out into the ground. A superior variety of catechu is prepared by drying the contents of the last pot on a piece of cloth. Boiling and cooling of liquid are entrusted to women alone, as there is a superstition against the employment of males for this work. Professional catechu-makers are called Kherias locally. Another class of men who are employed locally are called Chains and come from Gonda and Bahraich districts. The outturn of a kiln is five maunds and the total annual outturn of the district 2,500 maunds. The prices range from Rs. 80 to Rs. 140 per maund. The kilns used to be constructed at Haldwani, Ramnagar, Chorgallia, and Tanakpur. But lately the major portion of trees in the Bhabar forests has been sold by the Forest department to the Indian Wood Products Company, Bareilly. In all, 13,000 trees have been marked by the Forest department for use of this company at a reduced rate. The company proposes to manufacture not only catechu but also to separate the dye from the catechu. About 11,000 maunds of catechu are annually imported from Nepal and are re-exported to the plains. This catechu being mixed with mud is of inferior quality and does not fetch such high prices as the local produce. The chief markets for catechu are Delhi and Cawnpore. Catechu is used with betels for chewing purposes and also as dyestuff.

*Har, bar and aonla.*—About 6,000 maunds of these fruits and bark of these trees can easily be obtained from the forests of the district. At present only a small quantity is utilised, as there is little demand for these things. The bark and the fruits contain a high percentage of tanning material and are

also used as dyes. Jet black ink is prepared from them locally, and is generally used for writing religious books. Fruits are also used for medicinal purposes. Jams are also prepared from har and aonla.

*Kaiful, utis, or patang and lodh trees.*—The bark of kaiful, utis or patang and lodh trees and flowers of dhank, tun, and dhaula trees were used formerly as dye-stuffs, but the foreign dyes have now altogether replaced them. The bark of amaltas is also used for tanning purposes.

*Sal and oak*—The bark of sal and oak trees also contains tanning materials.

*Turmeric.*—Is grown in large quantities in the hill districts of Kumaun and is exported to Haldwani, Ramnagar, and Tanakpur. It yields a beautiful yellow dye and is used for dyeing leather, etc., and also for culinary purposes by Indians. Ten thousand maunds are annually exported mainly to Cawnpore, Lucknow, and Rohilkhand divisions. Six hundred and twenty-one maunds of other dye-stuffs were exported this year from Nepal via, Baramdeo mandi.

(c) *Grasses.*—The following kinds of grasses grow naturally in large quantities in the district:—

*Kansa*—Is a sweet grass used for making baskets known locally as dharas and is also used for thatching huts.

*Sink*—Used for making brooms; is largely exported, about 2,000 maunds having been exported in 1921-22 from Kashipur to Agra and Moradabad. The fruit is used as spices. The grass is also suited for paper pulp.

*Tuli*—Is used as sirki to cover carts.

*Nal, sewthe, and tanta*—Are used for making qalam and for thatching.

*Bendu*—Is used for thatching. Its fruit is called marora pbali and is used as medicine. A paying industry can be started of it.

*Padera and moth*—Are used for mat-making. Moth roots are used as medicine.

*Munj*—Is used for making mats and ropes. It grows scantily.

*Kumeria, gorja*—Are used only as fodder.

*Baib grass*—Is chiefly imported for making paper pulp. The Forest department have given a monopoly for ten years, ending in June, 1930, to the Titagarh Company, Calcutta, for Rs. 7,75,000 for the whole of grass in Haldwani, Ramnagar, Kalsgarh, Lansdowne, and Saharanpur divisions. It is also used as fodder and for making ropes and brooms.

*Straw*—Is used as fodder for animals. It is sometimes used in making ornamental baskets. Its outturn is calculated as four times that of the paddy.

*Bamboos and reeds*.—Large quantities of bamboos grow naturally throughout the district. There is a great export trade in bamboos from Tarai and Bhabar.

(d) *Honey and wax*.—There are three kinds of wild and one kind of domestic bees found in the district, viz. (1) *dhingara* (2) *mohar*, (3) *bhunga*, and (4) *mouna*.

*Dhingara*—Is a large bee. Its hive is also large. One hive produces 30 seers of honey. This bee cannot be domesticated owing to its vicious temper. Its sting is very poisonous.

*Mohar*—Is one of the same species as *dhingara*, but is not so big. The outturn of one hive is about 10 seers.

*Bhunga*—Builds its hive in the hollow of a tree. It is of red colour and one hive produces two seers of honey.

*Mouna*—Is a domestic bee and of good temper. It produces five seers of honey in one hive.

The honey made by the first three species of bee is collected from forests. It is included under the minor forest produce and is auctioned by the Forest department. The average annual collection would approximately be 400 maunds. It is exported mainly to the Punjab. A part is locally consumed. About 574 maunds of honey were imported from Nepal in 1921-22. Honey produced by the domestic bee is considered to be the best. The best quality is the white honey of the autumn season, when many aromatic plants are in flower. It is much in demand and is supposed to have a superior medicinal value. It commands higher prices.

Bee-keeping is followed on the primitive method. In order to give an impetus to bee-farming and in order to bring it on scientific lines, modern methods of agriculture should be taught to the people and modern hives with movable frames and honey-producing plants should be introduced. Some school in the hills may take up the subject with advantage.

*Wax*.—About 100 maunds of wax are obtained in the district and about 700 maunds is annually imported from Nepal via Tanakpur and Baramdeo. It is generally of yellowish colour. The industry is susceptible of considerable development and when brought under competent control should be capable of establishing a good export trade.

(e) *Lac*.—Is obtained in this district from the following trees which grow largely in Bhabar and Tarai regions:—

*Butea Frondosa* (dhak) *Acacia Aratica* (babur) *Zizyphus*, *Jonjuba* (ber) *Shorea robusta* (sal) *ficus religiosa* (pipul).

There is no culture of the lac insect. It grows naturally. The quantity of lac differs in different years. Generally the crop is bumper every third year. Approximately 500 maunds is the maximum annual outturn. It is exported to Mirzapur and a part of it is locally sold to Bhotias and Manihars (bangle-makers). The price is Rs. 80 per maund. The Bhotias extract red colour out of it.

(f) *Medicinal roots and herbs found in the forests of Naini Tal.*

(1) *Amaltas*.—The fruit of this tree is used as medicine (purgative) and is sent to Amritsar: 524 maunds were exported this year from Haldwani.

(2) *Baj*.—Is an antiseptic for destroying vermins and bugs and is also used with several other medicines.

(3) *Banafsa*.—Is used as medicine for colds and coughs.

(4) *Bijaisar bark*.—Is used as medicine as well as for producing dyes.

(5) *Brahmi*.—Is considered as a tonic for the brain and is given in epilepsy.

(6) *Bilai kand, sainjna, beans, simal and udal mustili*.—Are used as medicines: stimulants, and tonics are prepared from them.

(7) *Chiraita*.—Is a well-known Ayurvedic drug for fever and liver. It is found here and is also imported from Nepal.

(8) *Dalchini and tejpat*.—Are used both as medicines and for flavouring: 412 maunds were imported from Nepal in 1921-22.

(9) *Kayafal bark, kirmora root*.—Rasota is extracted from the bark and roots of these plants and is used for eye troubles. The former is also used for killing fish.

(10) *Kuchila*.—There are only a few trees of nux-vomica in Khatema; the fruits are collected between November and January. Thousands of such herbs and plants grow naturally in the district. The writer has attempted to describe only those which are commercially important. The Forest department auctions them to the highest bidder. The latter gets them collected through labourers who can identify them. Labour has to be paid liberally. This industry has yet to be developed.

(11) *Mangit*.—Is imported from Nepal: 155 maunds were imported this year.

(12) *Kwera bark*.—Is used as quinine and is considered more efficacious than ordinary quinine. Its fruits are called indrajhon.

(13) *Punernava, salam-misri, baladona, rhubarb*.—Punernava is useful for diseases of the eye and the kidney.

(14) *Rohini*.—Is used as a dye; its fruits called baibirang are used as medicine. Nearly 600 maunds of this are obtained from the forest and is sold at Rs. 85 per maund. It is collected every third year and is exported to the Punjab. The railway figures for this year show that 633 maunds of this were exported to Amritsar.

(15) *Pipal fruit and root*.—They are used in many medicines, being considered efficacious in cough and cold. About 200 maunds of pipal are obtained from the forests of Naini Tal and is sold at Rs. 100 per maund. Pipal is collected every third year.



(16) *Tarur and gethi*.—Both of them are creepers, the root of the former and the fruits of the latter being used as vegetables. They grow extensively in the hill forests, and in times of scarcity are used as food by the poor class of people. Hillmen also cultivate them and use them as vegetable. Once sown, the creeper appears spontaneously in season for several years successively.

(g) *Resin*.—Pine trees yield a large quantity of resin. The cup-and-lip system of tapping is adopted in these parts. Tapping begins in March and lasts up to November. A small channel is cut in a pine tree between three to four feet in girth, and is renewed every week. Lips of tin are attached just at the lower end of the channel and a small earthen cup just below the lips. Resin runs out through the lip and is stored in the cup. When the cup is full it is replaced by another. A tree is tapped for five years continuously, after which it is rested for ten years, so that one-third the area of the pine forest is worked at a time. The yield is about a cwt. of crude resin per acre. Resin consists of rosin and turpentine oil; the latter can be separated by steam distillation. There is a large demand for turpentine for manufacture of varnishes and also for medicinal purposes, while resin is used for shellac adulteration, in paper mills, soap factories, and in the production of cheap varnishes. A large turpentine factory owned by Government was worked by the Forest department at Bhowali in the Naini Tal district for several years. The place was however, found unsuitable for several reasons and the factory was removed to Bareilly. All the resin collected from the Naini Tal forests is sent there now at a cost of Rs. 1-8 per maund.

There are large areas under pine in the Almora and Naini Tal districts and the resin yielded by them exceeds the requirements of the Government factory at Bareilly. There is room for private enterprise in this direction. A factory for the distillation of turpentine could be opened at Tanakpur which is on a railway line and which can also command the produce of the forests of Eastern Almora. The Forest department at one time

proposed to erect a factory at that place but effect has not yet been given to the proposal.

(iv) *Mat basket and rope-making.*

1. *Padera and moth* grass are used for making mats, locally called phina. These mats are very strong, thick, durable, soft, handy, and portable and superior to the ordinary mats made in the plains. They are used for bedding and floor covers by the poor classes. Mats are made in Bhabar by hillmen when they migrate in winter with their cattle. It is their subsidiary occupation. Cattle farms (khatas) in Lalkuwa and Haldwani are the chief places where these mats are made. They are generally made of the bed size, but larger mats can be made to order. It is estimated that above 500 mats are daily made for four months in the winter and sold on market days at Haldwani to the hill people, the average price being Rs. 1-8 per mat. The industry if organised on a Co-operative basis can become very flourishing.

2. *Basket making* is an extensive industry. Baskets are much in demand for exporting fruits and vary in designs. Reed baskets are comparatively strong and used for carrying fruits. Some ornamental and coloured baskets are made by Tharu women at Khatema out of kans grass and wheat straws. But the Tharus being the great rice cultivators do not like to follow this industry as a profession; they work at it at leisure hours and present the baskets to their friends.

3. *Ropes* are made of the fibres of tender hemp, malu (maljhan), and pata and of baib grass. They are made for domestic use and local consumption.

There are, however, a few families at Haldwani whose hereditary occupation is rope-making. The ropes made by them are made of sann fibres and exported to the hills. There is abundant material in the forest of this district to start a profitable rope-making industry on a large commercial scale.

(v) *Minerals.*

Till 1880 A. D. mining was practised in the Naini Tal district by the Sauns of Agar Patti. The extent of this industry in ancient times may be gauged by looking into the amount of mining tax levied by Chand Gurkha rajas.

It was Rs. 3,200 in 1812 and an income of Rs. 48,957 was collected from mining in the Naini Tal and Almora districts from 1848—1873 A.D. The implements were primitive and processes unscientific. The industry has therefore died beyond hope of regeneration, unless modern appliances and scientific methods are introduced, or blast-furnaces worked by cheap hydro-electric power are erected. The following metals and mines are found in the hilly portion of the district :—

*Gold*—Exported from Kumaun was obtained from streams within the province. River Sona furnishes a small amount of gold dust and the Ramganga is auriferous for a short distance below its junction with the Sona. The washing was never a profitable occupation and scarcely gave an average of four annas a day to a workman.

*Iron*.—The iron ores found in Kumaun all belong to either of two varieties—the rhombohedral and the prismatic. The first is a ferrous oxide of iron containing its best defined type 70 per cent. of iron and 30 per cent. of oxygen, while a workable ore should contain 50 per cent. iron only.

The names of the principal mines are Ghurkhani, Khunikhoya, Kumani, Parborh, Pali, Lusingani, Nathura Khan, and Gulhai; the Satburga mine has a rich hematite. In Ramgarh also there are several mines that were largely worked.

In Syalgarh of patti Kutoli there is some iron ore. At Mangla-lekha in patti Tall Rau the ore was much esteemed for its quality. At Dehachauri and Khurpa Tal there were good mines and were once worked by the Kumaun Iron Company.

There are burrows at Khairna on the cart-road to Simal Khet of Simalka and at Unchakot pattis.

*Lignite*.—Indication of this appears near Ranibagh close to Haldwani and the Barakheri pass near Bhamauri. An analysis of a specimen of the Ranibagh lignite gave carbon 60 per cent., volatile matter 36·4 per cent. and ash 3·6 per cent. The percentage of ash, however, contrasts favourably with Bengal coal (*A. Res.* XVI, 387, 397). Traces of true peat are found at Bhim Tal. Coal mines are said to exist at Bartia in the Sarda Forest range.

*Alum*—Is found in different parts of Kumaun and in abundance in the aluminous sales near Jak village, on the road from Naini Tal to Khairna.

*Gypsum*—Is found in Eastern Chhakhata, near the Nehal bridge on the road between Kaladhunghi and Naini Tal. In 1860 Mr. Tregot of the Bareilly College made some good plaster-of-Paris from it.

*Silajit*—A sulphate of alumina is also found in small quantity in this district. It is valuable Ayurvedic medicine.

#### 6.—Oil.

Oil-seeds are grown over the whole of the Naini Tal district but in abundance in the Tarai and Bhabar tracts. Seramum, linseed, cotton-seed, mustard, and rape-seed are all available, but rape-seed and mustard are sown on extensive areas. Rape-seed includes both sarson and toria.

The following table shows the area under rape-seed and mustard in the Tarai during the past three years :—

Year.	Crop.	Area in acres.
1920 ...	Rape-seed and mustard ...	211,168
1921 ...	Ditto ...	19,963
1921 ...	Ditto ...	18,744

Rape and mustard are exported to Ludhiana, Hoshiarpur, Sialkot, Ambala, Amritsar in the Punjab; Cawnpore, Ajmer and Jaipur in Rajputana; and Kaimari in Sindh. Consignments by rail, each weighing over 50 maunds, amounted to 103,796 maunds. Total exports would not be less than 1½ lakh maunds, as at least half the amount is transported to neighbouring districts by bullock carts. The ginning factory of Kashipur exports cotton-seed to Bombay; that obtained by hand-spinning is used as food for cattle. Kashipur exported 375 maunds in 1921-22

Oil-seeds sell at three to six seers per rupee. Sesame (til) oil sells at one seer for a rupee.

*Imports.*—Oil is imported in large quantities for culinary purposes from Babraich, the Punjab, Budaun, and Pilibhit. Consignments, weighing above 50 maunds each, amounted to 8,535

maunds in 1921-22. Cakes are also imported for use as cattle food.

*Suggestions.*—There is scope for extending oil-crushing. Messrs. Khanna and Co. started a concern at Haldwani, but it had to be closed owing to the death of the proprietor. Haldwani is most suited for the industry in the district, as it is situated on a railway line, has a good climate, and is close to areas where oil-seeds are grown.

Pandit Nitya Nand Pande and Pandit Shiva Lal Misra have already registered an oil company at Haldwani.

#### 7.—Other industries connected with edibles.

(i) *Corriander and methi*—Are grown in almost every village and are articles of daily consumption. They are sown in autumn and gathered in summer. The green leaves of the former are crushed and the pulp is mixed with the cooked food for flavour. Green methi is used as vegetable. The seeds of both are used as spices.

(ii) *Cardamom.*—A long rough-grained capsule known as bari-ilayaohi is cultivated in some hill patts, but not on an extensive scale. It is used for flavouring dishes.

(iii) *Cinnamon.*—Some cinnamon is also grown in the Bhabar region. Its export figures were not available from railway offices as its consignments are always less than 50 maunds.

(iv) *Other edibles.*—The area under cultivation for all kinds of spices in the Tarai and Bhabar for the year 1921-22 was 325 acres in the *kharif* and 795 acres in the *rabi*. About 2,000 maunds of spices were imported from Nepal via Tanakpur, Baramdeo, and Banbassa. Turmeric, chillies, ginger, corriander, methi, cardamoms, cinnamon require separate mention.

Export in chillies from the hills is considerable—Haldwani, Tanakpur and Ramnagar being the chief marts for their export. They are mainly grown in Patti Sultanpur, a small market town on the Rohilkhand and Kumaun Railway, six miles from Kashipur. About 9,000 maunds of chillies were exported in the year 1921-22. Chillies grown at a high elevation acquire great pungency, hence hill chillies are much appreciated.

*Ginger.*—No statistics are available. It is sown in April and gathered between October and November. It is grown in the hill patts and sold both as green and dry ginger. Western Chhakhata grows the best crop.

(v) *Dairies and dairy-farms.*—There are about 50 khata (dairy-farms) in the Tarai and Bhabar tracts at Haldwani, Lalkua, and Khatema. It is estimated that on an average milk of 2,000 buffaloes—one cow on an average gives three seers of milk per day and one buffalo five seers—is daily available for this purpose. Owing to restrictions placed on grazing in the Government forests and the ravages of wild beasts, the number of cattle is steadily dwindling in the hills and has been reduced to one-half of what it was a few years back. Relaxation of restriction on grazing and a more liberal issue of firearms licences will help in increasing the number of cattle in those parts. The cattle in Bhabar and Tarai are much superior to the hill cattle. There are about two dozen cream separators working in Government estates of Tarai and Bhabar. Two men work on one machine. One seer of milk yields about four ounces of cream. Banias advance money to gwalas to buy buffaloes and get milk at the rate of 15 seers per rupee at the khata. They then sell it at the rate of four seers per rupee. The bania has to engage a carrier to bring the milk from the khata to the market town and to pay him Rs. 15 per month. The bania makes a net profit of Rs. 3 a day. The working season for cream-making is April to December. Cream is chiefly supplied to the Naini Tal, Aligarh, and Dehra Dun dairies. Hillmen and Gujars are the only herdsmen.

During this time Khoya is also made by the same people. This is more paying than cream. It is sold at 12 chhataks to the rupee.

A number of cattle are brought in the district for grazing for a portion of the year (six months by the Gujars). Their milk is also available. This, along with the milk of cattle in the existing farms, would come to about 280 maunds daily; cream is available to the extent of three maunds. The industry can be developed on co-operative lines. At present the milk-producer

is at the mercy of the money-lender. The prices of milk have gone very high owing to the large profits demanded by the middle-man. The general public will help the co-operative enterprise, as it is likely that prices will go down thereby.

(vi) *Fruits and allied industries.*—There are several fruit gardens in the hill portion. The accompanying table will show the places where they are located and the directory will show the names of the proprietors'. The chief gardens are in the Ramgarh patti, 12 miles from Naini Tal and 17 miles from Kathgodam. The total area under fruits in the whole district is 829 acres, excluding the area under fruits in the Tarai and Bhabar tract. The fruits grown in these gardens are apples of several varieties, peaches, apricots, pears, plums, cherries, walnuts, chestnuts, persimmons, and figs. The main fruit is apple, which grows in abundance. The soil of Ramgarh is peculiarly suited for the growth of apple trees. The season is from May to October. Other kinds of fruits in the district are pomegranates, sour and sweet, lemons, plantains, and oranges, but these are not grown so abundantly as the fruits referred to above. In the Bhabar and Tarai guavas, mangoes and papitas are also grown.

Several of these gardens belong to the Europeans and these are under expert management and every effort is being made there to grow the fruits on scientific and commercial lines. The owners of these European gardens have formed an association called Kumaun Apple-Growers' Association, for mutual co-operation and carrying on the industry on uniform and profitable lines. The Europeans grow about 250 trees in one acre, and the trees, being planted on the paradise stock for a dwarfish effect, are small. In the Indian gardens the average is 50 trees to one acre and the trees are large and planted at a greater distance from each other.

A good tree yields about twenty maunds of fruits and an indifferent one about 20 seers. It is estimated that this year the total quantity of fruits in the Ramgarh patti alone will come to 2,500 maunds and nearly the same will be the outturn from other gardens in the district. The European

## INDUSTRIAL SURVEY.

18.	Chet Ram	...	Mian Sabeb, Pilibhit.
19.	Mohan Ram	...	" "
20.	Lachhu Ram	...	" "
21.	Kul Mohammed	...	Pakaria, "
22.	Indraman	...	" "
23.	Noor Mohammed	...	" "
24.	Dulli	...	" "
25.	Tika Ram	...	" "
26.	Naththu	...	" "
27.	Bhola Nath	...	" "
28.	Keshore	...	" "
29.	Gopal Lal	...	" "
30.	Nandan	...	" "
31.	Sita Ram	...	" "
32.	Bansi	...	" "
33.	Bhole Ram	...	" "
34.	Lali Chand	...	" "
35.	Chandan Lal	...	" "
36.	Jhunna Lal	...	" "
37.	Loki	...	" "
38.	Lalta Prasad	...	" "
39.	Budh Sen	...	" "
40.	Makund Ram	...	" "
41.	Ramji	...	Faizullah Khan, Pilibhit.
42.	Katwari Lal	...	" "
43.	Mohammed Munir Khan	...	" "
44.	Mohammed Wali Khan...	...	" "

## 62. List of principal manufacturers of rahloos.

1.	Ramji	...	Pakaria,	Pilibhit.
2.	Loki	...	"	"
3.	Buddha	...	"	"
4.	Dulli	...	"	"
5.	Bhole	...	"	"
6.	Narotem	...	"	"
7.	Naththu	...	"	"
8.	Gopali	...	"	"
9.	Jhunna Lal	...	"	"
10.	Mool Chand	...	"	"
11.	Mohan	...	"	"



12.	Kesri	...	Pakaria,	Pilibhit.
13.	Tika Ram	...	"	"
14.	Chunni Kunwar	...	Sherpur,	Puranpur.
15.	Dullu Mohan	...	"	"
16.	Ghasi Ram	...	"	"
17.	Jisup	...	Kalinagar,	"
18.	Buddhu	...	"	"
19.	Jhaulal	...	"	"
20.	Jaggarnath	...	Roodpur,	"
21.	Thakuri	...	"	"
22.	Moti	...	"	"
23.	Durga	...	"	"
24.	Ammar	...	"	"
25.	Angne	...	"	"
26.	Naththu Lal	...	Puranpur,	Pilibhit.
27.	Badri Prasad	...	"	"
28.	Dori	...	"	"
29.	Mohan	...	"	"
30.	Khyali	...	"	"

N.B.—Most of the rahloo manufacturers are also manufacturers of sandals.

**63. List of dealers in, and manufacturers of, sandals.**

1.	Munshi Mangal Sen	...	Kesri Singh,	Pilibhit.
2.	Bhaggo Lal	...	"	"
3.	Siraj-ul-Haq	...	"	"
4.	Anait Hussain	...	Khudaganj	"
5.	Mohammed Hussain	...	Kesri Singh,	"
6.	Abdullah Khan	...	Mian Saheb,	"
7.	Noor Mohammed	...	Punjabian,	"
8.	Mohammed Buksh	...	"	"
9.	Hafiz Abdul Abad	...	"	"
10.	Waliji	...	"	"
11.	Sifat Mohammed	...	"	"

**64. List of principal sandal makers (actual workers.)**

1.	Buldeo	...	Mian Saheb,	Pilibhit.
2.	Roshan	...	"	"
3.	Narayan	...	"	"
4.	Chunna	...	"	"
5.	Pirana	...	"	"

gardens have been recently planted, and when they are fully developed, the outturn will be doubled or even trebled.

A very little quantity is locally consumed, and the rest is exported. Indian garden owners sell their fruits on the spot to contractors, who are mostly Musalmans of Rampur. The Rampurias send the fruits to Naini Tal town and also export them to the plains, but their packing is very bad. Good and bad fruits are packed together, which tend to unpopulise the fruit-growers. Naini Tal is the nearest market. The produce of the European gardens is mainly exported to Bombay, Calcutta, Burma, and Ceylon. The Mukteswar orchardists have begun to feel the pinch of over-production. They are in need of a cheap fruit-peeling plant for jelly-making.

The difficulties encountered by the orchardists are fourfold, those (1) due to transport, (2) to the insufficiency of good packing material, (3) want of good nurseries, and (4) difficulty in finding land for extending cultivation.

The transport difficulty is very acute in the hills and prevents many industries and enterprises from being started and run successfully on business lines. The Government is proposing a ropeway in Kumau. If it touches a large number of industrial centres, it will do a lot of good. At present a cart-road runs from Kathgodam to Almora, via Bhowali and Ranikhet. The distance between Kathgodam and Almora by this road is 80 miles, whereas it is only 37 miles by the bridle-road. The cart-road is very circuitous. Government has sanctioned the construction of a cart road from Khairna to Hawalbagh. This will reduce the distance and be of considerable help to commercial exploitation of the tracts through which the cart-road will pass. If Mukteswar and Ramgarh are connected by cart-road, it would be of great help to the orchardists and to the Imperial Bacteriological Laboratory at the former place. The most suitable route is from Ratighat to Nathuakhan, which is three miles from Mukteswar. The road could be further extended towards Mukteswar to a small distance. There is already a good bridle-road along this route. The incline is very slight and a cart-road could be constructed at a comparatively small cost. Ramgarh should

also have a telegraphic connection. Bhowali is already connected with wire and the distance between Bhowali and Ramgarh is only five miles by the bridle-road. Another complaint of the orchardists is that postal rates for fruit parcels are very high. They frequently get orders for small postal parcels, but the increase in postal rates has almost doubled the cost of fruits. This hampers the business. The railway company charges half-rate for fresh fruit parcels and it is suggested that the Postal department should also do the same.

A few orchardists have been able to secure packing cases from the Wood-Working Institute of Bareilly at satisfactory rates, but apparently the Institute cannot meet all the demand. Several gardens use old cases of kerosene oil tins and whisky bottles, which are obtained at 11 annas per box. These cases are made of pine wood which smells and imparts to the fruits a peculiar odour, which is naturally not appreciated by the consumer. Utish tree which grows in abundance in this region yields light non-smelling wood, which is much suited for packing cases. There is a local enterprising fruit trader at Ramgarh who is ready to start an industry for making packing cases and to instal suitable plant, if Utish trees were available at cheap rates. The tree is of no importance to the Forest department and serves as fuel. Utish trees to these men at reasonably cheap rates should be supplied. The industry of making packing cases can also be organized on a village basis, if instructions were given by practical demonstration on the spot by an expert Government instructor.

Suitable baskets are also required for packing fruits. Packing baskets made of reed and paper boxes are imported from Scotland and England respectively. Baskets made in the hills at present are not satisfactorily rigid to protect fruits packed in them. Raw material is in abundance here and hereditary basket-makers are also available. What is required is an itinerant skilled and qualified instructor who could go round to important centres and teach men how to make suitable baskets.

Wood wool is considered as the best material for furnishing a soft cushion for fruits, and some orchardists have begun to take

it from Bareilly Institute at the rate of 2 annas and 3 annas per pound. Other gardeners use for this purpose the mossy growth on oak trees. If a factory is established at Ramgarh for making packing cases it could also supply wood wool easily.

The Government gardens at Chaubatia near Ranikhet and Jeolikot near Naini Tal have been established to supply the demand in seeds and seedlings of private orchards. Several local gardeners complain that the Government gardens cannot meet their demand for fruit plants. Nurseries should be maintained on an extensive scale in Government gardens. Government nurseries should grow only a few valuable varieties of plants.

The difficulty about the extension of cultivation could be met if the local forest authorities clear some land and grant it to fruit cultivators. There are numerous areas of land covered with inferior forests in the hills, which can be made easily available for fruit gardens.

Facilities for canning, bottling, and jam-making should also be afforded and people encouraged to take to them.

Place.	Name of fruits.	Season.	Area.		Average prices.	Remarks.
			Acre.	Maunds.		
Bamgarh ..	Cherries, peaches, apricots.	May and June ..	400	35,000	Apples, plums, peaches Re. 0-12-0 per seer. Cherries Re. 1-8.	A good tree yields about 20 maunds and an indifferent one about 2) seers.
Mukteswar ..	Pomegranates, pears ..	July .. ..	250	2,000	Pears Re. 0-8-0 ..	20 seers.
Dhari ..	Apples .. ..	August and September.	100	500	..	
Bhim Tal ..	Walnuts, chestnuts ..	October .. ..	50	..	Walnuts 10) for Re. 1.	The Europeans grow 250 trees to an acre and the trees are planted on the Paradise stock for dwarfish effect.
Government Garden at Jeolikot.	Persimmons .. Plantains ..	End of October .. Every season. ..	.. 27	.. ..	.. Plantain Re. 0-8-0 a doz.	
Tarai and Bhabar..	Guavas .. Mangoes .. Papitas ..	July .. .. Do. February and March	.. .. ..	.. .. ..	Mangoes Re. 9 for 100 Langras, Rs. 6 for 100 Bombay. Papitas Re. 0-8-0 per seer.	In the Indian gardens 50 trees are grown in 1 acre. The trees are large and have long ages.

(vii) *Vegetables.*—The Naini Tal district is famous for its potatoes. What are called "Pahari Alu" (potatoes) in the plains almost all come from the Naini Tal district. The potato grown in this district is larger in size and better in taste than the potatoes grown in the plains. There is only one crop in the year which is sown in the month of March and gathered in September. Trading season is from September to December. The seed is not imported from anywhere outside the district but is retained from the local produce. The seed is sown both on the ridge and the broad-cast system. Potato is best grown on virgin soil. The custom in the hills is to sow the first crop on the ridge system and after two crops level the soil in order that it may be able to retain moisture. Potato is very exhausting to the soil. It consumes all nourishment and generally one plot does not produce more than 3 crops in succession. After 3 successive crops artificial and rich manuring is necessary to stimulate the soil. The outturn and the quality diminish with each crop. The total area under cultivation under potatoes in the district is about 6,000 acres, the yield on the average being 25 maunds per acre. The average price is Rs. 8 a maund. The total export in 1921-22 to the plains was 36,000 maunds by rail to the various districts of United Provinces, Gwalior, Nagpur and Calcutta. Best potatoes are grown in the Ramgarh patti, the area under potatoes there being about 2,000 acres. Nearly every villager grows potatoes, but no attempt is made by him to improve the seed or to follow improved methods of cultivation. There is great need for expert advice in the matter. It would be of great benefit if the experts in charge of experimental agricultural farms at Cawnpore could tour round the district and suggest better and improved methods.

Green vegetables of almost every variety are grown here, but owing to transport difficulties they are not grown on a commercial scale. These from the surrounding villages are sent to Naini Tal town for sale; in outlying villages they are locally consumed.

#### 8.—Pottery.

Domestic earthenware vessels and flower pots are manufactured in Bhabar and Tarai and are exported to the hills from

there, but the trade has no commercial importance. Haldwani imports a small quantity of glazed pottery from Rampur State.

### 9.—Textiles.

#### (a) Cotton.

(i) *General*.—The following table shows the acreage and production of cotton in the district :—

Year 1921. Area in acres: 3,407. Production in maunds: 2,355.

Cotton does not require irrigation in the Tarai, only where it is sown, either with or without arhar. Cotton of these parts is commercially classed "superfine." A major portion of the cotton is exported by Messrs. Bankemal Madangopal and Company to Bombay, and a small portion is sold to Japanese traders at Chandausi. Railway freight to Bombay is Rs. 2-2-7 per maund, surcharge is 2 annas 6 pies per rupee, and municipal tax at Bombay Re. 1 per bale. Tarai is not able to supply the requirements of the district and a large quantity of cotton is imported into the district. Kashipur itself imports cotton which is spun there by hand and used in hand-loom weaving.

(ii) *Ginning*.—Messrs. Bankemal Madangopal and Company have a ginning and pressing factory at Kashipur where cotton is ginned before export. Details of the factory will be found in Chapter IV (Statistics). The factory ginned 4,125 maunds in 1921-22 and 4,550 maunds in 1920-21. A small portion is ginned and carded locally for being padded in quilts, etc. This averages 1,500 maunds annually.

(iii) *Spinning*.—Cotton is spun in Kashipur and Jaspur on country charkhas. Spinning is an established industry of Kashipur and provides livelihood to a number of pardanashin women in addition to professional spinners. Patwaris and local men estimate the existence of 5,000 spindles in Kashipur tahsil. The number of spindles in the rest of the district is negligible.

About 50 maunds of hand-spun yarn is available for hand-loom weaving and is used in weft. The district imports 125,000 lbs., i.e., 15,620 maunds mill yarn from Moradabad and Ahmed-

abad. Yarn of  $12\frac{1}{2}$  counts is imported for warps and 14 to 20 counts for wefts. Prices at Kashipur are Rs. 8 per bundle of 10 lbs. of  $12\frac{1}{2}$  counts Rs. 13 to Rs. 16 per bundle of 14 counts to 16 counts.

(iv) *Weaving.*—The district has no weaving mills. Garha is woven on hand-loom of which there are about 350 in the Kashipur tahsil. Gandhi Ashram has popularized fly-shuttle looms to a certain extent and some 50 fly-shuttle looms are working in the district. The Ashram is fitted with both frame and pit looms and takes in boys for training. A loom turns out 10 yards cloth a day and a weaver thus earns about Rs. 2 per day. Ten yards cloth costs—

			Rs. a. p.
Yarn	...	...	... 2 8 0
Labour	...	..	... 2 0 0
			...
Total			... 4 8 0
			...

This would sell for Rs. 5.

Sizing is done by women and children. Weavers get yarn on credit from dealers and have to pay interest at the rate of 2 annas per rupee per week. A co-operative store for the supply of yarn is therefore an extreme necessity. Kashipur and Jaspur are great marts for the sale of cloth which is exported from there to the whole of Kumaun hills and via Tanakpur and Almora to Nepal and Tibet. It is estimated that these two marts sell 10,000,000 yards of cloth worth Rs. 50,00,000 on an average. Out of this, about 40 lakhs worth of cloth is exported to the hills including Nepal and Tibet, and 5 lakhs worth to places like Calcutta, Bombay, Rangoon, Amritsar, Ceylon, Jullundhar, Hoshiarpur, Lahore, Sitapur, Lucknow, Cawnpore, Moradabad, Agra, Farrukhabad, Gaya, Rohtak and Jubbulpore. The remaining cloth worth 5 lakhs is consumed locally. A weaving school ought to be started at Kashipur in order to increase the quantity of cloth and improve its quality. Mr. A. C. Chatterjee also



advocated a school for the town but nothing has yet been done to open one there. A bank is also needed there to control trade.

(v) *Dyeing and printing.*—Calico printing is done on the Garha cloth at Kashipur and Jaspur. About 60,000 yards of chintz is weekly printed and sold in the above two markets for export to the hill portion of Kumaun and to Nepal and Tibet. There are 30 families of chhipies both Hindus and Muhammadans in Kashipur and 480 in Jaspur. A few families of dyers—all Muhammadans—dye dhoties for females from indigenous colours obtained from har (myrobalan), turmeric, red haemetile, al, dhak flowers, pomegranate-rind, catechu, kasis. Besides dhoti and chintz, the prints are toshaks, lihaf, razais (quilts), jajam (carpet) and fards. The last resemble Lucknow fards but the colour used is foreign and fugitive. The charges of a chhipi for dyeing and printing 20 pieces of cloth of six yards each is Rs. 5 and 20 lihafs, razais and toshaks is Rs. 10.

(b) *Fibres.*

The udal, barua, bhanga (hemp), bendu and malzhan and rambans (aloe) are fibre-producing plants of the hills and grow in abundance. Their fibre is used for making ropes and Tanta cloth.

Six hundred and seventy-five maunds of hemp was exported from Nepal in 1921-22. The burua plant yields a pulp which was formerly used for making coarse paper in the hills resembling parchment paper on which old religious manuscripts are still to be seen. The highest peak in Ramgarh patti of the Naini Tal district is named Baruwa Binayak after this plant.

Simal and madar cotton : Bombax Malbericum and Caloptris gigantic.

Simal trees grow in abundance in the forests of Tarai and Bhabar, but the cotton yielded has not been utilised for any purpose. The Forest department have not been able for various reasons to make any practical use of the article. And the same is the case with the ak or madar cotton which however does not grow much in these parts.

Pandit Shri Krishan Joshi, an enterprising gentleman interested in the industrial development of the country, has

invented a machine to spin yarn of this cotton; he has also been successful in manufacturing fine cloths, and carpets of this material. The pile carpets made of it are smooth and glossy; and the cloth is warm and has the appearance of Kashi silk.

(c) *Silk.*

There is no silk industry in the district. Some years ago the attention of Sir John Hewett, the then Lieutenant-Governor of this province, was drawn to the possibility of rearing silk worms in the Tarai. For this a plot of land between Kashipur and Maldhan at a distance of six miles from the former place, was assigned to a certain European gentleman, who grew mulberry plantations, which are still extant, but as the place was in the middle of a dense forest, abounded in fierce wild beasts and provided very few comforts of life, it failed to attract labour. Both mulberry and castor plants grow in the hills as well as in the level portion of the Naini Tal district. It is possible to develop the silk industry here but nobody is interesting himself in the matter, as there is not much demand for silk materials in the hills.

(d) *Wool.*

(i) *General.*—Gadariyas in the Tarai rear sheep but the wool obtained here is classified as "carpet wool" for trade purposes.

Tanakpur, Ramnagar and Haldwani are the chief centres of trade in wool.

Tanakpur exports 10,000 maunds annually, this year it exported 18,961 maunds up till March, 1921, but a portion of this was the accumulated balance of last year. The estimate of export from Ramnagar is between 3,000 and 4,000 maunds, and from Haldwani 2,000 maunds only. Ramnagar is a mart for Garhwal Bhotias of Niti, and Mana side and Joharis and Bhotias of Almora but Haldwani is visited by the latter only. Tibet wool is also sold in these markets. The Tibet wool is classed as (1) Ordinary and (2) Pasham or Shawl wool. The latter is considered to be superior to any other kind of Indian wool.

Raw wool is obtained in 4 natural colours—black, white, grey, yellow and brown. The black is the most valuable. It is

produced in Tibet and Garhwalis are the greatest consumers of this wool. This year it was sold at Ramnagar at 10 chhataks per rupee. The next variety in importance is the white one. The chief customer for the wool is the Lalimli Woollen Mills (B. I. C.) of Cawnpore. This year people from Amritsar also bought a large quantity of this wool, both at Tanakpur and Ramnagar, and it is said that a large woollen weaving and spinning company is going to be started near Amritsar. The prices ranged from Rs. 27 to Rs. 30 per maund. At present there is no spinning or weaving mill in the hill. Suitable places for opening a factory in the Naini Tal district are Tanakpur on the Sarada river, and Ramnagar on the Kosi river. Labour is cheap in these mandis for six months in the winter. Water-power could also be generated by damming these rivers. The hydro-electric survey also considered these places suitable for the generation of hydro-electric power. A large quantity of good fuel is also available in both these places throughout the year. Tanakpur and Ramnagar are situated at the foot of the hills and are malarious during the rainy season. They are deserted by the hill labourers for a certain period of the year. The difficulty can easily be surmounted if hydro-electric power is transmitted to a short distance and factories opened in the higher regions, which will be healthy leading to efficient work and prolonged working hours. Both Tanakpur and Ramnagar are on the Rohilkhand and Kumaun Railway but if factories are established on higher regions the railway line will have to be extended to those places. The proposed ropeway in the hill will still more facilitate the working of the mills.

(ii) *Blanket weaving.*—The wool is used locally for the manufacture of coarse black blankets for use by the poor classes. Blankets worth about six lakh rupees are annually exported to Almora, Garhwal and Nepal through Ramnagar, Kashipur, Tanakpur and Haldwani. The price of a blanket varies between Rs. 3 and Rs. 10. Bhotia blankets are dearer. Cheap blankets are imported from the plains (Muzaffarnagar and Najibabad), in considerable numbers.

## 10.—Wood.

The district of Naini Tal abounds in forests, the total area of which is about 1,000 sq. miles. These are practically all State forests, and consist of (1) Reserved forests, (2) Protected forests, (3) Unclassed forests, including leased forests. —

In the year 1920-21 the total outturn of timber in the district for trade purposes was 1,723,000 cubic feet and 123,000 cubic feet of wood was turned out for miscellaneous purposes.

The railway export figures for 1921-22 show that 2,100,000 maunds of timber and 66,620 maunds of fuel wood and charcoal were exported from the various railway stations of the district.

(A)—Timber is exported to various parts of Northern and Central India, e.g., Cawnpore, Shahjahanpur, Pilibhit, Bareilly, Lucknow, Agra, Partabgarh, Muttra and Aligarh (in United Provinces); Jubbulpore (in Central Provinces), Batala, Sialkot, Ambala, Lahore, Delhi, Rohtak, Hisar, Bhiwani (in the Punjab), Bharatpur, Jaipur, Jodhpur, and Bikanir (Rajputana) and Gwalior (Central India).

Fuel and charcoal were exported to the neighbouring districts and to Delhi.

The piece wages for sawing in Bhabar and Tarai is 14 annas per cubic foot if the sawyer is a plainsman and Re. 0-11-0 if he is a hillman. The former being more skilled and efficient, charges more than the latter, i.e., Re. 1 and 13 annas, respectively in the hills. The sawyers are generally Punjabis and belong to Rohtak district. If engaged on monthly payment system, their wages per month amount to Rs. 75 per pair or Rs. 30 per month with food.

*Prices.*

(i) Railway sleepers—broad gauge, narrow gauge, and crossing—sell at Rs. 8-9-6, Rs. 6-8-0, and Rs. 3, respectively.

		Rs. a.	Rs. a.
(ii) Karis of 13 and 14 c.ft. are sold at		3 8 to	3 12
„ 8 to 12 „	„ „	2 4 „	2 6
„ 7 „	„ „	2 0 „	2 2
„ 4 to 6 „	„ „	1 10 „	1 12
(iii) Pattis (frame of the bed)	„ „	1 8 „	2 0

The above prices are wholesale rates but if the purchasers want to make a selection, they have to pay 8 annas more per cubic foot.

(B)—The timber is carried from the forest to the railway station on camels and bullock carts, and their charges within a radius of 10 miles are approximately 8 annas per maund.

Each forest division in the Naini Tal district holds in the month of September an auction sale of the trees of a certain coupe marked beforehand for the purpose. The sales are made on monopoly, royalty, and lump system.

The sale money is realised from contractors on the instalment system, the contractor having to deposit a small amount by way of security which he forfeits on non-fulfilment of the conditions of sale.

The contractors in addition to the sale money have to pay a royalty of 4 annas per cubic foot on sal and 2 annas on other species of timber.

The Forest department sells its trees to contractors generally at the following rates :—

				Rs.	a.	p.	
Sal	...	...	...	0	14	0	per c. ft.
Shishum	...	...	...	0	12	0	" "
Sain	...	...	...	0	6	0	" "
Sandan	...	...	...	0	6	0	" "
Khair	...	...	...	0	4	0	" "
Kanju	...	...	...	0	2	0	" "
Others	...	...	...	0	4	0	" "
Bamboo	...	...	...	0	4	0	" "

The Forest department sometimes assists its contractors by trying to find markets for their timber. The railway companies send their indents for sleepers, etc., to the department and the department makes them over to the contractors for compliance. The department settles the prices with the companies for the contractors. During war time the Forest department found a market for sleepers in Mesopotamia and other parts of the world.

Our Government recently carried out operations on a very large scale in the Nepal territory. A detailed description of the operations is given below, as it will illustrate how much work can be conducted in the hills; Banghat is situated at a distance of 20 miles from the rail head, Baramdeo. The Sarda is the boundary between Nepal and the Naini Tal district. Rails were laid between Baramdeo and Banghat for running trollies for the transport of sleepers from the field of operations to the railway head, buffaloes being used to draw the trollies. A ropeway about one mile long was constructed for transporting sleepers from the Nepal bank of the Sarda to the British bank. In addition to this, large boats were also employed for the transport of materials and sleepers across the river. About 8,000 labourers were employed daily, of whom 5,500 were plainmen and 2,500 hillmen. The work consisted of felling trees, removing the bark, sawing the timber broad gauge and narrow gauge sleepers, utilising the superfluous wood in the manufacture of beams, and pattis for charpoys, and loading and unloading, etc. The number of labourers on the different operations were as follows :—

(1) Loading and unloading at the ropeway. ...	100
(2) Spreading for loading on the railway trucks at Baramdeo ... ..	40
(3) Loading of sleepers at Baramdeo ...	400
(4) Trolly coolies ... ..	40
(5) Gang for making and repairing roads and lines ... ..	1,500
(6) Ropeway establishment—	24
Mechanical Engineer ... ..	1
Driver ... ..	1
Fitters ... ..	12
Flagsmen ... ..	10

(7) Workshop—	23
Carpenters ... ..	5
Blacksmiths ... ..	5
Coolies ... ..	5
Mistri ... ..	1
Overseer ... ..	1
Inspector ... ..	1
Fitters ... ..	5
(8) Leading and feeding the buffaloes ...	55
(9) Loading and unloading boats ..	131
(10) Coolies for carrying sleepers...	2,000
(11) Grass-cutters ... ..	5,000
(12) Sawyers ... ..	3,000
(13) Clerks ... ..	100
(14) Cartmen working 1,200 carts ...	2,400

The operations lasted for 3 years and were eminently successful. The total number of broad gauge sleepers prepared were 490,000 and metre gauge 270,000. In addition about two lakhs beams and three lakhs pattis were prepared. The cost of one big sleeper was Rs. 8-8-0 at Baramdeo and of metre gauge sleeper Rs. 4.

The following daily wages were paid :—

	Rs.	a.	p.
Sawyers ... ..	2	8	0
Coolies for carrying sleepers ...	1	8	0
Road coolies ... ..	1	0	0
Cartage ... ..	1	6	0
Boatsmen ... ..	1	0	0
Clerks ... ..	1	0	0
Carpenters ... ..	1	8	0
Blacksmiths ... ..	1	8	0
Mistri ... ..	2	0	0
Grass-cutters ... ..	0	12	0

The season for work was from October to May, the rest of the year being malarious. One cart of two oxen carried six sleepers. A doctor was engaged for medical help. The amount of foodstuffs annually imported for animals and the establishment was :—

			Maunds.
Gram and grain	...	...	60,000
Salt	...	...	2,000
Ghi	...	...	600

*Suggestions.*—Good up-to-date sawing machines are required in the district and there is great need for a good carpentry school where training could be given in sawing, and in the manufacture of furniture, packing cases, sleepers, etc. There are also large facilities here for starting big industries connected with wood, e.g., match, furniture and catechu industries. Works could be opened at Haldwani, Ramnagar, Tanakpur, and Kashipur. Hydro-electric power can also be generated from Sarda and Kosi rivers. The wood of utish and semal (*Bombax malabaricum*) trees which grow in abundance both in the hills, and bhabar is very suitable for packing cases and match splints and dungis (canoes). One semal tree 8 feet long in girth yields 140 c. ft. of timber and is sold for Rs. 16.



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## CHAPTER III.

### INDUSTRIAL POSSIBILITIES.

Naini Tal is a peculiarly constituted district having physical features exhibiting great variety.

Owing to the nature of the district, its richness in forests, its rivers and lakes, and its variety of soil and climate, there are great possibilities of establishing here flourishing industries of a varied character. In the hills fruit cultivation, canning and preserving fruits, jam making, potato growing, starch making, timber sawing, baskets and furniture making, and sheep rearing are the most suitable and promising industries. There are, however, great transport difficulties at present, but can be surmounted by constructing the proposed Electric Ropeway as soon as possible, and by the extension of cart roads.

A suitable place for installing plants for the purpose of working hill industries is Bhim Tal. The place is 7 miles from Kathgodam, the rail head, and has many lakes, the waters of which could be utilised. Ramgarh, a place at a distance of about 10 miles from Bhim Tal, is known for basket making and fruit industries. The methods at present employed for the manufacture of baskets, etc., are crude and old and need to be replaced by the modern ones.

The Bhabar has rich forests containing trees valuable for timbers, e.g., sal, shisham, and for commercial articles, e.g., catechu, and grows grass suitable for mat making and paper pulp, e.g., padera or elephant grass and baib grass. The Bhabar and Tarai are also great rice and rapeseed producing centres. Timber, baib grass, and rapeseed are all exported raw to places outside the district. A monopoly has been given for 10 years to the Titagarh Company, Calcutta, for baib grass, and to the Indian Forests Products Company, Bareilly, for three years for catechu. A large factory can be opened at

Haldwani for converting rapeseed into oil and for the manufacture of catechu and dye stuffs, lime and cement making. There was an oil factory here till recently, but it was given up on the death of the proprietor. It proved to be a most profitable industry and the remarkable results which it produced have inspired the people with enthusiasm to continue or revive it in a more extensive manner which will give it a commercial importance. A few local gentlemen have undertaken to purchase the factory and it is stated that shares to the value of Rs. 82,000 have already been sold. At Ramnagar, which can command hydro-electric power, large and flourishing factories can be opened for oil making, timber sawing, and furniture making. At Tanakpur, which also can command hydro-electric power, large paper mills and timber industries can be started. Tanakpur is close to the Nepal frontier and is a market for Nepal exports. In Kashipur cloth mills can be started. Kashipur is one of the greatest and most important trading centres and markets of the district, but there is no industrial bank there which is necessary not only for the organisation of trade and industries but also for enlivenment of business and enterprise. The abundant manufacture of yarn equally necessitates the establishment of a yarn shop on co-operative lines. If side by side with these improvements, a weaving and a dyeing institute are established, almost all the crying industrial needs of Kashipur will be met with. Haldwani, Tanakpur, Ramnagar, and Kashipur are all on the railway. Tanakpur is the greatest lowland mart for eastern Kumaun, Haldwani for midland Kumaun, and Ramnagar for western Kumaun. Another important industry which can be started at Tanakpur and Ramnagar is wool industry. Large quantities of wool are brought by the Bhotias to Tanakpur and Ramnagar and sold to the Lalimli Company, Cawnpore, and to people from Amritsar. There is no reason why flourishing wool industries should not be started at these places. For the industrial development of the district, it is necessary that the export of raw materials to outside the district should be replaced as much as possible by the establishment of suitable factories in the district itself. It will be

necessary for this purpose to attract outside enterprise and capital, as the necessary capital cannot be produced locally. Such a step will no doubt accelerate the industrial progress of the district. The climate of Bhabar and Tarai is malarious during the rains and hill labour is generally not available during this season. The difficulty can be partially removed by constructing good dwelling-houses for labourers and providing them with good drinking water. With these amenities and with good wages sufficient labour can be attracted. The transport difficulties in Bhabar and Tarai are not so great as in the hills. The Rohilkhand and Kumaun Railway runs through a portion of this tract and important towns are all on this railway. It is now proposed to connect Thakurdwara in the Moradabad district to Kashipur and also the latter place with Hardwar. These lines will be of immense commercial importance. It will also be very useful if a railway line is constructed from Tanakpur direct to Haldwani passing through Chorgalia. This line will throughout run at the foot of the hills and will greatly facilitate the commerce of the Bhabar. At present a traveller wishing to travel from Tanakpur to Haldwani has to take a long and circuitous way, viz., from Tanakpur to Pilibhit, from Pilibhit to Bhozpore, and from Bhozpore to Haldwani, a total distance of 100 miles, whereas the distance between Tanakpur and Haldwani is only 30 miles. From Haldwani this could be further extended to Ramnagar via Kota and Kaladhungi. At present one has to go from Haldwani to Lalkua, from Lalkua to Kashipur, and from there to Ramnagar. If a line is constructed as proposed from Tanakpur to Ramnagar, we shall have a line running parallel to the hills and traversing nearly the whole of the Bhabar tract. This should be a great stimulus to the traders and industries of both the hills and the Bhabar and also very convenient to the general public.

## CHAPTER IV.

## STATISTICS.

## 1.—Building material.

- |                          |          |  |
|--------------------------|----------|--|
| 1. Conifers<br>(Chir).   | (a) Pine | Occurs at a height of 3,000 to 6,000 feet throughout the hills of the district, used for building purposes. Yields resin which is used for manufacture of turpentine.  |
| 2. Oaks (Banj)           | ...      | Has hard and twisted wood and is used for fuel and for making agricultural tools.  |
| 3. Rhodendrous<br>runs). | (Bu-     | Fuel and charcoal.   |
| 4. Kharsu                | ...      | Ditto.   |
| 5. Tilongs               | ...      | Ditto.   |
| 6. Tun                   | ...      | Not found in large quantities but is used for building purposes as well as for making furniture.   |
| 7. Ringals<br>Narkul).   | (reeds,  | Found in large quantities and used for making mats and buckets.  |
| 8. Sal                   | ...      | Found in large quantities at lower altitudes and in Bhabar. Its timber is very valuable and is used for building purposes and for manufacturing railway sleepers. Even when exposed to the action of water and air, its wood does not deteriorate. |
| 9. Bamboos.              |          |  |
| 10. Shisham              | ...      | Used for making furniture—light and durable.   |
| 11. Haldu                | ..       | Used for making doors and frames for shutters and windows. Cheap but not durable.  |

12. San.  
 13. Khair (catechu) ... Yields catechu (katha) and charcoal.  
 14. Dhosi.  
 15. Jamun.  
 16. Babul ... Grows in Tarai; its bark is exported for tanning leather.

Total yield in 1920-21 of timber, 1,723,000 c.ft. Timber is exported to various parts of Northern and Central India, e.g., Cawnpore, Shahjahanpur, Pilibhit, Bareilly, Lucknow, Agra, Fatehgarh, Muttra, and Aligarh (in United Provinces), Jubbulpore (in Central Provinces), Batala, Sialkot, Ambala, Lahore, Delhi, Rohtak, Hisar, (in the Punjab), Bhiwani, Bharatpur, Jaipur, Jodhpur, and Bikanir (Rajputana), and Gwalior (Central India). Fuel and charcoal were exported to the neighbouring districts and to Delhi.

Total yield in 1920-21 of fuel and charcoal, 1,000 c.ft.

Total yield in 1920-21, miscellaneous, 23,000 c.ft.

Total export by rail in 1921-22 was—

Timber ... 3,895,762 maunds.  
 Fuel and charcoal ... 66,620 „

*Prices.*

(1) Railway sleepers —Rohilkhand and Kumaun Railway and Oudh and Rohilkhand Railway are the principal purchasers.

		Rs. a. p.	Rs. a. p.
Broad guage...	...	8 9 6	...
Narrow guage	...	6 8 0	...
Crossing	...	3 0 0	...
(2) Karis of 13 and 14 c.ft. are sold at		3 8 0	to 3 12 0
Karis of 8 and 12 c.ft. are sold at		2 4 0	to 2 6 0
Karis of 7 c.ft. are sold at		2 0 0	to 2 2 0
Karis 4 and 6 c.ft. are sold at		1 10 0	to 1 12 0

(3) Pattis ... .. Pattis (frame of the bed).

The above prices are wholesale rates but if the purchaser makes a selection he has to pay 8 annas more per cubic foot.

Sawing charges—

A.—By piece-work—

(Sawyer from plains)—

		Rs.	a.	p.	
Bhabar	...	...	0	14	0 per c.ft.
Tarai ...	...	...	1	0	0

Sawyers from plains are mostly Punjabis of Rohtak district; are considered to be more efficient than the hill sawyers.

Hillman sawyer—

		Rs.	a.	p.	
Bhabar	...	...	0	11	0 per c.ft.
Tarai ...	...	...	0	13	0

B.—By time.—A plain sawyer charges Rs 75 per month or Rs. 30 plus food, and a hillman Rs. 60 per month.

Carting charges.—The timber is carried from the forest to the railway station on camel and bullock carts, and their charges within a radius of 10 miles are approximately 8 annas per maund.

Each forest division in the Naini Tal district holds in the month of September an auction sale of the trees of a certain coupe marked and selected beforehand for the purpose. The sales are made on monopoly, royalty, and lump sum system.

The sale money is realised from contractors on the instalment system, the contractor having to deposit a small amount as security which he forfeits on non-fulfilment of the conditions of sale.

The contractors in addition to the sale money have to pay a royalty of 4 annas per cubic foot on sal and 2 annas on other species of timber.

## 2.—Chemicals.

### *Borax Factories, Ramnagar.*

Number of hands employed in each factory—10 to 20, and 1 manager.

Wages—Male Re. 1.

Female 8 annas.

Manager Rs. 30.

Working season.—November to March.

Price.—Raw, Rs. 20 per maund.

Refined Rs. 30 per maund.

3.—Textiles.

(i) *Ginning.*

Messrs. Bankemal and Madangopal Ginning Factory, Kashipur.

Number of hands employed—

1 manager at Rs. 100.

2 clerks at Rs. 40.

100 labourers—

Male ... annas 14 per day.

Female .. " 7 "

Children ... " 5 "

Working hours—7 a.m. to 12 a.m., 1 p.m. to 7 p.m.

Working season—October to February.

Total bales pressed—825 bales of 400 lbs. each.

(ii) *Spinning.*

Spindles working in the Kashipur tahsil—5,000.

Outturn—100 maunds.

Looms—350.

Outturn—830,000 yards per month.

Average price 8 annas.

(iii) *Dyeing and printing.*

Dyers and printers—500 families in Kashipur tahsil.

Cloth printed—60,000 yards weekly.

Printing charges—Rs. 5 for 20 pieces of 6 yards, Rs. 10 for 20 sheets of quilt.

## CHAPTER V.

### DIRECTORY.

#### 1.—List of banks.

1. Allahabad Bank.
2. Alliance Bank of Simla.
3. Naini Tal Bank (registered in the month of July, 1922).

#### 2.—List of cloth merchants.

- Lala Ram Lal and Brothers, Naini Tal.
- Lala Nand Lal, Naini Tal.
- Lala Kishori Lal, Naini Tal.
- Lala Devi Lal Sah, Naini Tal.
- Lala Gauri Shankar, Haldwani.
- Lala Bhukan Lal and Puran Prasad, Tanakpur.
- Lala Tika Ram Rai, Tanakpur.
- Lala Baldeo Prasad, Tanakpur.
- Lala Radhe Shyam, Ramnagar and Kashipur.
- Lala Nanakchand and Jado Prasad, Ramnagar and Kashipur.
- Lala Krishna Datta, Ramnagar and Kashipur.
- Pandit Amarnath Choube, Kashipur.
- Lala Shiva Lal and Ganga Prasad, Kashipur.
- Lala Sukhadeva Prasad, Kashipur.
- Lala Ghasi Ram Shiva Lal, Kashipur.
- Lala Baghubeer Saran and Rajkumar, Kashipur.
- Lala Nand Kishore, Kashipur.

#### 3.—List of hardware merchants.

- Lala Kishna Das and Brothers, Naini Tal.
- Sheikh Chhuttan, Naini Tal.
- Lala Bhuremal Dip Chand, Haldwani.

#### 4.—Furniture merchants.

- Pandit Prem Ballabh Bhat, Naini Tal.
- Lala Hira Lal Sah, Naini Tal.



**5.—House proprietors and bankers.**

Lala Chandra Lal Sah, Naini Tal.  
 Lala Mohan Lal Sah, Naini Tal.  
 Lala Chail Ram Sah, Naini Tal.  
 Lala Jai Lal Sah, Naini Tal.  
 Lala Parma and Shiva Lal, Naini Tal.  
 Lala Debi Lal Sah, Jagati, Naini Tal.  
 Lala Udey Nath Sah, Naini Tal.

**6.—List of Public Works department contractors.**

Lala Parma Shiva Lal Sah, Naini Tal.  
 Lala Joga Sah, Naini Tal.

**7.—Sugar and grain merchants.**

Lala Anti Ram Sah, Naini Tal.  
 Lal Shiva Lal, Naini Tal.  
 Pandit Mathura Datt Pande, Naini Tal.  
 Lala Nadi Durga Sah, Naini Tal.  
 Pandit Amba Datta Bhishun Datta, Naini Tal.

**8.—Food and non-food-grain merchants.**

Lala Chhitar Mal, Haldwani.  
 Lala Nand Ram and Basudeva, Haldwani.  
 Lala Chhote Lal, Haldwani.  
 Lala Murli Dhar, Haldwani.  
 Lala Ram Swarup and Bhikam Chand, Haldwani.  
 Lala Toddar Mal and Bensidhar, Haldwani.  
 Lala Chhedalal and Sobanalal, Haldwani.  
 Lala Balmakund and Sohan Ram, Tanakpur.  
 Lala Bachimal and Ram Prasad, grain merchants.

**9.—Raw wool merchants.**

Pandit Harnandan Puneth, Tanakpur.

**10.—Dealers in minor forest produce.**

Lala Budhi Sah, Ramnagar and Kashipur.

**11.—Borax and grainery dealers.**

Lala Bankelal Banwarilal, Ramnagar.  
 Lala Hazarilal and Ganeshi Lal, Ramnagar.  
 Lala Murari Lal Banwari Lal, Ramnagar.  
 Lala Kanhai Lal, Ramnagar.  
 Lala Purshottam Das Ramsaran Das, Ramnagar.

## 12.—List of contractors of forests.

- Lala Nath Sah, Naini Tal.  
 Pandit Keshava Datta and Bhola Datta Pant of Haldwani.  
 Pandit Beni Ram Yasodhar Nitya Nand Pandè, Haldwani.  
 Lala Rewati Nandan, Ramnagar.  
 Lala Jai Jai Ram, Ramnagar.  
 Sh. Mahomad Khan, Ramnagar.  
 Lala Mangal Ram, Ramnagar.

## 13.—Fruit garden proprietors and dealers.

- Mr. A. Sweedenham, Sumerford, Ramgarh.  
 Mr. Lincon, Bar.-at-Law, Apple garth, Ramgarh.  
 Mr. C. T. Allen, Allen Orchard, Ramgarh.  
 Mrs. Dariaz, Ramgarh.  
 Moh. Bisarat Khan, Bisaratganj, Ramgarh.  
 Pandit Umepati Joshi, Umagarh, Ramgarh.  
 Thakur Jagatchand, Hartola, Ramgarh.  
 Thakur Moran Singh, Ramgarh.  
 Mrs. Stiffle, Sitla Orchard, Mukteswar.  
 Mrs. Rochford, Sitla Garden, Mukteswar.  
 Mr. E. F. Stiffle, Fruit Garden, Dhari.  
 Pandit Shiva Datta, Fruit merchant, Naini Tal.  
 Lala Badri Sah, Fruit merchant Naini, Tal.

## CHAPTER VI.

## MISCELLANEOUS.

## 1.—The Imperial Bacteriological Laboratory, Mukteswar.

A laboratory for making serum was established in the year 1895. The object was to investigate various diseases prevalent among horses and other cattle of India and to discover proper means and medium for their radical cure. It was also sought to find out means of preventing the spread of contagious diseases among the animals.

India being largely an agricultural country such enterprises are most likely to prove useful to the agriculturists. The laboratory has so far succeeded in discovering serum for inoculation in the rinderpest diseases and finding means for the preservation of serum and vaccines.

The Director of the laboratory informs that his industry suffers much for want of proper transport facilities. About three lakhs of rupees are spent every year over the transport of various articles to and from the laboratory.

The following is the approximate table of the various articles brought to Mukteswar and their approximate weight— :

Grain and other cattle food	..	20,000 maunds.
Grass and hay	... ..	30,000 „
Laboratory stores	... ..	2,000 „
Kerosine, crude and lubricating oil		15,200 gallons.

Grass and hay are mostly procured from the area lying between Mukteswar, Khairna and Ratighat. The quantity available is limited owing to the distance. When the new ropeway scheme, at present before Government, is installed as far as Mukteswar, it will serve a great purpose both for the laboratory and the fruit gardens near about it. Mukteswar is a rising town. An Imperial College for the training of

Veterinary Surgeon is to be opened there, and students are being trained for the purpose from this year.

There is possibility of starting bone industry there. Large quantity of bones is wasted and if a plant is erected the concern would be a paying one.

The Director was very keen on the opening of a cart road from Ratighat to Mukteswar via Ramgarh valleys, a distance of about 16 miles. He thinks that there would be sufficient transport for the road to justify its construction. I fully concur with his views and have already recommended the construction of the road for the benefit of orchardists.

### 2. — Total exports and imports for 1921-22 by goods train.

		Exports. Mds.	Imports. Mds.
Haldwani	...	590,875	227,182
Ramnagar	..	1,242,118	386,040
Kashipur	...	102,718	167,901
Tanakpur	...	200,577	124,256
Kichha	...	59,545	2,562
Lalkua	...	274,030	20,376
Bazpur	...	113,098	1,605
Khatima	...	191,151	22,565
Baramdeo	...	1,570,582	14,775
Kathgodam	...	245,889	252,665

### 3.—Exports, 1921-22.

Name of commodity.	Station from which exported.	Quantity in maunds.	Principal stations to which exported.
Borax (raw)	Haldwafi	5,202	Ramnagar (Kummann), Cawnpore, Howrah, and Jagadhari.
Borax (refined)	Ramnagar	7,316	Howrah, Delhi, and Cawnpore.
Borax (raw)	Tanakpur	9,724	Cawnpore, Howrah, Jagadhari and Ramnagar (Kummann).

Name of commodity.	Station from which exported.	Quantity in maunds.	Principal stations to which exported.
Hides and bones	Haldwani	2,690	Cawnpore, Agra, Bareilly and Delhi.
Do.	... Ramnagar	3,000	Do.
Do.	... Tanakpur	280	Do.
Do.	... Bazpur ...	305	Do.
Do.	... Kichha ...	2,000	Do.
Do.	... Kashipur ...	1,037	Do.
Do.	... Lalkua ...	212	Do.
Do.	... Kathgodam	...	Do.
Potatoes	... Haldwani	36,262	Gorakhpur, Gwalior, Nagpur, Benares, Agra, Fyzabad, Cawnpore, Lucknow, Moradabad, Bareilly, Muttra via Kasganj and Partabgarh.
Ditto	... Tanakpur	238	
Oil-seed (rapeseed).	Haldwani	58,150	Via Lalkua, via Moradabad, via Kasganj, (Ajmer, Jaipur, etc.), Ludhiana, Hoshiarpur, Sialkot, Jullandher and Amritsar.
Do.	... Ramnagar	30,888 (by rail) 20,000 (by bullock carts).	Ambala, Ludhiana, Amritsar, Kasganj, Kiamiri (Sindh) via Kashipur.

Name of commodity.	Station from which exported.	Quantity in maunds.	Principal stations to which exported.
Oil-seed (rape-seed).	Kashipur ...	10,060	Ambala, Ludhiana, Amritsar, Kasganj, Kiamiri (Sindh) via Kashipur.
Do. ...	Bazpur ...	4,678	Do.
	Total ...	<u>123,776</u>	
Rice (table) and grain.	Haldwani	911	Bareilly, etc.
Do. ...	Khatima ...	59,023	Pilibhit, Bareilly, Moradabad, Bisalpur and Allahabad.
Do. ...	Kashipur	44,047	Kasganj, Chandausi and Haldwani (Kumaun).
Do. ...	Tanakpur	8,112	Pilibhit, Khatima (Kumaun) and Shahjahanpur.
Do. ...	Bazpur ...	4,380	Pilibhit, Khatima (Kumaun) Shahjahanpur and Dhampur.
Do. ..	Kichha ...	26,187	Haldwani.
Do. ...	Kathgodam	1,262	Haldwani.
	Total ...	<u>143,922</u>	
Fuel and charcoal	Kathgodam		
Do. ...	Haldwani	2,825	Bareilly and Dhampur.
Do. ...	Ramnagar	8,613	
Do. ...	Tanakpur	1,626	
Do. ...	Lalkua ...	53,556	Delhi.
	Total ...	<u>66,620</u>	

Name of commodity.	Station from which exported.	Quantity in maunds.	Principal stations to which exported.
Timber	... Haldwani	11,465	Bareilly.
Do.	... Ramnagar	177,691	Bareilly, Budaun, Cawnpore, Meerut, Hapur, Bulandshahr Anupshahr, Rohtak, Ambala, Amritsar Bhelani (Punjab), Delhi, Hasi, Dissar, Sultanpur. Gwalior and Bharatpur.
Do.	... Khatima ...	132,128	Pilibhit.
Do.	... Bazpur ...	25,338	Garhmuktesar, Delhi and Moradabad.
	Total ...	<u>846,622</u>	
Timber	... Baramdeo...	1,570,582	Cawnpore, Shahjahanpur, Pilibhit, and Bareilly.
Do.	... Khibba ...	7,493	Bareilly.
Do.	... Tanakpur	144,272	Bareilly, Lucknow, Cawnpore, Jubbulpur, Batala, Agra, Pilibhit, Sialkot, Lahore, Ajmer, Fatehgarh, Muttra, Jaipur and Jodhpur.

Name of commodity.	Station from which exported.	Quantity in maunds.	Principal stations to which exported.
Timber	... Lalkua ...	200,000	Delhi, Rohtak, Dholpur, Bareilly, Aligarh and Moradabad.
Do.	... Kathgodam	126,793	Moradabad, Meerut, Bareilly, Dhampur and Hakimpur.
	<b>Total ...</b>	<b>3,395,762</b>	
Turmeric and chillies.	and Haldwani	869	Cawnpore and Moradabad.
Do.	... Kashipur...	381	
Do.	... Ramnagar	7,764 (by rail) 8,000 (by bullock carts).	Cawnpore, Moradabad, Lucknow, Bareilly, Pilibhit and Kashipur.
Do.	... Tanakpur	1,039	Jhansi and Bisalpur.
Do.	... Baramdeo	500	
	<b>Total ...</b>	<b>18,553</b>	
Salt	... Haldwani	1,830	Ramnagar and Pilibhit.
Do.	... Tanakpur	1,612	Nepal.
	<b>Total ...</b>	<b>3,442</b>	



Name of commodity.	Station from which exported.	Quantity in maunds.	Principal stations to which exported.
Catechu wood...	Ramnagar	263,975	Bareilly.
Catechu ...	Tanakpur	1,130	Unao.
Do. ...	Khatima ...	1,184	Cawnpore and Delhi.
	Total ...	<u>2,314</u>	
Wool ...	Haldwani	129	Asafpur (Amritsar).
Do. ...	Tanakpur	18,961	Cawnpore.
Do. ...	Ramnagar	...	Asafpur (Amritsar).
Medicines (herbs and roots.)	Haldwani	524 (amaltash)	Amritsar.
Do. ...	Do. ...	133 (rohini)	Amritsar and Moradabad.
Do. ...	Kathgodam	403	Lucknow, Cawnpore and Madras.
Do. ..	Baramdeo	500	Pilibhit, etc.
	Total ...	<u>1,560</u>	
Lime ...	Haldwani	8,659	Tanakpur, Lalkua, Baheri and Bazpur (Kumaun).
Do. ...	Ramnagar	19,362	Budaun and Lukshahr.
Do. ...	Tanakpur	387	
Do. ...	Bazpur ...	64,350	Rampur, Baheri, Pilibhit (Kumaun), Budaun, Dibai, Delhi, Bareilly, Shahjahanpur and Pipalsana.
	Kathgodam	14,688	Haldwani and Kashipur.
	Total ...	<u>107,446</u>	

Name of commodity.	Station from which exported.	Quantity in maunds.	Principal stations to which exported.
Cotton (pressed)	Kashipur	4,168	Bombay and Chandausi.
Do. (seed) ...	Do.	5,751	Bombay.
Grass (for brooms, etc.).	Do.	1,919	Agra, Moradabad.
Do.	Tanakpur	10,285	Bamboo Shahjahanpur, Lucknow, Carewganj, Ujhani and Lakhimpur.
Do.	Baramdeo	300	Reed
Do.	Ramnagar	35,409	Bamboo Budann, Lucknow, Kasganj, Bareilly and Hathras.
Baib-grass ...	Do.	48,100	Raniganj.
Do. ...	Tanakpur	482	
	Total ...	48,532	
Gur, molasses and sugar.	Kashipur	2,523	Dhampur and Muttra.
Ghee and butter	Baramdeo	1,000	Cawnpore, Pilibhit and Bareilly.
Do.	Tanakpur	2,477 (by rail) 3,000 (by bullock carts).	Pilibhit and Ramnagar.
Do.	Lalkua ...	105	
	Total ...	6,582	Lahore, Aligarh, Bijnor, Debra Dun, Ferozabad, Meerut and Naini Tal.

Name of commodity.	Station from which exported.	Quantity in maunds.	Principal stations to which exported.
Wax and honey	Baramdeo	400	
Bhusa	Kashipur	3,000	
Do.	Kichha	10,288	
Do.	Bazpur	1,790	
Babul-bark	Do.	11,062	Cawnpore and Delhi.
Fruits	Kathgodam	15,000	Bombay, Calcutta, Surat, etc.
Resin	Do.	41,000	Bareilly.
Tea	Do.	314	Amritsar.

4.—Imports, 1921-22.

Commodity.	Station to which imported.	Quantity in maunds.	Station from which exported.
(1) Salt	Haldwani	38,684	Sambar Lake.
Do.	Ramnagar	28,916	Kulchmau road, Muttra.
Do.	Kashipur	12,456	Bareilly.
Do.	Tanakpur	21,692	Haldwani.
Do.	Kichha	431	Kasganj.
Do.	Baramdeo	2,000	} Filibhit and Bareilly.
Do.	Bazpur	400	
Do.	Khatima	1,192	
Total		100,771	
(2) Kerosine oil and mustard.	Haldwani	4,848	Budge Budge.
	Do.	(by rail). 5,532	Bahraich.
	Do.	(by rail). 1,000	...
	Do.	(by cart). 2,003	Punjab and Budann.
Kerosine oil	Kichha	300	
Do.	...	136	
Do.	Kathgodam	1,240	Via Moradabad and Howrah.
Total		15,059	

Commodity.	Station to which imported	Quantity in maunds.	Station from which exported.
(3) Sugar ...	Haldwani	8,059	Kidderpur dock.
Do. ...	Ramnagar	1,018	Cawnpore.
Do. ...	Kashipur...	4,111	Delhi.
Do. ...	Tanakpur	768	Pilibhit.
Do. ...	Kichha ...	180	Shahjahanpur.
Do. ...	Kathgodam	475	Kidderpur dock and Cawnpore.
	Total ...	<u>14,611</u>	
(4) Molasses ...	Haldwani	2,089	Shahjahanpur.
Do. ...	Ramnagar	5,028	Saharanpur and Hathras.
Do. ...	Kashipur...	3,643	Moradabad.
	Total ...	<u>10,760</u>	
(5) Jaggery. ...	Haldwani	1,313 (by rail) 22,000 (by cart)	Shahjahanpur.
Do. ...	Ramnagar	3,000	Pilibhit, etc.
Do. ...	Tanakpur	271	
		10,000 (by bullock cart).	
	Total ...	<u>36,584</u>	
(6) Tobacco leaves; etc.	Haldwani...	5,310	Biswan.
Do. ...	Ramnagar	1,467	Kanauj and Budaun.
Do. ...	Kashipur...	5,090	Sitapur.
Do. ...	Kichha ...	235	Hargaon and Chandausi.
Do. ...	Tanakpur	1,097	(by rail).
		3,000	(by bullock cart).
	Total ...	<u>16,199</u>	

Commodity.	Station to which imported.	Quantity in maunds.	Station from which exported.
(7) Reh earth	... Haldwani ...	8,648	Sikandrabad, Agra, etc.
Do.	... Ramnagar ...		
Do.	... Kashipur ...	345	
Do.	... Tanakpur ...		
Do.	... Kichha ...	140	
(8) Potatoes	... Haldwani ...	2,832	Lucknow.
Do.	... Ramnagar ...	2,615	Shahjahanpur.
Do.	... Tanakpur ...	451	Bareilly, etc.
Do.	... Khatima ...	237	
(9) Country spirit	Haldwani ...	1,730	Shahjahanpur.
Do.	... Khatina ...	438	
(10) Iron	... Ramnagar ...	1,931	Cawnpore.
Do.	... Kashipur ...	500	
Do.	... Tanakpur ...	1,096	
Do.	... Kathgodam ...	22,445	Cawnpore, Sealdah and Lucknow.
	Total ...	<u>25,972</u>	
(11) Borax and Ghee	Ramnagar ...	9,290	Tanakpur and Haldwani.
(12) Grain	... Haldwani ...	100,000	Pilibhit, Bareilly, Moradabad and Budaun.
Do.	... Ramnagar ...	167,356	
Do.	... Kashipur ...	39,810	
Do.	... Tanakpur ...	63,305	
Do.	... Kichha ...	26,187	
Do.	... Baramdeo ...	1,000	
	Total ...	<u>417,658</u>	

Commodity.	Station to which imported.	Quantity in maunds.	Station from which exported.
(13) Bhusa	... Ramnagar	... 6,121	Bazpur.
Do.	... Kathgodam	... 6,335	
	Total	12,456	
(14) Cotton goods.	Kashipur	14,584	Delhi and Cawnpore.
Do.	Tanakpur	3,548	
Do.	Kichha	200	
(15) Bangles	{ Kashipur	295	Farrukhabad
	{ Khatima	107	and Delhi.
(16) Copra	... Kashipur	... 1,451	Cawnpore.
(17) Lime	{ Kashipur	9,738	
	{ Khatima	1,517	
(18) Onion	... Khatima	... 980	
(19) Cement	... Kathgodam	... 9,580	Allahabad, Katni and Karachi.
(20) Hay and grass	Do.	25,695	Saharanpur, Kalpi, Sitapur and Thomsonganj.
(21) Coal	Do.	15,330	Budge Budge and Katragarh.
(22) Petrol	Do.	3,985	Kalighat, Cawnpore, Allahabad and Budge Budge

5.—Total exports and imports from and to Nepal for 1921-22.

(i) Exports from Nepal,

		Mds.
1. Medicinal herbs	Tanakpur	412 (Taj)
	Baramdeo	155 (Majit)
	Total	567

		Mds.	
2. Oatechu	{	Tanakpur ...	10,096
		Baramdeo ...	496
		Banbasa ...	394
	Total ...	10,986	
3. Ghee	{	Tanakpur ...	2,908
		Baramdeo ...	2,883
		Banbasa ...	1,838
	Total ...	7,124	
4. Wax	{	Tanakpur ...	588
		Baramdeo ...	170
	Total ...	758	
5. Grain	{	Tanakpur ...	8,910
		Baramdeo ..	1,000
		Banbasa ...	2,000
	Total ...	11,910	
6. Hemp	{	Tanakpur ...	320
		Baramdeo ...	355
	Total ...	675	
7. Reed	{	Tanakpur ...	100
		Baramdeo ...	2,000
	Total ...	2,100	
8. Spices	{	Tanakpur ...	523
		Baramdeo ...	968
		Banbasa ...	505
	Total ...	1,996	
9. Dye stuffs	...	Baramdeo ...	621
10. Honey	{	Tanakpur ...	510
		Baramdeo ...	64
Total	...	574	

		Mds.		
11. Bamboo	... {	Tanakpur	... 6,500	
		Baramdeo	... 1,500	
		Banbasa	... 300	
		Total	... 8,300	
<hr/>				
12. Gum	... {	Baramdeo	... 67	
		Banbasa	... 319	
		Total	... 386	
<hr/>				
13. Mustard oil	... Baramdeo	... 482		
14. Sheep, goats, cows and horses.	... {	Tanakpur	... 478	} in num- ber.
		Banbasa	... 700	
		Total	... 1,178	

## (ii) Imports to Nepal.

		Mds.	
1. Country cloth	... {	Tanakpur	... 8,972
		Baramdeo	... 97
		Banbasa	... 324
2. Foreign cloth	... {	Baramdeo	... 80
		Banbasa	... 707
3. Metals	... {	Tanakpur	... 5,327
		Baramdeo	... 177
		Banbasa	... 331
4. Potatoes	... Tanakpur	... 128	
5. Tobacco	... {	Tanakpur	... 5,043
		Baramdeo	... 217
		Banbasa	... 624
6. Kerosine oil	... {	Tanakpur	... 581
		Baramdeo	... 70
		Banbasa	... 46
7. Salt (Sawar and Bhotia, etc).	... {	Tanakpur	... 6,305
		Baramdeo	... 2,519
		Banbasa	... 2,697
8. Spices	... {	Tanakpur	... 58
		Banbasa	... 1
9. Sugar and jaggery	... {	Tanakpur	... 120
		Baramdeo	... 349
		Banbasa	... 1,262
10. Fruits, etc.	... Banbasa	... 200	



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Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

Partabgarh District

*By*

H. N. SAPRU, B.A.



ALLAHABAD :

Printed by the Superintendent, Government Press, U. P.

1923

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## FOREWORD.

LIKE other districts of Oudh, Partabgarh has large potentialities but few industries. It has many raw products, out of which several flourishing industries could be easily built. Various experiments have been made from time to time to start new industries, but they have failed for various reasons which could have been easily controlled :—

(a) The district abounds in mahua trees. The flower is used as human food and feed for the cattle, but no inconsiderable amount is exported every year for distillation of liquor after fermentation. The fruit is used to a certain extent for eating purposes, and is also, to a very limited scale, crushed for oil; but large quantities are exported. The land under groves is 70,000 acres, and this can safely be divided into mahua  $\frac{1}{3}$ rd and mango and others  $\frac{2}{3}$ rd. Thus mahua groves cover some 24,000 acres. These with stray trees which are not classed as groves would not contain less than 3 lakh trees. A mahua tree on an average yields  $3\frac{1}{2}$  maunds fruits per year. The district can, therefore, supply over  $10\frac{1}{2}$  lakh maunds of fruits every year, which could feed several oil mills. Several taluqdars own large number of groves and it would pay them to instal oil mills in place of leasing out the use of trees at a low cost of 4 annas to Re. 1 per tree. The Court of Wards is the manager of two such big taluqas as Partabgarh and Kalakankar, of which Kalakankar is solvent in every way and can easily find funds to invest in industrial undertakings.

(b) Arhar is grown mixed with juar or bajra over an area of 128,500 acres. Supposing the turnout of arhar to be 5 maunds per acre, the district produces 642,500 maunds arhar. A portion is crushed in hand mills and in one or two dal factories where 2 or 3 men may be seen working on a *dhenki* with feet. But these deal with a very small amount of the total produce, of which the major portion is exported in an entire state. More factories with better appliances should be organized and the district ought to be able to

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export dal in place of arhar. Labour in Partabgarh is not scarce. The district supplies labour to far off cities like Karachi, Nagpur, Calcutta and even Rangoon.

- (c) Blanket weaving can expand with a little organization and Kalakankar estate which is the home of the industry ought to give a lead. The estate once took up the question of improving the breed by crossing local sheep with Merino and Bikaner rams. Some such experiment should be repeated during the remaining two years of the Court of Wards management and the interest of the minor taluqdar roused in the success of the experiment. Apart from the question of the breed, there is scope for much improvement in the existing industry. Wider looms, better milling, use of dyed wool for weaving rugs, some device for raising are a few of the urgent needs of the trade; co-operative societies should be organized amongst the Gadariyas with a sub-agency of the District Bank at Sangramgarh. This will bring better credit and cheaper money in the business; and with a little organization the trade will improve, as also the quality.
- (d) The district abounds in reh which exists in a major portion of its 125,000 acres of usar. The Kalakankar estate was thinking of starting a factory for the manufacture of sajjī from it. The scheme was sanctioned and money provided for the experiment which was to be conducted with the aid of the Industrial Chemist to Government, United Provinces, but by the time the arrangements were completed, rains set in and the experiment had to be abandoned, and by the next season the Government Soda Factory at Cawnpore, to feed which the factory of the Kalakankar estate was contemplated to be started, was closed. Attempts were also made by the Kalakankar estate to manufacture block glass and the experiment succeeded. but it had to be given up on account of the untimely death of Raja Ramesh Singh. Glass and glass bangles are still made in

many villages of the Kalakankar estate, and it will be worth while repeating the experiment. The manihars of Ajhara and Bhatni and other neighbouring villages of Kalakankar should combine to form a society. Credit societies already exist in the villages or in villages near about.

The estate should try to get a man trained in the manufacture of "reshmi" churis of superior quality and introduce it amongst the bangle-makers inhabiting its villages.

The experiment of making saji and then purifying it should also be tried by the estate. The demand for pure soda is rising and its manufacture will help the glass and glass bangle-makers considerably.

(e) The slaughter-houses of the district produce 11,000 hides and 46,000 skins every year. It can also command raw material from the neighbouring districts. Babul bark is exported from the district to Cawnpore and there will be no dearth of the tanning material. Babul trees are, as a rule, planted on the boundaries of tanks with which the district is studded and there exist in the district many plantations of various sizes. If a tannery were established on the banks of the Ganges, water can be had in plentiful, and also the necessary drainage. But either of the two districts—Partabgarh or Alláhabad—should have the tannery. Raja Rampal Singh of Kalakankar had once opened a leather factory and it worked very well during his lifetime, but was disorganized after his death.

(f) Raja Rampal Singh also experimented on the possibilities of sericulture in his estate and found that mulberry trees could flourish in the district and silk-worms could thrive in its climate. If some arrangements could be made to supply the worms and take back the cocoons, do cleaning, reeling, spinning, etc., in a factory, it would not be difficult to organize the industry, and as Partabgarh is so conveniently situated—lies in

close proximity to Benares and Allahabad—the business would pay. Again, the Court of Wards should give the lead.

- (g) Co-operative societies are badly needed amongst the handloom weavers and demonstrations of the fly-shuttle looms should be given in the main centres of the industry. The deputation of the peripatetic school at Partabgarh was a step in the right direction. But small demonstration and competition parties in the centres of handloom weaving should also be organized. Some arrangement should also be made for the supply of fly-shuttle looms to the weavers on an easy system of payment.
- (h) The printing of Nawabganj is certainly on a small scale, but the stencil work is very fine—as artistic as that of Jafarganj in the Fatehpur district. The proprietor of the village, Nawab Sh. Ahmed Husain, Khan Bahadur, O.B.E., is an enlightened taluqdar and will render every assistance if any attempt is made to improve the art. The better designing and proper mixing of colours should be demonstrated to the printers. The colours produced are mostly fast, but the indigenous process takes a very long time—as much as six months—and work is only seasonal. This has to be remedied.

We are indebted to Mr. S. T. Gadre, Industrial Chemist to United Provinces Government, for revising the report and suggesting many improvements. The following gentlemen have helped in the survey work and deserve our thanks :—

1. Mr. Mohammad Abdus Sami, Deputy Collector, Officiating Deputy Commissioner of Partabgarh.
2. Rai Bahadur Shanker Dayal Sahab, M.L.C.
3. Nawab Sh. Ahmad Husain Sahab, Khan Bahadur, O.B.E.
4. Pandit Lachmi Narsin Shivapuri, Inspector of Police.
5. Thakur Sitla Bakhsh Singh, Assistant Manager, Court of Wards.

CHAMPA RAM MISRA,

31st July, 1923.



# CHAPTER I.

## INTRODUCTION.

### 1. General features.

#### (i) Boundaries—

North—Sultanpur district.

West—Rae Bareli.

South—Allahabad.

East—Jaunpur district.

(ii) *Topography*.—The whole district is a fairly level plain, of which nearly every part is equally fertile and well cultivated. In places, however, there are patches of unculturable usar which is richly impregnated with an efflorescence called reh.

### 2. Rivers.

The largest river is the Ganges which flows along the south-west boundary for a distance of 30 miles. The Sai passes by the Partabgarh city and has for its tributaries Naiya, Chamraura, Chhoiya, Loni, etc. Smaller streams are Daur, Paiya, Pili, Sakarni, Bakulahi and several others; majority of these joins the Sai. The Ganges is navigable for trade during 8 months of the year.

### 3. Jhils.

Among the lakes and swamps, the important ones are Benti lake, Naiya jhil and Nanrehra jhil. Others of considerable size are at Shahpur, Adharganj, Daudpur, Atarsand, Sakra, Rangauli, Sirsi, Niwari, Rampur-Bhagdora and Derhwa. In Kunda they are exceptionally numerous; the jhil tract covers the north-east of Manikpur and Bihar parganas, the whole of Dhingwas and the greater part of Rampur. The jhils are used for purposes of irrigation.

### 4. Ferries.

Tahsil.	River.	Ferry.
Partabgarh ...	Chamraura ...	Chilbila.
Patti ...	Gumti ...	Birahimpur.
"	"	Mahraura.

Tahsil.	River.	Ferry.
Kunda	... Ganges	... Kalakankar.
"	"	Manikpur.
"	"	Gutni.
"	"	Karenti.
"	"	Sangethi Ghat.
"	"	Jahanabad.

### 5 Roads.

The important roads in the district are :—

- (i) Fyzabad-Partabgarh-Allahabad.
- (ii) Partabgarh to Kunda.
- (iii) " to Lalganj and Ateha.
- (iv) " to Patti and Kadipur.
- (v) " to Garwara, Antu and Amethi.
- (vi) " to Katra Medniganj.
- (vii) Lalganj to Pariawan and Kalakankar.
- (viii) " to Rae Bareilly.

### 6. Railways.

Oudh and Rohilkhand Railway.	Stations.
(i) Fyzabad-Allahabad Branch ...	Kondhour, Chilbila, Partabgarh, Bhupia Mau, Bishunathganj
(ii) Main Line ...	Suwansa, Goura, Dindipur, Pirthiganj, Partabgarh, Chilbila, Jagesharganj, Antu.
(iii) Allahabad-Rae Bareilly Branch	Lalgopalganj, Bhadri Kunda (Harnamganj), Gotni, Pariawan.

### 7. Markets.

The important markets of the district are :—

- (i) MacAndrewganj—Within municipal limits.
- (ii) Nawabganj—Near Chilbila station.
- (iii) Garwara—On the Amethi road (metalled up to Garwara only).
- (iv) Antu—On the Amethi road.
- (v) Mandbata—In the south.
- (vi) Katra—In the south.
- (vii) Kondhour—In Patti tahsil.

- (viii) Pirthiganj—In Patti tahsil.  
 (ix) Kalakankar—In Kunda tahsil.  
 (x) Lalgopalganj—In Kunda tahsil.  
 (xi) Jalesarganj—In pargana Rampur.  
 (xii) Derwa—In village Sabelgarh north of Bihar.  
 (xiii) Nawabganj—In Manikpur pargana.

### 8. Fairs.

The well-known fairs of the district are as follows :—

Tahsil.	Village.	Name of fair.	Date.
Partabgarh.	Saudwa-Chandika.	Chandika Devi	Chait and Kuar Sudi 8th and 9th and every Tuesday.
Do. Patti	Baubirkachh Yahiapur ...	Panchosidh ... Bilkharath	Every Tuesday. Badi 13th of every month.
Do.	Parasrampur	Chauharja Devi.	Chait and Kuar Sudi 8th and 9th and every Monday.
Kunda	Kunda ...	Ram Lila ...	Kuar Sudi 10th.
Do.	Majhilgaon...	Ditto ...	Ditto.
Do.	Manikpur ..	Ganga Ashwan	Kartik Purnamashi.
Do.	Ditto ...	Jwalamukhi Devi.	Asarh Badi 8th.
Do.	Rampur ...	Miyao-ka-Mela	First day of Jeth.

### 9. Population.

The population of the district in the census of 1921 was 855,133.

### 10. Jungles, groves and grazing grounds.

There are no forests, but patches of jungle land, chiefly covered with the dhak trees, do exist here and there. These form the principal grazing grounds of the district. Babul is often seen along the banks of the rivers and streams, such as the Sai, in pargana Ateha and at frequent intervals lower down in its course, and on the embankments of tanks which are a common feature of the district. The land under grove is over 70,000 acres. Splendid groves are to be seen at Sonapura

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in the extreme east of Patti tahsil : at Jethwara, Mandhatta and Bahlolpur in pargana Partabgarh ; at Narwal, Ranki, Mustafabad and Lakhanpur in Ateha ; and at Manikpur and Dayalpur in pargana Manikpur. Several estates boast of having ' lakhpera ' groves, i.e., groves each having one lakh trees. Mango and mahua are the commonest trees. The latter are more abundant in Partabgarh than in any other district of Oudh ; it is most frequently to be found in pargana Ateha, in Partabgarh to the north of Sai, and also in Kunda. Mango predominates in the east. Other cultivated fruit trees are kathal (jack-fruit), bel and mulberry. Bamboos are to be seen in abundance, especially in the neighbourhood of villages. Pasture lands are not sufficient. The grass of the groves is rapidly exhausted, while that in the usar plains dries up shortly after the rains. Hence the cattle are generally fed on straw, stalks of bajra and juar and sometimes macca. Munj is chiefly found along the banks of the Ganges and in the neighbourhood of the Sai and other rivers. Its leaf called ' Sarpat ' is used for thatching, upper portion of the stem (the sirki) for manufacture of winnowers and for ' pals ', while wrappers and sheaths known as munj for making string and matting.

## CHAPTER II.

DESCRIPTION OF, AND SUGGESTIONS FOR, THE IMPROVEMENT  
OF THE VARIOUS DISTRICT INDUSTRIES.

## 1. Building material.

(a) Bricks, country tiles and lime are made in small quantities by contractors as required. The industry is not organized. A few kilns for burning bricks or lime are seen near Partabgarh city or the Mahli Bazaar. Country tiles are made all over the district by kumhars for local consumption.

(b) Kankar is found in beds all over the district, especially in the usar tracts. That found in block form is largely used for building purposes. Kankar is, at present, quarried at the following places :—

## (1) Allahabad, Sultanpur and Fyzabad Road :—

	Miles.	Fur.
Mohandayal ka purwa ...	3, 3, 4	0
Farman ka purwa ...	2	4
Khuibir ...	3	4
Rampur ...	4	6
Chauva ...	2	1
Nowbasta ...	2	4
Kapa ...	2	4
Ankripur ...	3	0
Masin ...	4	0

## (2) Lucknow-Benares Road :—

Chiya nala ...	4	0
Jagannathpur ...	4	2
Gokhari ...	3	4
Murli ka purwa ...	4	6
Bhadri ...	4	6
Haderahi ...	3	6
Babni ...	4	4

	Miles.	Fur.
Banbir kachh ...	2	6
Mohkam ...	1	6
Kathamner ...	2	0
Baklahi ...	1	0
Bhagshera ...	1	0
Paranpur ...	1	0
Dandupur nala ...	1	6
Baman mai ...	1	6
Marbadi ...	1	6
Rahtoo ...	3	3
Gaura and Fathanpur ...	1	6
Saraopur ...	1	6
Gharipura ...	1	6
(3) Partabgarh and Katra G. S. Road—		
Partabgarh ...	4	6
Banbir ka kachh ...	3	6
(4) Bishnathganj Railway Station Road—		
Aunkaripur ...	3	0
(5) Level-crossing No. 81—		
Rampur ...	4	6
(6) Partabgarh Good-shed Road—		
Rampur ...	4	6
(7) Partabgarh Railway Station Road—		
Rampur ...	4	6
(8) Chilbila Railway Station Road—		
Kurebhar ...	3	4
(9) Kahraur Railway Feeder Road—		
Mohan Dayal ka purwa ...	4	0
(10) Dandupur Railway Feeder Road—		
Banian mai ...	3	0
(11) Gaura Railway Feeder Road—		
Rahtoo ...	1	6
(12) Partabgarh-Kunda Road—		
Mehrajganj ...	2	0
Kacha Domipur ...	5	2
Chandan ka purwa ...	4	4
'Anjani ...	7	4
Deor nala ...	4	4

	Miles.	Fur.
(13) Partabgarh-Akbarpur Road—		
Tola .....	3	6
Shirinathpur ... ..	1	0
Sarai Gonai ... ..	1	0
Karanpur ... ..	1	0
Gopalpur ... ..	3	0
Antpura ... ..	2	0
Aendhi Kalan ... ..	3	4
(14) Sangramgarh-Kalakankar Road—		
Asoja ... ..	1	6
Banlia Boziaff ... ..	1	6
(15) Partabgarh-Gouriganj Road—		
Chamraura nala ... ..	2	0
Godra ... ..	1	0
Boria Samand ... ..	1	4
Kakroha ... ..	1	0
(16) Partabgarh-Rae Bareli, L. I. A.—		
Banbir kachh ... ..	1	6
Partabgarh ... ..	2	0
Khiribir ... ..	4	4
(17) Antu Railway Station Road—		
Sarnana ... ..	3	2
(18) Partabgarh-Raniganj Road—		
Partabgarh ... ..	5	0
(19) Partabgarh and Sagra Band Road—		
Partabgarh ... ..	3	4
(20) Partabgarh-Katra G. S. Road—		
Banbir ka kachh ... ..	2	6

The rates for digging kankar is Rs. 2-2 per 100 c. ft. and for stacking at roadside is 10 annas per 100 c. ft.

Royalty charged by the owner is 4 annas per 100 c. ft.

Carriage Re. 1-4 for the first mile, 12 annas for the second and third mile, and 8 annas for the fourth and subsequent miles.

## 2. Chemicals.

(1) *Reh* is found in the usar plains of the district. In the northern half the soil is less impregnated with it, but in the southern portion the usar is often a bed of soft powdery reh, perfectly white and glistening in the sunshine like snow. This is chiefly noticeable in jhil tracts. The total area under reh is estimated at over 125,000 acres and occurs mostly in Kunda and Patti tahsils. Soda, nitre, etc., could be manufactured out of it.

(2) *Salt*, worth about a lakh of rupees, used to be manufactured from saline earth and the numerous salt wells along the Sai before it was penalised.

(3) *Saltpetre* was also extensively manufactured, but the industry has now almost vanished. Only a few men in Kunda did some work. The industry had received a temporary impetus during the war, but the manufacture has gone down again on the fall in the prices of saltpetre. Only crude saltpetre was made. There is no dearth of nitrous earth, but the low prices offered and the high royalty demanded by the zamindars coupled with fuel difficulty leave very low profits to the manufacturers and make the manufacture difficult. The manufacturers are 'lunias' who are very good labourers and can earn much more by other work than by the manufacture of saltpetre.

(4) *Indigo* is grown on 227 acres by influential zamindars and taluqdars who own indigo factories and manufacture it according to crude old methods usually with indigo stalks sown by their tenants. Each tenant has to put a certain area under indigo, the seed of which is supplied by the proprietor. Payment is made on the basis of indigo content and by weight. The manufactured indigo is exported to Cawnpore, Calcutta and other dyeing centres. The Government of India have recently declared income from indigo to be exempt from the assessment of income-tax. This should give an impetus to the industry. The local factory owners would do well to visit Mr. Kenyon's factory at Musafirkhana (Sultanpur) and get an idea of improved methods. A little care in the process of manufacture would fetch much better prices.



## 3. Food grains.

(i) Statement showing acreage and production of the principal crops in 1921-22.

	Acres.	Production per acre.		Total outturn in maunds.
		Mds.	Srs.	Mds.
<i>Rabi</i> —				
Wheat ...	59,460	11—35		706,087
Wheat and gram...	187	6—0	of wheat	1,122 wheat.
Wheat and barley	8,954	6—0	,,	53,724 ,,
Barley ...	90,185	14—15		1,296,409
Barley and gram...	36,762	7—0	of barley	257,334 barley.
Gram ...	34,772	12—7		423,349
Peas ...	32,373	6—0		194,238
Potatoes ...	1,295	100—0		129,500
Poppy ...	3,889	0—10	opium juice.	972½
Tobacco ...	929	10—0		9,290 cured leaves.
Linseed ...	796	6—10		4,975
<i>Kharif</i> —				
Juar ...	6,999	8—5		56,867
Bajra ...	18,972	8—5		154,147
Juar and arhar ...	71,520	5—0	arhar	357,600
Bajra and arhar ...	57,073	5—0	,,	285,365
Rice ...	122,930	12—20		1,586,625
Maize ...	3,723	13—30		51,191
Arhar ...	109	10—35		1,158
Indigo ...	227	10—0		2,270 seers.
Sugarcane ...	8,071	50—0		403,550 gur.
Til ...	957	4—35		4,665
Sanai ...	13,923	5—0	of fibre	69,615

## (ii) Wheat-grinding.

There are five flour mills in the district, out of which only three are working at present. The following figures will show the capacity of each mill :—

1. Mehndi Hasan, 8 H. P.
2. Kifait-ullah Khan Bahadur, 20—24 H. P.
3. Gopal Marwari, 20 H. P.
4. and 5. Ram Deo (2 mills), 36 H. P. and 12 H. P., both not working.

It is said that work is not sufficient even for those which are working, and that they generally remain busy only for 4 hours a day. The last proprietor has, however, closed down his mill for some domestic reasons.

Wheat is available in large quantities in the district. The statement of food crops shows a production of over 7 lakh maunds. Out of this only 10,000 or 15,000 maunds come to the above-mentioned three mills. Wheat is ground on piece wages, the charges varying from 8 annas to 10 annas per maund according as wheat is brought by a wholesale or a retail dealer. The labour employed in each mill is one Munshi, two labourers on Rs. 10 each and one mistri. The last has been dispensed with by Mr. Mehndi Hasan, as the proprietor can now look after the machinery himself.

It would be better if one of the mill-owners shifted to Qasba Partabgarh lying 4 miles off. It is expected that he will find sufficient work there. At present the mills are not working to their full capacity and are incurring much loss of interest on the capital invested.

A side activity such as oil pressing or rice hulling or dal kibbling could be taken up for idle hours.

#### 4. Glass.

*Bangle making.*—The district used to manufacture a large amount of glass bangles, but since the introduction of foreign and Firozabad bangles, this industry has declined. Besides the change in tastes, the scarcity of fuel, the higher royalty charged by the zamindars and the exorbitant prices charged by the retailers for different colours led to the decline of the industry. Ordinary bangles of the old type are still made and sold in the markets. The chief centres of manufacture are Sagra, Gokhari, Ajhara, Handour, Derhwa, Paharpur, Kharawan, Bhatni, Shamsrganj, Dhingwas, Barista, Parbatpur, Pipri, Uriadih, Saunsa, the last three in the Patti tahsil and the others all round Lalganj police station. At each of these places there are two or three furnaces which work for 4 to 5 months in a year. Reh, out of which glass is made, is to be found in abundance throughout the district. One maund of reh is said to yield 5—10 seers of glass. This is mixed with

different colours, but mostly blue glass is manufactured at present. The colour is bought from retail dealers at the rate of (Rs. 2 in weight) two tolas for a rupee. The crucibles are made of ordinary clay and have to be changed after two or three charges. Glass is manufactured during 3 months, while bangles are made during 4 to 5 months every year. There are about 75 men who make bangles in different centres. Their monthly earning at present is not more than Rs. 5 to Rs. 6. This is supplemented either by agriculture, manual labour or by selling the imported bangles in bazars and in villages. In village Ramankuli, post office Sagra, lives a well-to-do Churi merchant named Azimulla Khan, who imports bangles from Firozabad and distributes them to bangle-makers of Sagra, Gokhari, Ajhara, Handaur and other neighbouring villages to be sold at weekly or bi-weekly markets. The latter sell these on a small commission of 2 annas to 3 annas in a rupee together with their own bangles. The local bangle-makers produce only 2,000 to 3,000 bangles per man per month and one man can make 150 bangles in a day. Three different varieties are made and are sold at 400, 500 or 600 for a rupee. The retail price is 1 pice for 4 bangles.

The fashion has also changed and the old pattern and quality do not find a market, hence complete overhauling is required. The industry can be saved from extinction if a few workers are sent to Firozabad for training in the latest methods of manufacture. Several bangle-makers are ready to go provided arrangements could be made for their training and sustenance during the period of training. Introduction of better furnaces, improved crucibles and new moulds is also wanted. Broken glass bangles should also be utilised. The whole industry requires re-organizing by some capitalist financier.

### 5. Hardware.

*Bell-metal.*—Kaseras, numbering 133, are scattered all over the district and make utensils of ordinary type like patilis and batulis from old metal. There is no peculiarity in the local manufacture, nor is there any centre of much importance. Bhawaniganj near Nawabganj has about half a dozen families whose manufactures can be seen in neighbouring markets.

### 6. Leather.

Eleven thousand five hundred and fifty-three hides and 46,886 skins are annually available in the district. This is estimated to be as below :—

Place.	Hides.	Skins.
<b>1. Partabgarh tahsil—</b>		
Garwara, Belu and Katra ...	2,553	14,486
<b>2 Kunda tahsil—</b>		
Manikpur, Pariawan, Gotui ... Mohammadpur, Raniganj, Sangram- garh, Kalakankar, Rampur.	5,100	18,000
<b>3. Patti tahsil—</b>		
Habiganj, Kolipur, Kanara and mostly from villages ...	3,600	14,100
Total ...	11,553	46,886

They are exported to Cawnpore. The price of hide these days is Rs. 2-8 to Rs. 3, and that of skin 12 annas to Re. 1 each. There are agencies at Cawnpore which, on getting the railway receipt, send to the exporter 75 per cent. of the price. The rest is paid when the consignment is sold off by the agent. A commission of 2 annas per hide and Re. 1-4 for each 100 skins is charged by the Cawnpore agent. Other expenses, such as conveyance charges, are also deducted from the price of the article.

The local consumption is most insignificant. A limited number of charras and water bags for local use are made, while at places manufacture of country shoes is also to be seen. The trade in locally tanned leather is, however, negligible. If attempts are made to tan the raw materials locally, there is ample scope for it in the district.

### 7. Miscellaneous.

#### (i) Fishing.

There is a good demand in the district for fish and about 85 per cent. of the population are non-vegetarians who either

eat fish or would eat it if it were available at cheap rates. Fish are available in (1) Sai (tahsils Partabgarh and Patti), (2) Ganges (tahsil Kunda), and (3) Gumti (in Patti). Besides these rivers there are streams and lakes such as Beti, Magha, Roli (in Kunda), Daudpur and Damdam (in Patti), Mori, Machcha tal, Lusar, Reni (in Kunda). Fishing is, however, not carried on extensively in the district, though it is done regularly in rivers. In jhils fishing is resorted to only in the rainy season and summer. The tanks and jhils are owned by taluqdars and zamindars. These and fisheries owned by Court of Wards are leased out by auction to well-to-do Thakurs and Musalmans who employ Kurmis and Kewats to catch and sell fish. They are paid either in cash (6 annas a day) or get a portion of the fish caught. The only community of any importance is Guriyas or Dhimars living in MacAndrewganj (in Sadar tahsil) and Pikeganj (in Kunda tahsil). Guriyas (Dhimars) dispose off their catches themselves in the neighbouring bazars. The average earnings per head are Rs. 10 to Rs. 12 per month. They are all poor people who supplement their income from other sources, e.g., by selling singharas (water nuts). The important fish markets in the district are: MacAndrewganj, Mohanganj, Garwara, Jageshwarganj, Antu in tahsil Partabgarh, Mahauli, Patti, Jamtali, Oriyadih, Jaganpur, Dalippur, Kondhaur, Amargarh, Hariganj, Sawansa, Sellaganj and Delhupur in tahsil Patti; Lalgopalganj, Babuganj, Kalakanakar, Kusnapur, Sangramgarh, Lalganj and Pikeganj in tahsil Kunda. They are not sufficiently stocked and more fish would be sold if they were available. Selling is done both by fishermen and middlemen and the prices are 3 annas per seer for small fish and 6 annas per seer for the big. The price of meat is also 6 annas, hence people prefer to have the latter. There is no appreciable export of fish from the district. But a small quantity is sent to Lucknow, Cawnpore, Allahabad and Calcutta from Beti (Kunda). This fish is sent in boxes preserved in ice. No curing is done. Even the prawns are fished and sold in small quantity throughout the year at an approximate price of 2 annas per seer. The best fish in the district are Naini, Keonch, Bousa, Bhakur, Rohu; the common varieties are Sor, Paran, Tengua, Paryasi Moh. Others of the medium size are Ghorouch, Bilgogra, Suji, Seenga, Mangri, Sillun, Charki, Reli, Bam, Giraj, Badua, Murwar, Jhinga; and the very small

variety are Sahri, Chelwa, Khabdi, Khudrai, Chingua, Patsi. Fish is eaten at all times and no consideration of spawning time is made. Various appliances such as line, hook, net and phatki are employed. The last is used only in September when tanks are flooded. Lachapya, Tap and Jhara are also used. Two sorts of nets are used—the casting net and the pulling net. Korai is most generally used by Dhimars and Mallahs. The approximate cost of good net (15' × 10') is Rs. 10, the size of mesh being 1 inch to 2 inches. In the case of casting net it is  $\frac{1}{4}$  inch to  $\frac{1}{2}$  inch. They can last for 3 years or more if they were used with care.

(ii) *Jail industries.*

(1) *Munj ban.*—Munj is bought from Etah at Rs. 8 a maund and the ready-made ban is sold at Rs. 10 per maund. The outturn is 300 *haths* per head per day, i.e., 1 seer 14 chataks. A waste of 25 per cent. is allowed in the process.

(2) *Baib ban.*—Baib is bought at Rs. 3-13 a maund through Lala Durga Parshad, Kalwar, Contractor, Kiddganj, Allahabad. It is twisted into ban and the outturn is the same as in no. (1). It is sold at Rs. 8 a maund.

(3) *Chicks* are made to order. They are of two qualities : 3 annas per square foot fine and 2 annas per square foot coarse. One man turns out 1½ ft. of fine, 2 ft. of coarse chick (7' × 4'). Besides bamboo, thread is used at the rate of 4 chataks for fine and 8 chataks for coarse. *Dusuti* cloth for border, etc., is used to the extent of 1½ yards or Newar about 3 chataks for fine chicks and 2 chataks for coarse ones.

(4) *Dusuti cloth.*—Yarn no. 10 is invariably used. It is bought from Hathras at Rs. 7-10 per bundle of 10 lbs. Twenty yards of cloth take 3 seers and 13 chataks. It is sold at 7 annas a yard, if there is any purchaser. But the price is very high and cloth is ordinarily woven for jail use only.

(5) *Durries* of three patterns are woven. One *durri* 7' × 4' takes 3 seere of yarn. The prices are (a) Rs. 3-4 per square yard Kekradar, (b) Rs. 3 per square yard Kanta patti, (c) Rs. 2-12 per square yard striped.

(6) *Munj matting.*—Munj is bought at Rs. 8 a maund. One matting 24 square yards takes 1 maund 24 seers 12 chataks of munj. It is sold at Re. 1 per square yard.

(7) *Baib matting*.—Baib is bought at Rs. 3-13 a maund. The consumption of raw material is at the same rate as munj. It is sold at 14 annas per square yard.

(8) Newar is made from yarn of count 10 and is sold at Rs. 2-8 per seer.

*Suggestions*.—Simple machinery and improved appliances should be used in jails, so that the prisoners may learn their use and profit by them when they come out. It is strange that even fly-shuttle looms are not working there. Blanket weaving which is one of the chief local industries should be introduced and the use of improved looms should be tried in this industry also.

(iii) *Slaughter-house bye-products.*

On a rough estimate more than 9,000 maunds of bones could be had if proper agencies were employed for their collection. At Partabgarh alone 500 maunds of bone could be had from the local slaughter-house. Chilbila near Bela is the chief exporting station.

Horns of 11,553 big animals and 46,886 small animals are available. No use is made of the hoofs. Horns and hair of the tail are sent over to Calcutta. The former are sold at Rs. 5 a maund and the latter at 8 annas a seer.

Blood, intestines and other refuse are thrown away. They could be utilised in making glue, guts, leather flasks (kuppis) as is done in Lucknow.

## 8. Oils.

Although no exact figures of mahua trees could be found out, but it could be maintained on good authority that it grows more abundantly in this district than anywhere else in Oudh. Mahua groves cover some 24,000 acres which would contain 3 lakh trees, producing over 10½ lakh maunds of fruit. It is chiefly found in pargana Ateha, in Partabgarh to the north of Sai and all over the Kunda tahsil. Mahua oil can be expressed out of the kernal and exported to Cawnpore and other places. At present the industry is confined to poor people who get the oil expressed from the local telis and use it for burning and cooking purposes. The mahua flower is an excellent raw material for manufacture of spirit. The growing demand for power alcohol and the possibility of obtaining the mahua flowers in large quantity and at cheap prices is a strong plea for recommending the plantation of mahua trees. Five

thousand maunds of linseed and rape seed is also grown in the district which is locally expressed in old kolhus. Some barre and nim seeds are also gathered for oil. In Antu one person used to make nim soap out of nim oil.

## 9. Textiles.

### A.—COTTON.

#### (i) Handloom weaving.

The district contains about 5,411 men, women and children who are engaged in this industry. They are for the most part scattered in the villages and ply on their trade with the aid of throw-shuttle looms. The following four places are important centres of weaving:—Derwa, Babujanj, Katra and Nawabganj. There are altogether about 1,800 families in the district; out of these about 1,000 families live between Derwa and Babujanj, 3 or 4 miles off it. Two thousand looms are said to be working in the district, out of which hardly half a dozen looms are fly-shuttle. Haji Bechu Khan of Derwa makes all sorts of fine cloth such as charkhana, shirtings, dhotis and towels, usually garha, coarse charkhana and dotahi are woven by the majority. Garha and charkhana are sold from 6 annas a yard to 13 annas a yard; dotahi  $2\frac{1}{2}$  yards  $\times$  34" is sold at Rs. 6 to Rs. 7.

Yarn of counts 10 to 40 is used. It is had from Mau Aima near Allahabad and is bought at the rate of 10s, Rs. 8 to Rs. 9, 12s, Rs. 9 to Rs. 10, 20s, Rs. 13 to Rs. 14, 30s, Rs. 17 to Rs. 18, 40s, Rs. 22 to Rs. 23. There are no local facilities for the supply of yarn. Julahas go to Mau Aima with their cloth and bring the yarn from there for themselves and their friends. Cash is paid out of sale-proceeds. The annual consumption in the district is estimated to be over 5,600 maunds.

The weaving charges vary from one anna 6 pies to 3 annas per yard according to the quality of the cloth. A garha weaver earns 8 annas a day, while the weaver of finer fabrics earns 12 annas to Re. 1 a day.

One man hardly weaves here 3 yards per day on a throw-shuttle loom. At this rate the total production for 300 days is estimated to be 1,800,000 yards of cloth.

The most urgent need in this industry is the supply of cheap yarn. If a yarn store is opened at a central place, say at Derwa, weavers shall not have to go to Mau Aima for its



purchase. At present, besides the inconvenience and waste of time involved in the journey, the middlemen appropriate a large margin of profit from this industry. Attempts should also be made to introduce fly-shuttle looms and other improved appliances at important centres.

(ii) *Block Printing.*

Lihafs are printed in village Nawabganj, Barahburji of tahsil Kunda, and the industry is carried on as subsidiary to agriculture. They are sold at Rs. 4-8 each in the local markets or are exported to Allahabad. Sometimes finishing touches are given by painting brushes, and stencils are also used.

Markin is imported by the local banyas from Cawnpore and is supplied to the cloth printers. An annual consumption of 10,800 yards of cloth is reported. The cost per piece of 36 yards is Rs. 16 and one *than* makes 4 lihafs. Other dyes and mordants are to be had retail and in small quantities:—Harra at Rs. 5 a maund, gum at Rs. 24, aniline colours Rs. 6 to Rs. 7 per packet of 1 lb. There are only six families of cloth printers engaged in this industry. The work lasts for about four months in the year, namely, September to December, and one family prepares about 200 lihafs in a season. One lihaf is said to cost as follows:—

			Rs.	s.	p.
Cloth	...	...	...	4	0 0
Dyes, etc.	...	...	...	0	2 0
Wages	...	...	...	0	6 0
				<hr/>	
		Total	...	4	8 0
				<hr/>	

Thus each family earns Rs. 75 yearly. Women help in washing, sewing and preparing dyes, while children help in other minor things. The total yearly outturn is 1,200 lihafs.

*Suggestions.*—(1) Garha which would be cheaper, selling as it now does for Rs. 3 per *than* of 9 yards, can be substituted for the markin used for quilt covers (lihafs).

(2) Colours produced from foreign dyes are more often fugitive. Their proper manipulation should be taught.

(3) A system of apprenticeship should be introduced and the boys of all castes should be allowed to learn the art.

(4) Small capitalists must take up the financing of the industry and the disposal of the articles produced,

(5) Improvement in the appliances should be introduced, such as a larger use of stencils, well-fixing of planks, use of felts or blankets for the surface.

#### B—FIBRES.

(i) *Sann hemp*.—Sann hemp grows in abundance in Partabgarh and Patti tahsils where Kurmis utilise it in weaving tat-pattis. The area under sanai is 13,923 acres. This, at the average rate of 5 maunds of fibre per acre, yields 69,615 maunds annually. The crop is ready after the rains. It is cut and stored at home or near the fields within the bright half of *Bhadon* (August-September). The stems are then made into bundles and are steeped under water. After three or four days, when sufficiently decomposed, they are taken out and fibre is extracted from them. One maund of stem is said to yield 15 to 16 seers of fibre. The fibre is then cleaned by beating it on the surface of the water. It is sold at 7 to 8 seers for a rupee.

(ii) *Tat-patti weaving*.—Out of fibre sutli is twisted partly by hand and partly by a wooden appliance. It takes a man 8 days to prepare 4 seers of sutli, though it could be twisted only in 2 days if he were to work all the day long. But as the industry is only subsidiary to agriculture, the whole work is done in leisure hours. The waste involved in the process is  $\frac{1}{2}$  pau (2 chataks) of sanai in 1 seer of sutli. It is sold at 5 annas 6 pies a seer. But sutli is seldom sold in the bazar. It is all utilised in weaving tat-patti. The standard of tat-patti is 9 inches wide and 18, 20, 22 and 24 *haths* in length. They take  $2\frac{1}{2}$ ,  $2\frac{1}{2}$ , 3 and 4 seers of sutli respectively. One patti is woven in a day and is sold from Re. 1-4 to Rs. 2 according to the size. The average weight of each patti is  $3\frac{1}{2}$  seers. The chief centre of trade is Garwara about 6 miles north-west of Partabgarh and the exporting stations are Partabgarh, Jageshrganj and Antu.

There are 206 men and 619 women workers engaged in spinning and weaving jute. They produce in 10 months during which the work lasts over 3,000 maunds of sutli which is woven into over 38,000 pattis. They are said to earn 2 annas to 3 annas a day by spinning and weaving.

The woven tat-pattis are brought to markets where they are bought by the Bhats of Partabgarh for export to Cawnpore, tarai districts of Lakhimpur and Bahraich and also to Calcutta.

The industry is capable of several improvements :—(1) Attempts should be made to increase the production by devising some quicker method of twisting sutli; (2) wider looms for turning out broader patti should be devised and introduced; (3) co-operative purchase and storage of sanai as well as co-operative sale of finished products should be encouraged among the kurmis, who are too poor to withhold the fibre very long; (4) particular care should be continued to be taken in retting in purer water and cleaning the fibre; (5) other articles such as ban, ropes, nets, chinkas, money bags and cloth could be made out of it; (6) attempts should be made to introduce this industry among other castes as well besides the Kurmis.

#### C.—WOOL.

*Blanket weaving.*—Blankets are largely woven in Kunda tahsil where good wool is available from the sheep of local breed. The number of sheep registered in 1920 was 92,161. At the rate of  $\frac{3}{4}$  seer per head, the total annual production of wool in the district will be 69,120 seers. The wool is locally to be had at  $1\frac{1}{2}$  seer for a rupee. The Gadariyas utilise it themselves in preparing blankets. The surplus is exported to Cawnpore or Bihar. Wool is spun by women during their leisure hours at night or during the noon. Weaving is done by men. The industry is only subsidiary to agriculture and hence it takes one man four to five days working three hours a day to prepare one blanket. The patterns generally woven are white, striped and black. They are all 4 *haths* in length, but the width is either  $2\frac{3}{4}$  *haths* or 3 *haths* and consist of 4 pattis stitched together. Bigger blankets are very rarely made. The prices range from Rs. 4-8 down to Rs. 3. As a rule 2 seers to  $2\frac{1}{2}$  seers of wool is used for one blanket.

There are 141 men and 160 women engaged in this industry. One family prepares one blanket in 5 days and thereby earns about 6 annas a day. The blankets are sold in local markets and sometimes dealers export them to Allahabad.

*Improvements.*—The Gadariyas should be explained the usefulness of washing their wool before sale or weaving, since they can improve the appearance of their wool in this manner and secure the bye-products, viz., wool grease, which is necessarily but unknowingly wasted. The industry is capable of much improvement. The ways and means will be discussed in Chapter III.

## CHAPTER III.

### INDUSTRIAL POSSIBILITIES OF THE DISTRICT.

1. *Oil pressing*.—Mahua is more abundant in Partabgarh than in any other district of Oudh and is to be found most frequently in pargana Ateha and in Partabgarh to the north of Sai. It is also very common in Kunda tahsil. Its flower is largely used for the distillation of spirit and also as food for cattle and human beings; the seed is extensively employed for the manufacture of oil for burning in the old indigenous method. The industry could be carried on on a large scale and the mahua oil exported to Cawnpore and Delhi where the seeds at present go, if oil pressing machinery is employed. The question is of a suitable site where raw materials may be available easily. Partabgarh city is itself well connected with metalled roads and mahua could be brought here from all over the district. Cheap labour is also available and there is facility of railway communication. The district has about 3 lakh trees, which are estimated to yield over 10½ lakh maunds of fruits.

There is a small quantity of linseed and rape available in the district. The production is only about 5,000 maunds. Besides these, barre seed and nim seed are also to be had, but no estimate could be made about the quantity. Nim soap was recently made at Antu.

2. *Wheat, rice and dal*.—Wheat over 7 lakh maunds, rice over 15 lakh maunds and dal about 6½ lakh maunds were grown in the district, out of which only wheat is locally ground in flour mills, but the quantity used by them is quite negligible. Wheat grinding, rice hulling and dal kibbling could all be taken up jointly or severally by the capitalists and worked up by machinery. There is no dearth of market for these articles and Partabgarh should be able to supply all the neighbouring big cities.

3. *Cattle-breeding*.—If we were to compare the cattle census of 1915 and 1920 we shall find that there is an all-round

increase, excepting with regard to goats and slightly to cow-buffaloes. The census figures are :—

	1915.	1920.
Bulls and bullocks	... 250,486	253,743
Cows ...	... 122,278	125,257
Cow-buffaloes	... 76,993	75,799
Sheep	... 83,855	92,161
Goats	... 267,714	114,922

(i) Now sheep-breeding stands first. Partabgarh possesses fine breed of sheep which supplies wool to the local blanket weaving industry. It also supplies a valuable manure to the agriculture of the district. The high rise in the latest census shows that there are favourable circumstances for sheep rearing. Absence of any disease amongst them is a special feature of the district. Partabgarh now has the largest number of increasing sheep in Fyzabad division, in spite of the fact that there is a chronic complaint about grazing grounds. A systematic and scientific sheep-breeding must now be begun by introducing better blood in the local breed.

(ii) Buffaloes, bulls and bullocks show a slight increase. They are an important asset for the agriculture. Though insignificant in appearance, they are sturdy and enduring. The cattle also suffer from insufficiency of good pasture, and are all stall-fed with bhusa and karbi, the latter being the chopped stalks of bajra and juar. Breeding is at present left to nature. Attempts should be made to do it scientifically by the Agricultural department.

(iii) Cows and she-buffaloes are very important for dairy produce, specially ghee making. While the former show a slight increase, the latter have equally decreased. Here too no regular attempt has been made to improve them or to organize any industry connected with their produce.

(iv) Goats show a marvellous decrease. No information was available as to the reason for this fact. They produce milk out of which ghee is made. It finds a ready sale among the poor. Attempts should be made to arrest this decrease.

Need of pasture land is most urgent in this district if cattle-breeding for the improvement of agriculture and other industries is to be sought after. At present the landowners do not leave enough ground for grazing purposes, and those who do so charge exorbitantly high rates. Some sort of Government compulsion is absolutely necessary in this direction.

4. *Dairy, poultry farming and piggery.*—If the facilities for pasture be available, there is immense scope for these industries. Ghee, milk, butter and eggs will have a ready sale in Allahabad, Benares and Lucknow, while the bristles fetch a high price in Cawnpore and foreign markets. These are all valuable things and cost less expense. Poultry farming and piggeries cost almost nothing for their up-keep. The situation of Partabgarh in the midst of three premier cities of United Provinces and in the proximity of Cawnpore ensures the highest development of these industries. Land is available, communication is easy and labour is cheap. These facilities should attract the necessary capital and some energetic business men should take them up.

5. *Fruits.*—In the groves of the district mango is the commonest tree and it greatly predominates in the eastern part. I have seen some very fine specimens of these brought in the city. Besides this, the wealthier zamindars and the residents of the towns cultivate several other varieties of fruit trees such as orange, lemon, guava, pomegranate, kathal, bel and mulberry. The fruit industry has a great scope, and if properly managed, the product should sell very well at Allahabad and other places. The present need is to expand the area of groves by planting new and selected varieties of fruits. They should be given the best manure and the industry must be carried on on commercial lines. Fruit canning should also be tried.

6. *Silk factory.*—The silk factory of Raja Rampal Singh worked from 1896 till his death in February, 1909. A full account of the experiment up to 1899 may be found in the Monograph on silk fabrics. The Bengal and Madras worms were fed on mulberry leaves, while eri worms from Assam on the castor-oil plants. The mulberry silk was more popular and found a ready sale in Benares. Silk fabrics were also woven at Kalakankar. The whole scheme worked very well till the death of the Raja. Sufficient trial was not given to it or else it would have succeeded. Some energetic zamindar or Court of Wards with the help of the Government should try and make it a success. Mulberry plantation still exists to a large extent in the district and cheap labour is available everywhere. If the industry is taken up seriously it is bound to pay on being well organized.

7. *Tanning.*—Over 11,000 hides and 46,000 skins are annually available in the district at easy rates. This could

be tanned locally and sent over to Allahabad and Lucknow for manufacturing purposes. Lime could be made locally, babul bark and salt could be imported from neighbouring districts. There seems to be no reason why it should not pay if it is worked under capable management.

8. *Lime factory.*—Kankar is found extensively here and a list of all the present quarries is given under "Building materials". It is largely burnt by contractors for the manufacture of lime. No attempt has so far been made to organize the production on business lines for its export to outside markets. Partabgarh being a central place should be able to supply it to other places at cheap rates.

9. *Glass manufacture.*—Glass factory at Kalakankar is said to have worked very well. Glass bangles are still made at more than a dozen places in the district about which mention has been made under "Glass bangles". These are manufactured from the reh which is found in abundance everywhere in the district. (See for details of reh under "Chemicals.") The glass bangle industry could be easily improved by sending a few workers to Firozabad to learn the latest method. I found several people ready to proceed there, if they were allowed stipends and facilities of training. Workers from Firozabad who have settled down at places like Basti and others are working with great success. Capitalists will come later on to finance it and to organize it further.

10. *Sugar manufacture.*—Eight thousand and seventy-one acres of land is under sugarcane cultivation. This at the rate of 50 maunds per acre produces over 4 lakh maunds of gur. It is an important crop of the Patti tahsil where sugar used to be made out of gur by the Kalwars. It has now absolutely vanished owing to foreign competition. The recent rise in the import duty should encourage the capitalists to take up the industry again. Katra Medniganj has been famous for the manufacture of sugarcandy and the Raja's-tank near by, where it is worked up, is said to have especial properties in its water for this purpose. The industry has greatly declined and there are only two *halwais* who manufacture *qand* in small quantities. At one time Katra was known to be one of the places in the United Provinces which produced the best hand-made sugar.

11. *Fishery.*—Fishery has been fully described in "Miscellaneous industries". A greater exploitation is necessary

to afford an additional large food supply. It would find a ready market in Allahabad and Lucknow if it is exported to those places. A capitalist should be able to finance and organize the industry.

12. *Indigo*.—Cultivation and manufacture should find an impetus in the fact that by a Government notification the income-tax on its remuneration has been postponed for another two or three years. It would be far better if this sort of concession is allowed by the Government in perpetuity. Then it may be possible for the industry to survive for many more years.

13. *Slaughter-house products* like bone, horn, blood, etc., are not utilised at present. Proper uses should be found out for them in manufacturing bone-meal, combs, *sares*, etc.

14. *Handloom weaving*.—The need in this industry is the popularization of fly-shuttle looms and improved appliances. There is also the urgent need of supplying cheap yarn. This could be accomplished by opening a yarn store at some central place like Derwa or Partabgarh city.

15. *Blanket weaving*.—To improve this industry it is imperative to improve the local breed of sheep. This could be taken up by the Court of Wards or the Government through the Veterinary department. Better looms should also be introduced to increase the quantity and improve the quality of the stuff produced. Capitalists could organize the production and blankets in larger number could be supplied to neighbouring districts. Dhussas and other woollen cloth could also be manufactured if attempts were made in that direction. There is also the need of improved sizing and good milling.

16. *Block printing*.—Though the workers are only about half a dozen, the articles produced are so fine that the industry needs further expansion. The brush work ought to be taught to the boys of other castes as well under a system of apprenticeship. Stencil work should be largely introduced and the proper designing and mixing of colours demonstrated. Other improvements like that of having well fixed planks and felt or blanket for the surface should also be looked after. If possible, cloth of local make should be used for lihafs, etc. A capitalist could help it a great deal.



## CHAPTER IV.

## STATISTICS.

## 1. Wheat grinding.

*Raw material*—10,000 to 15,000 maunds.

*Labour employed*—12 men.

*Wages*—Rs. 10 to Rs. 25 per month.

*Outturn*—Same as raw material.

*Mechanical appliance*—Engine 8 H. P. to 20 H. P. and Chakki.

## 2. Manufacture of glass bangles.

*Labour*—75 men.

*Wages*—Rs. 5 to Rs. 6 per month.

*Outturn*—2,000 to 3,000 per head per month for about 4 months in a year.

## 3. Textiles.

## (i) Handloom weaving—

*Raw material*—5,600 maunds annually.

*Labour*—5,400 men, women and children.

*Wages*—Rs. 15 to Rs. 20 per family of three persons.

*Outturn*—1,800,000 yards of cloth.

## (ii) Block printing—

*Raw material*—10,800 yards of cloth annually.

*Labour*—6 families.

*Wages*.—Rs. 75 a year per family.

*Outturn*—1,200 lihaf sheets (one lihaf takes 9 yards of cloth).

## (iii) Blanket weaving—

*Raw material*—69,120 seers available.

*Labour*—141 men and 160 women.

*Wages*—Rs. 10 per month per family.

*Outturn*—7,000 blankets.

## (iv) Tat-patti weaving—

*Raw material*—70,000 maunds fibre available.

*Labour*—106 males and 254 females.

*Wages*—2 annas per head per day.

*Outturn*—Over 1,000 maunds.

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### DIRECTORY.

#### 1. List of Banks.

District Co-operative Bank.

#### 2. Flour Mills owned by

- |                                   |             |
|-----------------------------------|-------------|
| 1. M. Mehdi Hasan,                | Partabgarh. |
| 2. M. Kifait-Ullah, Khan Bahadur, | „           |
| 3. L. Gopal Marwari,              | „           |
| 4. L. Ramdeo,                     | „ (closed). |

#### 3. Hide and skin exporters.

- |                              |            |
|------------------------------|------------|
| 1. Ala Rakhu, MacAndrewganj, | Partabgarh |
| 2. Naim                      | „          |
| 3. Maula Bux, Ghusiana,      | „          |
| 4. Sahib Din, Kunda          | „          |
| 5. Ramzan                    | „          |
| 6. Ghafur, Katra Medniganj,  | „          |

#### 4. Sellers of Indian cloth.

1. Haji Bechu Khan, cloth manufacturer, post office Derwa, Partabgarh.
2. Swadeshi Stores, Chowk, Partabgarh.

#### 5. Churl merchant.

1. Azimulla Khan, village Ramankali, post office Sagra, Partabgarh.

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Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

Pilibhit District

*By*

B, R, BHATTA, L.M.E.



ALLAHABAD :

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1924

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## FOREWORD.

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PILIBHIT is a submontane district having a large area under forests. Almost one-fifth of the whole district is covered with reserved and private forests. It produces large quantities of timber, but no labour saving devices have yet been introduced for felling trees, sawing logs or transporting timber. There is thus always a danger of the rivers rising in floods and washing away valuable wood for want of timely transport. Besides timber, the forests produce " Ulla " grass in large quantities, and the question of manufacture of paper therefrom is being investigated at the Forest Research Institute, Dehra Dun. A little baib is utilized in the manufacture of string for cots, but there is no organization in the industry. Every person does the work in spare time and is content with a saving of about 6 annas a day. The bulk of the profit goes to the financiers. The manufacture of cot legs, combs and sandals on large scale are other results of the extensive forests in the district. All these can expand considerably with a little organization.

The use of fly-shuttle looms has only to be demonstrated to oust the slow throw-shuttles from the field. I have suggested elsewhere that some arrangement should be made with some handloom making firm for giving these demonstrations as an advertisement, Government assisting it. In this way they could be given with the least cost to Government. If no firm is willing, I think the manufacture and sale of handlooms on a large scale should be undertaken by Government, the demonstrations serving as advertisement. But the former is a preferable and more practicable way of doing it. As weaving is a very important industry of the province and the same want is felt in all districts, even the other would not be inadvisable.

Amongst the agricultural produce of the district wheat and rice are the main crop, and are grown in over 1 and 1½ lakh acres yielding over 14 and 20 lakh maunds of grain respectively. There are three power flour mills dealing with 54,000 maunds wheat which is merely a drop in the ocean. There is no power hulling of rice. The exports of wheat and paddy are not negligible and power can profitably be introduced. Of other agricultural produce of industrial use sanai deserves mention. It is grown over 3,250 acres yielding about 50,000 maunds of

the fibre every year. At present, it is simply twisted and utli is exported. The production can be easily increased and the weaving of tat-pattis and other allied industries should be tried. Perhaps jute will also thrive in Pilibhit, and should be experimented upon.

Sugarcane is produced extensively in the district, and this has brought into existence the allied necessary industry of the manufacture of kolhus. The foundaries are said to be running only part-time. They should take up other side activities. At present only two roller mills are produced. Three rollers certainly give better results and should be tried, if they do not prove too heavy for the type of bullocks ordinarily to be found with the agricultural classes of the district.

Among other minor industries the report mentions the manufacture of inks, etc., by one man who is experimenting with the help of the money which the Industries department has granted him. But he is using aniline imported colours instead of experimenting with indigenous materials which should be available in the forests of the district. The coloured pottery suffers from similar defects. The colours are foreign. Improvements in designs and baking are also needed.

In short, the cottage industries stand in need of strong organization and capital. The latter may be forthcoming through co-operative societies or otherwise, if the former came into existence giving better credit. Government can help here and in conducting experiments for the improvement of the existing processes and appliances.

I have to acknowledge the special assistance which Mr. S. T. Gadre, Industrial Chemist to Government, United Provinces, has given me in revising the report. The following gentlemen have also helped the survey work :—

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CHAMPA RAM MISRA.

The 31st October, 1923.

# CHAPTER I.

## INTRODUCTION.

### 1. General features of the district.

(a) *Boundaries and area.*—The district is bounded on the north by the territory of Nepal and the Naini Tal district, on the east by the Kheri district, on the south by the Shahjahanpur district, and on the west by the Bareilly district. Its area is 1,350 square miles.

(b) *Topography.*—In the north and north-west of the district the country is a mere continuation of the Tarai, the characteristics gradually come to resemble those of Rohilkhand in the southern portion. The eastern portion is an undeveloped forest like those of the Kheri district and the Northern Oudh. The country generally slopes from north to south.

### 2. Population.

Census of 1921: Population 431,601 or about 320 souls to the square mile.

### 3. Forests.

The district has about 96,326 acres or 150 square miles of reserved forest and about 69,300 acres of private forest. Out of the former about 1,000 acres have been given to the Canal department for the construction of the Sarda Canals.

### 4. Railways.

Railway.	Section.	Distance.	Sections.
R. K. R.,	Lucknow-Kashganj	36	Shahi, Pilibhit, Mala, Shahgarh, Puranpur and Doodhiya Khurd.
	Pilibhit-Shahjahanpur.	23	Pilibhit, Pauri, Bhopatpura, Sherganj and Bisalpur.
	Pilibhit-Tanakpur	10	Pilibhit, Pilibhit-Kachheri and Neorriya.

### 5. Canals.

- (i) *The Kailas Canal.*—Length 26 miles main canal and 40 miles distributaries.
- (ii) *The Upper Baghul Canal.*—Length about 12 miles.
- (iii) *The Absara Canal.*—Length about 10 miles.
- (iv) *The Sarda Canals.*—Two big projects have recently been sanctioned for utilizing the water of the Sarda river for the irrigation of the Sarda-Ganges doab. The scheme consists of building a barrage across the river near Banbassa 43 miles north-east of Pilibhit and constructing a canal taking off on its right bank, designed to carry 9,500 causes. Near mile 7 furlong 2 it will divide into two branches—the Sarda-Kichcha Feeder Canal and the Sarda Oudh Canal. The works are estimated to cost about 9½ crores of rupees and the total area to be irrigated therefrom 1½ million acres.

### 6. List of Ferries.

Deoha	...	Rajghat and Bisalpur.
Sarda	...	Mundia-ghat, Chandpura, Hazara, Kathala and Nahrossa.

### 7. List of Roads.

#### *Metalled roads.*

1. Pilibhit-Bareilly Road	...	...	10
2. Pilibhit to railway station	...	...	0-6 F.

#### *Unmetalled roads.*

1. Pilibhit-Bisalpur and Shahjahanpur Road	30
2. Pilibhit-Baheri Road	10
3. Puranpur-Chuka Road	19
4. Pilibhit-Madho Tanda Road	19
5. Pilibhit-Mundiaghat Road	21
6. Bisalpur-Bareilly Road	7
7. Bisalpur-Khudaganj Road	9
8. Pilibhit-Puranpur Road	24
9. Pilibhit-Tanakpur Road	13
10. Pilibhit-Neoria Husainpur Road	10
11. Pilibhit-Sardarnagar Road	8

12.	Shahi-Kilpuri Road	...	...	14
13.	Mahof-Kilpuri Road	...	...	18
14.	Puranpur-Ghungchai and Bisalpur Road	...	...	23
15.	Bisalpur-Pawayan Road	...	...	14
16.	Bisalpur-Bisanda Road	...	...	10

Besides the above, there are about 100 miles of unmetalled roads of short lengths and are mere bullock tracks, more or less passable or impassable according to the season of the year.

8. List of Markets.

Tahsil.	Locality.	Market days.
Pilibhit	... Pilibhit	... Sunday and Thursday.
	Neoria Husainpur	Sunday and Wednesday.
	Bithra	... Tuesday and Friday.
	Pauta Kalan	... Wednesday and Saturday.
	Amkhera	... Friday.
	Raipur	... Monday.
	Bhikharipur	... Tuesday and Saturday.
	Bhitaure Kalan...	Tuesday and Saturday.
	Jahanabad	... Tuesday and Saturday.
	Lalauri Khera	... Tuesday and Saturday.
	Mundalia Ghosu	Tuesday and Saturday.
	Madhopur	... Monday and Friday.
	Khamaria Pul	... Ditto.
	Khamaria Daleganj.	Wednesday and Saturday.
	Amaria	... Wednesday and Saturday.
	Parewa	... Sunday and Wednesday.
	Shahi	... Sunday and Wednesday.
	Balsi Pasiapur	... Sunday and Wednesday.
	Harraipur	... Wednesday.

Tahsil.	Locality.	Market days.
Pilibhit—(concl'd).	Dang	... Monday and Thursday.
Bisalpur	Bisalpur	... Monday and Thursday.
	Piparia Mandan	Monday and Thursday.
	Tukri	... Monday and Thursday.
	Bamrauli	... Monday and Thursday.
	Bakanian	... Monday and Friday.
	Intgaon	... Ditto.
	Raseon Khanpur	Tuesday and Friday.
	Deoria	... Ditto.
	Chandpur	... Ditto.
	Pipra Khas	... Ditto.
	Sherganj	... Ditto.
	Akhauri	... Ditto.
	Andha	... Ditto.
	Bilsanda	... Tuesday and Saturday.
	Aharwara	... Tuesday and Saturday.
	Sohas	... Tuesday and Saturday.
	Safaura	... Tuesday and Saturday.
	Bihari Hira	... Tuesday and Saturday.
	Kishni	... Wednesday and Saturday.
	Kareli	... Wednesday and Saturday.
	Karnaiya	... Wednesday and Saturday.
	Arsiabojh	... Sunday and Wednesday.
	Barkhera Kalan...	Sunday and Wednesday.
	Badhera	... Sunday and Wednesday.
	Qabulpur	... Sunday and Wednesday.

**PILIBHIT DISTRICT.**

Tahsil.	Locality.	Market days.
Bisalpur—(concl'd).	Mundia Bilahra...	Sunday and Wednesday.
	Mirpur Bahanpur	Sunday and Wednesday.
	Jasauli Dobri ...	Sunday and Wednesday.
	Tehra Sriram ...	Sunday and Wednesday.
	Randahta ...	Sunday and Wednesday.
	Nuranpur ...	Sunday and Thursday.
	Puranpur ...	Puranpur ... Sunday and Thursday.
	Gajraula ...	Sunday and Thursday.
	Sherpur ...	Monday, Wednesday and Friday.
	Jamania ...	Monday and Friday.
	Rampur Faqiri ...	Ditto.
	Shibnagar ...	Ditto.
	Kadher Chaura ...	Ditto.
	Muzaffarnagar ...	Wednesday and Saturday.
	Madho Tanda ...	Sunday and Wednesday.
	Shahgarh ...	Sunday and Wednesday.
	Ghungchai ...	Monday and Thursday.
	Kalinagar ...	Tuesday and Saturday.
	Bhagwantapur ...	Tuesday and Saturday.
	Kabirpur Kaagan- ja.	Tuesday and Friday.
	Piparia Dulhai ...	Ditto.



**INDUSTRIAL SURVEY.****9. List of principal Fairs.**

Tahsil.	Locality	Name of fair	Date
Pilibhit ..	Rajghat ..	Dasahra ..	Jeth Sudi 10th.
	Ghannai tank ..	Ghannai ..	Kuar Sudi 9th.
	Idgah ..	Muherram ..	10th Muharram.
	Desnagar ..	Jaantri Dobi ..	Chait Sudi 8th.
Bisalpur..	Naugaon ..	Ramlila ..	Kuar Sudi 10th.
	Bisalpur ..	Janam Ashtami ..	Bhadon Badi 8th
	Ditto ..	Ramlila ..	Kuar Badi 2nd 11th.
Paranpur..	Ditto ..	Rathjatra ..	Asarb Sudi 2nd.
	Ditto ..	Ramnammi ..	Chait Sudi 9th.
Paranpur..	Mundia-ghat ..	Ganga Ashnan ..	Kartik Sudi 15th

**10. The Cattle Census of 1920.**

Cows	...	...	74,455
Bulls and bullocks	...	...	96,759
Buffaloes	...	...	55,559
Young stock	...	...	85,894
Sheep	...	...	9,729
Goats	...	...	24,759

## CHAPTER II.

## DESCRIPTION OF THE VARIOUS INDUSTRIES OF THE DISTRICT.

## 1. Art Industries.

(a) *Gold and silver smithy.*—Gold and silver-smiths may be seen plying their trade in almost all large towns and villages. Some of the town smiths have earned a deal in the trade; and in addition to this work they do money-lending as well. There is still a large demand for ornaments in the houses of the rich and the middle class people, specially at the time of marriages. Jewelry is looked upon as a safe investment. The present price of silver here is 13 annas 9 pies per tola and that of gold about Rs. 27 per tola. Goldsmiths generally charge Re. 1 to Rs. 2 per tola for making gold ornaments and 2 to 4 annas per tola for making silver ones, except in cases where a high class of workmanship is specially required. The earning of a goldsmith ranges from Re. 1-8 to Rs. 2 per day, but sometimes it is much more than this.

The following are some of the chief ornaments:—Churi, chhalla, joshan, baju, kara, anguthi, naonaga, kangan, kangani, pachhela, tauq, hansuli, guluband, har, kensari, naogari, pahunchi, berra, dumka, dhanesri, kahela, tika, jhumar, kanta, bala, bali, jugnu, champakali, jhumak, haikal, tora, machhi, gosa, gulab, keel, nathia, angushtana, chandrahari, pachhua, pazeb, lachha, jhanjhan, chhagal, chhara, parichhan, etc.

Many of the ornaments are made of both gold and silver, while some, specially those that are worn in the legs and feet, are made only of silver. The richer class people use more of gold and the poorer people content themselves with silver and even white metal. For a description of the methods and processes of manufacture the reader is referred to Mr. Charles' Monograph on gold and silver wares in the United Provinces.

(b) *Manufacture of clay toys.*—About a dozen families, mostly Kumhars, are engaged in the manufacture of clay toys. Some of them are much skilled in the art and their articles command a large sale in the local fairs and during the marriage

seasons. - The articles generally manufactured are miniature models of animals and Hindu deities and full sized fruits. The clay used is obtained from several tanks near the town. Royalty for it to the zamindars is paid at about one anna per month in addition to the supply to them free of charge of a certain number of articles made out of the clay. The average earning of a toy maker is about 12 annas per day, but they have a busy time during the fairs.

(c) *Manufacture of naichas.*—About half a dozen families, mostly Muhammadans, are engaged in making ornamented naichas or smoking pipes for huqqas. Coloured cloth is wrapped round reeds and designs are worked out with silk and kalabatun. Usually imitation kalabatun is used.

Naichas are of three kinds; (i) kulfidars, (ii) those without kulfi (or elbow joints) and (iii) sataks (or flexibles). Reeds are imported from the hills through Tanakpur at about Rs. 16 per thousand. A reed is about 6 or 7 feet long.

Kalabatun and silk are purchased locally.

(1) *Sataks.*—The length of a satak varies from 1½' to 18'. For a satak of 1½' size about 2½" of cloth worth about 6 pies kalabatun worth 9 pies, silk worth 6 pies and zinc wire worth one anna are required. Zinc wire is curled in the form of a coil, over which cloth is wrapped and the ornamenting is done afterwards. A man can make 10 sataks in a day and they are sold at 4 to 6 annas each. The cost of materials, labour, prices and profit, etc., for other sizes are in the same proportion.

(2) *Kulfidar naichas.*—For a kulfidar naicha reed worth one anna, kalabatun worth 2 to 8 annas, silk worth 2 to 8 annas and cloth worth 2 to 6 annas are required. The price of an iron kulfi is 2 to 3 annas and that of a copper kulfi is 8 to 14 annas. A man can make 1 to 4 naichas in a day and they are sold at 12 annas to Rs. 2-8 each.

(3) *Naichas without kulfi.*—For a naicha without kulfi reed worth 6 pies, cloth worth 2 annas, kalabatun worth one anna to 3 annas and silk worth 9 pies to one anna 6 pies are required. A man can make 4 to 8 naichas in a day and they are sold at 5 to 12 annas each.

## PILIBHIT DISTRICT.

### 2. Building materials.

#### (a) Wood and timber.

There are about a dozen shops in the town for the sale of wood and timber. These people generally purchase wood from the forest contractors. Wood obtained from the hills is said to be of superior quality than that from the plains and sells at a higher rate. The following are some of the chief kinds of wood obtained:—Sakhu, shisham, sal, asna, haldu, adhuri, koron, etc.

The following are some of the present prices:—

#### Sal, asna and haldu sleepers—

	Rs. a.
5' × 7" × 4½"	... 2 0 each.
6' × 8" × 4½"	... 3 8 „
9' × 10" × 5"	... 8 0 „

#### Sal, asna and haldu sleepers (hilly)—

	Rs. a.
5' × 7" × 4½"	... 2 8 each.
6' × 8" × 4½"	... 4 0 „
9' × 10" × 5"	... 9 0 „

#### Sal and asna timbers—

	Rs. a.	Rs.
12' to 30' × 6" to 14"		
× 4" to 12"	... 3 0	to 5 per c. ft.
11' to 15' × 4" to 5"		
× 3" to 5"	... 2 4	per c. ft.
4' to 10' × 3" to 4"		
× 4" to 5"	... 1 12	per c. ft.

#### Shisham scantlings—

	Rs. a.	Rs.
2' to 3' × 6" × 6"	... 1 8	to 2 per c. ft.

#### Shisham scantlings (hilly)—

	Rs.	Rs.
2' to 3' × 6" × 6"	... 2	to 3 per c. ft.

#### Sakhu ballis—

	Rs.
10' × 4" diameter	... 50 per 100.
12' × 5" „	... 60 „ „
14' × 6" „	... 80 „ „
16' × 7" „	... 120 „ „

Sakhu balis—(concl'd.)	Rs.
18' × 8" diameter	... 180 per 100.
20' × 10" " "	... 225 " "
Mango planks—	
	Rs. a.
6½' × 12" × 1¼" ...	... 1 4 each.
Sal planks—	
	Rs. a.
6½' × 12" × 1¼" ...	... 2 8 each.
Miscellaneous planks—	
	Rs. a.
6½' × 12" × 1¼" ...	... 1 4 each.

Bamboos are imported from the hills chiefly through Tanakpur and are sold at Rs. 8 to Rs. 12 per 100.

(b) *Brick making.*

The manufacture of bricks is carried on only for about eight months during the year and the work remains closed during the rainy season. Bricks are burnt by the method known as Bull's trench kiln system. There are four brick-fields and all are near the town. All are working on similar lines and one is described below.

The brickfield at Pakaria Naogawan, about 3 miles from the town, is working for the last 10 years. About 4½ lakhs of bricks are charged at a time. The kiln is arranged in the shape of an incomplete circle, and baking is commenced at one end with definite blocks at each operation. Thus when one block is done, the next in succession is taken up, and so on. As the baking operation proceeds, the block baked ready is removed, and in this manner about 12,000 bricks are taken out every day and replaced by the same number of sun-dried bricks. Out of the finished bricks, about 8,000 are of 1st class, 2,000 of 2nd class and 2,000 of 3rd class. About 100 men are working at present. Wages range from Rs. 10 to Rs. 20 per month. Pathai (moulding) is paid at Rs. 2-10 per thousand, sand and water being supplied by the owner. Five men work on one mould and can turn out about 2,000 bricks in a day. Sand is brought from the river bank about 1½ miles from site. Nothing has to be paid for it by way of royalty to the zamindar as he gets bricks at somewhat reduced rate. Cartage for it is paid at Re. 1-4 per trip. Firewood is used as fuel and is

purchased at about Rs. 75 per 600 c. ft. About 4,800 c. ft. of it is required per lakh of bricks burnt. Water is obtained from the pits in the field itself and when these run dry, kachcha wells are dug. A well costs about Rs. 5 to Rs. 6 and lasts for one season.

The following are some of the present prices of bricks :—

	Rs.
1st class bricks ... ..	18 per thousand.
2nd „ „ ... ..	16 „ „
3rd „ „ ... ..	10 „ „

The above prices include municipal duty and cartage within town limits. Municipal duty is 4 annas 3 pies and cartage about Rs. 2-8 per thousand bricks.

(c) *Lime burning.*

The kilns are of the ordinary country type and kankar as well as stone is burnt for lime. Lime from kankar is used only as mortar for masonry work and that from stone is also used for plastering as well as for whitewashing.

(i) *Kankar lime.*—There are about four kilns in the town, All are working on similar lines. The one at Nakhasa is working for the last 25 years. It has about four men working at present; wages are paid at 8 annas per day to each labourer. Kankar is obtained from Rampura, a place about 8 miles from site. Digging charges are 8 annas per 25 c. ft. Royalty for it is paid to the zamindar at 4 annas per cart-load. Cartage up to Pilibhit is paid at about Re. 1-4 per cart-load which is about 22 c. ft. One charge of the kiln is about 400 c. ft., for which about 200 c. ft. of fire-wood worth about Rs. 25 is required. This gives about 300 c. ft. of lime, which is sold at about Rs. 30 per 100 c. ft. The whole of it is consumed locally.

(ii) *Stone lime.*—There are about a dozen kilns of this class in the town. Stone is imported in the form of ballast from Bazpur, a station on the Lalkua-Kashipur and Ramnagar branch of the Rohilkhand and Kumaun Railway at about Rs. 30 per 100 maunds. The stones are first broken into pieces before being charged into the kilns. One charge of the kiln is about 10 maunds, for which about 4 maunds of charcoal, worth about Rs. 10, is required. This yields about 6 maunds of lime which sells at about Rs. 3 per maund. Two men work on a kiln and are paid at 8 annas per day each. A kiln is

charged once a week or after six days. Nearly the whole of the lime thus produced is consumed locally.

### 3. Chemicals.

#### *Manufacture of inks.*

One factory in the town has been manufacturing inks for the last one and a half years, but during most of this time it was in its experimental stage. The proprietor has recently received a grant of Rs. 200 from the Industries department which has done him immense service in extending his work. Two men are employed at present and are paid Rs. 10 per month each.

Indigo, sulphuric acid, gall nuts, aniline dyes and bottles are imported from outside, mostly from Cawnpore, Bareilly and Allahabad.

The following are some of the present prices of the raw materials purchased :—

		Rs.	¢.	
Indigo	...	8	0	per pound.
Sulphuric acid	...	0	5	" "
Gall nuts	...	1	11	" seer.
Aniline dyes, blue	...	9	8	" pound.
" " red	...	8	8	" "

Blue, blue black, red, rubber stamp and marking inks are chiefly manufactured. The proprietor has a shop in the town where most of the articles are sold, only a portion of the outturn is exported to places like Bareilly, Budaun, Etawah, etc. No advertisement is at present made, as the manufacture is still carried on on a very small scale. For the same reason it does not bring much profit.

The following are some of the present wholesale prices of the various articles :—

		Quarts.	Pints.			
		Rs.	¢.	Rs.	¢.	
Blue black ink (A)	...	6	12	4	8	per dozen.
Blue black ink (B)	...	4	5	2	13	" "
Red ink	...	5	10	3	9	" "
Marking ink (black), 1 oz.						
phials	...	2	13			per dozen.

		Rs. a.
Rubber stamp inks, red, blue, violet or green, 2 oz. phials ... ..	1 11	per dozen.
Boot polish (brown or black), 4 oz. phials ... ..	4 0	„ „
Hair oil, 4 oz. phials ... ..	9 0	„ „

4. Grains.

1. The following table shows the area, production and prices of the chief crops of the district during the year 1921-22:—

Name of crop.	Area in acres.	Average yield in seers per acre.		Price per maund.	
		Acres.	Srs.	Rs. a.	Rs. a.
Wheat .. ..	1,04,458	525	8 12	to 4 8	
Barley .. ..	9,050	550	2 0	„ 2 4	
Wheat and Barley .. ..	9,577	..	2 4	„ to 2	
Gram .. ..	88,051	510	..	..	
Wheat and gram .. ..	8,404	..	..	..	
Barley and gram .. ..	7,796	..	..	..	
Peas .. ..	1,060	375	2 8	to 3	
Masur .. ..	586	280	2 12	„ 3 0	
Tobacco .. ..	260	450	5 0	„ 8 0	
Opium .. ..	418	7½	1 8	per tola.	
Linseed .. ..	215	240	6 0	to 6 8	
Rape and mustard .. ..	866	33½	6 0	„ 6 8	
Juar .. ..	1,049	300	3 8	..	
Juar and arhar .. ..	2,618	..	..	..	
Bajra .. ..	11,156	275	3 8	..	
Bajra and arhar .. ..	9,276	..	..	..	
Rice .. ..	1,42,746	500	6 0	to 30 0	
Maise .. ..	979	600	2 4	..	
Arhar .. ..	401	400	4 0	to 4 8	
Urđ and mung .. ..	19,528	185	4 0	„ 4 8	
Moth .. ..	1,324	190	4 0	..	
Mandua .. ..	10	240	3 0	to 3 8	
Kodon .. ..	15,032	500	3 0	„ 3 0	
Sawan .. ..	7,866	320	4 0	..	
Cotton .. ..	346	60	40 0	..	
Cotton and arhar .. ..	1,250	..	..	..	
Sugarcane .. ..	28,692	400	20 0	to 24 0	
Fl .. ..	332	160	10 0	„ 12 0	
Ground nuts .. ..	3	850	10 0	..	
Sanai .. ..	3,244	650	12 0	to 16 0	

2. *Rice hulling*.—About 600 families in the town and in the neighbouring villages of Neoria, Bhikharipur, etc., are engaged in rice hulling. They charge about a rupee a maund.



Unhusked rice is supplied to them by the dealers who purchase and store it during the season. Wooden 'okhlis' are used and a man can hull about 20 seers of rice in a day of 10 hours. This work is generally done by men and women only assist them during their leisure hours. The husk is sold at about 8 annas per maund, the finer portion is used for feeding horses and buffaloes and the coarser portion is mixed with cowdung cakes and often used for plastering kachcha work. The work is only seasonal and lasts from September to February unless when there is a large quantity of rice in store and hulling is continued for a longer period. The average earning of a man in this industry is about 8 annas a day.

3. *Flour milling industry*.—There are three flour mills in the town and all of them are worked by means of oil engines. The mill owners grind their own wheat and sell *ata* (flour) and also grind for the public on a charge of 8 annas per maund. All are working on similar lines. One is described below:—

The flour mill in Muhalla Malik Ahmed Khan has one chakki attached to an oil engine of 10½ H. P. This mill is working for the last four years. The engine was purchased for about Rs. 2,100. About 4 maunds of wheat is ground per hour. The driver is paid Rs. 60 per month. Four more men are employed and their wages are Rs. 14, Rs. 12, Rs. 7 and Rs. 6 per month. About a tin of kerosine oil is consumed in three and a half hours and lubricating oil worth about 8 annas is required per day. The owner has a clear income of Rs. 5 per day when his mill works regularly.

### 5. Hardware.

(a) *Manufacture of phul thalis*.—There are about half a dozen small factories in the town for the manufacture of phul thalis and about a dozen of dealers in phul wares, etc., who advance money and materials to the factory owners and get back the finished articles. Old and broken vessels of phul are imported from Cawnpore, Calcutta, etc., at about Re. 1-8 per seer. The metal is first melted in furnaces and cast into small round slabs which are again heated and beaten into the required shape. Six or seven men work in a factory and wages are paid by piece at 8 annas per maund for galai and

dhalai (or melting and casting), Re. 1-8 per maund for ghanwai (or beating into shape) and Rs. 5 per maund for chhilai (or scraping). One man melts and casts about a maund of the metal in a day; two men working together beat it into shape and a man does about 6 to 8 seers of chhilai work in a day. The same furnace is used for melting as well as for heating the slabs and consumes about Rs. 4 worth of firewood in a day. The factory owners are paid by the dealers at the rate of about Rs. 35 per maund of the articles produced and are allowed 25 per cent. in the weight of the metal as wastage during the processes of manufacture, i.e. they have to return 30 seers of the finished articles for every maund of old phul wares received. Thal is sold at about Rs. 3 per seer and almost all the produce is sold locally. For a detailed process of manufacture the reader is referred to Mr. Dampier's Monograph on brass and copper wares in the United Provinces.

(b) *Manufacture of mills for crushing sugarcane.*—There are two factories in the town of Bisalpur for the manufacture of mills for crushing sugarcane. The work is seasonal and is carried on only for three or four months during the year, i.e. during the sugarcane season. There is not enough work to keep the factories running throughout the year. The cupola is of  $\frac{1}{2}$  ton capacity and the blast is supplied by means of a hand fan. There is one lathe and this also is worked by hand. Old and broken castings are purchased locally and also from Pilibhit at about Rs. 4 per maund and remelted and cast. About 50 maunds of the metal is melted and cast in a day for which about 15 maunds of hard coke is required. Hard coke is obtained from Jharia at about Rs. 20 per ton. When the factory starts work, about 20 men are required. Wages are paid by monthly system; skilled men get Rs. 20 to Rs. 30 and unskilled men Rs. 10 per month. One of the factories pays a house rent of Rs. 100 per annum. Casting done during one season is enough for two or three years. During one season about 300 pairs of rollers are cast which are subsequently machined and used for several years as they are chiefly used for replacing worn out and broken rollers of old mills. Two roller mills are manufactured and are generally hired for the season. A complete mill with wooden frame is hired at Rs. 15 to Rs. 20 for the season and when sold, fetches Rs. 50 to Rs. 60.

Besides the two factories for the manufacture of these mills, there are about 20 small works where 20 to 100 mills are repaired and kept ready for hire during the season. A mill is hired for Rs. 10 to Rs. 20 for the season according to its condition. The repairs are undertaken by the owners who also sustain the losses in their wear and tear. Villagers come from the neighbouring places to the town to buy these mills or take them on hire. The extent of this business is dependent upon the condition of the sugarcane crop.

(c) *Manufacture of pans for gur.*—There about eight small factories in the town in which iron pans for boiling sugarcane juice and making gur are manufactured repaired and kept ready for hire. About four or five men work in each factory and wages are paid at 12 annas to Re. 1-4 per day. Old iron is obtained from Cawnpore at about Rs. 4 per maund.

A set of pans consists of five pieces, one hauz, one nikhar, two karahis and one parchha. These are all pans of different sizes and all are required in the manufacture of gur.

The capacity of a hauz is 20 maunds, that of a nikhar 15 maunds that of a karahi 8 maunds and that of a parchha 2 maunds.

The weight of a hauz is 6 maunds, that of a nikhar 4 maunds, that of a karahi 3 maunds and that of a parchha 2 maunds.

A man can make a hauz in 10 days, a nikhar in eight days, a karahi in four days and a parchha in three days.

There are 20 to 100 sets of these in a factory according to its size. The charges for hiring out a set for one season are Rs. 15 to Rs. 30 according to the condition of the season. A set, if used carefully, will last for about 20 years and will require repairs only after 10 years.

Sometimes new sheet iron is used for the manufacture of pans and is obtained at about Rs. 11 per maund. Pans made from new sheet iron will last for about 30 years or more.

(d) *Tin-smithy.*—About half a dozen families of Muhammadans in the town are engaged in the manufacture of soldered hollow tin wares, mostly for use in the town. Used kerosine oil tins are purchased for this purpose at about Rs. 30 per

hundred. The following table shows the various articles that are manufactured, amount of work done and prices, etc. :—

Name of articles manufactured.	No. of articles made from one tin.	No. of articles made per day by a man.	Prices each.
Hazara	... 6	4	0 6 0
Lota	... 8	6	0 7 0
Funnel	... 40	100	0 0 3
Lanterns	... 6	6	0 3 0
Kerosine oil pump	12	20	0 3 6
Dhebri	... 20	40	0 0 6
Gilas	... 20	40	0 0 9
Katora	... 15	30	0 0 9
Dibba	... 12	15	0 2 0
Mug	... 12	36	0 1 3
Dolchi	... 10	20	0 1 6
Chalni	... 10	30	0 2 0

For articles worth Re. 1 about 2 annas worth of tin is required for soldering. Charcoal worth 1 anna is burnt in a day. Besides the manufacture of tin wares, the smiths also do tinning work as well as undertake repairs and the average earning of a man in this industry is about 12 annas per day.

### 6. Leather.

#### (i) Raw materials.

The municipal figures show that the following number of animals were slaughtered during the year 1922-23 :—

Slaughter-house.	Cows, bullocks and buffaloes.	Sheep and goats.
Pilibhit	... 3,376	3,699
Bisalpur	... 1,411	926
<b>Total</b>	<b>... 4,787</b>	<b>4,625</b>

The total quantity of hides and skins thus available is roughly :—

Hides	... ..	1,196 maunds.
Skins	... ..	462 „

Taking that 2 per cent. of the cattle die every year besides those that are slaughtered, they yield the following :—

Hides	...	...	...	1,560 maunds.
Skins	...	...	...	68 „

The total quantity of raw material available in the district roughly is—

		Slaughtered.	Dead.	Total.
Hides	...	1,196	1,560	2,756 maunds.
Skins	...	462	68	530 „

The census of 1911 has returned 316 persons as workers in hides and skins and 259 persons as shoe, boot and sandal makers. These figures are now out of date and they do not correctly indicate the present condition of the industry. At any rate these figures are much less as compared with the figures of other districts; this means that only a portion of the hides and skins available in the district is consumed in the district itself. There are about a dozen exporters of hides and skins, mostly in the town who purchase them as they are brought by the villagers from the neighbouring villages like Parewa, Jahanabad, Hazara, Kabirganj, Mundiaghat, Dhane-  
ra, Tanda, Khatema, Tarain, etc., and when a wagon load is thus collected they are sent out mostly to Cawnpore, Delhi Amritsar and Shahjahanpur, where arthiyas or brokers sell the articles at the prevailing prices and charge 2 per cent. as their commission. The exporters also advance money to the butchers and buy from them their outturn. The present price of a hide varies from Re. 1 to Rs. 5 and that of a skin 4 annas to Re. 1.

#### (ii) Tanning.

There is no big tannery in the district worked on modern lines. Country Chamars do ordinary tanning in a small way and are to be found in almost all large towns and villages like Bisalpur, Puranpur, Dharnapur, Mohammadpur, Piparia, Tanda, Nawadia, Naogawan, Kalinagar, etc. Hides are purchased from the neighbouring villages at Re. 1 to Rs. 3 each according to the size and quality. Hides of dead animals are cheaper than those of slaughtered ones. A hide takes 15 to 25 days for tanning: 12 to 15 days in lime and saji, two days for washing and three to five days in the tanning material. Babul and mango leaves (but not the barks) and koron bark are used for tanning. The processes are described in great detail in

Mr. Walton's Monograph on Leather and do not require to be repeated here. Near and about Bisalpur babul leaves are obtained at about Re. 1-4 per maund and about 3 seers of them are required for a hide.

(iii) *Manufacture of shoes.*

(a) *Indian pattern.*—Chamars who tan hides and skins also manufacture country shoes. Bovine hides are used for uppers and buffalo hides for soles. A hide is enough to make six to eight pairs of shoes and a man can make a pair of shoes in a day. A pair is sold at 12 annas to Re.1-4. Shoes are brought for sale by the Chamars to the village markets on market days. In larger towns Chamars also sell by hawking, and, when they are unable to sell their goods in this way and are urgently in want of money, they sell the shoes to the local dealers who naturally pay a somewhat lower price than what the Chamars get by hawking.

In the town of Pilibhit there are about half a dozen shoemakers who import country tanned leather from Bareilly and Sirahjahanpur. A piece for uppers is obtained at Rs. 4 to Rs. 6 and makes 16 to 20 pairs; a piece of sole leather is obtained at Rs. 6 to Rs. 8 and makes 20 to 25 pairs. A man can make a pair of shoes in a day and the price of a pair ranges from Re. 1 to Rs. 2. These shoes are generally made to order and customers come at the shops personally for it.

(b) *English pattern.*—There are three families of Chamars in the town who import good factory-tanned leather from Cawnpore and manufacture shoes of English pattern. The price of a piece for uppers is Rs. 8 to Rs. 10 and that of a piece for soles is Rs. 16. A piece for uppers is enough for eight pairs of pumps, gurgabi or Albert slippers or five pairs of shoes and a piece for soles is enough for 30 pairs. Leather worth 4 annas is required for a pair of heels. For a pair of shoes, cotton yarn and iron nails worth 1 anna, lining worth 3 annas and stiffening leather and wax worth about 1 anna are required. A man can make a pair of shoes or slippers in a day. The price of a pair of pumps, gurgabi or Albert slippers ranges from Rs. 2-8 to Rs. 3-8 and that of a pair of shoes Rs. 4 to Rs. 5. Customers come personally at the shops and either buy ready-made shoes or get them made to order.

*(iv) Manufacture of harness.*

Three families of mochies and Chamars in the town are engaged in the manufacture of harness of ordinary quality for use on ekkas and tongas. Tanned leather is imported from Bareilly, Cawnpore and Shahjahanpur.

Leather from Cawnpore is obtained at Re. 1-8 to Rs. 3 per piece. A piece is enough to make two sets of harness. A man can make a set in six days. The following extra materials are required for a harness :—Brass and iron fittings (imported from Cawnpore) worth about Rs. 3, cotton yarn worth 8 annas and namda worth 8 annas. A harness is sold for about Rs. 10.

Leather from Shahjahanpur is obtained at Rs. 4 to Rs. 10 per piece. Two to three sets of harness are made from one piece according to the size. A harness is sold at Rs. 10 to Rs. 15.

Leather from Cawnpore is obtained at Rs. 1-8 to Rs. 3 per seer. Two and a half to 3 seers of leather is required for one harness and it is sold at Rs. 20.

*(v) Manufacture of mashaks.*

One family of bhistis in the town is engaged in the manufacture of mashaks or bags for carrying water. Mashaks are made from goat skins. A skin is purchased locally at Re. 1 to Re. 1-4. It takes a month to tan a skin for this purpose. Babul bark is used for tanning and is obtained from the neighbouring villages at about 16 seers for a rupee. About 4 seers of it is required to tan a skin. A mashak is made of one whole skin and old mashaks are purchased at 10 annas to 12 annas each for making dols or buckets for drawing water from wells. A mashak makes three or four dols. A man can make a mashak and a dol in about two days. Cotton yarn worth about 1 anna is required for stitching. A mashak with a dol is sold for Rs. 4 to Rs. 6. Mashaks are also imported here from Bareilly and Shahjahanpur.

*(vi) Manufacture of kuppis.*

Two families of a special caste of people known as Dabgars are engaged in the manufacture of kuppis or leather bottles used by perfumers for selling scented oils in the town. Kuppis are made from inner membranes of the skins of slaughtered animals which are obtained from butchers. Kuppis are made

in three sizes ; with  $\frac{1}{2}$  seer, 2 chhataks and 1 chhatak capacity. Membranes worth 2 annas will make 24 kuppis of large size, 36 of medium and 48 of small size. A man can make 30 kuppis of large, 40 of medium or 60 of small size in a day. Kuppis are sold at 6 annas large, 4 annas 6 pies medium and 3 annas small size per score. Earthen moulds are used to make them. Clay for making moulds is obtained from kumhars at 1 anna per bag in which cotton worth 1 anna is mixed and pounded thoroughly. The same clay is used over and over again. Kuppi-making is carried on only as a supplementary to other professions, even like masons work, etc., and are made only when an order is received for them.

(vi) *Muffling of tablas.*

One Muhammadan family in the town is engaged in the muffling of tablas or small musical drums. Two tablas make one set and are played together ; the one played with the left hand is of clay and the other which is played with the right hand is of wood. Semal, jamun and gular wood is generally used. Unmuffled wooden tablas are imported from Bareilly, clay ones are obtained at six for a rupee and wooden ones at two for a rupee. Raw goat skin is used for muffling and is obtained at Re. 1 to Re. 1-4 each. A skin is enough for two pairs of tablas. After muffling the left one is covered with paste made of wheat flour and water. About a tola of wheat flour is required for one tabla. The centres of both tablas are coated with paste made by boiling together equal quantities of resin and burnt iron scales obtained from the blacksmiths free of charge. About four tolas of this mixture is required for a pair of tablas. Leather straps worth 8 annas are required per pair for fastening and wood worth 6 pies is required for making blocks which are used in the right tabla under the straps to allow for tightening and slackening in tuning. The price of a set (one right and one left) is Rs. 3 to Rs. 4.

(viii) *Muffling of dhols and naqqaras.*

About 20 families of Muhammadans of a special caste known as dafalis, are engaged in the muffling of dhols and naqqaras. These people also follow some other profession such as doing masons' work, hawking of various articles, playing on musical instruments or manufacturing cot legs, etc., and do the



work of muffling dhols naqqaras at their spare time and that also when any orders are received for them.

*Muffling of dhols.*—Hollow wooden drums for making dhols are imported from Bareilly and Tanakpur at about three or four for a rupee. These are generally made of semalwood. Inferior kind of goat skin is used for this purpose and is purchased at 4 annas to 8 annas each. A skin is enough for muffling one or two dhols. After muffling, the dhol is coated on one side with a paste made by boiling together equal quantities of mustard oil, mustard oil foots, powdered unhusked castor seeds and resin. About a tola of the paste is required for one dhol and is worth about 6 pies. Sann or cotton string worth 1 anna to 3 annas is required for a dhol for tightening the mufflers. A man can muffle a dhol in a day and it sells at Re 1 to Rs. 2 each. When muffling is done on drums supplied by customers, a charge of about 8 annas per dhol is made for it.

*Muffling of naqqaras.*—Naqqaras are of two kinds, the drums of small ones are of clay and those of large ones are of iron. The dafalis only do the muffling on drums supplied by customers. Clay drums are obtained from Bareilly at about 16 for a rupee and iron drums are obtained from Amroha at Rs. 2 to Rs. 5 each, according to the size. Inferior kinds of buffalo hide is used and is obtained at Re. 1 to Rs. 3 each. A hide is enough for muffling two to six naqqaras and straps for fastening are also cut out from the same piece. A man can muffle one to two naqqaras in a day. The charge for muffling ranges from 12 annas to Re. 1-8 each.

## 7. Miscellaneous.

### (a) *Manufacture of fireworks.*

About six families of Muhammadans in the town are engaged in the manufacture of fireworks. The chief ingredients used are sulphur, saltpetre and charcoal. Saltpetre is imported from Farrukhabad at about Rs. 20 per maund and sulphur from Bombay at Rs. 30 per maund. There are two licensees in the town for the sale of sulphur and saltpetre. Charcoal is obtained locally by burning castor and arhar stalks. The average earning of a fireworks maker is estimated to be about 12 annas per day, but some times they earn more and usually have a busy day during the marriage season and at Shabebarat, a Muhammadan festival.

The following are some of the chief articles manufactured with their prices :—

		Rs. a.	Rs. a.	
Anar	...	... 0 1	to 0 4	each.
Chhachunder	...	...	0 1	„
Mahtab	...	...	0 1	„
Tumri	...	...	0 2	„
Khatinga	...	...	0 2	„
Gola	...	...	0 4	„
Gulrez	...	... 0 1	to 0 2	„
Charkhi	...	... 0 8	„ 2 0	„
Hawai	...	...	2 0	per 100
Phuljhari	...	... 0 8	to 0 12	„

(b) *Manufacture of cocoanut huqqas.*

Two families of Muhammadans in the town are engaged in the manufacture of cocoanut huqqas (or Indian hubble-bubble) for smoking tobacco, mostly used in the villages. Cocoanut shells are imported from Cawnpore at Rs. 2 to Rs. 4 per hundred. The middle wooden stems are imported from Shah-jahanpur at 4 annas to 12 annas per score. A man can make 20 huqqas in a day. They are sold at 2 annas to 6 annas each. No outside persons are employed for this work. The average earning of a man in this industry is about a rupee a day. Customers come at the shops to buy personally.

(c) *Manufacture of smoking tobacco.*

About a dozen families of Muhammadans in the town are engaged in the manufacture of smoking tobacco. Reh for this industry is imported from Sahaswan Road and Kachla stations on the Lucknow-Kashganj section of the Rohilkhand and Kumaun Railway and is sold in the town at Re. 1-10 per buffalo load of 4½ maunds, i. e., nearly eight annas per cwt. The tobacco leaf used is mostly local, but a portion is also imported from Lakhimpur at about Rs. 15 per maund. The tobacco

largely in demand is known as chawrasa and the following is said to be its proportion :—

			Rs. a.
Tobacco leaf	...	... 20 seers worth	7 8
Reh	...	... 1 maund	,, 0 5
Molasses	...	... 20 seers	,, 2 8
Total	...	... 2 maunds	,, 10 5
Wages of two men at 10 annas per day	...		1 4
			11 9

This tobacco sells at 4 seers for a rupee. In better qualities, the quantity of reh is less and spices and khamira are also added. Khamira is made by mixing molasses to fruits like plantains, pineapples, etc., and keeping the mixture in jars buried in the ground for several months. It is made locally by the tobacconists themselves. The spices generally used are oils of kahu, laong, etc. For extra superior qualities, ilachi and musk are also added.

*(d) Manufacture of sann sutli.*

About 100 families in the town are engaged in the manufacture of sutli from sann-hemp. Sann is purchased locally at 3 to 4 seers for a rupee. It is estimated that about 50,000 maunds of sann-hemp is produced in the district annually and nearly the whole of it is consumed in the district itself. A man can make about 2½ seers of sutli in a day of 10 hours but this industry is often carried on as subsidiary to other works. There is a waste of about 12½ per cent. of sann in the manufacture. Arabatias purchase it at 2 to 2½ seers for a rupee and export it to most of the large towns of the Punjab like Lahore, Amritsar, Ferozpur, Bhatinda, Toba Tek Singh, etc. This work is done mostly by women and men help them in their spare time. The average earning of a man in this industry is about 5 annas a day.

*(e) Manufacture of horn combs.*

Three families of Muhammadans in the town are engaged in the manufacture of horn combs. Buffalo horns are used

and are purchased from the butchers and contractors of forest at about Rs. 20 per maund. Only their thicker portions are utilized for making combs. No mechanical appliances except the ordinary cutting tools, saws and files are used. A horn makes about seven combs and a man can make about three-dozen combs in a day. Combs are sold at 14 annas to Re. 1 per dozen and are exported mostly to Benares and Patna where there are fixed customers. Horn cuttings are sold at about Rs. 5 per maund and are exported mostly to Calcutta. The average earning of a man in this industry is about a rupee a day.

*(f) Manufacture of baib strings and ropes.*

About 400 families, mostly bhistis and weavers, are engaged in the manufacture of baib strings and ropes. These people do this work in their spare time to supplement their earning from their own professions and during the slack seasons. Baib is obtained from the neighbouring forests. The season for obtaining baib is October and at that time it sells at Rs. 2 to Rs. 3 per maund. Its present price in the market is about 8 seers for a rupee. It is during the season only that large manufacturers buy and stock their annual requirements. Workmen who cut this grass in the forest for the contractors, get half the quantity they cut as their wages and bring it to the town for sale. Women of the family also help in the manufacture of strings and ropes in their leisure hours. A man can make about 4 seers of string in a day. About 20 per cent. baib is wasted in the manufacture. String is sold at 4 annas per seer. The average earning of a man in this industry is about 6 annas a day. The string is mostly used for stringing cots. There are about half a dozen dealers in the town who buy the string wholesale from the manufacturers of the town as well as import it from the neighbouring villages at somewhat reduced rate. They export it mostly to Amritsar, Lahore, Lyallpur, Gujranwala and some other large towns of the Punjab where they have fixed customers in the dealers in this commodity.

Baib ropes are also manufactured to some extent mostly for local use. Ropes are used for trying animals, stringing carts, drawing water and making thatches. A man can make four ropes of 10 to 14 yards in length in a day. A rope takes about a seer of baib and is sold at about 4 annas. Ropes are

brought by the manufacturers to the town markets on market days for sale.

(g) *Manufacture of bamboo baskets.*

About 50 families of a special caste of people, known as banphors, are engaged in the manufacture of bamboo baskets mostly used for packing fruits. Hilly bamboos are imported chiefly through Tanakpur at about six for a rupee.

The following table shows the different sizes of baskets, cost of labour and material, prices, etc. :—

Size of baskets.	No. of baskets made from one rupee worth bamboo.	No. of baskets made in a day by one man.	Price of each.
15" diameter	... 8	5	0 3
20" ,,	... 6	4	0 4
25" ,	... 5	3	0 5
30" ,,	... 4	2	0 8

Baskets are also exported to Bareilly, Shahjahanpur, Bisalpur, Puranpur, etc., from where customers come to buy wholesale.

Besides the manufacture of baskets for packing fruits, various other articles such as baskets for domestic purposes, baskets for keeping poultry (tapa), country scale pans (palras), hand fans, etc., are made mostly for local use. The average earning of a man in this industry is about 8 annas per day.

(h) *Chair caning and manufacture of boxes and chiks*

One man in Muballa Sungarhi is engaged in the manufacture of cane and bamboo boxes, bamboo chiks and khas purdas and in caning chairs.

*Caning of chairs.*— Canes are imported from the neighbouring forest at about Rs. 4 per hundred. A cane is about 15 feet long. The outer portion of the cane is used for caning chairs and the middle and softer portion for making boxes.

The following are some of the charges for caning chairs :—

	Rs. a.	Rs. a.
For caning only seats of chairs	... 0 6	to 0 8
For caning both seat and back	... 0 12	„ 1 0
For caning easy chairs	... 2 0	„ 2 8

*Cane and bamboo boxes.*—A man can make a box of size 21" × 15" × 10" in about two days in which the cost of material is about 4 annas. This box is sold for Re. 1-8. His average earning is about 10 annas per day. There is not much sale and articles are only made to order.

*Chik making.*—Bamboos are obtained from Tanakpur. A piece about 3 yards long is obtained for about 2 annas. Two pieces will make one chik of size 4½' × 3'. A man can make one chik of this size in a day. It is sold at about 9 pies per square foot.

*Khas purdas.*—Khas is obtained from the neighbouring jungle and is purchased here at about Rs. 5 per maund. A khas purda of about 5' × 3' requires 4 seers of khas and a man makes it in a day. It is sold at about Re. 1-4 each.

(i) *Manufacture of sirki pals.*

About half a dozen families of Kanjars are engaged in the manufacture of pals of sirki (or moonj stems). These are mostly used to cover bullock carts as a protection against rain and sun. Sirki is obtained from the neighbouring villages like Bara, Majhalia, Susiar, Dalelganj, etc., at about Re. 1-8 per bundle of about 18" diameter. A sirki is about 4½ feet long and this is the breadth of the pals which are manufactured out of it.

The following tables shows the different sizes, cost of labour and material and prices :—

Length of pals in feet.	No. of pals, made from one bundle of sirki.	No. of pals made by one man in a day of 10 hours.	Price of each.
			Rs. a.
9	6	7	0 5
12	5	3	0 7
15	4	2	0 9

The average earning of a man in this industry is about 6 annas per day. This industry is carried on only as subsidiary to agriculture.

*(j) Manufacture of chatai and punkha from khajur leaves.*

One Muhammadan family in the town of Bisalpur is engaged in the manufacture of chatais and punkhas (hand fans) from khajur (date palm) leaves. Khajur leaves are obtained from Barhananpur, a place about 20 miles away. The garden having khajur trees belongs to a zamindar who leases it out from year to year for about Rs. 8 and it yields about two cart-loads of leaves. Cartage for bringing them to Bisalpur is paid at Rs. 3 per trip. The leaves are dried on the spot before being brought and are soaked in water before their manufacture. A man can make a chatai 5' x 3' or eight punkhas in a day. A chatai is sold at 2 annas to 3 annas and a punkha is sold at 6 pies. Chatais are also made of size 3' x 3' for use in country sugar factories for lining the walls of the rooms in which gur is stored and are sold wholesale at about Rs. 11 per hundred.

*(k) Manufacture of lac churis.*

About a dozen families of Muhammadan Churihars in the town are engaged in the manufacture of lac churis (bangles).

Kiri and shellac are imported from Mirzapur. Kiri is the impurity of lac obtained during the process of the manufacture of shellac. The present price of kiri is about Rs. 20 per maund and the price of shellac is Rs. 4-8 per seer. Panni is imported from Moradabad at 10 annas per gaddi of 50 sheets.

Churis are of two kinds, lakhauti jor and kangan. These churis are mostly used by village women.

*Lakhautia jor.*—About  $\frac{1}{2}$  seer of kiri worth 2 annas, shellac worth 2 annas and one sheet of panni worth 3 pies are required for a pair. A man can make four pairs in a day and it sells at 6 annas to 10 annas per pair.

*Kangan.*—One chhatak of kiri worth 6 pies, and shellac worth 6 pies are required for a pair. A sheet of panni is enough for eight pairs. A man can make about 16 pairs in a day. Charcoal worth 2 annas is burnt daily. It sells at 1 anna 6 pies to 2 annas per pair.

Churis are made of kiri, afterwards coated with shellac and the panni is fixed on it when hot. The average earning of a man in this industry is about 8 annas per day.

## (l) Jail industries.

The jail here is of fifth class and has at present 114 prisoners in all, including those under trial. The following industries are carried on in it :—

Manufacture of baib ban and matting, durrie weaving, chik making and wheat grinding.

*Manufacture of baib ban and matting.*—Baib is purchased from the market at about 10 seers for a rupee. One man makes 400 yards of ban in a day. It is sold at Rs. 8 per maund. Four hundred yards of ban weighs about  $1\frac{1}{2}$  seers. In the manufacture of ban there is a loss in weight of about 20 per cent. About 12 men are making mats. A man can make  $9' \times 2'$  of matting in a day of nine hours. Mats are sold at 11 annas per square yard and one square yard of matting weighs about  $2\frac{1}{2}$  seers. There is a wastage of about 12 per cent. in weight in making mats.

*Durrie weaving.*—Durrie is also made to order but there is no order on hand at present.

*Chik making.*—Green bamboos are purchased from the market at about 2 annas per piece of about 4 yards length. Two men working together can make  $4\frac{1}{2}' \times 3'$  in a day of nine hours. About four pieces of bamboo are required to make a chik  $4\frac{1}{2}' \times 6'$ . It is sold at 1 anna per square foot, coloured and bordered with garha cloth. There is not much demand for it.

*Wheat grinding.*—Four chakkis are working. Two men working on each can grind 40 seers of gram or 30 seers of wheat in a day. Flour is exclusively for jail use.

## (m) Forest produce.

The forests of the district produce a large quantity of wood and timber, besides a number of other articles which on the whole brought Rs. 92,021 into the public treasury during the year 1922-23. An annual sale notice of the forest produce is regularly issued by the Forest department and after its due publicity an auction is held at the Forest office at Pilibhit in the month of July or August every year. Contractors come from the neighbouring districts as well besides those of Pilibhit.



The following table shows the quantity and prices of the different forest produce during the year 1922-23 :—

Name of article.	Quantity.		Price.
		C. ft.	Rs.
Sal logs ...	...	25,288	...
Sal ballis ...	...	32,728	...
Sal scantlings ...	...	50,195	...
Sal miscellaneous ...	...	601	...
Asna logs ...	...	57	...
Asna ballis ...	...	51	...
Asna scantlings...	...	139	...
Siso logs ...	...	572	...
Siso ballis ...	...	90	...
Siso miscellaneous ...	...	63	...
Miscellaneous ballis ...	...	7,390	...
Miscellaneous scantlings ...	...	116	...
Total	...	117,290	53,140
		Mds.	Rs.
Catechu ...	...	40	1,750
Baib ...	...	28,414	6,675
Thatching grass and santha.	...	21,411	3,047
Sal leaves ...	...	313	19
Myrobalans ...	...	96	515
Morain bark ...	...	84	9
Cane ...	...	72	150
Fuel ...	...	486,731	26,716
Total	...		92,021

There is a large quantity of Ulla grass which can be most useful for the manufacture of paper-pulp. The Officer in Charge Paper Pulp, Forest Research Institute, Dehra Dun had conducted a series of experiments and found it very good for the purpose. He intends conducting further large scale experiments when his manufacturing plant, now under erection gets into work.

8. Oil industry.

(i) Oil mill of Messrs. L. H. Brothers.

Besides the ordinary country kolhus which are found in almost all large towns and villages, there is a large and up-to-date mill in the town in which oil seeds are pressed by means of a double-acting press manufactured by Messrs. Richard Sizer, Ltd., Hull, England. It is worked by means of a steam engine of about 80 H. P. About 22 men are working at present. Wages are paid by monthly as well as daily rate system. Monthly wages range from Rs. 40 to Rs. 12 and daily wages from 12 annas to 4 annas. Rape, mustard, mahua and linseed are generally crushed. Oil seeds are purchased from Bareilly, Chandausi, Haldwani, Bisalpur, Puranpur and from the town itself.

The following are the present approximate prices of the seeds :—

	Rs. a.	Rs. a.	
Rape ...	...	6 0 to 6 8	per maund.
Mustard ...	...	6 0 to 6 8	„ „
Mahua ...	...	5 8	„ „
Linseed ...	...	6 0 to 6 8	„ „

About 3½ maunds of the seed is charged at a time. There are about 17 such double charges of the press in a day, i.e., about 127 maunds of the seed is pressed daily.

The quantity of oil obtained is always varying and much depends upon the kind and quality of the seed used. The average yield from rape is said to be 34 per cent., from mustard 36 per cent., from mahua 40 per cent. and from linseed 38 per cent.

Most of the oil produced is consumed locally, but a portion is also exported to Ramnagar, Naini Tal, Haldwani, Bareilly, etc.

The following are the present prices of oils produced in the mill :—

	Rs. a.
Rape oil ...	... 20 0 per maund.
Mustard oil ...	... 20 4 „ „
Mahua oil ...	... 19 0 „ „
Linseed oil ...	... 21 0 „ „

The oilcakes are exported to Ferozepur, Allahabad, Sitapur, Lahore, etc., for feeding the cattle at the Government Military Dairy Farms. Mahua cake is not fed to cattle but is used as manure and is also burnt as fuel.

Firewood is used as fuel for the boiler and is obtained from the neighbouring jungle at about Rs. 60 per 100 maunds and about 35 maunds of it is required daily.

(ii) *Country kolhus.*

Besides the consumption of the oilseeds in the mill, a quantity of seed is crushed in ordinary country kolhus by telis of whom there are several groups of families of 10 to 20 in one place in several of the mohallas of the town like Bashir Khan, Puranaganj, Madina Shahar, etc. The kolhus are of the usual country type in which about  $3\frac{1}{2}$  seers of seed is charged at a time and in about three hours about  $1\frac{1}{4}$  seers of oil is recovered. There are four such charges of the kolhu in a day of 12 hours, i.e., 14 seers of seed is crushed per day in a kolhu (12 hours being regarded as the maximum daily working period).

	Rs.	a.	p.
Price of 14 seers seeds ...	...	2	5 0
Price of 5 seers oil ...	...	3	2 0
Price of 9 seers oilcake ...	...	0	10 6
		<hr/>	
Total	...	3	12 6
		<hr/>	

The cost of keeping a bullock in the town is 4 annas to 6 annas per day. Ordinarily a village teli does not have to spend anything on the upkeep of the bullock during the greater portion of the year, as he cuts grass or a member of his family does it for him. This costs him nothing. The price of a kolhu is Rs. 20 to Rs. 25 and that of a bullock Rs. 25 to Rs. 30.

A teli has a clear income of a rupee a day and his earning would have been more than this if he could store oilseeds in season, but due to pecuniary difficulties, he has to purchase them from the market at the rates current at the time of purchases, which are usually higher than the season rates. An oilmans' co-operative agency may be able to offer some solution of this difficulty.

9. Other industries connected with edibles.

(i) *Manufacture of sweetmeats.*

The census of 1921 has returned 35 halwais in the district but these figures do not correctly indicate the present condition of the industry as most other people besides the halwais also do this work. The halwais of towns only have some trade of importance and make jilebi, imirti, pera, besan laddu, bundia laddu, khowa laddu, balushahi, papri, barfi, batasha, reori, gulabjamun, rasbhari, tilshakhri, ilaichidana, angurdana, etc., from ghi, sugar, flour and khowa (dehydrated milk).

Sweetmeats sell at 10 annas to Re. 1-8 per seer. A village halwai keeps only a few varieties and his sale does not exceed Re. 1 a day. A town halwai soon becomes a money-lender and owner of houses in the town. He advances money to the milkmen and petty shopkeepers whose occupation is allied to his business. The average earning of a halwai is about Rs. 2 per day. Country sugar is mostly used for this industry as there is a large modern sugar mill in the town in addition to many country sugar factories in the district.

(ii) *Manufacture of ice-creams.*

There are four small factories in the town for the manufacture of ice-creams by small ammonia machines. There are 1 to 35 machines in a factory. All are working on similar lines. One is described below.

The factory in Muhalla Sungarhi is working for the last five months. There are two machines of 5 lb. capacity each and were purchased from Delhi at Rs. 105 each. About 16 lb. of ammonia salt is charged in the cylinder at one time and it lasts for about one and a half months. Ammonia salt is obtained from Bareilly at about Re. 1-4 per pound.

The following calculations are for both the machines at four charges each per day :—

	Rs.	a.
Price of 4 seers milk	...	1 4
Water 12 seers which is usually added to it	...	...
Price of 3 seers sugar	...	2 4
Firewood	...	0 4

S P. D.

		Rs. a.
Wages of a man	...	0 6
		—
19 seers ice-cream	...	4 2
		—
Price of 19 seers ice-cream at 7 annas		
per seer	... ..	8 5
		—

Taking Re. 1-3 as the cost of ammonia salt used, house rent, wear and tear of the machine, repairs and interest on money invested, etc., there is a clear income of Rs. 3 per day to the owner when his machines work regularly, but this is not the case always.

Ice-cream is sold by hawking in the streets and the men who buy it wholesale at 7 annas per seer sell it by hawking at 10 annas per seer. The average earning of a hawker per day is about a rupee. The work is only seasonal and the men have to do some other work in the winter and rainy seasons.

*(iii) Manufacture of aerated waters.*

There are three factories in the town for the manufacture of aerated waters. Soda water and lemonade are mostly manufactured. All the factories are working on similar lines. One is described below.

The factory in Muhalla Drummondganj is working for the last five years. It has a one-bottle machine purchased from Bareilly for Rs. 365. Sulphuric acid of 1750° strength is purchased from Cawnpore at 3 annas per lb. and Soda Ash is obtained from Cawnpore at Rs. 16 per bag of 1 maund 2 seers. Half seer soda and 1 lb. sulphuric acid gives enough gas to fill four dozen bottles at 80 lb. pressure per square inch.

For filling seven dozen bottles of lemonade 1½ tola saccharine, 7 drops colour essence, 1½ seers sugar and 21 seers water are required. Saccharine is purchased at Rs. 18 per lb., colour essence at Rs. 3 per lb., sugar at Rs. 24 per maund and bottles are purchased at Rs. 6 to Rs. 8 per dozen. There is a breakage in the bottles at an average of about 15 bottles per month. In one day of 10 hours about 32 dozen bottles are filled. Three men are employed at Rs. 15 per month and they work in the factory as well as sell the produce in the market. It is sold at 1 anna per bottle retail and 8 annas per dozen bottles wholesale.

## 10. Pottery and glass.

### (a) Pottery.

Besides the manufacture of ordinary earthen pots of the usual country type, such as matka, ghara, kunda, kundi, chappan, handi, rikabi, tabaq, gilās, piali, piala, kuza, kahtari, karahi, gurguri and chilam and ordinary country tiles, there are no potters manufacturing art pottery worth noting. The earth for pottery is obtained from tanks at no great distance from site. These tanks belong to zamindars who charge for the earth at 1 anna per month per potter.

### (b) Manufacture of glass churis.

About 10 families of Muhammadan Churiharas are engaged in the manufacture of glass churis (bangles). Block glass is obtained from Ferozabad at about Rs. 5 per maund. The process of manufacture and the various tools and appliances used are described in great details in Mr. Dobb's Monograph on Pottery and Glass and do not require to be repeated here.

In one seer of glass about 400 churis are made and a man can make about 700 churis in a day for which firewood worth about 2 annas is required. Churis are sold at Re. 1 to Re. 1-8 per thousand. These are used locally and are also exported to a few neighbouring places like Puranpur, Bisalpur, etc., through dealers of the latter places.

## 11. Textiles.

### (i) Spinning and weaving.

(a) *Handloom weaving.*—There is no power mill in the district for spinning and weaving, but handloom weaving is practised in almost all large towns and villages. The census of 1921 returned 4,135 persons as engaged in spinning, sizing and weaving but these figures are now out of date and they do not correctly indicate the present condition of the industry in the district. Throw-shuttle looms are mostly used. Though the outturn of these looms is very low, the weavers do not wish to adopt the fly-shuttle looms simply because they do not know how to use them. The cloth woven at present is mostly garha and coloured checks. Generally the weavers themselves dye their yarn. Mostly aniline dyes are used.

The industry is centralized in several villages like Pautā, Khamaria, Raipur, Bekannapur, Padri, etc., and in some of the villages 50 to 60 weavers are in one place. The yarn used is mostly from the Cawnpore mills. Yarn of different counts is used in different places according to the kind of cloth largely in demand in the particular locality. Yarns of  $10\frac{1}{2}$  to 20 counts are largely used and the following are their present prices here:—

	Rs. a.
$10\frac{1}{2}$ counts	... 7 8 per 10 lb. bundle.
$12\frac{1}{2}$ „	... 8 12 „ „ „
14 „	... 9 4 „ „ „
20 „	... 11 0 „ „ „

A man can weave about 8 yards of cloth in a day. The price of a garha than 15 yards by 22 inches ranges from Rs. 3 to Rs. 3-12 according to the quality of the yarn used. Coloured checks  $5\frac{1}{2}$  yards by 30 inches are sold at Re. 1-8 to Re. 1-10 each. The average earning of a man in this industry is about 12 annas per day. Cloth is bought for sale by the weavers to the local markets on market days where retail purchasers come from the neighbouring villages.

(b) *The Arya Weaving School.*—The Arya Weaving School, Bisalpur, is in fact a weaving factory run on business lines. Five looms are working at present—all of them of the fly-shuttle type; four weavers are employed to whom wages are paid by time at the rate of Rs. 12 to Rs. 15 per month. There are two students also who get a stipend of Rs. 8 per month each. A student generally gets his training for one year after which it is his option either to remain in the school in which case he is paid by piece work or to go away and get employment somewhere else. Cloth woven is Kashi silk, twill, garha and gabrun. Yarn for Kashi silk is purchased from Bombay and Benares at about Rs. 40 per bundle of 11 lb. Cotton yarn of 12 to 40 counts is used. One man can weave 10 yards of garha 4 yards of twill or 7 yards of Kashi silk in a day. Nearly the whole of the cloth produced is sold locally. In one year about 50 bundles of cotton yarn and 50 bundles of yarn for Kashi silk are consumed.

The following are some of the present prices of the different cloths produced :—

	Rs. a.	Rs. a.	
Kashi silk	... 1 0	to 1 10	per yard.
Twill	... 1 4		„
Garha	... 0 4	to 0 8	„
Gabrun	... 0 4	to 0 6	„

A small quantity of hand-spun yarn is also available at 6 to 8 chhataks for a rupee and is sometimes used.

(c) *Weaving of durries.*—Two families of Muhammadans in the town are engaged in the weaving of durries. Durries are made from new yarn as well as from yarn spun from old cotton. New yarn is obtained at Re. 1-12 per seer and yarn spun from waste cotton at  $1\frac{1}{2}$  to  $1\frac{1}{2}$  seers for a rupee. Yarn is obtained from Bareilly. Both plain and coloured durries are made. Professional dyers are engaged for dyeing; they charge at the rate of 6 annas per seer. A man can weave a plain durrie 6' x 4' a day. Such a durrie requires  $1\frac{1}{2}$  to 3 seers of yarn and will be sold for Rs. 2-8 to Rs. 4. Plain durries are made from yarn spun from old cotton. A coloured durrie of the same size is made in two days and is sold at Rs. 5 to Rs. 10 each. The average earning of a man in this industry is about a rupee a day.

(ii) *Dyeing and printing.*

There are three families of Chhipis in the town who carry on their work of printing. Lihafs and toshaks are usually printed in winter and dupattas in summer and rainy seasons. Aniline dyes are mostly used for dyeing; for printing *al* is used to make the colours fast. Printing is done to order only on the customer supplying his cloth. The colours are said to be fast, but a little defect in the colours does not matter to the buying public which uses them in the form of articles stuffed with cotton. The prints have not to stand frequent washing. The cloth for printing is obtained from the local market. The charge for printing lihafs and toshaks is Re. 1 each. A man can print two lihafs or two toshaks in a day. For printing dupattas, papri (alizarine) is used and is purchased at Rs. 3 per seer. Charge for printing a dupatta is 4 annas. A man can print eight dupattas in a day and get Rs. 2 in which Re. 1 is the cost of colours, etc., and Re. 1 is the printer's income.



## 12. Wood work.

### (a) *Manufacture of cot legs.*

About 100 persons, both Hindus and Muhammadans, are engaged in the town in the manufacture of cot legs. Some of these people work at their homes while others (about 15 of them) have small factories and have engaged two to three men to help them. Shisham wood cut to the required size is imported from the neighbouring forests chiefly via Tanakpur at about 12 annas to Re. 1-4 per four pieces according to the size and quality of the wood. The turner himself does both the work, that of revolving the wood with his right hand by means of a bow and that of using the cutting tools with the left hand, while he takes the help of his feet also in this work. A man can make one to two sets of four legs each in a day according to the size and workmanship. Wages for this work are paid by piece at the rate of 6 annas to Re. 1 per set. The price of a set ranges from Re. 1-12 to Rs. 3-12. The average earning of a workman is about 12 annas and that of a factory owner Re. 1-8 to Rs. 2 per day. There are about a dozen dealers or arahatias in the town to whom wholesale purchasers come from outside. These are some fixed customers also who send their orders to these arahatias by post. Cot legs are mostly exported to Amritsar, Lahore, Lyallpur, Gujranwala and many other large towns in the Punjab.

### (b) *Manufacture of rahloos.*

About 150 persons in the towns of Pilibhit and Puranpur and in the neighbouring villages like Roodpur, Sherpur, Gajraura, Bilahri, Kalinagar, etc., are engaged in the manufacture of rahloos—a conveyance driven by bullocks. In this industry also some people work at their homes while about 20 have small factories each having two to four men. Wages are paid by time at rates ranging from Re. 1 to Re. 1-8 per day in the towns and 10 annas to 14 annas in the villages where the cost of living is comparatively cheaper and the workmanship not so good. Wood required for the industry is imported from the neighbouring forests through the forest contractors. Both sakhu and shisham wood are used half to half in making a rahloo. Shisham wood is purchased at Re. 1-4 to Rs. 2 per

c. ft. and sakhu wood at Rs. 2 to Rs. 3 per c. ft. For one rahloo about 20 c. ft. of wood worth about Rs. 40 is required, and three men working together can make a rahloo in about eight days. The price of a rahloo ranges from Rs. 60 to Rs. 100. They are taken for sale to the neighbouring fairs and are also sold locally.

(c) *Manufacture of sandals.*

About 75 men in the town are engaged in the manufacture of sandals. Some of them work at their homes, while others are also makers of rahloo in some of the factories and they do this work during the slack season. Boys also while learning work set their hands by sandal making. Only shisham wood is used and is purchased at Re. 1-4 to Rs. 2 per c. ft. A cubic foot of it is enough to make 12 pairs. A man can make 10 pairs of plain sandals or one to three pairs of ornamented (nakshidar) sandals in a day. Price of plain sandals is Rs. 20 per hundred and that of ornamented ones Rs. 25 to Rs. 40 per hundred. Sandals are used locally and are also exported chiefly to the Punjab. There are about a dozen dealers (bisatis) in the town, who buy them for export as well as for local sale.

(d) *Manufacture of wooden combs.*

There are about 10 small factories in the town for the manufacture of combs. Haldu wood is chiefly used and is purchased at about Re. 1-4 per c. ft. A cubic foot of it is enough to make 600 to 700 combs and a man can make in a day about 100 combs the price of which would be Rs. 8-8 per thousand; 5 to 15 men work in a factory. Wages are paid by piece and the following are some of the present rates:—

Rs. a.

Wages for cutting into shape ...	2	0	per thousand.
Wages for cutting teeth ...	3	0	„ „
Wages for cleaning and polish- ing.	2	8	„ „

One man can cut into shape about 250 combs, can cut teeth on about 250 combs or can clean and polish about 500 combs in a day. The earning of a man in this industry is about a rupee a day.

Combs are sent to most of the large towns of the United Provinces and the Punjab and also to Calcutta and Bombay for export to colonies having a large number of Indian labourers.

The combs are of very inferior qualities and only command a large sale on account of their cheapness.

The following are some of the present wholesale prices of the combs :—

	Rs.	a.		
Kangha, gol or chowras	...	8	8	per thousand.
Kanghi, zanani	...	15	0	„ „
Kanghi, Arbi	...	22	0	„ „
Kanghi, Calcuttahia	...	8	0	„ „
Kanghi, Alamshahi	...	2	8	„ „
Kanghi, Sonahri	...	6	0	„ „
Kanghi, Nizamabadi	...	22	0	„ „
Kanghi, ghatiha	...	1	4	„ „
Kanghi, munnidar small	...	14	0	„ „
Kanghi, munnidar large	...	18	0	„ „
Kanghi, Benarsi	...	7	8	„ „
Kanghi, chowras large	...	25	0	„ „

(e) *The district board workshop.*

This workshop is running for the last six years. Mostly educational requisites are made for the schools. At present five men are working. One mistry at Rs. 35, three carpenters at Rs. 27 each and one apprentice at Rs. 10 per month are employed.

The board has decided to start a carpentry school here with which this workshop will be amalgamated. The scheme for the school is complete and the Secretary hopes to start the building work in a couple of months. The board has accepted a scheme prepared by Mr. G. F. Worthen, Principal, Government Carpentry School, Allahabad, and is prepared to bear the recurring expenditure of Rs. 971, Rs. 1,919 and Rs. 2,892 in the first, second and third year, respectively, and will also spend Rs. 5,000 on buildings. The Government has sanctioned a non-recurring grant of Rs. 1,700 per annum for three years.

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### CHAPTER III.

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#### SUGGESTIONS FOR THE IMPROVEMENTS OF THE VARIOUS DISTRICT INDUSTRIES TOGETHER WITH THE INDUSTRIAL POSSIBILITIES OF THE DISTRICT.

(1) *Canning and fruit preserving.*—The district is noted for its pineapples; mango trees, also, grow in abundance. A very lucrative business can be built up if some enterprising capitalist steps in to start a small concern for canning and fruit preserving in some suitable locality.

(2) *Ulla grass.*—There is a large quantity of a kind of grass known as Ulla, which can be most useful for the manufacture of paperpulp. The Officer in Charge Paper Pulp, Forest Research Institute, Dehra Dun, had conducted a series of experiments and found it very good for the purpose. He intends conducting further large scale experiments when his manufacturing plant, now under erection, gets into work.

(3) *Sugarcane crushing mills.*—At present only two roller mills are manufactured and used. The advantages of three-roller mills should be practically demonstrated to the users.

(4) *Rice hulling.*—The district has returned 142,745 acres under rice and the quantity of rice produced annually is estimated to be 1,784,312 maunds. It would pay to work an up-to-date power mill for hulling rice by means of modern machinery.

(5) *Wood industry.*—Pilibhit is an important timber centre in the provinces and the manufacture of wooden articles is the chief industry of the district but their designs are sold and stereotyped. A school on a small scale to give short but instructive demonstration lectures will do a great deal in improving the present condition of the industry. Introduction of new designs and ideas in the articles made at present and the manufacture of other articles as well, specially in the furniture line, will be much appreciated by people interested in the trade as well as by the buying public. The district board of Pilibhit

is alive of the fact and is starting a carpentry school here very shortly.

(6) *Municipal Industrial School.*—The municipal board, Bisalpur, contemplates starting a small industrial school at Bisalpur to give short and useful trainings in handloom weaving, etc. It is a move in the right direction and deserves every encouragement.

## CHAPTER IV.

## STATISTICS.

## 1. Manufacture of naichas.

## 1. Raw material—

*Import—*

- (a) *Quantity.*—About 6,000 reeds, 12½ seers kalabatun, 1½ seers silk and about 500 yards of cloth.
- (b) *Place of origin.*—Reeds from the neighbouring forests, kalabatun and silk from Lucknow and Delhi and the cloth is purchased locally.
- (c) *Value.*—Reeds worth Rs. 100, kalabatun worth Rs. 250, silk worth Rs. 60 and cloth worth about Rs. 220.

*Export—*

- (a) *Quantity.*—About 2,000 naichas.
- (b) *Place of consignment.*—To Bisalpur, Puranpur and the neighbouring villages.
- (c) *Value* —About Rs. 1,250.

2. *Manufacture.*—Household industry.

- (a) *Number of persons employed.*—About 10 persons in all.
- (b) *Wages and system of payment.*—No outside persons are employed on wages. The average earning of a man is about 12 annas.
- (c) *Total outturn.*—About 4,000 naichas.
- (d) *Marketing system.*—Customers come and buy personally.
- (e) *Profit.*—About 15 per cent.

## 2. Lime burning from stone.

## 1. Raw material—

*Import—*

- (a) *Quantity.*—About 6,000 maunds of stone and about 2,400 maunds of charcoal.

(b) *Place of origin.*—Stone is obtained from Bazpur, a station on the Lalkua-Kashipur and Ramnagar branch of the Rohilkhand and Kumaun Railway. Charcoal from the forests.

(b) *Value.*—Stone worth about Rs. 2,650 and charcoal worth about Rs. 960.

*Export.*—There are no exports in this industry as nearly the whole of the lime produced is consumed locally.

2. *Manufacture.*—Household industry.

(a) *Number of persons employed.*—Two men in each works.

(b) *Wages and system of payment.*—Daily wages at 8 annas a day.

(c) *Total outturn.*—About 3,600 maunds of lime.

(d) *Marketing system.*—Customers come and buy personally.

(e) *Profit.*—About 10 per cent.

3. *Lime burning from kankar.*

1. *Raw material—*

*Import—*

(a) *Quantity.*—About 80,000 c. ft. of kankar and about 40,000 c. ft. of firewood, 100 c. ft. of kankar-75 maunds of kankar.

(b) *Place of origin.*—Kankar from Rampura and firewood from the neighbouring forests.

(c) *Value.*—Kankar worth about Rs. 6,400 and firewood worth about Rs. 800.

*Export.*—There is no export in this industry as nearly the whole of the lime produced is consumed locally.

2. *Manufacture.*—Household industry.

(a) *Number of persons employed.*—Four men on each kiln.

(b) *Wages and system of payment.*—Daily wages at 8 annas.

(c) *Total outturn.*—About 60,000 c. ft. of lime.

(d) *Marketing system.*—Customers come and make purchases personally.

(e) *Profit.*—About 12 per cent.

#### 4. Flour milling.

##### 1. Raw material—

###### Import—

- (a) *Quantity*.—About 54,000 maunds of wheat.
- (b) *Place of origin*.—From the neighbouring places.
- (c) *Value*.—Worth about Rs. 1,21,000.

###### Export—

- (a) *Quantity*.—About 27,000 maunds of ata.
- (b) *Place of consignment*.—To the neighbouring places mostly those where the Sarda Canal labourers are working.
- (c) *Value*.—About Rs. 70,937.

##### 2. Manufacture.—Household industry.

- (a) *Number of persons employed*.—Four to six men in each.
- (b) *Wages and system of payment*.—Monthly wages ranging from Rs. 6 to Rs. 60.
- (c) *Total outturn*.—About 53,725 maunds of ata.
- (d) *Marketing system*.—There are fixed customers.
- (e) *Profit*.—About 10 per cent.

#### 5. Manufacture of phul thalis.

##### 1. Raw material—

###### Import—

- (a) *Quantity*.—About 2,160 maunds of old and broken phulwares.
- (b) *Place of origin*.—Cawnpore, Calcutta, etc.
- (c) *Value*.—About Rs. 1,29,600.

*Export*.—There is no export in this industry as nearly the whole of the produce is sold locally on the shops.

##### 2. Manufacture.—Household industry.

- (a) *Number of persons employed*.—Six or seven persons in each.
- (b) *Wages and system of payment*.—Wages are paid by piece, 8 annas per maund for galai and dhalai (melting and casting), Re. 1-8 per maund for ghanwai (beating into shaps) and Rs. 5 per maund for chilai (scrapping). Average earning of a man is about 12 annas per day.



- (c) *Total outturn.*—About 1,620 maunds of thalis worth about Rs. 1,94,400.
- (d) *Marketing system.*—Sold at the shops where customers come and buy personally
- (e) *Profit.*—About 12½ per cent.

### 6. Manufacture of shoes (Indian pattern).

#### 1. Raw material—

##### Import—

- (a) *Quantity.*—About 324 pieces of country tanned hides.
- (b) *Place of origin.*—Bareilly and Shahjahanpur.
- (c) *Value.*—About Rs. 1,944.

*Export.*—There is no export in this industry as all the shoes made are used locally.

#### 2. Manufacture.—Household industry.

- (a) *Number of persons employed.*—About 10 persons.
- (b) *Wages and system of payment.*—No outside persons are employed on daily wages. The average earning of a man in this industry is about 12 annas a day.
- (c) *Total outturn.*—About 3,240 pairs of shoes.
- (d) *Marketing system.*—Customers come at the shops and make purchases personally.
- (e) *Profit.*—About 15 per cent.

### 7. Manufacture of shoes (English pattern).

#### 1. Raw material—

##### Import—

- (a) *Quantity.*—About 300 pieces of leather for uppers and about 60 pieces of leather for soles.
- (b) *Place of origin.*—Cawnpore.
- (c) *Value.*—About Rs. 3,600.

*Export.*—There is no export in this industry as all the shoes manufactured are sold locally.

#### 2. Manufacture.—Household industry.

- (a) *Number of persons employed.*—About five persons in all.
- (b) *Wages and system of payment.*—No outside persons employed on wages. The average earning of a man in this industry is about a rupee per day.
- (c) *Total outturn.*—About 1,800 pairs of shoes and slippers.

(d) *Marketing system.*—Customers come and make purchases personally.

(e) *Profit.*—About 20 per cent.

### 8. Manufacture of harness.

#### 1. Raw material—

##### Import—

(a) *Quantity.*—About 150 pieces of leather.

(b) *Place of origin.*—Cawnpore Bareilly and Shahjahanpur.

(c) *Value.*—About Rs. 1,050.

*Export.*—There is no export in this industry as all the harnesses manufactured are used locally.

#### 2. Manufacture.—Household industry.

(a) *Number of persons employed.*—About five in all.

(b) *Wages and system of payment.*—No outside persons are employed on wages. Average earning of a man is about a rupee a day.

(c) *Total outturn.*—About 300 harnesses.

(d) *Marketing system.*—Customers come and make purchases personally.

(e) *Profit*—About 20 per cent.

### 9. Manufacture of cocoanut huggas.

#### 1. Raw material—

##### Import—

(a) *Quantity.*—About 15,000 cocoanut shells and about the same number of wooden middle stems.

(b) *Place of origin.*—Cocoanut shells are imported from Cawnpore and the middle wooden stems from Shahjahanpur.

(c) *Value.*—Cocoanut shells worth about Rs. 450 and the middle wooden stems worth about Rs. 375.

##### Export—

(a) *Quantity.*—About 7,250 huggas.

(b) *Place of consignment.*—To Bisalpur, Puranpur and to the neighbouring villages.

(c) *Value.*—About Rs. 1,812.

#### 2. Manufacture.—Household industry.

(a) *Number of persons employed.*—Two men in all.

- (b) *Wages and system of payment.*—No outside men are employed on wages. The average earning of a man in this industry is about a rupee a day
- (c) *Total outturn.*—About 14,500 huqqas.
- (d) *Marketing system.*—Sold at the shops and customers come personally and make purchases.
- (e) *Profit.*—About 20 per cent.

#### 10. Manufacture of baib strings.

##### 1. Raw material—

###### *Import—*

- (a) *Quantity.*—About 18,000 maunds of baib grass.
- (b) *Place of origin.*—From the neighbouring forest.
- (c) *Value.*—About Rs. 45,000.

###### *Export—*

- (a) *Quantity.*—About 10,000 maunds of string.
- (b) *Place of consignment.*—To Amritsar, Lahore, Lyallpur, Gujranwala and to most other large towns mostly in the Punjab.
- (c) *Value.*—About Rs. 1,00,000.

##### 2. Manufacture.—Household industry.

- (a) *Number of persons employed.*—About 400 persons.
- (b) *Wages and system of payment.*—No outside persons are employed on wages. The average earning of a man in this industry is about 6 annas per day.
- (c) *Total outturn.*—About 14,400 maunds of string.
- (d) *Marketing system.*—There are fixed customers who buy wholesale.
- (e) *Profit.*—About 15 per cent.

#### 11. Manufacture of lac churis.

##### 1. Raw material—

###### *Import—*

- (a) *Quantity.*—About 180 maunds of kiri, 2½ seers of shellac and about 108 gaddis of panni.
- (b) *Place of origin.*—Kiri and shellac from Mirzapur and panni from Moradabad.
- (c) *Value.*—About Rs. 3,600 worth kiri, Rs. 405 worth shellac and Rs. 67-8 worth panni.

###### *Export—*

- (a) *Quantity.*—About 3,000 pairs of lakhautia jor and about 10,000 pairs of Kangan.

- (b) *Place of consignment.*—To the neighbouring villages  
 (c) *Value.*—About Rs. 3,300.

2. *Manufacture.*—Household industry.  
 (a) *Number of persons employed.*—About 20 men in all.  
 (b) *Wages and system of payment.*—No outside persons are employed on wages. Average earning of a man is about 8 annas per day.  
 (c) *Total outturn.*—About 3,600 pairs of lakhutia jor and about 14,400 pairs of kangana.  
 (d) *Marketing system.*—Customers come personally at the shops and make purchases personally. Churis are also taken to the neighbouring fairs for sale.  
 (e) *Profit.*—About 15 per cent.

### 12. Handloom weaving.

#### 1. *Raw material*—

##### *Import*—

- (a) *Quantity.*—About 3,600 maunds of yarn.  
 (b) *Place of consignment.*—Mostly from Cawnpore.  
 (c) *Value.*—About Rs. 2,31,000.

*Export.*—There is no export in this industry as all the cloth produced is consumed locally.

#### 2. *Manufacture.*—Household industry.

- (a) *Number of persons engaged.*—About 700 persons.  
 (b) *Wages and system of payment.*—No outside persons are employed on wages. Average earning of a man in this industry is about 12 annas a day.  
 (c) *Total outturn.*—About 76,800 pieces of cloth.  
 (d) *Marketing system.*—Weavers bring the cloth to the markets on market days for sale.  
 (e) *Profit.*—About 12 per cent.

### 13. Manufacture of cot legs.

#### 1. *Raw material*—

##### *Import*—

- (a) *Quantity.*—About 216,000 pieces of shisham wood out to the size of legs.  
 (b) *Place of origin.*—From the neighbouring forests chiefly through Tanakpur.  
 (c) *Value.*—About Rs. 54,000.

*Export—*

- (a) *Quantity.*—About 50,000 sets of cot legs of four each.
- (b) *Place of consignment.*—To Amritsar, Lahore, Lyallpur, Gujranwala and to most other large towns mostly in the Punjab.
- (c) *Value.*—About Rs. 1,00,000.

2 *Manufacture.*—Household industry.

- (a) *Number of persons employed.*—About 100 persons.
- (b) *Wages and system of payment.*—Wages are paid by piece 6 annas to Re. 1 per set. The average earning of a man in this industry is about 12 annas per day.
- (c) *Total outturn.*—About 54,000 sets of cot legs of four each.
- (d) *Marketing system.*—There are fixed customers who buy wholesale.
- (e) *Profit.*—About 20 per cent.

14. *Manufacture of rahloos.*1. *Raw material—**Import—*

- (a) *Quantity.*—About 48,000 c. ft. of shisham and sakh wood.
- (b) *Place of origin.*—From the neighbouring forest.
- (c) *Value.*—About Rs. 95,000.

*Export—*

- (a) *Quantity.*—About 2,400 rahloos.
- (b) *Place of consignment.*—To the neighbouring villages.
- (c) *Value.*—About Rs. 1,92,000.

2 *Manufacture.*—Household industry.

- (a) *Number of persons engaged.*—About 150 persons.
- (b) *Wages and system of payment.*—Daily wages, ranging from Re. 1 to Re. 1-8 in the towns and 10 annas to 14 annas in the villages.
- (c) *Total outturn.*—About 2,400 rahloos.
- (d) *Marketing system.*—Customers come and make purchases personally. Rahloos are also taken to the neighbouring fairs for sale.
- (e) *Profit.*—About 15 per cent.

## 15. Manufacture of sandals.

## 1. Raw material—

*Import—*

- (a) *Quantity.*—About 10,800 c. ft. of shisham wood.
- (b) *Place of origin.*—From the neighbouring forest.
- (c) *Value.*—About Rs. 16,200.

*Export—*

- (a) *Quantity.*—About 86,400 pairs of sandals.
- (b) *Place of consignment.*—To most of the large towns of the Punjab and the neighbouring districts of these provinces.
- (c) *Value.*—About Rs. 21,600.

2. *Manufacture.*—Household industry.

- (a) *Number of persons employed.*—About 75 persons.
- (b) *Wages and system of payment.*—Daily wages at 12 annas to Re. 1-4 per day.
- (c) *Total outturn.*—About 129,600 pairs of sandals.
- (d) *Marketing system.*—Sold at shops in the town and for export there are fixed customers who buy wholesale.
- (e) *Profit.*—About 15 per cent.

## 16. Manufacture of wooden combs.

## 1. Raw material—

*Import—*

- (a) *Quantity.*—About 3,000 c. ft. of haldu wood.
- (b) *Place of origin.*—From the neighbouring forest.
- (c) *Value.*—About Rs. 3,750.

*Export—*

- (a) *Quantity.*—About 1,800,000 combs.
- (b) *Place of consignment.*—To most of the large towns of the United Provinces and the Punjab and also to Calcutta and Bombay for export to such Colonies where there is a large number of Indian Labourers.
- (c) *Value.*—About Rs. 15,300.

2. *Manufacture.*—On a small factory basis.

- (a) *Working capital.*—Rs. 500 to Rs. 1,000.
- (b) *Labour.*—Labour available locally.
  - (1) *Number of hands employed.*—Five to 15 men in each factory.

- (2) *Wages and system of payment.*—Wages are paid by piece; for cutting into shape Rs. 2, for cutting teeth Rs. 3 and for cleaning and polishing Rs. 2-3 per thousand. The average earning of a man is about a rupee a day.
- (c) *Outturn.*—About 1,800,000combs.
- (d) *Profit.*—About 12 per cent.
- (e) *Marketing system.*—There are fixed customers who buy wholesale.
- (f) *What, if any, mechanical appliances.*—No mechanical appliances except the ordinary cutting tools, etc., are used.

#### 17. Manufacture of horn combs.

##### 1. Raw material—

###### *Imports—*

- (a) *Quantity.*—About 108 maunds of horns.
- (b) *Place of origin.*—Slaughter-houses as well as from the neighbouring forests.
- (c) *Value.*—About Rs. 2,160.

###### *Export—*

- (a) *Quantity.*—About 260 gross of combs.
- (b) *Place of consignment.*—Benares and Patna.
- (c) *Value.*—About Rs. 3,000.

##### 2. *Manufacture.*—Household industry.

- (a) *Number of persons employed.*—About three men in all.
- (b) *Wages and system of payment.*—No outside men are employed on wages. The average earning of a man in this industry is about a rupee a day.
- (c) *Total outturn.*—About 270 gross of combs.
- (d) *Marketing system.*—There are fixed customers who buy wholesale.
- (e) *Profit.*—About 15 per cent.

CHAPTER V.

DIRECTORY.

1. Dealers in gold and silver, and ornaments made thereof.

1.	Ram Prasad	...	Chowk, Pilibhit.
2.	Bachnu Lal	...	" "
3.	Gopinath	...	" "
4.	Lachman Das	...	" "
5.	Narayan Das	...	" "
6.	Babu Ram	...	" "
7.	Brij Basi Lal	...	" "
8.	Ram Gopal	...	" "
9.	Shyam Behari Lal	...	" "
10.	Balak Ram	...	" "
11.	Sri Ram	...	" "
12.	Babu Ram	...	" "
13.	Chandi Prasad	...	" "
14.	Lachmi Narayan	...	" "
15.	Ase Ram	...	" "
16.	Ram Prasad Lal	...	" "
17.	Sita Ram	...	" "
18.	Sri Ram	...	" "
19.	Lalta Prasad	...	" "
20.	Nand Lal	...	" "
21.	Payray Lal	...	" "
22.	Mangal Sen	...	" "
23.	Bansi Dhar	...	" "
24.	Saiya Mal	...	" "
25.	Kandhai Lal	...	" "
26.	Lachmi Das	...	" "
27.	Ram Sanehi Mal	...	" "
28.	Ram Narayan	...	" "

2. List of gold and silversmiths.

1.	Ram Saroop	...	Chowk, Pilibhit.
2.	Mangal Sen	...	" "
3.	Buldeo Prasad	...	" "
4.	Sohan Lal	...	" "
5.	Lochan Prasad	...	" "



6.	Jaggarnath Prasad	...	Chowk, Pilibhit.
7.	Nathu Mal	...	" "
8.	Hakumat Rai	...	" "
9.	Budh Sen	...	" "
10.	Khub Chand	...	" "
11.	Mangal Prasad	...	" "
12.	Babu Ram	...	" "
13.	Chhote Lal	...	" "
14.	Lallu Sonar	...	" "
15.	Jaggan	...	" "
16.	Kundan Lal	...	" "
17.	Hulasi Ram	...	" "
18.	Sheo Charan Lal	...	" "
19.	Baldeo Lal	...	" "
20.	Kandhai Lal	...	" "
21.	Tika Ram	...	" "
22.	Raghuber	...	" "
23.	Shyam Lal	...	" "
24.	Ghasi Ram	...	" "
25.	Chiraonji Lal	...	" "
26.	Banwari Lal	...	" "
27.	Ram Lal	...	" "
28.	Hazari Lal	...	" "
29.	Faqir Chand	...	" "
30.	Babu Ram	...	" "
31.	Payray Lal	...	" "
32.	Durga Prasad	...	" "
33.	Sir Chand	...	" "

### 3. Manufacturers of clay toys.

1.	Kishun Lal	...	Kumargarh, Pilibhit.
2.	Umedi	...	" "
3.	Lalman	...	" "
4.	Chhedda	...	" "
5.	Dhannu	...	Bagh Gulsher Khan, Pilibhit.
6.	Beni	...	" "
7.	Debi	...	" "
8.	Thakuri	...	" "
9.	Hemraj	...	" "
10.	Chhaddu	...	" "
11.	Sohan	...	Anaifganj, "

- |     |                                   |           |     |                       |
|-----|-----------------------------------|-----------|-----|-----------------------|
| 12. | Kallu                             | ...       | ... | Anaitganj, Pilibhit.  |
| 13. | Tunri                             | ...       | ... | " "                   |
| 14. | Narayan                           | ...       | ... | " "                   |
| 15. | Hori                              | ...       | ... | " "                   |
| 16. | Bhupal                            | ...       | ... | Puranaganj, Pilibhit. |
| 17. | Lalta Prasad, Thakur Gopal Singh, | Pilibhit. |     |                       |

**4. List of naicha makers.**

- |    |                   |     |                           |
|----|-------------------|-----|---------------------------|
| 1. | Abdul Rashid Khan | ... | Masjid Pathani, Pilibhit. |
| 2. | Bashir Ahmed Khan | ... | " "                       |
| 3. | Abdul Latif       | ... | " "                       |
| 4. | Habib Ahmed       | ... | Drummondganj, Pilibhit    |
| 5. | Khali Ahmed       | ... | " "                       |
| 6. | Ram Charan        | ... | Chowk, Pilibhit.          |

**5. List of timber merchants.**

- |     |                           |          |                           |
|-----|---------------------------|----------|---------------------------|
| 1.  | Sheikh Usman.             | Mohammad | Masjid Pathani, Pilibhit. |
| 2.  | Fazal Haq                 | ...      | Punjabian, Pilibhit.      |
| 3.  | Abdullah                  | ...      | Macharhatta, Pilibhit.    |
| 4.  | Abdul Wahab               | ...      | Sher Mohammad, Pilibhit.  |
| 5.  | Hafiz Mohammad Khalil.    | ...      | Pakaria, Pilibhit.        |
| 6.  | Kan Mohammad Khan         | ...      | " "                       |
| 7.  | Alsuddin Khan             | ...      | " "                       |
| 8.  | Mohammad Ishaq            | ...      | Shah Saheb, Pilibhit.     |
| 9.  | Mohammad Ashiq            | ...      | " "                       |
| 10. | Vilaik Ahmed              | ...      | Drummondganj, Pilibhit.   |
| 11. | Abdul Ghaffar Khan        | ...      | Ghaffar Khan, Pilibhit.   |
| 12. | Mohammad Hussain, Barber. | ...      | " "                       |

**6. List of owners of brickfields.**

- |    |                              |                                     |
|----|------------------------------|-------------------------------------|
| 1. | Hamid Hussain Aftab Hussain. | Pokharia Naogawan, Pilibhit.        |
| 2. | Haji Ali Sheikh              | " "                                 |
| 3. | Hafiz Najibullah Khan...     | Near Veterinary Hospital, Pilibhit. |
| 4. | Abdul Rafiq Abdul Rashid     | Mominganj, Pilibhit.                |

## 7. List of owners of kankar lime kilns.

1.	Ram Dayal	...	Nakhasa, Pilibhit.
2.	Kallan Khan	...	Gauri, "
3.	Hamid Khan	...	" "
4.	Badullah	...	Nakhasa, "

## 8. List of owners of stone lime kilns.

1.	Sakhawat Hussain	...	Ghaffar Khan, Pilibhit.
2.	Haji Nematullah	...	" "
3.	Amanat Hussain	...	" "
4.	Tajammul Hussain	...	" "
5.	Neaz Hussain	...	" "
6.	Bashir Ahmed	...	" "
7.	Ali Hussain	...	" "
8.	Haji Hanif	...	" "
9.	Shafatullah	...	" "
10.	Samatullah	...	" "

## 9. Owners of the ink factory.

Messrs. Takhana Brothers... Takhana Street, Pilibhit.

## 10. List of grain dealers.

1.	Babu Ram Chandra Drummondganj, Pilibhit. Prasad.		
2.	Ram Charan Ram Prasad.	"	"
3.	Malik Ram Lachmi Ram	"	"
4.	Mohan Lal Raghuber Dayal.	"	"
5.	Ganesh Prasad	"	"
6.	Chheda Lal Munna Lal	"	"
7.	Rama Din Prabhu Dayal	"	"
8.	Ram Lal Anguri Lal	"	"
9.	Hardwari Mal Dwarika Das.	"	"
10.	Kundan Lal Makut Be- hari Lal.	"	"
11.	Lok Mal	"	"
12.	Tula Ram Hira Ram	"	"
13.	Misri Ram	"	"

- |     |                     |     |                         |
|-----|---------------------|-----|-------------------------|
| 14. | Kedar Nath          | ... | Drummondganj, Pilibhit. |
| 15. | Dhajji Mal          | ... | " "                     |
| 16. | Kesri Mal Kewal Ram | ... | " "                     |
| 17. | Jang Bahadur        | ... | " "                     |
| 18. | Nanhu Ram           | ... | " "                     |
| 19. | Makund Lal          | ... | " "                     |
| 20. | Champa Mal          | ... | " "                     |
| 21. | Ram Prasad          | ... | " "                     |
| 22. | Kandhai Lal         | ... | " "                     |
| 23. | Nathoo Ram          | ... | " "                     |
| 24. | Ram Dayal           | ... | " "                     |
| 25. | Isri Prasad         | ... | " "                     |
| 26. | Nadir Hussain       | ... | " "                     |

**11. Owners of flour mills.**

- |    |                  |     |                                |
|----|------------------|-----|--------------------------------|
| 1. | Sunder Lal       | ... | Gopal Singh, Pilibhit.         |
| 2. | Mazhar Hussain   | ... | Malik Ahmed Khan,<br>Pilibhit. |
| 3. | Shyam Behari Lal | ... | Anaitganj, Pilibhit.           |

**12. Owners of phulware factories.**

- |    |                                  |                                      |                        |
|----|----------------------------------|--------------------------------------|------------------------|
| 1. | Sheikh Kallan                    | ...                                  | Gopal Singh, Pilibhit. |
| 2. | Mohammad Hussain                 | Hussain Desnagar, Pilibhit.<br>Khan. |                        |
| 3. | Abdul Latif Khan                 | ...                                  | " "                    |
| 4. | Lal Khan                         | ...                                  | " "                    |
| 5. | Hakimullah                       | ...                                  | " "                    |
| 6. | Vilait Hussain and Anait Hussain | ...                                  | " "                    |
- Qasb.

**13. List of dealers in phulwares, etc.**

- |     |                           |                         |
|-----|---------------------------|-------------------------|
| 1.  | Nand Ram Har Prasad       | Drummondganj, Pilibhit. |
| 2.  | Ram Sandhai Moti Ram      | " "                     |
| 3.  | Dwarika Das Radhe Shyam.  | " "                     |
| 4.  | Gopi Nath Raghuber Dayal. | " "                     |
| 5.  | Ram Das                   | " "                     |
| 6.  | Madan Lal                 | " "                     |
| 7.  | Payray Lal                | " "                     |
| 8.  | Mangal Sen                | " "                     |
| 9.  | Kalika Prasad             | " "                     |
| 10. | Nanhe Mal Pyarelal        | " "                     |

**14. Owners of factories manufacturing and hiring out sugarcane crushing mills.**

- |               |     |                          |
|---------------|-----|--------------------------|
| 1. Ganga Ram  | ... | Durga Prasad, Bisalpur.  |
| 2. Ram Prasad | ... | Bakhtawar Lal, Bisalpur. |

**15. Owners of factories repairing and hiring out sugarcane crushing mills.**

- |                      |     |                          |
|----------------------|-----|--------------------------|
| 1. Beni Ram          | ... | Bakhtawar Lal, Bisalpur. |
| 2. Budh Sen          | ... | Durga Prasad, Bisalpur.  |
| 3. Chhadammi Bhurji  | ... | " "                      |
| 4. Ram Chander Sonar | ... | " "                      |
| 5. Husi Ram Mahraj   | ... | Dube Mahallah, Bisalpur. |
| 6. Lal Behari        | ... | " "                      |
| 7. Sewak Ram         | ... | " "                      |
| 8. Pyaray Lal        | ... | " "                      |
| 9. Basanti Sonar     | ... | " "                      |
| 10. Hira Lohar       | ... | " "                      |
| 11. Jawahir Lohar    | ... | " "                      |
| 12. Ase Ram          | ... | " "                      |
| 13. Laltu            | ... | " "                      |
| 14. Ram Sahai Pandit | ... | " "                      |
| 15. Pancham Lal      | ... | " "                      |

**16. Owners of factories manufacturing and hiring out sugarcane juice boiling pans.**

- |                          |     |                           |
|--------------------------|-----|---------------------------|
| 1. Dwarika Prasad Mannoo | ... | Anaitganj, Pilibhit.      |
|                          |     | Mal.                      |
| 2. Bhagwan Das           | ... | " "                       |
| 3. Janki Das             | ... | " "                       |
| 4. Surji Mal             | ... | Deori Lal, "              |
| 5. Hazari Lal            | ... | Masjid Pathani, Pilibhit. |
| 6. Nabi Buksh            | ... | Pakaria, Pilibhia.        |
| 7. Jivan Ram             | ... | " "                       |
| 8. Kallan                | ... | " "                       |
| 9. Hafiz Nizam           | ... | " "                       |

17. List of tinsmiths.

- |    |              |     |                        |
|----|--------------|-----|------------------------|
| 1. | Bhole Bukhsh | ... | Drummondganj Pilibhit. |
|    |              |     | bhit.                  |
| 2. | Fazal Haq    | ... | " "                    |
| 3. | Maqbul Ahmed | ... | " "                    |
| 4. | Jivan Bukhsh | ... | Mian Saheb, "          |
| 5. | Kallan       | ... | " "                    |
| 6. | Munna        | ... | " "                    |
| 7. | Nanhe        | ... | Chowk, "               |

18. List of exporters of hides and skins.

- |     |                    |     |                                       |
|-----|--------------------|-----|---------------------------------------|
| 1.  | Hafiz Ghulam Mowla | ... | Muhallah Panjabian,<br>Pilibhit.      |
| 2.  | Peer Buksh         | ... | Muhallah Bhure Khan,<br>Pilibhit.     |
| 3.  | Habibullah         | ... | " "                                   |
| 4.  | Abdullah           | ... | " "                                   |
| 5.  | Ahmed              | ... | " "                                   |
| 6.  | Mabboo             | ... | " "                                   |
| 7.  | Mohammed Ewaz      | ... | " "                                   |
| 8.  | Natha Chowdhari    | ... | Muhallah Faizullah<br>Pilibhit.       |
| 9.  | Habibullah         | ... | Muhallah Muhammad<br>Wasil, Pilibhit. |
| 10. | Lal Mohammed       | ... | Muhallah Buz Qassa-<br>ban, Pilibhit. |

19. List of dealers in hides and skins.

- |    |                  |     |                     |
|----|------------------|-----|---------------------|
| 1. | Kallan Butcher   | ... | Bisalpur, Pilibhit. |
| 2. | Awaz Butcher     | ... | " "                 |
| 3. | Abdul Rahim      | ... | " "                 |
| 4. | Abdullah Butcher | ... | " "                 |
| 5. | Rahim Buksh      | ... | " "                 |
| 6. | Allan Butcher    | ... | " "                 |

20. List of country leather tanners and shoemakers.

- |    |               |     |                             |
|----|---------------|-----|-----------------------------|
| 1. | Moti Chamar   | ... | Puranpur, Pilibhit.         |
| 2. | Buddha Chamar | ... | " "                         |
| 3. | Mihin Chamar  | ... | Mohammedpur, Pili-<br>bhit. |
| 4. | Hulasi Chamar | ... | Tanda, Pilibhit.            |
| 5. | Bachan Chamar | ... | " "                         |

6.	Ganga Chamar	...	Newadia, Pilibhit.
7.	Bhupal Chamar	...	" "
8.	Perdeshi Chamar	...	" "
9.	Thanna Chamar	...	Kalinagar, Pilibhit.
10.	Tulshi Chamar	...	" "
11.	Nathoo Chamar	...	Taronia, Pilibhit.
12.	Itwari Chamar	...	" "
13.	Tiloki Chamar	...	" "
14.	Ishwari Chamar	...	Naogawan, Pilibhit.
15.	Neta Chamar	...	Piparia, Pilibhit.
16.	Bulaki Chamar	...	" "
17.	Shiva Chamar	...	Dharmapur, Puranpur
18.	Mula Chamar	...	" "
19.	Mirai Chamar	...	Durga Prasad, Bisal- pur.
20.	Pitam Chamar	...	" "
21.	Mohan Chamar	...	" "
22.	Dhanni Chamar	...	" "
23.	Sukhi Chamar	...	" "
24.	Punni Chamar	...	" "
25.	Kallo Chamar	...	" "
26.	Har Krishna Chamar	...	" "
27.	Moti Chamar	...	" "
28.	Chaturia Chamar	...	" "
29.	Durga Chamar	...	" "
30.	Malua Chamar	...	" "
31.	Loki Chamar	...	" "
32.	Kandhaya Chamar	...	" "

**21. List of only country shoemakers.**

1.	Neti Chamar	...	Pakaria, Pilibhit.
2.	Hinni Chamar	...	" "
3.	Dehli Bhagat	...	" "
4.	Ganesh Chamar	...	" "
5.	Isri Chamar	...	" "
6.	Jhari Chamar	...	" "

**22. List of makers of shoes of English pattern.**

1.	Chheda Lal	...	Pakaria, Pilibhit.
2.	Ase Ram	...	" "
3.	Tara Chand	...	Drummondganj, Pili- bhit.

23. List of dealers in shoes.

1.	Hafiz Abdul Razzaq	...	Drummondganj, Pilibhit
2.	Manzur Ahmed	...	" "
3.	Noor Buksh	...	" "
4.	Morad Buksh	...	" "
5.	Karam Elahi	...	" "
6.	Najabuddin	...	" "
7.	Mohammed Jan	...	" "
8.	Hafiz Abdul Ahad	...	" "
9.	Mowla Buksh	...	" "
10.	Imamuddin	...	" "
11.	Barkatullah Khan	...	" "
12.	Noor Buksh	...	Bisalpur, Pilibhit.
13.	Chunna	...	" "
14.	Zamir	...	" "
15.	Bali	...	" "

24. List of harness manufacturers.

1.	Narayan Mochi	...	Chowk, Pilibhit.
2.	Buldeo Chamar	...	Kesri Singh, Pilibhit.
3.	Jhirkit Chamar	...	Khashimal, Pilibhit.

25. Manufacturer of mashak.

Chowdhari Hidayatullah	...	Durga Prasad, Pilibhit
------------------------	-----	------------------------

26. List of manufacturers of kuppis.

1.	Subbu Dabgar	...	Ashraf Khan, Pilibhit.
2.	Malua Dabgar	...	" "

27. Manufacturer of tablas.

Kallan	...	Mohtashim Khan, Pilibhit.
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28. List of mufflers of dhols, naqqaras, etc.

1.	Badullah, Dafali	...	Ghera Abdul Latif Khan, Pilibhit.
2.	Cheda Dafali	...	Bashir Khan, Pilibhit.
3.	Kallan Dafali	...	" "
4.	Razzaq Dafali	...	" "



5.	Kallan Dafali	...	Pakaria,	Pilibhit.
6.	Rahim Buksh	...	"	"
7.	Chedu Dafali	...	"	"
8.	Hidayat Dafali	...	Durga Prasad,	"
9.	Kifayat Dafali	...	"	"
10.	Mohammed Ewaz	...	"	"
11.	Lallah Dafali	...	"	"
12.	Cheddan Dafali	...	"	"
13.	Husain Buksh	...	Ashraf Khan,	"
14.	Bafati Dafali	..	"	"
15.	Ali Buksh ...	...	Khudaganj,	"
16.	Qadir Buksh	...	"	"
17.	Peer Buksh	...	"	"
18.	Nanhe Dafali	...	Mian Saheb,	"
19.	Munna Dafali	...	"	"
20.	Nanhe Dafali	...	Baidgawar,	"

### 29. List of manufacturers of fireworks.

1.	Anaitullah	...	Drummondganj,	Pilibhit
2.	Wajid Ali Shah	...	"	"
3.	Rahmatullah	...	"	"
4.	Mohammed Amir	...	"	"
5.	Majid Shah	...	"	"
6.	Mohammed Ewaz	...	Dori Lal,	Pilibhit.

### 30. List of licensees of saltpetre.

1.	Abdul Hamid	...	Drummondganj,	Pilibhit
2.	Gaya Prasad	...	"	"

### 31. List of manufacturers of cocoanut huqqas.

1.	Ghulam Jilani	...	Drummondganj,	Pilibhit
2.	Fazal Hussain	...	"	"

### 32. List of manufacturers of smoking tobacco.

1.	Nabi Buksh Shafiullah	...	Drummondganj,	Pilibhit
2.	Haji Sheikh Mohammed Hasan.	...	"	"
3.	Nawab Hasan	...	"	"
4.	Haji Ali Mohammed	...	"	"
5.	Amir Hasan	...	"	"
6.	Nisar Ahmed	...	Ghaffar Khan,	"
7.	Ahmed Hussain.	...	"	"

- |    |                |     |           |          |
|----|----------------|-----|-----------|----------|
| 8. | Haji Ali Buksh | ... | Puraimal, | Pilibhit |
| 9. | Neazullah      | ... | Chowk,    | "        |

**33. Importer of reh.**

- |                |     |                         |
|----------------|-----|-------------------------|
| Shafat Hussain | ... | Ghaffar Khan, Pilibhit. |
|----------------|-----|-------------------------|

**34. List of principal sutli makers.**

- |     |                  |     |                           |
|-----|------------------|-----|---------------------------|
| 1.  | Abdul Rahman     | ... | Sher Mohammed, Pilibhit.  |
| 2.  | Kallan           | ... | " "                       |
| 3.  | Gharibullah      | ... | " "                       |
| 4.  | Haji Nanhe       | ... | " "                       |
| 5.  | Vilayat Hussain  | ... | " "                       |
| 6.  | Shafat           | ... | " "                       |
| 7.  | Mohammed Shah    | ... | " "                       |
| 8.  | Chunnu           | ... | " "                       |
| 9.  | Nanhe            | ... | " "                       |
| 10. | Ismail           | ... | " "                       |
| 11. | Hayder Hussain   | ... | " "                       |
| 12. | Hidayat          | ... | " "                       |
| 13. | Ahmed Hussain    | ... | Mohammed Wasil, Pilibhit. |
| 14. | Chedda           | ... | " "                       |
| 15. | Mohammed Ewaz    | ... | " "                       |
| 16. | Rashid           | ... | " "                       |
| 17. | Akhtar           | ... | " "                       |
| 18. | Sulaiman         | ... | " "                       |
| 19. | Allauddin        | ... | " "                       |
| 20. | Munir            | ... | " "                       |
| 21. | Ali Hasan        | ... | Durga Prasad, Pilibhit.   |
| 22. | Bhura            | ... | " "                       |
| 23. | Rafat            | ... | " "                       |
| 24. | Neaz Ali         | ... | " "                       |
| 25. | Mohammed Hussain | ... | " "                       |
| 26. | Kabir            | ... | " "                       |
| 27. | Abdul Razzaq     | ... | " "                       |
| 28. | Saghir Ahmed     | ... | " "                       |
| 29. | Hamid            | ... | " "                       |
| 30. | Bulaqi           | ... | " "                       |
| 31. | Shabbir Ahmed    | ... | " "                       |
| 32. | Amirullah        | ... | " "                       |

## 35. List of manufacturers of horn combs.

- |    |                              |     |                        |
|----|------------------------------|-----|------------------------|
| 1. | Abdul Rahman                 | ... | Punjabian, Pilibhit.   |
| 2. | Ali Hussain <i>ur</i> f Babu | ... | " "                    |
| 3. | Abdul Shakur                 | ... | Ghaffar Khan, Pilibhit |

## 36. List of dealers in balb strings and ropes.

- |    |             |     |                        |
|----|-------------|-----|------------------------|
| 1. | Buddha      | ... | Drummondganj, Pilibhit |
| 2. | Mangal      | ... | " "                    |
| 3. | Hashmat     | ... | " "                    |
| 4. | Kifaitullah | ... | " "                    |
| 5. | Bittu       | ... | " "                    |
| 6. | Bashir      | ... | " "                    |

## 37. List of manufacturers of balb strings and ropes.

- |     |                |     |                          |
|-----|----------------|-----|--------------------------|
| 1.  | Abdul Rahman   | ... | Durga Prasad, Pilibhit.  |
| 2.  | Satarua        | ... | Khudaganj, "             |
| 3.  | Mabbu          | ... | " "                      |
| 4.  | Buddha         | ... | " "                      |
| 5.  | Hashmat        | ... | Shahji Mian, "           |
| 6.  | Battu          | ... | " "                      |
| 7.  | Fattu          | ... | " "                      |
| 8.  | Ghulam Hussain | ... | " "                      |
| 9.  | Mohammed       | ... | " "                      |
| 10. | Nanhe          | ... | Sher Mohammed, Pilibhit. |
| 11. | Najibullah     | ... | " "                      |
| 12. | Sharifullah    | ... | " "                      |
| 13. | Bashir Ahmed   | ... | " "                      |
| 14. | Kallan         | ... | " "                      |
| 15. | Neaz Mohammed  | ... | " "                      |
| 16. | Mohammed Ewaz  | ... | " "                      |
| 17. | Mohammed Kabir | ... | " "                      |
| 18. | Chhote         | ... | " "                      |
| 19. | Chhinga        | ... | " "                      |
| 20. | Wazir          | ... | " "                      |
| 21. | Raftu          | ... | " "                      |
| 22. | Mohammed Buksh | ... | Shahar Madina, Pilibhit. |
| 23. | Chhidda        | ... | " "                      |
| 24. | Hashmatullah   | ... | Joshitola, Pilibhit.     |
| 25. | Bittu          | ... | " "                      |
| 26. | Abdullah       | ... | " "                      |

27.	Habibullah ...	...	Md. Wasil Khan, Pilibhit.
28.	Anaitullah ...	...	" "
29.	Buddha ...	...	Durga Prasad, Pilibhit.
30.	Mohammed Buksh ...	...	" "
31.	Hidayatullah (Chowdhari)	...	" "
32.	Abdul Rahman ...	...	Bagh Gulsher Khan, Pilibhit.
33.	Bhura ...	...	Khakhra, Pilibhit.
34.	Gulam Mohammed ...	...	Desnagar, Pilibhit.

**38. List of manufacturers of bamboo baskets.**

1.	Tota Ram ...	...	Gangapuri, Pilibhit.
2.	Hulasi ...	...	" "
3.	Kandhai Ram ...	...	" "
4.	Permanand ...	...	" "
5.	Payray Lal ...	...	" "
6.	Tika Ram ...	...	" "
7.	Kesri ...	...	" "
8.	Nek Ram ...	...	" "
9.	Lekhraj ...	...	" "
10.	Thanni Ram ...	...	" "
11.	Khen Karan ...	...	" "
12.	Puran ...	...	Gorhi,
13.	Nokhe ...	...	" "
14.	Behari ...	...	" "
15.	Isri ...	...	" "
16.	Tilok ...	...	" "
17.	Tule Ram ...	...	" "
18.	Kundan ...	...	" "
19.	Khargi ...	...	Sungarhi,
20.	Lalji Chowdhari ...	...	" "
21.	Mangali ...	...	" "
22.	Pandu ...	...	" "
23.	Kesri ...	...	" "
24.	Teju ...	...	" "
25.	Tunda ...	...	" "
26.	Daulat ...	...	" "
27.	Nokha ...	...	" "
28.	Tota ...	...	" "
29.	Moti ...	...	" "

30.	Kallu	...	...	Sungarbi,	Pilibhit.
31.	Khemkaran	...	...	"	"
32.	Dingar	...	...	"	"
33.	Kulman	...	...	"	"
34.	Bhagirath	...	...	"	"
35.	Bhagwandas	...	...	"	"
36.	Khubba	...	...	"	"
37.	Raja	...	...	"	"
38.	Munnu	...	...	"	"
39.	Narayan	...	...	"	"
40.	Hardwar	...	...	"	"
41.	Hukum	...	...	"	"
42.	Sewak	...	...	"	"
43.	Panna	...	...	"	"
44.	Haddu	...	...	"	"
45.	Chet Ram	...	...	"	"
46.	Sukhlal	...	...	"	"
47.	Billa	...	...	"	"

**39. Chair caner and maker of chik, bamboo and cane basket and khas purdah.**

Lekhraj ... .. Sungarbi, Pilibhit.

**40. List of manufacturers of sirki pal.**

1.	Gulzari Ram	...	...	Sungarbi,	Pilibhit.
2.	Sewa Ram	...	...	"	"
3.	Kamla Prasad	...	...	"	"
4.	Naina Ram	...	...	"	"
5.	Cheta Ram	...	...	"	"
6.	Jasoda	...	...	"	"

**41. Manufacturer of chatal and punkha from khajur leaves.**

Amirullah ... .. Bisalpur, Pilibhit.

**42. Manufacturers of lac churis.**

1.	Abdul Majid	...	...	Sber Mohammed,	Pili- bhit.
2.	Abdul Ghani	...	...	"	"
3.	Khalifa Ghulam Moham- med	...	...	"	"
4.	Abdul Latif	...	...	"	"

- |     |                 |     |                          |
|-----|-----------------|-----|--------------------------|
| 5.  | Abdul Wahab     | ... | Sher Mohammed, Pilibhit. |
| 6.  | Abdul Karim     | ... | " "                      |
| 7.  | Abdul Razzaq    | ... | " "                      |
| 8.  | Mohammed Noor   | ... | " "                      |
| 9.  | Mohammed Zahoor | ... | " "                      |
| 10. | Chamman         | ... | Buz Qassaban, Pilibhit.  |
| 11. | Abdul Haq       | ... | " "                      |
| 12. | Hussain Buksh   | ... | Nakhasa, Pilibhit.       |

**43. Contractors of forest produce.**

- |     |                      |     |                            |
|-----|----------------------|-----|----------------------------|
| 1.  | Haji Ali Sher Khan   | ... | Durga Prasad, Pilibhit.    |
| 2.  | Altaf Husain         | ... | Sher Mohammed, Pilibhit.   |
| 3.  | Mohammed Sharif Khan | ... | " "                        |
| 4.  | Ram Bharosi Lal      | ... | Bansmandi, Bareilly.       |
| 5.  | Khalil-ur-Rahman     | ... | Sarai Kham, Pilibhit.      |
| 6.  | F Haq                | ... | Shafat Manzil, "           |
| 7.  | Maqbul Ahmed Khan    | ... | Munir Khan, Pilibhit.      |
| 8.  | Md. Mubbin Khan      | ... | Khalilgarhi, Shahjahanpur. |
| 9.  | Md Bashiruddin       | ... | Punjabian, Pilibhit.       |
| 10. | Allah Buksh          | ... | " "                        |
| 11. | Fazal Haq            | ... | " "                        |
| 12. | Indrapal Singh       | ... | Puranaganj, "              |
| 13. | Khawaja Ahmed        | ... | Village Karaili, Bareilly. |
| 14. | Abdul Wahid Khan     | ... | Ashraf Khan, Pilibhit      |
| 15. | Chhottan Lal         | ... | Puranaganj, "              |
| 16. | Mohammed Ali Khan    | ... | Beharipur, Bareilly.       |
| 17. | Sunder Lal           | ... | Village Neoria, Pilibhit   |
| 18. | Neaz Ali Khan        | ... | Jalaluddin, Shahjahanpur.  |
| 19. | Babu Banwari Lal     | ... | Pakaria, Pilibhit.         |
| 20. | Sheikh Fazal Ahmed   | ... | Dorilal, "                 |

**44. Owners of the oil mill in the town.**

- |                        |     |                     |
|------------------------|-----|---------------------|
| Messrs. L. H. Brothers | ... | Sungarhi, Pilibhit. |
|------------------------|-----|---------------------|

**45. List of tells.**

- |    |             |     |                       |
|----|-------------|-----|-----------------------|
| 1. | Mallu teli  | ... | Sarai Kham, Pilibhit. |
| 2. | Hulasi teli | ... | Bashir Khan, "        |
| 3. | Tika teli   | ... | " "                   |

4.	Phunna Ram	...	Bashir Khan, Pilibhit.
5.	Sona Ram	...	" "
6.	Man Singh ...	...	" "
7.	Kallu Ram ...	...	" "
8.	Jhunna Ram	...	" "
9.	Dilla Ram ...	...	" "
10.	Chhote Ram	...	" "
11.	Kandhai Ram	...	" "
12.	Lila Dhar ...	...	" "
13.	Chunni Ram	...	" "
14.	Mathura Ram	...	" "
15.	Punai Ram	...	" "
16.	Dhanni Ram	...	" "
17.	Chhabba teli	...	Puranaganj,
18.	Mullu teli ...	...	" "
19.	Ghasi Ram ...	...	" "
20.	Nokhe teli ...	...	" "
21.	Nanhu teli ...	...	" "
22.	Isri Ram ...	...	" "
23.	Ishwar Prasad	...	" "
24.	Buldeo ...	...	" "
25.	Lachhman ...	...	" "
26.	Kesri teli ...	...	Madina Shah,
27.	Mullu ...	...	" "
28.	Sukhe ...	...	" "
29.	Jhuri Ram ...	...	" "
30.	Ram Lal ...	...	" "
31.	Nanhe ...	...	" "

#### 46. List of sweetmeat makers.

1.	Munshi Lal	...	Kesri Singh, Pilibhit.
2.	Khem Karan	...	Macharhatta, "
3.	Ram Prasad	...	" "
4.	Chunni Lal	...	" "
5.	Sham Behari Lal	...	" "
6.	Merai Ram	...	Badaria, "
7.	Naththa Mal	...	" "
8.	Badri Das	...	Sungarhi, "
9.	Brijlal ...	...	" "
10.	Jaggarnath	...	" "
11.	Har Prasad	...	Pakaria, "
12.	Jhabboo Lal	...	" "

13.	Shyam Lal	...	Chowk, Pilibhit.
14.	Dile Ram ...	...	" "
15.	Birju Ram	...	" "
16.	Debi Das ...	...	" "
17.	Ram Prasad	...	" "
18.	Banwari Lal	...	" "
19.	Thakuri Maharaj	...	" "
20.	Kamaluddin	...	Katra, Pilibhit.
21.	Jamaluddin	...	" "
22.	Angan Ram	...	Khudaganj, Pilibhit.
23.	Jhabboo Lal	...	Shah Saheb, "
24.	Laltu Prasad	...	Sahukara, "
25.	Dillu Ram ...	...	Buz Qassaban, Pilibhit.
26.	Janki Ram	...	" "
27.	Bhikhari Ram	...	" "
28.	Malli Mal ...	...	Puranaganj, "
29.	Pershadi Maharaj	...	" "
30.	Bhagwan Das	...	" "
31.	Janki Ram	...	" "

**47. List of manufacturers of ice-cream.**

1.	Ajodhya Prasad	...	Khakhra, Pilibhit.
2.	Gauri Shankar	...	" "
3.	Munib ...	...	" "
4.	Bhola ...	...	Sungarhi, Pilibhit.

**48. List of hawkers of ice-cream.**

1.	Malkhaa Singh	...	Sungarhi, Pilibhit.
2.	Mohan Singh	...	" "
3.	Ramprasad	...	Khakhra, Pilibhit.
4.	Lachman Prasad	...	" "
5.	Buddha Prasad	...	" "
6.	Jhamman	...	" "
7.	Dhanna ...	...	" "
8.	Makut Behari Lal	...	" "
9.	Durjan Lal	...	" "
10.	Balak Ram	...	" "
11.	Kirpal Shankar	...	" "
12.	Brij Basi ...	...	" "
13.	Rup Ram ...	...	" "
14.	Pandit Bhola Nath	...	" "
15.	Pandit Sri Ram	...	" "



16.	Bhola Nath Kalwar	...	Khakra, Pilibhit.
17.	Nanhku Ram	...	" "
18.	Fateh Chand	...	" "
19.	Hori Lal	...	" "
20.	Sunder	...	" "
21.	Shankar Maharaj	...	" "
22.	Suba Lal	...	" "
23.	Asharfi Lal	...	" "
24.	Chhote Lal	...	" "
25.	Faqir Dhimar	...	" "
26.	Dhani Dhimar	...	" "
27.	Buldeo Kurmi	...	" "
28.	Nanhku Kaiyastha	...	" "
29.	Sita Ram Maharaj	...	" "
30.	Beni Rai	...	Jia Singh, Pilibhit.
31.	Jhamman Ahir	...	Desnagar, Pilibhit.
32.	Puran Maharaj	...	Puranaganj, Pilibhit.
33.	Sita Ram Bania	...	Sahukara, Pilibhit.
34.	Buddha Barber	...	Pakaria, Pilibhit.

**49. List of aerated water manufacturers.**

1.	Munna Lal	...	Drummondganj, Pilibhit
2.	Durga Prasad	...	Beni Chowdhari, Pilibhit.
3.	Abdul Hakim	...	Sheikh Chand, Pilibhit.

**50. List of dealers in perfumed oils, etc.**

1.	Menhi Lal	...	Chowk, Pilibhit.
2.	Mohammed Umar	...	Drummondganj, Pilibhit
3.	Mokhtar Hussain	...	" "
4.	Mohammed Laieq Khan	...	" "
5.	Mohammed Siddiq Khan	...	" "
6.	Abdul Rashid Khan	...	" "
7.	Masiyatullah Khan	...	" "
8.	Anait Hussain	...	" "
9.	Reaz Hussain	...	" "
10.	Ram Saroop	...	" "
11.	Ram Sabai Budh Sen	...	" "

**51. List of potters.**

1.	Jailal	...	Mowza Kharwa, Jahanabad, Pilibhit.
2.	Nimmi	...	Mowza Pansauli, Jahanabad, Pilibhit.

3.	Hari	...	...	Mowza Lolauri, Jahanabad, Pilibhit.
4.	Hira	...	...	Mowza Lolauri, Jahanabad, Pilibhit.
5.	Chhote	...	...	Mowza Naogawan, Pilibhit.
6.	Faqire	...	...	Tularam, Pilibhit.
7.	Munna	...	...	" "
8.	Chokha	...	...	" "
9.	Buldeo Ram	...	...	" "
10.	Lallu Ram	...	...	" "
11.	Cheta	...	...	Bagh Gulsher Khan, Pilibhit.
12.	Belkhan	...	...	" "
13.	Naththu	...	...	" "
14.	Lila	...	...	" "
15.	Lekha	...	...	" "
16.	Munni Lal	...	...	" "
17.	Tota	...	...	" "
18.	Bittu	...	...	" "
19.	Kallu	...	...	" "
20.	Loka	...	...	" "
21.	Askaran	...	...	" "
22.	Ram Saroop	...	...	" "
23.	Kundan	...	...	Gangapuri, Pilibhit.
24.	Tara	...	...	" "
25.	Ghasi	...	...	" "
26.	Panna	...	...	" "
27.	Suka	...	...	Anaitganj, "
28.	Ganga Ram	...	...	" "

52. List of manufacturers of glass churis (bangles).

1.	Chhottan	...	Buz Qassaban, Pilibhit.
2.	Sheikhullah	...	" "
3.	Akhatar	...	" "
4.	Barkatullah	...	" "
5.	Chhote	...	" "
6.	Rahman	...	" "
7.	Mujju	...	Khairullah Shah, Pilibhit.
8.	Mohammed Ahmed	...	" "

- |     |               |     |                          |
|-----|---------------|-----|--------------------------|
| 9.  | Mowla Buksh   | ... | Shahar Madina, Pilibhit. |
| 10. | Mohammed Umar | ... | " "                      |

### 53. Weaving School.

The Arya Weaving School, Bisalpur.

### 54. List of dealers in yarn.

- |    |                 |     |                      |
|----|-----------------|-----|----------------------|
| 1. | Brij Mohan Lal  | ... | Anaitganj, Pilibhit. |
| 2. | Shib Kunwar Lal | ... | " "                  |
| 3. | Saiya Mal       | ... | " "                  |

### 55. List of weavers.

- |     |                  |     |                                      |
|-----|------------------|-----|--------------------------------------|
| 1.  | Bansi Kori       | ... | Bashir Khan, Pilibhit.               |
| 2.  | Munna Lal        | ... | " "                                  |
| 3.  | Hira Lal         | ... | " "                                  |
| 4.  | Hulasi           | ... | " "                                  |
| 5.  | Puran            | ... | " "                                  |
| 6.  | Naththu          | ... | " "                                  |
| 7.  | Badlu Chowdhari  | ... | " "                                  |
| 8.  | Kunji Lal        | ... | " "                                  |
| 9.  | Naththu Bhagat   | ... | " "                                  |
| 10. | Tonri            | ... | " "                                  |
| 11. | Sital            | ... | " "                                  |
| 12. | Tunna            | ... | " "                                  |
| 13. | Buldeo           | ... | " "                                  |
| 14. | Nazeer Chowdhari | ... | " "                                  |
| 15. | Heman Chowdhari  | ... | " "                                  |
| 16. | Nanhe Chowdhari  | ... | " "                                  |
| 17. | Rahim Buksh      | ... | " "                                  |
| 18. | Amirullah        | ... | " "                                  |
| 19. | Mohammed Ewaz    | ... | " "                                  |
| 20. | Bashir Ahmed     | ... | " "                                  |
| 21. | Mowla Buksh      | ... | " "                                  |
| 22. | Allan            | ... | " "                                  |
| 23. | Mowla Buksh      | ... | Ghera Abdul Latif<br>Khan, Pilibhit. |
| 24. | Karim Buksh      | ... | " "                                  |
| 25. | Hussain Buksh    | ... | " "                                  |
| 26. | Khuda Buksh      | ... | " "                                  |
| 27. | Peer Buksh       | ... | " "                                  |

28.	Salar Buksh	...	Ghera Abdul Latif Khan, Pilibhit.
29.	Karhe	...	" "
30.	Badullah	...	Village Nasra, Pilibhit.
31.	Gullu	...	" "
32.	Nanhe	...	" "
33.	Naththe	...	" "
34.	Qadir Buksh	...	" "
35.	Abdul Rahim	...	" "
36.	Ghulam Mohammed	...	Desnagar, "
37.	Ghulam Hussain	...	Pauta, "
38.	Noor Mohammed	...	" "
39.	Azimullah	...	" "
40.	Karim Buksh	...	" "
41.	Gulabi	...	" "
42.	Noori	...	" "
43.	Rahim Buksh	...	" "
44.	Elahi Buksh	...	" "
45.	Abdul Rahim	...	" "
46.	Mallu	...	" "
47.	Shah Mamman	...	" "
48.	Ghulami	...	" "
49.	Dhan Mohammed	...	" "
50.	Karimullah	...	" "
51.	Raza Buksh	...	Khamaria, Bisalpur.
52.	Khairati	...	" "
53.	Nanhe	...	" "
54.	Mowla Buksh	...	" "
55.	Rustam	...	" "
56.	Rahim Buksh	...	" "
57.	Awaz	...	" "
58.	Lal Mohammed	...	" "
59.	Neamat	...	" "
60.	Wazir	...	" "
61.	Neaz Mohammed	...	Raipur, Pilibhit.
62.	Mannoo	...	" "
63.	Ali Buksh	...	" "
64.	Ramzani	...	" "
65.	Karim Buksh	...	" "
66.	Karimullah	...	" "
67.	Buddhi	...	" "

68.	Nabbi	...	Raipur, Pilibhit.
69.	Aitbari	...	" "
70.	Karimullah	...	Padri, "
71.	Abdul Rahim	...	" "
72.	Nanhe	...	" "
73.	Annoo	...	" "
74.	Ghulami	...	Bekannapur, Pilibhit
75.	Shobradi	...	" "
76.	Nabbi	...	" "
77.	Karimullah	...	" "
78.	Elahi Buksh	...	" "

**56. List of carpet weavers.**

1.	Ghulam Hussain	...	Durga Prasad, Pilibhit.
2.	Jamil Ahmed	...	" "

**57. List of cloth printers (chhpls).**

1.	Mendai Lal	...	Gopal Singh, Pilibhit.
2.	Hafiz Kallan	...	Ghaffar Khan, "
3.	Rahim Buksh	...	" "

**58. List of principal dyers.**

1.	Abdullah	...	Kesri Singh, Pilibhit.
2.	Ali Hussain	...	Pakaria, "
3.	Mullan	...	" "
4.	Abdul Karim	...	" "
5.	Altaf Hussain	...	Ghaffar Khan, "
6.	Buddha	...	Sungarhi, "
7.	Naththe	...	Khakhara, "
8.	Bundhan	...	" "

**59. List of principal arhatyas (general orders suppliers.)**

1.	Ajodhya Prasad Gopi Nath	Puranaganj, Pilibhit.
2.	Joti Prasad Indra Sen	" "
3.	Ganesh Das Ishwar Das	" "
4.	Chhote Lal Ram Das	" "
5.	Shankar Das Lalta Prasad.	" "
6.	Chamman Ram Ghan-shyam Das.	" "
7.	Ram Ballav Ram Bilas	" "
8.	Ganga Ram Har Prasad Ram.	" "
9.	Ram Charan Ram Prasad	" "

10. Debi Prasad Ram Keshore Puranaganj, Pilibhit.  
 11. Sarju Mal Ajodhya Prasad " " "

60. List of principal manufacturers of cot legs.

- |     |                        |                           |
|-----|------------------------|---------------------------|
| 1.  | Chowdhari Abdul Rahman | Pakaria, Pilibhit.        |
| 2.  | Munnaji Sheikh         | " " "                     |
| 3.  | Sita Ram               | " " "                     |
| 4.  | Sunni Ram              | " " "                     |
| 5.  | Naththu Ram            | " " "                     |
| 6.  | Abdul Karim            | " " "                     |
| 7.  | Mohammed Ishaq         | " " "                     |
| 8.  | Tika Ram               | " " "                     |
| 9.  | Karam Elahi            | " " "                     |
| 10. | Waliji                 | Punjabian, "              |
| 11. | Mangal Sen             | Kesri Singh, Pilibhit.    |
| 12. | Bashir Khan            | Faizullah Khan, Pilibhit. |
| 13. | Bale Khan              | " " "                     |
| 14. | Sita Ram               | Ghaffar Khan, Pilibhit.   |
| 15. | Indarrman              | Puranganj, "              |
| 16. | Salik Ram              | " " "                     |
| 17. | Munshi Sewa Ram        | Mian Saheb, "             |

61. List of principal makers of cot legs (actual turners.)

- |     |                 |                       |
|-----|-----------------|-----------------------|
| 1.  | Abdullah Khan   | Mian Saheb, Pilibhit. |
| 2.  | Sita Ram        | " " "                 |
| 3.  | Lahori          | " " "                 |
| 4.  | Hasan Ali       | " " "                 |
| 5.  | Nanbu           | " " "                 |
| 6.  | Naththu Lal     | " " "                 |
| 7.  | Tota Ram        | " " "                 |
| 8.  | Hamidullah Khan | " " "                 |
| 9.  | Sukhai          | " " "                 |
| 10. | Mool Chand      | " " "                 |
| 11. | Rupa Ram        | " " "                 |
| 12. | Kesri Singh     | " " "                 |
| 13. | Dulli           | " " "                 |
| 14. | Narayan         | " " "                 |
| 15. | Kundan          | " " "                 |
| 16. | Shafiq          | " " "                 |
| 17. | Kandhai         | " " "                 |

12.	Kesri	...	Pakaria,	Pilibhit.
13.	Tika Ram	...	"	"
14.	Chunni Kunwar	...	Sherpur,	Puranpur.
15.	Dullu Mohan	...	"	"
16.	Ghasi Ram	...	"	"
17.	Jisup	...	Kalinagar,	"
18.	Buddhu	...	"	"
19.	Jhaulal	...	"	"
20.	Jaggarnath	...	Roodpur,	"
21.	Thakuri	...	"	"
22.	Moti	...	"	"
23.	Durga	...	"	"
24.	Ammar	...	"	"
25.	Angne	...	"	"
26.	Naththu Lal	...	Puranpur,	Pilibhit.
27.	Badri Prasad	...	"	"
28.	Dori	...	"	"
29.	Mohan	...	"	"
30.	Khyali	...	"	"

N.B.—Most of the rahloo manufacturers are also manufacturers of sandals.

**63. List of dealers in, and manufacturers of, sandals.**

1.	Munshi Mangal Sen	...	Kesri Singh,	Pilibhit.
2.	Bhaggoo Lal	...	"	"
3.	Siraj-ul-Haq	...	"	"
4.	Anait Hussain	...	Khudaganj	"
5.	Mohammed Hussain	...	Kesri Singh,	"
6.	Abdullah Khan	...	Mian Saheb,	"
7.	Noor Mohammed	...	Punjabian,	"
8.	Mohammed Buksh	...	"	"
9.	Hafiz Abdul Ahad	...	"	"
10.	Waliji	...	"	"
11.	Sifat Mohammed	...	"	"

**64. List of principal sandal makers (actual workers.)**

1.	Buldeo	...	Mian Saheb,	Pilibhit.
2.	Roshan	...	"	"
3.	Narayan	...	"	"
4.	Chunna	...	"	"
5.	Pirana	...	"	"

6.	Bishnu Barber	...	Mian Saheb, Pilibhit.
7.	Isri	...	" "
8.	Gandu	...	" "
9.	Chhadmi	...	" "
10.	Buddhu	...	" "
11.	Ram Chandi	...	" "
12.	Chandan	...	Dal Chand, "
13.	Dori Lal	...	" "
14.	Dulli	...	" "
15.	Mool Chand	...	" "
16.	Uttam	...	" "
17.	Isri	...	" "
18.	Minbin Lal	...	" "
19.	Lachhu	...	" "
20.	Mohan Lal	...	" "
21.	Chunni Lal	...	" "
22.	Mahku	...	" "
23.	Salik Ram	...	" "
24.	Punna	...	" "
25.	Sita Ram	...	Pakaria, "
26.	Balak Ram	...	" "
27.	Tula Ram	...	" "
28.	Bhairo	...	" "
29.	Naththu	...	" "
30.	Narotam	...	" "
31.	Dulli	...	" "
32.	Ramji	...	" "
33.	Makund Ram	...	" "
34.	Budh Sen	...	" "
35.	Lalta Prasad	...	" "
36.	Loki	...	" "
37.	Bansi	...	" "
38.	Nandan	...	" "
39.	Mool Chand	...	" "
40.	Lali Chand	...	" "
41.	Gopal Lal	...	" "

65. List of principal wooden comb manufacturers.

1.	Mohammed Mir Khan...	Mohammed Pilibhit. Faruq.
2.	Amir Khan	" "
3.	Hafiz Saidnoor Khan	" "



4.	Naseeruddin Khan	...	Mohammed	Pilibhit.
			Faruq.	
5.	Mohammed Din Khan	...	"	"
6.	Kifayatullah Khan	...	"	"
7.	Mohammed Siddiq Khan	...	"	"
8.	Hafiz Qudratullah Khan	...	"	"
9.	Abdul Hakim Khan	...	"	"
10.	Nazeer Khan	...	"	"

66. List of principal makers of wooden combs (workmen.)

1.	Sirajuddin Khan	...	Mohammed	Pilibhit.
			Faruq.	
2.	Neazuddin Khan	...	"	"
3.	Imamuddin Khan	...	"	"
4.	Ishtyaq Ali Khan	...	"	"
5.	Sayad Abid Hussain	...	"	"
6.	Hafizullah Khan	...	"	"
7.	Azizullah Khan	...	"	"
8.	Abdullah Khan	...	"	"
9.	Abdul Hafiz Khan	...	"	"
10.	Ahmed Hussain Khan	...	"	"
11.	Anwar Hussain Khan	...	"	"
12.	Abdul Karim Khan	...	"	"
13.	Ahmed Mir Khan	...	"	"
14.	Ali Sher Khan	...	"	"
15.	Akber Yar Khan	...	"	"
16.	Hidayatullah Khan	...	"	"
17.	Mohammed Mir Khan	...	"	"
18.	Sultan Mohammed Khan	...	"	"
19.	Mohammed Umar Khan	...	"	"
20.	Ahmed Sayeed Khan	...	"	"
21.	Habibullah Khan	...	"	"
22.	Munna Khan	...	"	"
23.	Munshi Habibullah	...	"	"
24.	Khalilullah	...	"	"
25.	Munshi Jamil Ahmed	...	"	"
26.	Wali Haider Khan	...	"	"
27.	Ali Haider Khan	...	"	"
28.	Saruddin Khan	...	"	"
29.	Ahmed Sher Khan	...	"	"
30.	Shafat Khan	...	"	"
31.	Rafatullah Khan	...	"	"

---

32.	Neazullah Khan	...	Mohammed Faruq.	Pilibhit.
33.	Qadir Khan	...	"	"
34.	Sharfullah Khan	...	"	"
35.	Fakharuddin Khan	...	"	"
36.	Sheikh Mangal	...	"	"

**67. List of rice hullers.**

1.	Kallu Mal	...	Than Singh,	Pilibhit.
2.	Durga	...	"	"
3.	Gayasi	...	"	"
4.	Lair Ram	...	"	"
5.	Tika Ram	...	"	"
6.	Bandhu	...	"	"
7.	Gannoo	...	"	"
8.	Chet Ram	...	"	"
9.	Tulshi	...	"	"
10.	Narayan	...	"	"
11.	Chheda Lal	...	"	"
12.	Genda Lal	...	"	"
13.	Nanhe	...	"	"
14.	Bhawani Din	...	"	"
15.	Chhote	...	"	"
16.	Mata Din	...	"	"
17.	Kishun	...	"	"

**68. List of exporters of bones.**

1.	Seth Karim Buksh	...	Pacca Sarai,	Pilibhit.
2.	Abdullah	...	Bhure Khan,	"

CHAPTER VI.

MISCELLANEOUS.

1. Tariff schedule for chief articles of import.

Names of articles.	Duty.
1. Grain and pulse ...	2½ per cent.
2. Provisions and oilman stores ...	15 "
3. Salt ...	Free.
4. Cigars and cigarettes ...	75 per cent.
5. Petroleum ...	Re. 0-2-6 per gallon.
6. Wood and timber ...	15 per cent.
7. Motor cars, cycles, etc.	30 "
8. Chemicals and drugs ...	15 "
9. Cutlery ...	15 "
10. Musical instruments ...	30 "
11. Aniline dyes ...	15 "
12. Glass and glassware ...	15 "
13. Machinery ...	2½ "
14. Iron and steel ...	10 "
15. Paper ...	15 "
16. Cotton piece-goods ...	11 "
17. Matches ...	Re. 1-8-0 per gross boxes.

2. Railway rates.

The following are the maximum and minimum class rates in force from the 1st April, 1922 :—

Class.	Maximum pie per maund per mile.	Minimum pie per maund per mile.
1st ...	.36	.100
2nd ...	.42	
3rd ...	.58	
4th ...	.62	.166
5th ...	.77	
6th ...	.83	
7th ...	.96	
8th ...	1.04	
9th ...	1.25	
10th ...	1.37	

*General classifications of chief articles of exports and imports.*

Commodity.	R.R.	O.R.
1. Grain and pulse ...	1	...
2. Preserves ...	6	4
3. Sugar ...	2	...
4. Salt ...	4	...
5. Cigars and cigarettes ...	6	...
6. Kerosine oil ...	4	2
7. Wood and timber ...	1	...
8. Motor cars, cycles, etc. ...	8	6
9. Chemicals ...	8	...
10. Drugs ...	4	...
11. Musical instruments ...	9	...
12. Cutlery ...	6	...
13. Glass (plates, etc.) ...	8	...
14. Glass (chimneys, inkpots, etc.) ...	6	4
15. Glass (mirrors) ...	9	...
16. Glass (broken) ...	1	..
17. Dyes (aniline and others) ...	6	4
18. Machinery ...	4	2
19. Iron and steel ...	2	...
20. Paper (bales or bundles) ...	2	...
21. Paper (in cases) ...	4	...
22. Cotton (pressed) ...	4	...
23. Cotton (loose) ...	8	...
24. Cotton piece-goods (bales) ...	6	4
25. Cotton piece-goods (not packed) ...	8	6
26. Matches ...	9	8
27. Bell metal and bell metal wares ...	6	...
28. Bell metal and brass (scrap) ...	2	...
29. Brass vessels and cooking utensils ...	4	...
30. Flour or ata ...	2	...
31. Coal, coke and patent fuel ...	1	...
32. Scented water ...	9	...
33. Vegetable oils ...	4	2
34. Soap ...	2	...
35. Ink ...	6	...
36. Sann-hemp ...	2	...
37. Hides and skins ...	4	...

Commodity.	R.R.	O.B.
38. Oilcake ... ..	1	...
39. Country tobacco (manufactured) ...	6	4
40. Country tobacco (unmanufactured)	4	...
41. Wooden articles (not specified) ...	2	...
42. Grass, dry ... ..	1	...

N.B.—R.R. indicates railway risk and O.B. indicates owner's risk.

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Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

Rae Bareli District

*By*

B. K. GHOSHAL, M.A.



**ALLAHABAD:**

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1923

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## FOREWORD.

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THE report of the Rae Bareli district has been drawn up on the lines of the previously published reports of the industrial survey of Lucknow and other districts of the same division. The special feature distinguishing these reports from those of many other districts is the collection of information about the raw products in one chapter on "Resources." The various suggestions for the improvement of the existing industries have been put together with the other possibilities in one place. This arrangement may suit those who do want the information about the raw products only. Rae Bareli is a fertile district of Oudh, and is well studded with mango and mahua groves. Unskilled labour is in abundance and people often migrate from here to far off places like Karachi, Nagpur, Rangoon, Bombay, Calcutta, etc. Many come nearer Lucknow and Cawnpore to work during the off season when there is little to be done in the fields. Like other places, the Co-operative District Bank is the only agency which finances the societies affiliated to it to a certain extent. For the general public there is a sub-agency of the Allahabad Bank, Ltd., but it is not enough and money is dear and difficult to obtain. The art of weaving fine muslin with flowered and other designs—some containing names and verses in Urdu script—has died for want of patronage. The only survivor of the last family which knew the art deserves to be helped. In competition for production there is little room for art and garha is what is mostly produced by the weavers of the district along with a little doria and other like stuff, but unless the weavers are well organized to be able to produce cheaper cloth, they are likely to be ousted from even their speciality—the garha—by the mill-made stuff. There is a great necessity for a co-operative store for them which could supply yarn, help in popularising fly-shuttles and in finding markets for the produce. The store can also help the blanket weavers, who require to be taught the use of wider looms, the milling of blankets and to dye yarn, etc. "Reh" can be had in abundance, but is used to a very small extent

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in the manufacture of glass for 'Gangajalis' (flasks to carry water from the Ganges). Good kankar for lime is also available and so is oil and oilseeds. The pressing of mahua and neem seeds in the district should be extended and attempts made to export oil in places of the seed for such time as soap works are not started in the district. A little saltpetre is made and refined, but the work does not pay. Manure should be manufactured out of the crude saltpetre if its refining does not pay. This may require the use of a small bone mill. There is not much demand for leather and raw hides and skins are exported. The manufacture of superior kind of 'Dilliwal' country shoes should be taught to other people also if one man is not able to cope with the orders. It is, I think, in the compression of the sole that his secret lies. When the demand for compressed soles rises a small plant can be put up for them. But for the export of a few bones, no use is made of other by-products of the slaughter-houses. The calcareous deposits have still to be worked. Demonstrations of fly-shuttle looms and improved methods of tanning should be organized.

Our thanks are due to Mr. S. T. Gadre, Industrial Chemist to Government, for his kindly revising the report and to the following gentlemen in help rendered in various ways :—

Tahsildars of Salone, Dalmau, Maharajganj and Rae Bareli.

Mr. Ram Sarun, Naib Tahsildar, Maharajganj.

Mr. S. M. A. Siddiqui, Naib Tahsildar, Salone.

CHAMPA RAM MISRA.

8th April, 1923.

# CHAPTER I.

## INTRODUCTION.

### 1. General features of the district.

Rae Bareli is the southern most portion of the Lucknow division. It is bounded on the north by portions of Lucknow and Bara Banki districts, on the east by Sultanpur and Partabgarh districts. The Ganges forms the southern boundary separating it from Fatehpur and Allahabad, while on the west Rae Bareli marches with Purwa tahsil of Unao. The soil is very fertile and the precarious tracts very few. The area is liable to slight variations on account of the action of the river Ganges. It was 1,119,088 acres in 1903 and 1,119,727 acres in 1911.

### 2. Rivers.

The Ganges with its tributaries the Chop and the Loni, and the Sai with the Basaha and the four Naiyas as its tributaries.

### 3. Jheels and tanks.

There are two jheel belts. In the north formed by the Munj Tal, the Hanswa and the Kham, and in the south by the Narpatganj jheels, the Jalan and the Bisaiya.

### 4. Jungles and groves.

Rae Bareli has numerous mahua groves. Its flowers and the seeds are a source of substantial revenue to the grove owners.

### 5. Minerals and chemicals.

Kankar is found in abundance in the district. The area under reh is not insignificant. Reh is used for Manihars of Dalmau tahsil for making crude glass phials for the pilgrims to carry Ganges water. Besides, there are the calcareous deposits suitable for the manufacture of cement. There is a large tract on the northern boundary of the district which is a continuation of the Lucknow deposits surveyed by Mr. Halliday on behalf of the Railway department of the

Government of India. Another deposit is in a big tank or jheel of Chichaulia village belonging to Thakur Ram Pratap Singh of Narendrapur Charhar. There are smaller deposits in other places also worked at present by the Tambolis for the manufacture of lime.

### 6. Crops and harvest.

They are the same as in other districts of Oudh. The area under crops of industrial importance like cotton and sugarcane is small, cotton being insignificant. Wheat is the most important *rabi* crop and rice is the chief *kharif* crop.

### 7. Irrigation.

The district has sufficient sources of irrigation in the rivers, tanks and wells. The Sarda Canal will terminate near Rae Bareli and it will water only a portion of the district.

### 8. Industries.

Like all other Oudh districts, weaving is the only industry which is of any importance taking into account the number of men supported by it. The Jamdani workers of Jais and Rae Bareli are all dead and the industry is extinct.

Metal utensils, specially batuas, are made at Maharajganj and the lohars of Dalmau tahsil make very good betelnut-crackers by inlaying them with silver wire in the grooves made by hand.

Pottery and clay modelling of Kakoran and Inhauna deserve mention.

### 9. Trade.

The markets of Lalganj, Unchahar, Dalmau, Rae Bareli and Bachhrawan are important for export trade in grains. The business is conducted by means of arhatias or brokers who act as middlemen between the big merchants or customers and the sellers or weighmen. They charge brokerage from both parties. The arhatias themselves make purchases and stock grain in the market for export or resale. In the villages there is another agency from very old times. In most villages the zamindars appoint a weighman from whom they charge a royalty and allow him to recover from the cultivators weighing dues at the rate of one pice to two pice per maund. The weighman arranges for the disposal of the



	Length Miles.
3. Rae Bareli to Jais ...	22
4. Rae Bareli to Haidargarh ...	9½
5. Rae Bareli to Talganj ...	15
6. Rae Bareli to Allahabad ...	9
7. Rae Bareli to Dalmau ...	16½
8. Rae Bareli to Unao ...	3½
9. Jais to Mohanganj (District Board) ...	4½
10. Jais to Mohanganj (Court of Wards) ...	5
11. Parshadepur to Nasirabad ...	3
12. Salone to Parshadepur ...	3½
13. Approach to Jais Railway Station ...	½
14. Approach to Harchanpur Railway Station ...	½
15. Approach to Fursatganj Railway Station ...	1

*II.—Second class roads—unmetalled and drained.*

1. Maharajganj to Haidargarh ...	10½
2. Rae Bareli to Allahabad ...	14
3. Rae Bareli to Unao ...	21
4. Rae Bareli to Mohanganj ...	23
5. Rae Bareli to Lucknow ...	2½
6. Salon to Unao ...	43
7. Salon to Jehanabad ...	5½
8. Bachhrawan to Nigohan ...	23½
9. Bachhrawan to Maurawan ...	8
10. Lucknow to Inhauna ...	9
11. Inhauna to Rudauli ...	3½
12. Parshadepur to Dharampur ...	5

*III.—Third class roads—unmetalled, partially bridged and drained.*

1. Haidargarh to Fatehpur ...	47
2. Inhauna to Gutnighat ...	46½
3. Salon to Khaga ...	18½

*IV.—Fourth class roads—partially bridged and drained.*

1. Maharajganj to Inhauna ...	18½
2. Nasirabad to Fursatganj ...	9
3. Mau to Goknaghat ...	24½

Besides there are several fifth class roads which are cleared only.

13. List of Ferries.

Village.	Name of Ferry.	River.
<i>Dalmau tahsil.</i>		
Gabrauli	Kishanpur	Ganges.
Nisgar	Rawatpur	"
Rampurkalan	Adampur	"
Ralpur	Bhitaura	"
Gegason	Asni	"
Khajurgaon	Lakhpura	"
Dalmau	Rajghat	"
Dhiranpur	Kotila	"
Hamirmau	Samapur	"
<i>Rae Bareli tahsil.</i>		
Saidanpur	Saidanpur	Sai.
Behta	Behta	"
Jaraula	Jaraula	"
Kurchandamau	Kurchandamau	"
Kala Haibatpur	Kala	"
Lodhwari	Pura Dube	"
Anti Naugawan	Anti Naugawan	Naiya.
Tolagopalpur	Tolagopalpur	Sai.
Basarh	Basarh	"
<i>Salon tahsil.</i>		
Gokna	Paharpur	Ganges.
Georgie Garh	Naubasta	"
Kandrawan	Ajura	"
Kotra	Rasulpur	"
Pirnagar	Puranagar	Sai.
Kachnaon	Makrahaghat	Naiya.
Dih	Kuluaghat	Sai.
Sunga	Keshwapurghat	"
Gussygarh	Saraianghat	"
Gopalpur	Ghat Pura Lachhmi Narain.	"

## 14. List of Fairs.

*Rae Bareli tahsil.*

Village.	Name of Fair.	Date.
Sataon ...	Parbati-ji-ka-Mela...	From Kuar Sudi Naumi to Puran-Mashi and Chait Sudi Naumi to Puranmashi.
Mahalla ...	Ram Lila ...	Kuar Sudi Dashmi.

*Dalmau tahsil.*

Dalmau ...	Kartiki ...	Kartiki Sudi 15th.
Gigason ...	Dasahra ...	Jeth Sudi 10th.
Sudamapur ...	Kakoran ...	Sawan Sudi 4th.

*Salon tahsil.*

Gokna ...	Kartiki Fair ...	Kartiki Puran-mashi.
Badshahpur...	Kartiki Fair ...	Ditto.
Jais ...	Makhdum Saheb ...	1st to 10th Idul Zoha.

*Maharajganj tahsil.*

Atrehta ...	Dasehra ...	Kuar Sudi Dashmi.
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## 15. Cattle Census (1919-20).

Bulls	...	...	1,326
Bullocks	...	...	267,567
Cows	...	...	145,170
Calves	...	...	124,582
He-buffaloes	...	...	12,199
She-buffaloes	...	...	87,564
Calves	...	...	101,314
Sheep	...	...	92,440
Goats	...	...	170,641
Horses	...	...	6,202
Mares	...	...	4,173
Colts and ponies	...	...	3,077
Mules	...	...	64
Asses	...	...	4,164
Camels	...	...	691



## CHAPTER II.

## RESOURCES.

## 1.—Agricultural.

(a) *Rabi or winter harvest.*

The crops begin to come in the market by the middle of April and the business of sale and export is very brisk during the months of May, June and July as early shipments of wheat fetch a higher price in Europe where the American supplies reach rather late.

(i) *Barley.*

*Area cultivated*—81,207 acres.

*Outturn*—1,380,519 maunds.

*Export*—800,000 maunds.

*Price*—10 seers to 11 seers at harvest time, at present 11 seers to 12 seers a rupee.

*Export duty*—Free.

*Import duty*—20 per cent. in France, 28 per cent. in Germany, 37 per cent. in United States of America and 13 per cent. in Japan.

Unit of sale locally is the maund and for foreign trade a candy of 8 maunds or 656 lbs. Refraction allowed is 3 per cent. Barley is not exported to foreign countries in large quantities.

(ii) *Gram.*

*Area cultivated*—93,470 acres.

*Outturn*—1,121,640 maunds.

*Export*—300,000 maunds.

*Price*—9 seers at harvest and 10 to 12 seers at present.

*Export duty*—Free.

*Import duty*—Free elsewhere, excepting Germany 18 per cent. and Japan 16 per cent.

Export to foreign countries is not much.

(iii) *Linseed.*

*Area cultivated*—593 acres.

*Outturn*—2,965 maunds.

*Export*—2,500 maunds.

*Price*—About 5½ seers a rupee. There is a fall in European demand. The price at Calcutta at present is Rs. 9-4 a maund (in March).

*Export duty*—Free.

*Import duty*—Free in all countries except Italy 18 per cent. It is grown exclusively for European markets. In Europe its oil is used for the manufacture of glycerine for explosives, paints and margarine and other similar edibles. The prices are regulated by demand in Europe.

The bulk of linseed grown here is of the brown variety. The plant could produce excellent fibre like flax, but the sowing has been done very sparsely mixed with other crops for a long time and the plant has degenerated and has developed branching habits.

It is shipped in bags of about 2 maunds.

(iv) *Peas.*

*Area cultivated*—18,046 acres.

*Outturn*—252,644 maunds.

*Export*—170,000 maunds.

*Price*—Rs. 5 per maund.

*Export duty*—Free.

*Import duty*—Free elsewhere, except in Germany 18 per cent. and Japan 16 per cent.

The unit of sale is the maund and of shipment the bag of 2 maunds.

(v) *Poppy.*

*Area cultivated*—11,119 acres.

*Outturn*—55,595 maunds of seed.

*Export*—About 25,000 maunds.

*Price*—4¾ seers to 5 seers per rupee.

*Export duty*—Free.

*Import duty*—The seed is imported free in England, Belgium, France and Holland, while Germany levies an import duty of 6 per cent.

The white variety is generally sown. The crop is grown under Government supervision. The Government advances money to the cultivators who have to sell their entire produce of opium to it. Opium is refined at the Government Opium Factory at Ghazipur. Seed is consumed as food and very

little of it is crushed in India for its oil which is largely used in France for paints and artificial butter.

The unit of sale of the seed is the maund and shipments are made in bags of 140 to 168 lbs. Opium is shipped and sold wholesale in chests of 140 lbs.

(vi) *Rape and Mustard.*

*Area cultivated*—38 acres.

The cultivation is not much in the district, but still the above is a low estimate though recorded in the Jinswar, specially as the cultivation of wheat with which it is sown is so much.

*Outturn*—228 maunds.

*Export*—About 3,500 maunds.

*Price*—Yellow, 4 seers a rupee, and red, 5 seers a rupee.

*Export duty*—Free.

*Import duty*—Free elsewhere. In Hungary, 12 per cent.; Germany and Italy, 9 per cent.

This is a very important oilseed for local consumption as well as for export. India is the principal source of European supply and the United Provinces contribute a considerable amount. Both the yellow and the brown (red) varieties are available. For local use and internal trade mustard-seed (sarson) is preferred and rape is mostly exported. Mustard oilseed is crushed in almost every village by the village teli who sells the surplus to the byopari or the baniya.

The unit of sale is the maund and shipments are made in bags of 168 to 182 lbs. from Bombay and 164 to 206 lbs. from Karachi.

(vii) *Tobacco.*

*Area cultivated*—846 acres.

*Outturn*—5,922 maunds.

*Export*—Nil. All is consumed in the district.

*Import*—About 1,500 maunds annually.

*Price*—Ra. 10 to Rs. 12 per maund, ordinary.

Maghi, Rs. 15 to 18 a maund at Jais.

The ordinary varieties suitable for cheap strong (*karua*) smoking tobacco is grown in scattered patches all over the districts. At Jais about 10 acres of good tobacco is grown.

(viii) *Wheat.*

*Area cultivated*—101,677 acres.

*Outturn*—1,525,155 maunds.

*Export*—700,000 maunds.

*Price*—7 seers and  $7\frac{1}{2}$  seers per rupee.

*Export duty*—Free. The exports were restricted during the War and the restriction continues still. Only 400,000 tons wheat is allowed to be exported. But owing to the unsettled state of Europe the exports are not much; prices have fallen and stocks have accumulated.

*Import duty*—Free in England, Belgium and Holland. In France, 40 per cent.; Germany, 37 per cent.; Italy, 41 per cent.; and Japan, 19 per cent.

It is packed in gunny bags of 2 maunds each for shipment. The export trade needs still better organization. The Corn Trade Association makes no allowance for dirt free supplies and all supplies have to be to their fixed standard which is 2 per cent. other grains, etc., at Bombay, and  $5\frac{1}{2}$  per cent. barley, 3 per cent. dirt and 30 per cent. red wheat at Karachi. This compels the traders to mix dirt, etc., in their pure supplies and they do not pay a higher price to the cultivator for pure wheat. In Canada wheat is sorted carefully into various grades and certified according to grades by Government Inspectors, before export so that buyers abroad have no difficulty in making the purchases and the prices are paid according to quality and thereby encourage the production of the better varieties.

(b) *Kharif crops.*

The crops come to the market in November and the business of sale and export is brisk during November to January.

(i) *Arhar.*

*Area cultivated*—68,339 acres.

*Outturn*—580,881 maunds.

*Export*—(for inland trade)—250,000 maunds.

*Price*— $11\frac{1}{2}$  to 12 seers a rupee.

This is very largely used as pulse and is mostly consumed in the province. The stalk is used for making baskets

(ii) *Bajra.*

*Area cultivated*—27,538 acres.

*Outturn*—192,766 maunds.

(iii) Cotton.

*Area cultivated*—106 acres.  
*Outturn*—11,660 lbs. of cleaned cotton.  
*Export*—Nil.  
*Price*—Rs. 12 to Rs. 15 per maund.

(iv) Ground-nut.

*Area cultivated*—940 acres.  
*Outturn*—10,340 maunds.  
*Export*—3,000 maunds.  
*Price*—Rs. 8 to Rs. 10 per maund during the cold season.

*Export duty*—Free.  
 The product is mostly used as food.

(v) Juar.

*Area cultivated*—76,252 acres.  
*Outturn*—610,016 maunds.

(vi) Maize.

*Area cultivated*—405 acres.  
*Outturn*—5,265 maunds.

(vii) Rice.

*Area cultivated*—76,102 acres.  
*Outturn*—2,113,224 maunds.  
*Export*—1,200,000 maunds.  
*Price*—Rs. 8 to Rs. 10 per maund.

*Export duty*—3 annas per maund of 82 lbs.

*Import duty*—Free in the United Kingdom, Belgium and Holland, and 23 per cent. in Austria, 50 per cent. in France, 30 per cent. in Germany, 66 per cent. in Italy, 115 per cent. in Russia, 41 per cent. in United States of America and 26 per cent in Japan.

Rice is an important commodity of export from the district and the quality is good. Burma supplies most of the quantity exported abroad and United Provinces has only a small share.

(viii) Sanai.

*Area cultivated*—2,600 acres.  
*Outturn*—20,800 maunds.

*Price*—Rs. 12 to Rs. 15 per maund according to quality. Sanai is "Crotalaria Junica" and is sown as a mixed crop on the borders of arhar fields. The fibre is obtained by soaking the plant in water and it is therefore mostly sown in places near ponds, etc. The fibre is used for rope making and is taken to Partabgarh district for tat-patti making.

Tat-patti dealers advance money to cultivators or village kahars who usually collect the fibre.

(ix) *Sugarcane.*

*Area cultivated*—3,974 acres.

*Outturn*—125,181 maunds of gur.

*Export*—55,000 maunds.

*Price*—5 seers a rupee.

*Export duty*—Free.

*Import duty*—Free elsewhere. 18 per cent. in United States of America.

Gur is made in almost every village and rab is made in places where they make *desi gur*.

Mr. Perfect of Bahramghat (district Bara Banki) and Mr. Shiva Dayal of Delhi supply most of the kolhus for crushing sugarcane on hire through their dépôts in central villages. They charge about Rs. 25 to Rs. 40 per kolhu according to the size and the demand for them. Juice is boiled in iron pans which are also obtained on hire from the same source.

(x) *Til or sesamum.*

*Area cultivated*—1,264 acres.

*Outturn*—4,494 maunds.

*Export*—3,000 maunds.

*Price*—Rs. 8 per maund.

*Export duty*—Free.

*Import duty*—Free elsewhere, except Germany 6 per cent., Italy 16 per cent. and Russia 10 per cent.

It is an important oilseed. Til is used as food; its oil is used as base for scented oils, and is mixed with ghee. It is used for Margarine in France although ground-nut is replacing it there. The unit of sale is the maund and it is shipped in bags of about 2 maunds each.

2. Animal.

(i) Bones.

These are available from slaughtered and dead bovine and ovine animals. Bones are collected from butchers' shops, but this source is not sufficient and the main supplies come from the villages where bone pickers collect bones of dead animals thrown in the ditches or fields on the outskirts of the villages. The merchants have open-air dépôts at railway stations where the collectors deposit their collections after weighment. They are then sent out in wagon loads. At present Oudh is supplying mostly the new factory at Magarwara in Unao which is taking 4 wagons a day from Mr. Mahmud Ali of Lucknow. Bones go to the Calcutta mills and are exported out of India as well. European mills demand fresh bones as they contain a higher percentage of phosphorous. Quantity available from bovine animals (if it could all be possibly collected) is 10,461 maunds.

Quantity from ovine animals is 1,944 maunds.

(ii) Hides and skins.

(a) Hides.

Hides of animals slaughtered in municipal slaughter houses ... ..	2,921
Hides from dead animals and those slaughtered privately ... ..	18,000
Hides locally used ... ..	8,000
Hides-exported ... ..	12,921

Price—Rs. 30 to Rs. 32 per maund locally, or Rs. 4 to Rs. 6-8 each of buffalo hide. Cow hide Rs. 2 to Rs. 3.

Export duty—15 per cent., *ad valorem*. A rebate of 2/3rd of the duty is granted on shipments to destinations within the British Empire upon production of evidence that the hides and skins have been tanned within the British Empire.

Maharajganj is the biggest hide market in the district where about 350 hides, raw and dressed, are disposed off every week. The business is brisk in cold season. The export price quoted from Bombay was Rs. 28 per maund, while the price demanded on spot was Rs. 30 to Rs. 32 per maund. This was due to the slump in the market, which was discouraging dealers from purchasing large stocks.

The local use of the hides is limited to making of (charsa) buckets and *desi* shoes. Hides for export are treated in three

ways. They are dry salted or treated with a paste of sajji and dried, framed or dried in the sun by being stretched on a frame and green salted, i.e., freshly flayed hides treated with salt solution. The green salted varieties fetch higher prices for tanning purposes. Rae Bareli hides are commercially classed as 'North-Western' or 'Agras' and are marked as follows for prices :—

- (1) *Slaughtered*—Thick hides without yoke marks or cuts. The mark C denotes the best quality. (It originally denoted animals slaughtered in the Military slaughter-houses).
- (2) *Dead*—Hides with slight cuts or marks.
- (3) *Rejections*—With more cuts and marks than dead.
- (4) *Double and treble rejections*—Badly damaged.

Hides for wholesale business are sold by weight, but locally a single hide is the unit of sale.

For export purposes better flaying methods ought to be encouraged by offering higher prices. The unsettled condition of Germany—the biggest purchaser of Indian raw material—is responsible for the slump, and as England and America are trying to utilise colonial supplies, the best way for India is to tan her hides here and supply the world and itself with well-tanned leather and leather goods. More tanneries with up-to-date machinery should crop up to utilise India's supply.

#### (b) *Skins.*

Skins from the slaughter-houses	... 10,287 goat skins.
" " " " "	... 2,826 sheep skins.
Skins from other sources	... 18,000 skins (both).

*Export*—21,000 skins (both).

*Price*—8 to 10 annas sheep, 14 annas to Re. 1-4 goat.

*Export duty*—Same as for hides.

*Import duty*—Free everywhere.

*Season*—January to May, when the hides and skins are in the best of condition for export. Skins of goats are more valuable for export to America and France where they are tanned as glæce kids.

Goat skins are collected by the 'Chikwas' or butchers who supply the Lucknow traders and most of the skins come to Lucknow where they are either packed in barrels of salt solution or treated with salt only. At the ports most of the skins are dry salted as barrels become expensive due to high freight.



The skins are called 'North-Westerns' and 'Agras' and classed according to size. The best skins called 'heavy' are 36 inches long and 21 inches wide. Sizes smaller than 25 inches are called kid skins. Sheep skin is mostly consumed in Lucknow and Cawnpore for 'lining' and coloured leather for cheap pump shoes and slippers.

(iii) Wool.

				Number of sheep.
Dalmau	Tahsil	...	...	29,538
Salon	"	...	...	28,360
Rae Bareli	"	...	...	21,260
Maharajganj	"	...	...	13,282
District Total				92,440

Sheep rearing is very common in the Rae Bareli district and the quality of wool is slightly better than that of the other districts of the Lucknow division. Arkha and Mustafabad (Unchahar) in Salon tahsil are noted for blankets. The number of white sheep is large here and white blankets, coarse but superior in quality to those made in other districts, are made to order for zamindars, etc. Wool is usually collected by chikwas or butchers and gadariyas. The chikwas of Arkha weave blankets also, otherwise they sell wool to byoparis of Cawnpore merchants or to local gadariyas.

*Production of wool from living sheep*—138,660 lbs. or 1,691 maunds taking  $1\frac{1}{2}$  lbs. per sheep per year for all the three shearings.

*Production from sheep skin*—3,133 lbs. or 38 maunds.

*Export*—79,213 lbs. or 966 maunds.

*Locally used*—62,580 lbs. or 763 maunds.

*Price*—Rs. 12 to Rs. 18 per maund according to quality.

*Export duty*—Free.

*Import duty*—Free elsewhere. United States of America 8 per cent.

Wool of all qualities and colours is mixed up and is not cleaned. The result is that it fetches a low price. It could fetch a good price if the method of collection were properly organized so that wool of various colours and localities could be separately collected or sorted at a central place before export or use.

The unit of sale is the maund and shipments are made in bales of 3 cwts.

It appears that the Indian shepherd does not know that the wool of his sheep can yield a by-product—wool grease—without in any way affecting its quality. The sale of grease will certainly add to the profits of the shepherd. Perhaps the washed wool may fetch a better price than the otherwise unwashed stuff.

### 3. Mineral.

*Reh area.*—225 acres.

Reh is used by the manufacturers of glass phials in Dalmau tahsil, which has 163 acres under it in the villages of Balipur, Belakhara and Tholrai.

*Calcareous deposits.*—The best deposit is in the lake of the Chichaulia village near Lachhmanpur Railway Station. The chemical analysis of the sample has shown that 78 per cent. of calcium is present in it—the highest proportion available in the best Portland cement. The Taluqdar of Narendrapur Chachar is trying to work the deposits. Untested deposits are present in the tanks at Itawan and Mohanganj in Salon tahsil. The "tambolis" burn them for slaked lime. Besides these, there is the continuation of the marl deposit area of Lucknow district mentioned in Chapter I.

### 4. Vegetable, fruits and fibre.

(i) *Potato* is the only important vegetable in the district and about 1,000 acres are under it.

(ii) *Fruits.*—There are numerous mango and mahua groves—about 70,000 groves in all. In the majority of the groves mahua and mango exist side by side. Mahua is a source of revenue.

Mahua flowers are used for distilling country liquor and till 1921 there was a distillery at Rae Bareli. Mahua flowers are also used as food. Mahua seed yields oil which is used for adulterating ghee and for the manufacture of soap. The seeds are largely exported to France.

Taking 15 trees per grove, there are 1,050,000 trees producing 3,675,000 maunds of fruit with seed at  $3\frac{1}{2}$  maunds per tree and 3,150,000 maunds of flowers.

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Out of these about 1,500,000 maunds of fruits are exported and 1,000,000 maunds of flowers are exported to distilleries.

(iii) *Munj*.—*Munj* grows wild near river banks and is planted on the boundaries of gardens, etc. Area under *munj* is 3,258 acres and the Dalmau tahsil with the river Ganges has the biggest area. *Munj* is used for making "ban" and *munj* patawar is used largely for thatching roofs of huts. The kahars and gorias make "ban" and bring it to markets for sale. "Ban" is made in Kharauli, Guknaghat, Kandarwan, Punnkuchand in Salon tahsil and the best market is at Mustafabad, and in Ralpur, Bairuwa, Singhaur, Tara, Chak Churhaiya, Dighia, Sarai Khandey, Gugumau Laluman and Dalmau in Dalmau tahsil.

Ban for export trade is collected by byoparis in the local markets. About Rs. 8,000 worth of ban is made in Dalmau tahsil and about Rs. 3,500 worth in Salon tahsil.

### 5. Labour and capital.

*Banking*.—There is a District Co-operative Bank, Ltd., and a branch of the Allahabad Bank, Ltd.

There are 11 non-agricultural societies composed of weavers, tobacconists, fruit sellers, hawkers, sweetmeat and vegetable sellers. They are financed by the District Bank. The grain merchants transact their business by means of hundis which are cashed through the Allahabad Bank or by themselves. There is no organization to supply the bulk of the industrial necessities of the district.

*Labour*.—There is dearth of skilled labour of all kinds, specially carpenters and masons. There are no big mills and the modern labour problems are unknown. Unskilled labour is available easily, when it is not wanted for agricultural operations.

## CHAPTER III.

### GENERAL DESCRIPTION OF AND SUGGESTIONS FOR THE IMPROVEMENT OF THE VARIOUS DISTRICT INDUSTRIES.

#### 1. Art industries.

The only work of art that used to be done in the Rae Bareli district was the weaving of fine muslin with letters and designs interwoven after the manners of jamdani work. This work is no longer done and the workers of Jais and Rae Bareli are all dead. They were extremely conservative and trained no apprentices. The art is known to one member of the family at Jais named Chhedi. He does not practise the art, but is willing to impart it to others if paid for it. The work is very artistic and it will be worth its while to give him a trial in one of the Government schools.

#### 2. Building materials.

##### (a) Brick kilns.

There are brick kilns at Rae Bareli and Bachhrawan. Besides the regular kilns, temporary kilns are set up where required. There are three regular kilns producing about 12 lakhs of bricks.

Bull kilns with iron or brick chimneys are in vogue, but for temporary purposes they arrange layers of fuel and bricks and after coating the entire mass with mud fire it. This process does not produce good bricks.

The common size of the bricks is  $9'' \times 4\frac{1}{2}'' \times 3''$  called gumma. Besides these long flat bricks for flooring and roofing and curved bricks for wells are made. The bricks are classed I, II and III class or yellow.

*Organization.*—There are about 25 men engaged in these kilns, including the loniyas who prepare kuchcha bricks. The bricks are prepared in wooden moulds by loniyas on contract system. They charge Rs. 3 per 1,000. The bricks are arranged in the kiln and fired by the kiln-owners' men. The mistri

or foreman gets Rs. 30 per month, while the labourers get 5 to 8 annas per day.

The plot has to be taken on lease. The royalty paid varies from Rs. 200 to Rs. 300, according to the demand and locality, for three years.

About 18 to 20 tons of coal are required to burn one lakh bricks and Rs. 150 are the labour charges for the same. From one lakh of kachcha bricks burnt about 50,000 first class, 10,000 second class and 40,000 third class bricks are normally obtained. The sale prices of the bricks are Rs. 18 per 1,000 first class, Rs. 16 per 1,000 second class, and Rs. 14-8 per 1,000 third class. The cost of carting 1,000 bricks is about Rs. 2. Those who use iron chimneys have to change it after two seasons. It costs about Rs. 350 and the damper for regulating the fire in the kiln costs Rs. 100. Price of coal is about Rs. 16-8 to Rs. 17 at the brickfield.

*Profits.*—Taking all the above factors into account, the kiln owner spends about Rs. 11 to Rs. 12 per 1,000 on the average.

The demand in Rae Bareli is not much and the kilns do not burn more than 4 to 5 lakhs, but in Lucknow a kiln burns at least 15 lakhs per season and they get about Rs. 4,000 as nett profit.

#### (b) *Lime mills.*

Kankar is burnt in small quantities in permanent kilns or in old pyramidal structures with alternate layers of fuel and kankar. The latter method is defective and produces inferior quality of lime. There is a general complaint about Rae Bareli lime which is mixed with mud and other impurities.

There are no power driven mills in the district. Kankar is ground by stone rollers driven by bullocks. The roller moves in a circular rut in which burnt kankar is put. The bigger particles have to be separated by means of big sieves and re-ground.

Land from which kankar is dug out is taken on lease and about Rs. 400 has to be paid per bigha. There is no time limit.

The contractor has to spend about Rs. 2-8 to Rs. 3 for excavating 100 cubic feet of kankar and the cost of carting the same is about Rs. 2. Ten cwt, or 100 c. ft. of coal is required to burn 1,000 c. ft. of kankar and the cost of burning 1,000 c. ft. including labour comes to about Rs. 18. The expenses of grinding 1,000 c. ft. of kankar is about Rs. 25.

If 1,000 c. ft. of kankar is burnt the same amount of lime is produced. The sale price of lime is Rs. 25 to Rs. 30 per 100 c. ft. at Rae Bareilly. The three lime works produce about 2½ lakh c. ft. of lime annually.

### 3. Chemicals.

#### (a) *Manufacture of crude saltpetre.*

Crude saltpetre is manufactured at 15 places and about 20 pans are used turning out about 270 maunds of crude saltpetre. The process of manufacture has been fully discussed by the writer in the Sitapur and Hardoi reports and also by Mr. J. S. Vatal in the report on the Industrial Survey of the Farrukhabad district, which is the chief centre of the saltpetre industry in the United Provinces.

This crude saltpetre is sold to the refineries where it is refined for export.

*Organization.*—The loniyas or mahajans who sublet their right to loniyas have to pay Re. 1-8 to Rs. 2 for the right to scrape nitrous earth from a village and the loniyas have to pay the Government Re. 1 for the licence to prepare saltpetre. They collect their produce and sell it to a local mahajan or take it to the refineries themselves. Crude saltpetre is sold for Rs. 3 to Rs. 4 per maund. As there is salt mixed with their production, they cannot sell it to the public.

*Profits.*—From enquiries it was found that the number of crude saltpetre works had decreased after the war. The price now paid for refined saltpetre (Rs. 9-8 per maund) is low and leaves very little profit to the refiner, who thus pays a lower price for crude saltpetre. The number of pans was about 75 during the war.

There is a demand in Assam, but Chili saltpetre is largely imported by the Calcutta firms for the tea gardens. The fall in price has discouraged the loniyas and reduced their profits.

	Rs.	a.	p.
Price of 13 maunds of saltpetre ...	52	0	0
* To mahajan or zamindar as royalty or share ...	17	5	0
Expenses of making pits, wear and tear of karhai, expenses of collecting leaves, etc. ...	4	0	0
Wages ...	15	0	0
Total ...	36	5	0

Balance of rupees 15-11 is his profit or wages.

\* When he has not to pay the mahajan, he has to pay royalty himself and collect nitrous earth from the different villages. One village cannot supply material enough for 13 maunds, which he prepares in 2½ to 3 months.

(b) *Saltpetre refining.*

Sikri Prashad of Jais has a saltpetre refinery, but the work is on a small scale. Last year only 70 maunds of saltpetre were produced.

Refining is carried out under a licence from the Salt department for which a fee of Rs. 50 is paid annually. The following process is adopted.—Nitrous earth is dissolved in water in a pit and in this solution crude saltpetre is dissolved. This solution is then boiled in pans. Salt crystallises first and is occasionally taken out. The boiling liquid containing saltpetre dissolved in it is then passed to earthen tubs (nand) by means of wooden pipes and allowed to cool. Crystals are then gradually deposited at the bottom. The crystals are brown and are washed to get clear crystals. The wash water is boiled and the dissolved saltpetre is re-crystallised.

*Organization.*—The men manage the works under the supervision of the licensee. The mistri supervises the solution, boiling and crystallisation and the two labourers do the work. Recovered salt is sold in the market and they have to pay Government duty of Re. 1-4 per maund. The balance left after paying the duty goes to the refiner.

*Marketing.*—Calcutta is the principal market for saltpetre and Calcutta rates determine local prices. Saltpetre is exported to China for fireworks and to Mauritius for manure. But it is faring very badly against South American competition.

The unit of sale is the maund—equivalent to 84 lbs., and it is shipped in bags of 224 lbs.

*Profits.*—

	Rs.	a.	p.
Cost of 1 maund of crude saltpetre ...	4	0	0
Cost of refining ...	1	0	0
	<hr/>		
Total ...	5	0	0

This will produce 25 seers of saltpetre at Rs. 9-8 a maund delivered at Calcutta or Rs. 8-8 F.O.R. Jais and will fetch Rs. 5-5 here or about Rs. 6 at Calcutta leaving 5 annas as profit. To this may be added the profit from salt, if any, because usually they don't get even the amount of duty from the sale of salt and throw it away in the river or tank.

#### 4. Food grains.

##### *Flour mills.*

There are no big flour mills in the district. Four small mills exist—three at Rae Bareli and one at Lalganj—which are all worked by small oil-engines and each has one horizontal stone mill. They grind wheat for dealers and private consumers in the district. The average outturn of each mill is about 25 maunds on normal working days, but the mills grind about 40 maunds per day during the harvest time when the supply is brisk.

The establishment of the mill consists of an engine driver who is paid Rs. 30 to Rs. 40 per month and an oilman getting Rs. 15 to Rs. 20 a month. There is a munshi or accountant getting Rs. 15 per month (if not the proprietor or his son) and a labourer on 8 annas a day.

The charge for grinding is 8 annas to 10 annas per maund.

The full particulars of each mill are given in Chapter V "Statistics."

The mills between them deal with 7,180 maunds of wheat although the district produces about 1,525,155 maunds. The old system of grinding with hand mills is still in vogue in the villages, but there is no doubt that a large quantity of wheat is exported in its raw state. Its close proximity to Lucknow and direct communication with Benares and other places whose



consumption of ata (wheat flour) is great should be an inducement to the mill-owners to buy wheat and expore flour. This would require a large amount of capital and much bigger factory. There is money enough with the seths, but they lack enterprise. The other two difficulties standing in the way of mills are the difference between the railway freights of wheat and flour and the want of a standard weight throughout the province. The last two are, however, not very important and a large organization can easily cope with them.

### 5. Glass.

#### *Manufacture of crude glass phials (gangajalis).*

The manihars of Karauli Daman, Ghoswara, Saubara and Saimada in Dalmau tahsil and of Manehra in Rae Bareli tahsil make gangajalis or flask shaped phials of different sizes for the pilgrims to carry Ganges water after bathing in the sacred river.

A place is selected where reh is prominent on the surface and is enclosed by very low (one foot) mud walls. The enclosure is filled with water and scrapings of reh from adjacent land are collected in the enclosed space and a raised platform is made. Reh appears by efflorescence on the surface after a few days and this is scraped and stored. Reh is collected in the months of May and June. A royalty of Rs. 4 to Rs. 6 per two cart loads of reh has to be paid to the zamindar of the land. Reh is heated with a little sand in the furnace and molten glass is prepared. Flasks of different capacities are blown by means of a blow pipe. The writer did not come across children doing the work of glass blowing, although they help the workman on the furnace. The material is very crude and brittle and is glass in name only. The phials are very cheap—the bigger ones are sold at 4 annas per 100 and the smaller ones at 2 annas per 100 to the dealers at Dalmau who sell the bigger ones at 1 pice each and the smaller ones 2 to 4 for a pice. The loss in breakage is great, but the broken phials are remelted and phials are blown out of them. One furnace can produce about 4 maunds of crude glass from 12 maunds of reh. There are 8 families who have each a bhatti or furnace, so that about 32 maunds of crude glass are annually produced.

Glass making goes on throughout the year, but is very brisk in January for Sheoratri fair and in October for Kartiki Puranmashi,

*Profits.*—His expenses are for collecting reh and for getting fuel. Fuel he has to purchase locally and dhak wood is used. But the manihars are not prosperous on account of too numerous breakages, curtailing his daily income to 10 annas to 12 annas. He gets one anna 6 pies worth of fuel for one gross of big phials and 9 pies worth of fuel for one gross of small phials.

There are no hopeful prospects for the industry.

## 6. Hardware.

### (a) *Manufacture of domestic utensils of kaskut (alloy).*

Maharajganj has 8 shops where domestic utensils, mostly batuas, of kaskut are moulded. About 240 maunds of utensils per annum are produced. Mostly old and broken utensils are remelted, but bars or slabs of kaskut imported from Calcutta or Cawnpore are also used. Earthen moulds are made by the members of the family and when a score are ready, metal is melted and poured into the moulds. The process is the same as described in Mr. Dampier's monograph on brass and copper works. Sandpaper is used for final polishing.

*Organization.*—The members of the family all combine to do the work and they engage a temporary man on daily wages of 8 annas to draw the lathe when moulding is completed. Another man is engaged for the furnace in some cases on 8 annas a day. They cannot do any melting of the metal and moulding at the time of preparing the moulds and of filing and turning the utensils. The furnace is used four times a month during the cold season and twice during the rains. The average output per family is 4 maunds per month for 6 dry months and 2 maunds per month for three wet months. Raw material is obtained from Cawnpore in the shape of bars and old utensils are taken in exchange from the customer at half the cost of new vessels.

*Marketing.*—Most of the marketing is done on market days in Maharajganj. Byoparis from outside come to Maharajganj to make wholesale purchases from the manufacturers who are also dealers.

*Profits.*—The following would be the profit per maund of a manufacturer on the assumption that he gets the things made on wages :—

	Rs.	a.	p.
Price of 1 maund of kaskut ...	25	0	0
Price of 8 moulds at 8 annas each ...	4	0	0
Filing ... ..	0	12	0
Turning ... ..	0	12	0
Fuel ... ..	1	8	0
Miscellaneous. Including firing of furnace and pouring of metal.	1	0	0
Loss of metal, 2½ seers ...	1	9	0
Total expenses	34	9	0

This will give him 36 seers (excluding 1½ seers for filing which is remelted) at Re. 1-6, total Rs. 49-8, leaving Rs. 14-15 as his profit.

Usually he and his relatives make moulds and do filing, turning and furnace work.

*Season.*—The work is dull during the rains and becomes brisk at the marriage season or when the Kartiki Purnamashi Fair is coming near.

*Suggestions.*—The number of workers is small, otherwise a co-operative organization would have been recommended. The articles are heavy and the output small so that the trade is not brisk except during the Dalmau Ganges Fair. The output can, however, be increased if they could get advance from some Industrial or Co-operative Bank. There should be division of labour at least to the extent of making the moulds. Moulds are sold at Oel and other big centres thus saving the time of the utensil makers.

The batua and lota making has little competition from outside. The villagers prefer heavier utensils of kaskut. China is very brittle and expensive even for Muhammadans who have no prejudices against it and aluminium has yet to be made popular. It is too light to withstand rough use and it cannot fetch any price in the villages when unserviceable.

(b) *Manufacture of iron nut-crackers.*

Nut-crackers made in some of the villages of Dalmau tahsil are famous for their durability. They are inlaid with silver wire in ornamental designs.

The art of tempering steel as of old is practically dead and they get steel rods (new) from Lalganj and temper it as best as they can. About 60 lohars in 27 villages do this work, but those of Jalalpur-Dahi, Subahdar-ka-purwa, Karauli Daman, Lachhmanpur, Samaspapa and Tikraman are noted for their skill. Ordinarily each village has one to two lohars, but there are six families in Karauli Daman and five in Jalalpur-Dahi. The family is the unit, but for the bellows they have to engage in some cases a journeyman labourer on daily wages of 6 annas.

An average sized nut-cracker such as is seen in the village markets sell for 8 annas. Nut-crackers of higher prices are made to order. A man can make three small nut-crackers in a day.

	Rs.	a.	p.
Steel 4½ chataks at 3 seers for a rupee	0	1	6
Silver wire for three at one anna 6 pies	0	4	6
Wages of the lathe and bellow man ...	0	6	0
Total	...	0	12 0

The three will be sold for Re. 1-8, leaving 12 annas per day to the lohar.

The lohars are not exclusively engaged in nut-cracker making and the majority of them is engaged in agricultural implement making. In some cases they are partially agriculturists.

Taking twenty to be the number of lohars making nut-crackers throughout the year we get 12,000 nut-crackers worth 8 annas each (one man preparing three per day for 200 days).

*Suggestions.*—The demand for sarautas is not very great and regular and nearly every district has its lohars to supply the local demands. But the expert workmen can be kept constantly employed by some of the dealers in cutlery in the big towns where there is always some demand for fancy nut-crackers. Otherwise the lohars are very scattered and cannot be

organized, nor can there be demand for the production of all of them.

## 7. Leather.

### (a) Tanning.

There are no modern tanneries; leather suitable for water buckets and *desi* shoes, etc., is tanned by the village chamars with the aid of some saji or lime and babool bark. The hanging process described in Walton's monograph on leather and leather working in United Provinces is followed. No particular villages are famous for leather tanning, but there are more than ten tanners in the villages of Motia Mau, Khalilpur, Sudankhera, Kasauli, Mahakhera, Pahusi and Usru in Dalmau tahsil, Tanli, Raghurpur, Bachhrawan, Muraini, Pakargaon in Maharajganj tahsil, Sudhwari, Paharpur and Rustampur in Salong tahsil.

The markets of Lalganj, Maharajganj and Bachhrawan are centres for trade in leather, hides and leather goods.

There are about 600 tanners producing about 8,000 charsas and about 2,000 calf and sheep skins.

*Organization.*—The family is the unit and the men engaged are all partial agriculturists. The chamars get hides from the dead animals of the villages and have to supply a pair of shoes to the owner of the hides and four pairs of shoes or a bucket to the zamindars of the village. The number of pairs, etc., is not fixed and is determined every year.

*Marketing.*—The chamars either use the tanned hides themselves or sell them in the village markets to mochis or byoparis.

*Profit.*—There are no regular karkhanas of these chamars and they usually work when a sufficient number of hides is available or when they have leisure. If the hide is of the village he gets about Rs. 4 to Rs. 5 per hide, but if it has been purchased he gets only Rs. 2 to Rs. 3 per hide.

*Suggestions.*—20,921 hides and 31,113 skins are available, but only 8,000 hides and about 2,000 skins are tanned. The chamars could tan more, but they sell raw hides to exporters as they have not got capital enough for tanning all of them. They are scattered, but co-operative societies at Bachhrawan, Motiamau, Sudankhera, Tauli, Muraini should be tried and then the tanners could be induced to adopt better

methods of tanning by demonstrating the various stages to them. There is demand for well tanned hides for sole leather. More capital and better organization will help the industry.

(b) *Manufacture of boots and shoes.*

Ordinary *desi* shoes are made by a large number of mochis and sold in the Lalganj and Maharajganj markets where byoparis make wholesale purchases for export to Behar (mostly Durbhanga) and to Bombay and Calcutta for the up-country labourers.

At Rae Bareli very light Salim Shahi shoes are made by four mochis and one of them is famous for extremely light shoes which are always in demand amongst the rich people. Upper leather is imported and sole in the compression of which the real merit lies is locally made. More men should be trained as the men are pressed with orders at all times.

Besides these there are three shops making boots and shoes at Rae Bareli.

*Desi* shoes have locally tanned cow hides for upper and buffalo hides for sole, obtained from the village chamars. Coloured leather for tips and heel tops is obtained from Behar. Upper leather for light Salim shoes and boots and shoes is obtained from Cawnpore. The village mochis are mostly independent workers partly engaged in agriculture. The Salim shoemakers are also independent manufacturers, but the three shops of boots and shoes engage workmen on piece wages at 10 annas to Re. 1-8 per pair according to the quality of the pair.

*Marketing.*—Shoes are sold locally or in the neighbouring village markets. At Rae Bareli there are shops for the sale of these goods.

There are 220 mochis who, it is estimated, turn out annually about 26,400 pairs of shoes. They consume about 2,960 tanned hides. A mochi earns about 14 annas a day, thus :—

	Rs.	s.	p.
Cost of leather for one pair	...	1	4 0
Cost of yarn, nails, oil, etc.	...	0	6 0
		<hr/>	<hr/>
		1	10 0
		<hr/>	<hr/>

This pair will be sold for Rs. 2-4 to Rs. 2-12 according to market demand.

*Suggestions.*—Co-operative organization of the mochis will enable them to better their lot. But this is possible only in places where their number is large and where they are prepared to devote their entire time to shoemaking. Specialisation and large scale production at central places and not the principle of self-sufficing economy for every village is the order of the day. Such places are Ramai-pur-khurd, Dhurey-mau, Mahakhera and Khalilpur in Dalmau tahsil, and Bachhrawan in Maharajganj tahsil.

### 8. Miscellaneous.

#### *Tobacco.*

There are 187 tobacconists in the district, but all of them prepare smoking tobacco of the cheap variety for local consumption. They use local leaves and use shira and a little sajji. They mix a sprinkling of spices like ilachi, jao, javitri, etc., in the better varieties. Khamira is used by one or two manufacturers at Rae Bareli. Shira is imported from Cawnpore and Shahjahanpur, khamira is locally prepared from berry. They pound leaves themselves or get it done on wages at Re. 1 to Re. 1-4 per maund. Dry leaves are sold for chewing purposes also.

Tobacco is sold in the neighbouring markets.

#### *Profits.*

	Rs.	s.	p.
Cost of 1 maund of dry leaf ...	10	0	0
Cost of 1½ maunds of shira ...	6	12	0
Sajji and the cost of pounding leaves ...	1	8	0
<b>Total</b> ...	<b>18</b>	<b>4</b>	<b>0</b>

This will give him at least 8 maunds of tobacco at 3 annas a seer fetching Rs. 22-8 and leaving a profit of Rs. 4-4 or 23 per cent. Sometimes the percentage of profits is increased by decreasing the amount of shira and adding more water and sajji.

About 20,000 maunds of tobacco are prepared consuming about 7,000 maunds of tobacco leaf and 10,000 maunds of shira.

## 9 OIL.

*Oil crushing in the villages.*

Wooden kolhus driven by bullocks are used by telis of the villages for crushing mustard and til seeds. The teli is partly agriculturist and the inmates of his family look after the work, he dividing his time between the field and the kolhus. They crush their own seeds and also get seed from zamindars and byoparis to be crushed on wages. The teli takes the oil-cake and gets grain equal in weight to the oil produced from the byopari or zamindar to cover his wages. These fetch him about Re. 1-2 to Re. 1-4 a day out of which he has to feed his family, the bullocks and meet the depreciation charges of the kolhus.

*Suggestions.*—As has been suggested by many men interested in encouraging the village teli, a kolhu of iron should be devised and it should be handy, light, adaptable to all kinds of seeds, cheap, easy of repairs and without complicated machinery.

*Outputs.*—There are 2,627 kolhus in the district producing about 39,405 maunds of oil.

*Hand presses.*

The abundance of neem and mahua seeds in the district has encouraged some mahajans to instal hand presses for crushing the seeds. The seeds are decorticated first in a hand machine and then put in small gunny bags which are hung on the rod between two iron sheets and the sheets are pressed from both sides by two iron discs which move on grooves on the rod. The seeds are heated by kindling coal fire, crushed oil drops on the pan below. There are hand presses at Jais and Rae Bareli. One press can crush about 12 maunds of seed, but in practice they crush about 6 maunds per day. One maund of mahua seed produces 14 seers of oil and one maund of neem seed produces 13 seers of oil. Seeds are purchased in the season and crushed throughout the year.

One man paid at Rs. 25 a month works the press and four labourers help him on 8 annas a day. Neem oil is sent to Amritsar and Calcutta for soap making. Mahua oil goes to Calcutta and is also locally used for adulterating ghee. Mahua oil sells for Rs. 15 to Rs. 18 per maund and neem oil for Rs. 13 per maund. Prices of mahua seed were 9½ seers per rupee in July and August, 1922, and are 11½ seers at present, and of



neem seed were 13 seers a rupee in August, 1922, and now are 16 seers a rupee.

*Profits.*—The profits have gone down owing to fall in demand and they have suffered a loss this year. At the time of enquiry neem oil was not being sent out at all.

	Rs.	a.	p.
Price of 1 maund mahua seed	...	3	8 0
Expense of crushing it	...	1	0 0
		<hr/>	
Total expenses	...	4	8 0

This will produce 14 seers of oil at Rs. 15 a maund, i.e., Rs. 5-4-0, leaving a balance of 12 annas per maund of oil crushed. To this will be added what the oil-cake may fetch.

#### 10 Pottery.

There are many places in the district where good clay for pottery is available, but no artistic work is done anywhere except at Kakoran where toys of all kinds are made by one expert kumhar. Chilams, amritbans, cups and saucers are made at Inhauna, Thulaindi, Yusufnagar, Sheoratanganj, Tiloi and Semraota in Maharajganj tahsil, Sarai Daman in Rae Bareli tahsil. Sudamanpur and Kakoran in Dalmau tahsil.

The kumhar of Kakoran makes human and animal figures of all kinds and can colour his models artistically. He can glaze his models with lac dye and paint after the fashion of Chunar. His work is valued by all in the district and he does good business during Dewali at Rae Bareli where he opens his shop for that period.

#### 11. Textiles.

##### A. Cotton.

*Weaving.*—Fine muslin used to be woven at Jais, Rae Bareli, Parshadepur and Nasirabad, but now only Garha, Doria and Tapti are woven.

Art weaving is now extinct. One Chhedī of Jais says that he knows the art and is willing to teach it to others, but he himself does not practise it for want of capital and patronage.

Rae Bareli does not grow any cotton and her weavers all use mill spun yarn of Ahmedabad, Cawnpore, Agra and

Lucknow. The use of fly-shuttle looms is prevalent in Salone tahsil, specially at Parshadepur; otherwise the *desi* throw-shuttle looms are used.

*Organization.*—The family is the unit. Children and women lay out the warp and wind weft bobbins. Dressing and sizing of the warp is done by the weavers for one another in a friendly way. It takes about 6 hours to lay out a warp of 16 yards by one man and about the same time is taken in winding the bobbins for the same piece. Two to three men when engaged dress and size a 16 yards warp in 3 to 4 hours time.

The fly-shuttle looms are usually obtained from Pariwan in Partabgarh district as there are no good carpenters at Salone or Parshadepur to do the work. Yarn is obtained from the dealers who take their shops to the important markets.

*Marketing.*—The two weavers of Parshadepur and one of Rae Bareilly who can weave good garha and striped shirtings and check are never free from supplying the local customers who place orders with them. Others bring their stock to the village markets and dispose it off to itinerant shopkeepers or to individual customers.

*Profit.*—The average daily income of a weaver devoted to work whole time is 12 annas.

	Rs.	a.	p.
Price of 3 lbs. of yarn for a piece ...	2	12	0
Sizing, etc. ...	0	4	0
<b>Total</b> ...	<b>3</b>	<b>0</b>	<b>0</b>

This will be ready in 1½ day and will be sold for Rs. 4, leaving a profit of Re. 1.

There are 1,474 throw-shuttle looms producing 1,842,500 yards of cloth at the rate of 1,250 yards per loom per annum and 100 shuttle looms producing 200,000 yards per annum taking 8 yards per loom per day for 250 days.

#### *Price.*

Ordinary garha, Rs. 3 : Rs. 3-4, Rs. 4, according to size or texture.

Tapti; Rs. 4 to Rs. 5.

Checks; Rs. 5 to Rs. 8 per piece of 12 to 16 yards.

*Suggestions.*—The weaving centres of Jais, Parshadepur and Nasirabad offer some scope for co-operative organization. The beginning should be made with a yarn store first run as limited company and then gradually converted into a self-supporting co-operative organization. The yarn store should have a small factory for the manufacture of fly-shuttle looms which should be popularised by being given on easy payment system. Effort should be made to remove the grievance of the weavers using a fly-shuttle loom that the loom does not adopt itself to the weaving of Tapti and other coloured cloths.

#### B. Wool.

*Weaving of woollen blankets.*—Woollen blankets are woven by about 1,043 men, mostly gadariyas. Pargana Mustafabad in Salone tahsil is noted for blankets. The villages of Baherna, Khojanpur, Faridpur, Arkha and Kharauli produce good white and black blankets of all sizes. Full sized blankets cost from Rs. 6 to Rs. 8 each. They are  $1\frac{1}{2}$  yards wide and  $2\frac{1}{2}$  yards long and made up of four stripes as the looms are not wide enough to weave blankets  $1\frac{1}{2}$  yards wide. These require about 7 to 8 lbs. of wool. The best blankets at Baberna and Arkha are woven by the Chikwas or butchers who make things mostly to order. Usually the small and light kamlees are woven which require about 4 lbs. of wool. They are sold for Rs. 2-8 to Rs. 4 each. The blankets are brought mostly to Mustafabad and Salone markets for sale. Taking 12 blankets as the average annual outturn per man, 12,516 blankets are woven annually.

The carding of wool and weaving is done by the gadariya, while his wife or other inmates of the family clean wool and spin it on the charkha.

Spun wool is not imported, nor are there professional carders.

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## CHAPTER IV.

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### INDUSTRIAL POSSIBILITIES OF THE DISTRICT AND SUGGESTIONS FOR ORGANIZATION AND IMPROVEMENT OF THE EXISTING INDUSTRIES.

1. *Agricultural produce.*—There are big markets like Lalganj, Rae Bareli and Bachhrawan which need to be organized properly for export trade. There should be an association of dealers for sorting out wheat, rice and other grains according to their varieties so that the agriculturists might be encouraged to improve their stock and get due price for their produce. Some kind of a Government inspection like the one in Canada will help much. In Canada wheat is sorted into grades and certified by the Government Inspector. This certificate does the work of Hall-marking and foreign purchasers enter into transaction on the strength of these certificates. This avoids higgling and bargaining and assures proper prices to the producer and proper articles to the purchasers.

To enable the cultivators to withstand the immediate need for money after harvesting a co-operative organization which could stock their grain and advance them money will be an useful institution. This organization can help the Traders' Association in sorting and grading the produce also.

2. *Cement deposits.*—The cement deposits of the various places in the district ought to be worked by a limited company. The Government can help this company by acquiring land for them on easy terms and by guaranteeing to them to purchase, at a fixed rate, cement for the irrigation and P. W. departments, should it come up to the requirements of these departments.

3. *Weaving.*—The handloom weavers of Salone tahsil ought to be organized on the co-operative basis. A yarn store ought to be opened and they should be encouraged to use fly-shuttle looms and weave fine muslin which is in demand for embroidery and fashionable summer wear. Fine Tanzeb and

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nulmaul woven on the handloom is still prized and the weavers will get a good remuneration if they take to finer work. As a matter of fact, the strength of the cottage worker lies in artistic production.

Small capitalists should start handloom factories and prepare the finer materials. This will pay and is paying at Sandila.

A weaving school should be started at Salone

## CHAPTER V.

## STATISTICAL ACCOUNT OF THE VARIOUS INDUSTRIES.

## 1. Building materials.

(a) *Brick kilns.*

*Materials*—Clay and fuel.

*Manufacture*—Bricks of all qualities and sizes.

Small factories without mechanical power.

*Number of kilns*—Three.

*Number of men engaged*—Twenty-five.

*Wages*—Five to 8 annas per day.

*Outturn*—1,200,000 bricks.

*Price*—Rs. per 1,000, first class; Rs. 16, second class; and Rs. 14-8, third class.

(b) *Lime mills.*

*Materials*—Kankar and fuel.

Small factories without steam, or oil power.

*Number of factories*—Three.

*Number of men*—Twenty.

*Wages*—Five to 8 annas per day.

*Outturn*—250,000 c. ft.

*Price*—Rs. 25 to Rs. 30 per 100 c. ft.

## 2. Chemicals.

(a) *Crude saltpetre.*

*Material used*—Nitrous earth and scrapings from old mud walls, etc.

*Export and import*—Nil.

(The whole is refined at Jais.)

Cottage industry subsidiary to agriculture.

*Number of men engaged*—Forty men.

*Wages*—Profits which come to about Rs. 15 per season of 2½ months and shared between himself and his partner.

*Outturn*—270 maunds at 13½ maunds per karhai with 20 karhais.

*Price*—Rs. 3 to Rs. 4 per maund.

(b) *Saltpetre refining.*

SIKRI PRASAD'S SALTPETRE REFINERY.

*Filter pits*—Two.

*Boiling pans*—Two.

*Crystallising stills (earthen nands)*—Eight.

*Materials used*—Crude saltpetre and nitrous earth.

*Crude saltpetre*—160 maunds.

*Outturn*—70 maunds.

*Exports*—50 maunds.

*Price—Crude saltpetre*—Rs. 3 to Rs. 4 per maund.

*Refined*—Rs. 9-8 per maund wholesale at Calcutta, local-  
Rs. 11 to Rs. 12 per maund retail.

*Men engaged*—Three.

*Wages*—8 annas a day for labourers.

Foreman Rs. 25 per month.

3. **Food grains.**

1. *Lakshmi Chand Kapur Chand Flour Mills, Lalganj.*

Crude Oil Engine, 20 H. P.

One Horizontal Mill, 150 maunds grinding capacity.

*Outturn*—2,880 maunds per annum.

*Grinding charges*—10 annas per maund.

*Men engaged*—Five.

One Engineer and one oil man; the other three manual workers.

*Wages*—Rs. 40 per month, Rs. 25 per month and Rs. 15 per month each labourer.

2. *Vilayat Ali and Muhammad Yusuf's Flour and Saw Mills.  
Rae Bareli.*

Oil Engine, 4½ H. P.

One Horizontal mill.

*Outturn*—1,000 maunds annually.

*Grinding charges*—8 annas to 10 annas per maund.

*Men engaged*—One Engineer on Rs. 30 per mensem and one Assistant on Rs. 15. Labourer 8 annas a day.

### 3. *Thakur Sheo Baran Singh's Flour Mills.*

One Oil Engine 8 H. P.

One Horizontal Mill.

*Outturn*—1,800 maunds per annum.

*Grinding charges, etc.*—The same as above.

*Men engaged*—Two.

*Wages and salaries*—Same as above.

### 4. *Babu Chetan Singh's Flour Mills.*

Oil Engine, 8 H. P.

*Outturn*—1,500 maunds per annum.

Other particulars are the same.

## 4. Glass.

### *Manufacture of crude glass flasks.*

*Materials used*—Reh or sajjī, obtained by paying a royalty of Rs. 2 to Rs. 3 per cart load.

*Quantity*—100 maunds of reh.

*Manufacture*—Glass flasks (Gangajali) for pilgrims to carry Ganges water.

It is a cottage industry.

*Number of men*—Eight with 8 bhattis.

*Wages*—No outside labour. Average income 8 to 12 annas per day.

*Outturn*—32 maunds of glass.

*Price*—Wholesale rates 3 to 4 annas per 100. Smaller sizes 2 annas per 100.

These are sold at 1 pice each and the smaller ones 2 to 4 pice.

## 5. Hardware.

### (a) *Domestic Utensils of Kaskut (Alloy).*

*Materials used*—(1) Kaskut bars and (2) old utensils.

*Quantity*—About 270 maunds.

*Import*—Not known (very little of imported metal is used)

*Export*—Nil.

*Manufacture*—Batloi, batuas, lotas, chimchas.

It is a cottage industry. Eight shops at Maharajganj.

*Number of men engaged*—Thirty men.



*Wages*—8 to 10 annas for the labourer who works the lathe. Rs. 30 per maund for moulding utensils out of material supplied by byoparis. Mostly they prepare their own things.

*Outturn*—240 maunds.

*Price*—Old material and bars 10 to 12 annas a seer. New utensils Re. 1-4, Re. 1-6 and Re. 1-8 per seer according to quality of utensil.

(b) *Iron Nut-cracker making.*

*Materials used*—(1) Steel.

*Place of origin*—From Lalganj and Rae Bareli.

*Quantity*—25 maunds.

*Value*—Rs. 333-5-4.

*Imports*—25 maunds.

*Export*—10 maunds of ready made sarautas.

(2) Silver worth Rs. 125 from Lucknow.

*Manufactures*—Sarautas with silver work on the frame.

It is a cottage industry.

*Number of men*—Sixty (only 20 devoting their time exclusively).

*Wages*—Their profit, i.e., 12 annas a day.

*Outturn*—12,000 sarautas (presuming 20 men to work for 200 days producing 3 sarautas a day worth 8 annas each).

*Price*—Iron, 3 seers per rupee.

Sarautas usually 8 annas each, special sizes 12 annas, Re. 1 and Rs. 2-8 each.

## 6. Leather.

### (a) *Tanning.*

*Materials used*—Hides, lime babul bark, saji or reh.

*Number of hides*—8,000 hides annually and 2,000 skins.

*Manufactures*—Tanned hides.

It is a cottage industry subsidiary to agriculture.

*Men engaged*—600, all partially.

*Wages*—Their profit.

*Outturn*—8,000 hides.

*Price*—

*Raw hides*—Rs. 2 to Rs. 3, cow hides.

Rs. 4 to Rs. 6-8, buffalo hides.

*Tanned hides*—Rs. 10 to Rs. 12, good and large size.

Rs 6 to Rs. 8, ordinary.

Rs. 4 to Rs. 5, cow and calf.

2 annas to Re. 1, skins (sheep)

(b) *Manufacture of Boot and Shoes, etc.**Materials used—*

Ordinary country tanned hides 2,960 hides for upper and sole.

Cawnpore tanned leather, 3,600 sq. ft.

Yarn, shoe lace, nails, eyelets, etc.

*Import*—3,600 sq. ft. of leather from Cawnpore.

*Export*—7,500 pairs of country shoes.

*Manufactures*—Country shoes, and modern boots and shoes.

It is a cottage industry.

*Men engaged*—220 men for country shoes.

12 men for boots and shoes.

*Wages*—Profits to country shoemakers. Others, 10 annas to Re. 1-8 a day. .

*Outturn*—26,400 pairs of country shoes.

1,800 pairs of boots and shoes.

*Price—Shoes*—Country Re. 1 to Rs. 2-8 per pair.

Modern Rs. 3 to Rs. 5 per pair.

**7. Miscellaneous.***Tobacco for smoking.*

*Materials used*—Tobacco leaf 7,000 maunds.

Shira 11,000 maunds.

Sajji, etc. 2,000 maunds.

*Import*—Shira, 11,000 maunds.

*Export*—Nil.

*Manufactures*—Smoking tobacco.

Cottage industry.

*Number of shops*—187 employing 250 men.

*Wages*—Re. 1 to Re. 1-4 per maund for pounding of leaf.

*Outturn*—20,000 maunds.

*Price*—Rs. 10 to Rs. 12 per maund for tobacco leaf.

Shira Rs. 4-8 to Rs. 5 per maund.

Tobacco 2 annas 6 pies to 4 annas a seer.

**8. Oil.**(a) *Oil crushing in the villages with wooden kolhus.*

*Materials used*—Mustard, til and poppy seeds.

*Quantity*—118,215 maunds of seeds.

*Manufacture*—Oil and oil-cakes.

It is a cottage industry subsidiary to agriculture.

*Number of kolhus*—2,627.

*Number of men supported*—7,881 men, women and children.

*Outturn*—39,405 maunds of oil.

78,810 maunds of oil-cake.

*Price*—Fluctuating with the market.

(b) *Hand press for mahua and neem seeds.*

*Materials used*—Mahua and neem seeds.

*Quantity*—2,700 maunds.

*Manufacture*—Oil and oil-cakes.

*Number of presses*—Three working (one at Jais and two at Rae Bareli).

*Number of men*—Fifteen. Three skilled and 12 unskilled.

*Wages*—Skilled at Rs. 20 to Rs. 25 a month, others 8 annas a day.

*Outturn*—877½ maunds of oil.

1,822½ maunds of oil-cakes.

*Price*—Mahua seed 9½ to 11½ seers a rupee.

Neem seed 13 to 16 seers a rupee.

Oil, Rs. 15 to Rs. 18 per maund of mahua and Rs. 13 per maund of neem.

The rates have fallen very low. Last year the rate fluctuated between Rs. 19 and Rs. 25.

## 9. Textiles.

### *Cotton weaving.*

*Material used*—Mill spun yarn of 16½<sup>s</sup>, 11½<sup>s</sup>, 20½<sup>s</sup>, and 22½<sup>s</sup>.

*Quantity*—498,125 lbs.

Wheat flour, oil (mustard) and fugitive dyes.

*Import*—498,125 lbs.

*Export*—About 3,000 yards of cloth.

*Manufacture*—Garha, jora, tapti, doria, charkhana, lungi and dupatta.

It is a cottage industry.

*Number of looms*—1,474 throw-shuttle.

75 fly-shuttle.

*Number of men*—3,000.

*Wages*—Very little work is done on wages. The laying of warp is done by the help of boys and sizing with the help of other weavers.

Boys when engaged on wages are given 4 annas a day.

*Outturn*—1,842,500 yards on throw-shuttle looms.

150,000 yards on fly-shuttle looms.

*N.B.*—On the throw-shuttle the average daily outturn is 5 yards per loom and on the fly-shuttle 8 yards per loom.

*Price*—Yarn, from Rs. 8-8 to Rs. 12-8 per 10 lb, bundle.

Garha, Rs. 3, Rs. 3-4 and Rs. 4 per 8 yard piece

Rs. 4-8 to Rs. 6 for 12 to 14 yard piece.

Tapti, Rs. 4 to Rs. 6 per 8 yard piece.

Superior doria and check, 8 annas to 10 annas per yard.

(b) *Woollen blanket weaving.*

*Material used*—Wool of local sheep.

*Quantity*—55,064 lbs. of wool.

*Manufacture*—Woollen blankets of all sizes

It is a cottage industry to agriculture.

*Number of gadariyas*—1,043.

*Wages*—Their profits.

*Outturn*—12,516 blankets.

*Price*—Rs. 2-8 to Rs. 4 small ones

Rs. 6 to Rs. 8 full size and thick.

## CHAPTER VI.

### DIRECTORY.

#### 1. List of Banks.

The Rae Bareli District Bank, Ltd. (Co-operative), Rae Bareli.

The Allahabad Bank, Ltd. (Sub-Agency), Rae Bareli.

#### 2. List of Factories.

Lakshmi Chand Kapoor Chand Flour Mill, Lalganj.

Vilayat Ali and Mohammad Yusuf's Flour Mills, Rae Bareli.

Thakur Sheo Baran Singh's Flour Mills, Rae Bareli.

Babu Chetan Singh's Flour Mills, Rae Bareli.

#### 3. List of Brick kilns.

Badri Nath's Bhatta near railway station, Rae Bareli.

Abdul Hameer's Bhatta near railway station, Rae Bareli.

Badri Nath's Brick kiln, Bachhrawan.

Temporary kilns at Jais, Dalmau and Lalganj.

#### 4. Lime Mills.

The same as above. None worked by machine.

#### 5. Saltpetre refineries.

Lala Sikri Prashad's Saltpetre Refinery, Jars.

#### 6. Domestic utensil makers of Maharajganj.

Sarju and Ramcharan (Proprietor Balbhadar).

Sheo Ratan.

Bhagwan Deen.

Sheo Bhajan.

Lachmi Narain.

Gangauli.

Ram Narain.

**7. Oil presses.**

Sikri Prashad's Press, Jais.  
 Lala Sri Niwas' Hand presses.  
 Three presses at Rae Bareli.

**8. Yarn dealers.**

Taz Mohammad, Kauli Mahima, near Salone.  
 Shukul Maharaj, Harchandpur, O. & R. Railway.  
 Harnagar, Harchandpur, O. & R. Railway.  
 Ram Gopal, Rae Bareli.

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Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

Saharanpur District

*By*

MOHAMMED ZIA-UR-RUB, B.Sc., LL.B.



**ALLAHABAD :**

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## FOREWORD.

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SAHARANPUR is a submontane district with one-fifth of its area under forests. The products of these forests of which any industrial use is made at present are, besides timber, very few. The report contains an inventory of minor products which will be found useful to many. The small industry of basket making from split bamboos exists at Hardwar, but most of the minor products are not made much use of. The Dehra Dun Forest Research Institute is making experiments in many branches and industrialists who require information will well direct their enquiries to that institute. The report suggests a paper pulp factory at Jawalapur, but this can only be taken into consideration when the present lease given to Messrs. F. W. Helgiers and Company of Calcutta expires. Mention is also made in Chapter III of the cutch industry. A very successful factory has been started in Bareilly district and there is no reason why, if cutch trees are available in abundance in Saharanpur forests and have not been leased, a factory cannot be started as suggested. The District abounds in good wood like Shisham, Tun and Dudhi which are made use of in wood carving. This industry has made Saharanpur known in foreign countries also, but the report shows that the work has deteriorated of late since the introduction of fret-saw and the designs have become stereotyped. It is a useful suggestion that some educated capitalists should take up the work who will be able to keep themselves in touch with the needs of the foreign countries and will also be able to get the work done at home by giving proper instructions to the carvers. At present the industry is in the hands of the illiterate people who would not even think of combining to form in a co-operative society to better their prospects.

The work of inlaying and raised work which has lately been introduced are very much appreciated abroad and certainly if the industry is properly organized there is a future before it. The lacquered work of Saharanpur has almost died out and so is the glazed pottery. Glass bangles are made to a certain extent and flasks and phials are blown at a few places but these cottage industries are also not progressing and cannot

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progress until they are in the hands of the old fashioned illiterate artisans working by the rule of thumb methods.

After the wood work, leather manufactures of Saharanpur are known, in other parts of the provinces. Fairly good leather is tanned in the district and, as the Superintendent suggests, with better advertisement, an increased export trade can be easily built up. If the proposed tanning school at Cawnpore materializes, it should be possible in future to send out small demonstration parties to various centres of this industry, in order to show improved methods of working and keep the cottage workers in touch with the modern requirements.

But the largest industry of the district is weaving. Refined Garha and Chautais are woven in many places in the district and there are several weaving centres known for their products. Deoband, besides producing these articles, also produces woollen blankets. An organization of the weavers' is the prime necessity of this industry. I have dealt with the organization of the weaving industry in several other reports and given my views there. It is needless to repeat them here again and I would refer the readers to the foreword of the Lucknow district. With its large production of cotton and rice, the district is naturally extending grinding and husking with power. There is still scope for more such mills. But the report shows that it does not produce sufficient oil seeds even for the many Teli families living in the district and carrying on their hereditary profession for generations; the introduction of oil pressing mills is therefore a doubtful proposition. The oil mills must depend upon imports from other districts and if smaller factories spring up in the exporting districts, the district will be starved. On the other hand sugarcane crushing mills should flourish in a district which has 51,019 acres under sugarcane and produces 15½ lakh maunds of cane every year. If a factory can be started in a central position it can be very easily fed by even a few villages.

The report also mentions a very large area under reclamation—approximately 1½ sq. miles. Its present use is restricted to washermen and tobacconists. Perhaps a little is also used by glass makers but a larger portion of Manihars have taken to import block glass from Firozabad for bangle making. Some industrial use should be made of this large product which is

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easily obtainable specially in the Khadar of Jumna. Kankar is abundant, but lime is imported into the district from Dehra Dun—may be that the Dehra Dun lime is superior or perhaps no attempt has been made to make use of the local kankar. Roorkee and Saharanpur are towns with increasing industrial activities and with Deoband as a great centre for weaving, the district has vast potentialities of which proper use is yet to be made.

The report has been written on the general lines and has been revised by Mr. S. T. Gadre, Industrial Chemist to Government, U. P. My best thanks are due to him for the assistance rendered. I would also acknowledge the help given to the Superintendent by S. Muhammad Habib-ullah, Esq., O.B.E., Collector of Saharanpur.

CHAMPA RAM MISRA.

23rd January, 1924.

# CHAPTER I.

## INTRODUCTION.

### 1. *General features of the district.*

The district of Saharanpur forms the northern-most portion of the Doab with the following boundaries :—

(i) *North.*—Dehra Dun district and Shiwaliks.

*South.*—Muzaffarnagar district.

*East.*—The Ganges.

*West.*—The Jumna.

(ii) *Area.*—In 1922—

Total areas.	Area under forests.	Not available for cultivation.	Culturable waste.	Current fallows.	Net area sown or culturable.
	Acres.	Acres	Acres.	Acres.	Acres.
2,133 sq. miles	193,290	153,477	142,597	62,109	810,505

Total area in 1921-22 was 1,357,116 acres.

(iii) *Population.*—In 1921 the total population was 937,471 persons.

### 2. *Roads.*

#### A.—PROVINCIAL.

	Length in miles.
Meerut to Roorkee and Dehra	... 49
Saharanpur to Fatehpur and Dehra	... 14
Saharanpur to Chakrata	... 33½
Railway Station Feeder, Roorkee	... 1

#### B.—LOCAL.

*1st class, metalled—*

Saharanpur to Nakur	... 15
Saharanpur to Umbala	... 3

	Length in miles.
Saharanpur to Muzaffarnagar ...	5
Saharanpur-Jalalabad ...	1½
Sadr Octroi Chowki to Railway Station ...	2½ fur.
Post Office to Railway Station ...	2½ "
Pilgrim Road ...	2
Nawabganj Road ...	7 fur.
Sadr Octroi Chowki to Chakrata Road ...	1½ "
Deoband Railway Feeder ...	6 "
Goodshed Light Railway Feeder ...	1
Sarsawa Railway Feeder ...	1
Pilkhani " " ...	2 fur.
Saharanpur to Chilkhana ...	2
Topri ...	1 fur.

*2nd class roads—*

Sarsawa to Nakur ...	9
Sarsawa to Chilkana ...	5½
Nakur to Rampur and Badgaon ...	21
Deoband to Badgaon ...	9
Nakur to Titron-Thana Bhagwan ...	20
Gangoh to Badgaon-Nananta ...	17
Nagal to Gangá Theri (Gagalheri) ...	11
Nagal Railway Feeder ...	6 fur.
Gagalheri to Bhagwanpur ...	9
Bhagwanpur to Bahadurabad and Hardwar ...	23
Roorkee to Bahadurabad ...	9
Roorkee to Dhanauri ...	4½
Roorkee to Laksar ...	11
Manglaur to Deoband ...	12½
Manglaur to Lakhnaur ...	18
O. and R. Ry. Station Road ...	5
Nananta Railway Station Road ...	1
Pilkhani Railway Station Road ...	1
Saharanpur to Banat ...	23½
Saharanpur to Muzaffarnagar ...	21½
Saharanpur to Karnal ...	22½
Saharanpur to Chilkana ...	7
Saharanpur to Umbala ...	10½

*N.B.—Total of 5th and 6th class roads, 127½ miles.*

3. *Railways.*

Name of railway.	Length in miles.	Names of stations.
1. N.-W. Railway	... 20	Pilkhani, Sarsawa, Saharanpur, Talheri Buzurg, Nagal, Tapri, Saharanpur.
2. O. & R. Ry. (Main line)	35	Saharanpur, Baliakheri, Chodiala, Iqbalpur, Landhaura, Laksar Jn. Raisi.
3. O. & R. Ry. (Laksar-Dehra Branch).	17	Laksar Jn., Pathri, Jawalapur, Hardwar.
4. Delhi-Shahdara Saharanpur Light Railway.	19	Saharanpur, Manani, Rampur Nanauta.

4. *Rivers.*

The following are the important rivers :—

The Ganges with its distributaries—

- The Banganga.
- The Ranipur Rao.
- The Pathri Rao.
- Ratma.
- Solani.
- Hindan.
- Kali Nadi.
- Nagdeo.
- Dhamola.
- Kali or Kirsana.
- Krishni or Kirsani.

The Jumna with its distributaries—

- The Budhi Jumna.
- The Saindli.

5. *Canals.*

Names of canals.	Crops irrigated.
Ganges Canal	} Rice, Wheat, Barley, Maize, Sugarcane, Cereals and Pulses.
Deoband Branch Canal	
Eastern Jumna Canal	

6. *Ferries.*

River.	Name of ferry.	Place.
Ganges	Chandi	Majhra.
	Shishamwali	Jagjitpur.
Begam Nala	Chandpur	Chandpur.



Katha	...	Sangathera	...	Sangathera.
Jumna	...	Mandhaur	...	Mandhaur.
		Rajghat	...	Sadullapur.
		Kunda Khurd	...	Kunda Khurd.
		Kamalpur	...	Kamalpur.

## 7. Fairs.

Tahsil.	Locality.	Name of fair.	Date.
Deoband	Deoband	Chaudas (Devi Bala Sundari).	Chait Sudi 14th.
Roorkee	Piran Kal-yar.	Urs Shah Alaud-din.	Rabiul Awwal 10th to 16th.
	Hardwar	Lodhi ...	Makar ki Shankrant in Magh.
		Somwati Amawas.	Magh Badi 15th.
		Holi ...	Phagun Sudi 15th.
		Dikhauti ...	Chait Sudi 1st (Magh ki Shankrant).
		Somwati Amawas.	Jeth Badi 15th.
		Nirjala Ekadashi	Jeth Sudi 11th.
		Dasehra ...	Jeth Sudi 10th.
		Diwali ...	Katik Badi Amawas.
		Somwati Amawas.	Kuar Badi 15th.
		Lunar Eclipse .	Following day of eclipse.
		Kartiki Ashnan	Kartik Sudi 15th.
		Solar Eclipse ...	Following day of eclipse.
Nakur ...	Gangoh	Urs Qutb Alam Abdul Quddus.	Jamadi-us-Sani 22nd to 25th.
	Barai ...	Mahadeo ...	Chait Badi 13th.
	Sarsawa	Urs Makhdoom Sahib.	Rajab 6th and 7th.
		Urs Shah Habibul Rehman Jamali.	Shabtan 22nd and 23rd.

Tahsil.	Locality.	Name.	Date.
Nakur ...	Islam-nagar.	Budha Babu ...	Asarh Badi 2nd.
	Induwa	Pyraji ...	Chait Badi 6th.
	Ambehta	Urs Hazrat Ars Shah Anwar Mian Sahib.	Shabban 22nd and 23rd.
	Aghyana	Mahamai ...	Chait Badi 14th.
	Ferozabad	Urs Shahan Shah Pir.	Shawwal 14th and 15th.
Saharanpur.	Saharanpur.	Exhibition ...	In March.
	Shankla-puri.	Shivji ...	Each Monday from Asarh Sudi 10th to Sawan Sudi 8th.
	Mansapur	Mansadevi ...	Kartik Sudi 8th.
	Dara Raj-pura.	Neza Fair ...	First Thursday in Phagun.
	Nandi Giragipur, Manak-mau.	Devta ...	Asarh.
	Goghal	...	Bhadon Sudi 10th and 11th.

## 8. Markets.

Tahsil.	Locality.	Market days.
Saharanpur	... Saharanpur ...	Thursday.
	Muhammad Amir-pur.	Tuesday.
	Behat	Sunday.
	Muzaffarabad	Monday.
	Biharigarh (Thapal Ismailpur).	Friday.
	Kailaspur	Thursday.
Deoband	Budhakhera	Saturday.
	... Deoband	Wednesday.
	Rajupur	Thursday.
	Rampur	Thursday.
	Nanauta	Saturday.
	Tikraul	Wednesday.
	Nagal	Sunday.
Paharpur	Friday.	

Tahsil.	Locality.	Market days.
Roorkee	... Roorkee	... Sunday, and Tuesday.
	Padarath	... Wednesday.
	Bhagwanpur	... Friday.
	Sikandarpur Bhanswal.	... Wednesday.
	Manglaur	... Wednesday and Friday.
	Lahksar	... Thursday.
	Zabarhera	... Saturday.
	Raisi	... Saturday.
	Landhaura	... Monday and Thursday.
Nakur	... Ambehta	... Monday.
	Nakur	... Sunday.
	Khera Afganani	... Thursday.
	Islamnagar	... Friday.
	Harpal	... Saturday.
	Sultanpur	... Monday.
	Sarsawa	... Tuesday.
	Gangoh	... Saturday.
	Lakhnauti	... Sunday.
	Tiron	... Monday.
Jhandkhera	... Friday.	
Chilkana	... Sunday.	

### 9. Cattle census.

The following are the statistics of the last cattle census (1920) :—

Bullocks	...	...	223,600
Cows	...	...	124,336
Buffaloes	...	...	1,932
She buffaloes	...	...	69,253
Sheep	...	...	53,035
Goats	...	...	28,666
Camels	...	...	248
Horses	...	...	7,476
Mares	...	...	6,532
Mules	...	...	1,919
Asses	...	...	6,820
Young stock of cows and buffaloes	...	...	197,979

## CHAPTER II.

DESCRIPTION OF, AND SUGGESTIONS FOR, THE IMPROVEMENT OF  
VARIOUS DISTRICT INDUSTRIES.

*General.*—Saharanpur and Roorkee are industrial towns of growing importance having a number of workshops and several cotton ginning and pressing factories. According to the census of 1921 the industrial population is 22.7 or nearly 23 per cent. of the whole. This is composed of the following :—

- 5 per cent. in textile industries,
- 0.4 per cent. in hides and skins, etc.,
- 1.7 per cent. in wood,
- 0.7 per cent. in metals,
- 1.1 per cent. in ceramics,
- 1.6 per cent. in chemical products,
- 2.0 per cent. in food industries,
- 4.0 per cent. in dress and toilet industries,
- 0.3 per cent. in building industries,
- 3.2 per cent. in industries connected with articles of luxury literature, art and sciences, and about
- 3.0 per cent. in refuse matter industries.

## 1. Building materials.

*Kankar and lime.*—About 2½ lakhs cubic feet of kankar is obtained annually from the district. A detailed statement is given below.

Lime is not usually burnt in the district, but is imported from Dehra Dun according to the local requirements. Kankar is used in the construction and repair of roads.

## Statement of kankar (Saharanpur).

Tahsil.	Quarry situated near village.	Approach from -	Estimated quantities obtainable (c. ft.).
Nakur ...	Khara ..	2 miles kachcha from mile no. 12 of Saharanpur-Nakur pukka road	200,000
	Bahlolpur	From Bahlolpur to Nanuta Railway Station on S. S. Ry. 8 miles kachcha road and then by rail, 18 miles.	1,000,000
Saharanpur.	Between Deola and Salempur.	400 feet to the left of the Chakrata road between third and fourth mile	A good quantity.
	Datauli ..	5th mile of Chilkana road near the crossing of the main canal	3,000
	Gadanpura	Ditto ..	40,000

## 2. Chemicals.

Reh is the name applied to the deposit which annually rises to the surface of certain soils in the United Provinces, which are on that account rendered comparatively barren. These deposits consist of alkali salts whose composition largely depends upon the nature of the strata below the surface. Deposits containing an excess of the carbonate yield the saji of commerce, while from those containing sulphate in excess, khari is made.

The estimated area under Reh in Saharanpur district is approximately  $1\frac{1}{2}$  sq. miles. The product is generally used by washermen as a detergent and by local tobacconists in the manufacture of low grade tobacco preparations. Reh is not refined in the district for manufacture of any of the concentrated products, e.g., saji or khari.

Below is a list of reh areas within the district :—

*Statement of reh for 1922 (Saharanpur).*

Tahsil.	Name of road and distance from it.	Nearest village.	Canal	Estimated area under reh. (sq. miles.)	Remarks.
Deoband	2 miles from Rampur. Rampur-Salempur kachcha road.	Salempur	Jumna Canal	2 fur. × 2 fur. or 1/16 sq. miles.	No patches of cultivation. Average depth about 3". Ditto.
	1½ miles from Nanauta on the Nanauta-Deoband kachcha road.	Nanautatc Thaska.	Kallarpur distributary of Jumna Canal.	½ sq mile..	
Nakur..	5 miles from Nanauta on Gangoh to Nanauta kachcha road.	Tikranl ..	Hanganli distributary of Jumna Canal.	1 × ½ or ½ sq mile.	3" deep. The area contains patches of cultivation at some places only.

### 3. Grains.

#### (i) Food grains.

(a) Statement showing acreage and production of the principal crops in 1922 :—

Name of crop.	Area in acres.		Produce in maunds.
	Irrigated.	Dry.	
Wheat ...	71,157	222,507	3,025,000
Wheat and gram	1,693	50,853	530,000
Wheat and barley	1,149	16,190	196,000
Barley ...	3,025	33,202	463,000
Barley and gram	114	6,374	65,000
Gram ...	615	126,120	1,140,000
Peas...	1,699	2,888	32,000
Maasur ...	433	11,133	58,000
Juar ..	12	3,310	92,000
Bajra ...	76	68,558	410,000
Juar and arhar ..	1	233	1,800
Bajra and arhar ...	1	2,203	13,000
Rice, early ...	6,582	87,732	460,000
Rice, late ...	43,535	21,499	780,000
Maize ...	705	75,006	940,000
Urd and mung ...	70	19,470	97,000
Moth	100	2,431	12,000

(b) *Flour mills*.—There are eight power flour mills at Saharanpur which employ about 45,000 souls annually. The number was 51,250 in 1921 and 42,575 in 1922. The outturn in 1922 was 39,385 maunds of wheat flour. The grinding charges for public are 8 annas a maund. In addition to the above, there are nine water mills at the Jumna and the Ganges Canals. These are leased out by the Irrigation department to contractors by public auction. The six mills of the Jumna Canal are at Belka, Nagla, Randaul, Baboil, Glumna and Salempur. With the exception of Salempur mill, which has four pairs of stone mills, the remaining Jumna mills have only two sets of stone mills each. The three Ganges mills are at Bahadurabad, Roorkee and Asafnagar with eight, two and six pairs of stone mills respectively. Details of the Saharanpur flour mills are given in Chapter IV.

(c) *Rice hulling*.—The number of rice hulling mills was six in 1922-23. Their outturn was about 4,700 maunds in 1922 while in 1921 it was about 19,000 maunds. The work is a subsidiary activity of the abovementioned flour mills. The husking charges vary from 4 to 6 annas a maund.

(ii) *Non-food grains*.

(a) Statement showing acreage and production of principal crops in 1922 :—

Name.	Area in acres.		Production.	(Maunds).
	Irrigated.	Dry.		
Cotton with Arhar..	4	400	1,000	} 81,000
Cotton pure ...	1,744	34,140	80,000	
Juar (chari) ...	1,119	105,853	1,000,000	...
Indigo ...	58	24	18	...
Sugarcane ...	32,269	18,750	1,550,000	...
Til ...	10	438	1,700	...
Groundnuts ...	1	85	1,300	...
Other kharif oilseeds	27	359	1,800	...
Linseed ...	21	342	1,500	...
Rape and mustard	687	1,103	8,000	...
Other rabi oilseeds	70	585	2,600	...
Oats ...	4,865	15,745	200,000	...
Tobacco ...	93	7	1,000	...

(iii) Schedules of rates and prices of grains, oilseeds and oils (1922-23)

Months.	Food grains (per rupee).					Non-food grains (per rupee).		Oilseeds (per rupee).		Oils (per rupee).			Remarks.
	Wheat.	Barley.	Gram.	Bajra.	Maize	Cotton	Kapas.	Rape and mustard	Sesamum.	Rape and mustard.	Sesamum.	Linseed.	
	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	S. ch.	
March ...	6 0	8 0	7 0	6 4	6 8	1 4	3 8	5 4	4 8	2 4	...	1 4	
April ...	6 4	8 12	7 0	5 12	6 0	1 4	3 8	4 10	4 0	2 0	...	1 4	
May ...	6 6	9 4	7 0	5 12	6 4	1 4	3 8	4 10	4 0	1 14	...	1 4	
June ...	6 8	10 0	7 0	...	6 4	...	...	4 12	4 0	1 12	...	1 0	
July ...	7 0	10 0	7 12	...	6 8	...	...	4 8	4 0	1 12	...	1 4	
August ...	7 8	11 0	9 0	...	7 0	...	...	4 8	4 0	1 12	...	1 2	
September ...	8 0	11 4	9 8	...	9 0	...	...	4 8	4 0	2 0	...	1 3	
October ...	8 12	12 4	10 8	...	12 0	1 6	4 8	4 12	4 0	2 0	...	1 2	
November ...	9 0	12 0	10 8	12 4	12 0	1 3	4 4	4 12	4 12	2 2	...	1 4	
December ...	9 4	13 8	10 8	12 4	12 8	1 3	4 4	4 12	4 12	1 14	...	1 4	
January ...	9 8	16 0	10 12	12 0	14 4	1 2	3 3	4 12	4 0	1 12	...	1 0	
February ...	10 0	16 0	10 12	12 0	14 0	1 2	3 4	4 0	4 8	2 2	...	1 3	
March ...	10 4	17 8	11 0	12 4	13 0	1 2	4 4	4 0	8 8	2 2	...	2 4	
Average ...	6 13	11 16	10 13	9 13	9 8	1 4	3 14	5 7	4 3	1 15	1 12	1 3	

SAHARANPUR DISTRICT.



## 4. Glass.

(i) *Bangle making*.—Bangle making is carried on a considerable scale at Saharanpur, Rampur and Behat by the local Manihars. There are at present four factories at Saharanpur, three at Rampur and three at Behat. All sorts of plain, coloured and ornamental churis (bangles) are made in all the three places. The total number of persons engaged in the industry is about 60. Block glass is imported from Firozabad at Rs. 6 per maund or Rs. 6-8 f. o. r. Saharanpur. The factory or the furnace owner engages the Manihars on piece-wage system paying Re. 1 for the manufacture of 5,000 churis. The daily outturn per head is from 3 to 4 and even 5 thousand churis. Thus the wages come out to be 9 annas to 12 annas and even up to Rs. 1 per head per day. The outturn and the wages depend on the skill and speed of work of the Manihar.

The process of work is described by Mr. Dobbs in his monograph on Pottery and Glass. The furnace for melting glass is of a very crude type and glass of only low melting point is used as there are no means to regulate the temperature inside by air currents. The furnace is made in the shape of a dome with side holes for taking out the molten glass. Firewood is used as fuel. One Manihar sits opposite to one hole and takes out from the furnace a bead of glass on the point of an iron rod. More glass is gathered on it and then flattened on the point so that it forms into a thick ring which is given to another Manihar who transfers it to a clay cone where by constant rotation and pressure a bangle of the required size is obtained. Then finally taken over the third cone for cooling. Cones have iron rod handles which are rotated by hand to give the required shape and size to the thick glass ring. A pointed rod helps the ring to slide towards the base of the cone and thus increase in circumference. The whole work is very swift. The work is slow in hot weather.

Cost of manufacture of 5,000 bangles :—

	Rs.	a.	p.
Glass about one maund	...	6	8 0
Manihars' wages	...	1	0 0
Chemicals and colours, etc.	...	2	0 0
Fuel	...	2	0 0
Establishment and other charges	...	0	8 0
<b>Total cost</b>	...	<b>12</b>	<b>0 0</b>
<b>Selling price</b>	...	<b>15</b>	<b>0 0</b>

Thus the factory or furnace owner gets Rs. 3 as his share of wages and profits. Churis are sold in the local bazars and villages. The wholesale price is 4 to 5 churis a pice.

*Suggestions for improvement.*—The present furnace being a crude one is very defective. There is no arrangement for regulating the temperature or the air currents. Firewood is used as fuel. Due to all these circumstances a high temperature cannot be obtained in the furnace hence the Manihars cannot use glass of a high melting point which is cheaper than the ordinary churi glass of a low melting point. There is no arrangement in the present kiln to burn coal instead of wood. The introduction of the modern furnace which does not possess the above defects will greatly develop the industry. When this is done it will be easier to make bangles of high class glass and to compete with the imported products.

(ii) *Glass phials.*—A small amount of kachcha (crude) small glass phials are made at Jwalapur by about 20 Manihars. Kunch (crude block glass) is obtained from Nagina and Aligarh at Rs. 4 a maund. Melting is done in an ordinary country furnace. When the furnace is in working order 600 to 700 phials are made daily. Work is done jointly by several Manihars who share the cost of the firing of the furnace. One Manihar uses the furnace for the first 24 hours and then hands it over to the other who uses it for another 24 hours, and so on. If the Manihar is not a partner of the furnace owner he pays him Rs. 6-8 to Rs. 20 per thousand phials according to their size. Ordinarily 100 phials are blown out of 15 seers of glass.

### 5. Haberdashery.

*Sola Hats.*—Due to the growth of the civil and military population a small industry in the manufacture of sola topis is seen at Roorkee. There are some 10 persons engaged in the line and all of them are members of one family. The total annual outturn is about 800 hats. The industry is purely a cottage one. No hired labour is employed except when a big order is to be supplied in a specified period, unskilled labour is engaged for coarse work on 4 to 6 annas a day. One manufacturer prepares two hats in three days and thus the monthly outturn comes to about 20 topis per head.

Pith is obtained from the locally obtainable "chari" plant (*Aeschynomene Indica*) by removing the outer skin of the

stem. About one chhatak of pith is required for one topi and this is obtained from about six seers of "chari." The selling price of a hat varies according to the quality of the cloth used and the skill with which the topi is finished. The lowest price is Re. 1 while the highest is Rs. 8. An ordinary topi is sold for Rs. 2 retail price and Re. 1-4 wholesale price. Dealers at Lahore, Delhi, Rawalpindi, Dehra Dun and other places indent for the hats.

Cost of manufacture :—

	Rs. a. p.
Price of one chhatak pith	... 0 2 0
„ upper cloth	... 0 4 0
„ lining	... 0 2 0
„ leather strap	... 0 0 3
„ sewing cord and gun, etc.	... 0 0 3
„ oil-cloth	... 0 0 6
Total cost	... 0 9 0

Selling price (retail) Rs. 2.

Thus the difference of Re. 1-7 between the selling price and the cost price covers the wages of the manufacturer for 1½ days. The daily earnings thus come to about Re. 0-11-6 per head.

### 6. Hardware, foundries, etc.

The district possesses five workshops out of which four are Government concerned, i.e., N.-W. By. Workshops, Saharanpur, Regimental Workshops (1st K. G. O. Sappers and Miners, Roorkee; Military Works Central Workshop, Roorkee; Thomason College Workshop, Roorkee. The remaining one, i.e., the Canal Foundry and Engineering Workshop, Roorkee, is a private concern. It was a Government concern belonging to the Canal department but was sold in 1913 by public auction and now belongs to Raja Jai Kishen Das of Jagadhri. It is under the control of a qualified European mechanical engineer as its superintendent. The following works are undertaken :—(a) Bridges, Roof trusses, Girders, Tie-rods, Canal lock gates, Galvanized corrugated iron roofs. Cranes, Regulator gates, etc.; (b) Pumps, Pulleys, Shafting, Wheels, Lath tools and apparatus, Mortar mills, Puging mills. Road rollers, Pile

drivers, Gauges, etc.; (c) Stocks, Taps, Dies, etc.; (d) Railway wheels, Axles and brackets, Lithographic presses, Pulleys, Shafting and couplings, Gears, etc.; (e) Lifting machinery, Hoisting crabs, Wrought iron pulley blocks, differential pulley blocks; (f) Sanitary appliances; (g) Gates, Railway Fencing, Garden seats, Rollers, School desks, and forms combined, Cots, Water tanks, Oil tanks, etc.; (h) Letter copying presses, Brackets, Bookbinder's tools, Perforated zinc sheets, etc.; (i) Weighing machines, Weights, Measures, Treasure chests, Gymnastic apparatus, etc.; (j) Earth boring tools, Water carts, Conservancy carts, etc.; (k) Truck Bells, Signalling apparatus, Wind vane, etc.; (l) Geometrical instruments, e.g., compasses, both ordinary and Mariner's Dividers, Scales, etc.; (m) all sorts of wooden furniture.

Suggestions about the Canal Foundry and Engineering Workshop, Roorkee:—

(i) The workshops used to get big orders for the manufacture and supply of many of the abovementioned articles to the Irrigation and Railway departments, district boards, municipalities, etc., but it is said that the orders have gradually fallen and the workshop is running at a loss now.

Broadcast and wider advertisement through papers, hand bills, etc., may secure large orders to the foundry.

(ii) Besides the construction of bridges, gates and such other big articles, the casting and the manufacture of small articles, e.g., screws, nails, hinges, bolts and such other things of common use should be undertaken on a large scale. These articles command a ready market and are in considerable demand everywhere.

## 7. Leather.

### (i) Tanning.

*Raw materials.*—It is estimated that about 5,300 hides and 2,900 skins are available annually for local tanning, besides 7,700 maunds of hides and skins which are exported mostly to Cawnpore and to a small extent to Amritsar. The price of a raw hide varies from Rs. 2 to Rs. 3-8 and that of a skin from 6 annas to 12 annas.

*Tanning.*—There are about 1,200 tanners and dressers in the district. The process of tanning is a little different

from that carried on in the rest of the Meerut division resulting in leather far better than the ordinary country dressed one. In softness and colour it nearly approaches the factory dressed leather and is utilized in the manufacture of high class Indian shoes, slippers, bedding straps, cartridge belts, gun cases, cartridge cases and similar other articles.

Babul bark, myrobalans, reh, nim oil, lime, alum and salt are used in tanning leather. Some 30 hides are tanned and dressed at a time and the whole process takes about a month. The tanning of a skin takes from 7 to 10 days. The price of a tanned skin varies from 10 annas to Re. 1, while that of a tanned hide from Rs. 6 to Rs. 9 and even Rs. 10.

(ii) *Leather articles.*

(a) Besides the making of ordinary country shoes which call for no particular attention, a considerable number of slippers or strap sandals is made by about 30 Musalman Mochis at Saharanpur who make various other articles of leather such as gun covers, cartridge cases, cartridge belts, bedding straps, bottle cases, tumbler cases, harness, barber's bags, etc. The average daily earning of a mochi is 8 annas. The articles are sold either by taking them to the bazar in the evening or at the very shops of the Mochis. Slippers are exported to the Punjab and the N.-W. F. P. The following are the current prices of the various articles :—

	Rs.	a.	p.	
Slipper sandals (chapli) ...	1	8	0	a pair or Rs. 15 per 20 pairs.
Bedding straps ...	0	12	0	to Re. 1-8.
Cartridge belts ...	0	12	0	to Re. 1-8 (Re. 1 for a belt having 36 holes).
Gun covers ...	2	4	0	to Rs. 2-12-0.
Bottle cases ...	1	4	0	
Tumbler cases ...	0	8	0	to Re. 0-12-0.
Cartridge cases ...	1	0	0	to Re. 1-12-0 according to size and quality.

*Suggestions.*—There are prospects of a small factory for turning out leather articles on properly organized lines as the industry lacks only broad and proper advertisement. It is expected that there will be considerable demand for all the abovementioned articles if only they are known outside. They are tolerably good and fairly cheap.

(b) *Shoes*.—It is estimated that shoes and sandals worth about Rs. 1,000 are daily made out of goat skin (nari) at Saharanpur and the neighbouring villages by about 250 Chamars and Mochis. They are all sold to the local dealers of whom Mohammad Yamin and Mujib Ahmad, son of Mohammad Yasiri in Shahanshahi Bazar, Saharanpur, are the principal dealers. These export them to Calcutta and other eastern districts. The price of a shoe varies from Re. 1 to Rs. 2-4-0 a pair according to the quality of the leather and shoe.

### 8. Miscellaneous.

*Forests*.—The northern part of the district bounded by the Siwalik hills is full of forests which covered an area of 190,465 acres in 1922. About 2,835 acres of forests lying within the boundaries of the Dehra Dun district is also under the control of the Saharanpur Forest Division. The following timber is found in considerable quantities:—

Name of trees.	Locality (Ranges).
1. Chir (pine)	... Higher portions
2. Khair (Catechu)	... Ranipur, Dholkand, Barkala range.
3. Shisham (Sissoo)	... Barkala.
4. Dhak (Tamarisk)	... All over the district.
5. Ber (Berbaris)	... Do.
6. Semal (Silk cotton tree).	... Do.
7. Sal (Shorea Robusta)	Moist and cool valleys of Dholkand.

(N.B.—The trees are generally small.)

8. Bamboos	... Luxuriantly on the outer ranges.
9. Bakli	... Dholkand.
10. Sain	... Do.

The trees are sold annually by public auction at Dehra Dun during the month of August according to the forest rules. A complete list of the forest produce to be sold is issued by the Divisional Forest Officer, Saharanpur Forest Division, at Dehra Dun.

A complete list of the minor forest produce available in Siwalik forests and the neighbouring places of sub-Himalayas will be found in Chapter VI (Miscellaneous).

Besides the above Shisham plantations are found along Jumna Canals. Other common trees of the district are Mango, Siras, Jaman, Babul, Gular, Pipal, Bufigad, Pakhar, etc.

*Minor produce and fibres.*—No industry of any importance is carried on by local enterprise excepting that of the manufacture of coarse small bed strings (ban) and ropes made from baib and munj grasses by villagers. The baib grass of the division has been sold for 10 years at Rs. 37,000 per year to Messrs. F. W. Helgiers and Company of Calcutta, who manufacture paper out of it at their Titagarh Paper Mills. In the table given below grasses, other than Bhabar, include "bind" and "pula," the thatching grasses, and munj which are all consumed locally.

Minor produce includes fruits excepting mangoes and myrobalans; edible roots, leaves of maljhan and stems of kapasi; but does not include fibre of maljhan, which is used in very small quantity, for making ropes locally, nor gum, hides and horns, bark, stones, honey and wax which are sold separately. The quantity of grasses and minor produce cannot be given as it is sold by blocks. Bakli leaves are used by local Chamars of Jwalapur for tanning purposes on a small scale.

The following table gives an idea about the minor forest produce sold by auction lump sum by the Forest department :—

*Price realized.*

Year	Grass and other minor produce as defined above excluding Bhabar.	Honey and wax.	Hides, horns and bones except those of wild animals.	Gum.	Remarks.
	Rs.	Rs.	Rs.	Rs.	
1921-22 ...	17,600	3,600	560	2,000	Bhabar grass has been sold for 10 years to Messrs. F. W. Helgiers & Co. of Calcutta at Rs. 37,000 per year.
1922-23 ...	19,075	2,895	55	3,125	

## 9. Oils.

*Crushing of oilseeds.*—According to the census of 1921 there are 5,056 males and 2,585 females, i.e., a total of 7,641 Telis in the district. Out of this number 102 are partially agriculturists. There are about 1,380 kolhus in the district. The work of crushing the oilseeds is carried on for about 100 days in a year. On an average about 12 seers of oilseeds are required daily for a kolhu. Thus about  $\frac{1380 \times 12 \times 100}{40}$  or 41,400 maunds of oilseeds are required by 1,380 kolhus for 100 days. The district produces only about 17,000 maunds of oilseeds a year which is totally insufficient to keep the Teli families engaged even during the season. They are thus partially engaged in the work and have taken to other professions, e.g., porter's work. The daily earnings of a family vary from 6 annas to one rupee. The yield of oils from the oilseeds is from 25 per cent. to 30 per cent. depending upon the kind of oilseeds used, e.g.,  $\frac{1}{2}$  in the case of a tara and about  $\frac{1}{3}$  in the case of sesamum.

The average prices of oilseeds during 1922-23 were as follows :—

			S. ch.
Sesamum	...	...	4 3 per rupee.
Rape and mustard	...	...	5 7 „ „
Sesamum oil	...	...	1 12 „ „
Rape and mustard oil	...	...	1 15 „ „
Linseed oil	...	...	1 3 „ „

## 10. Textile—Cotton.

(i) *Production.*—The following table gives the quantity of cotton produced in the district :—

Year.	Crop.	Area in acres		Yield per acre in mds. unirrigated	Total produce in maunds	Remarks.
		Irrigated.	Unirrigated			
1922 ...	Cotton	1,748	34,540	2½	81,000	



(ii) *Ginning*.—There are nine ginning factories in the district all located in Saharanpur mostly on the Ambala Road. Seven of them worked last year. One is closed and one has been newly introduced. A statement showing the working of these factories is given in Chapter IV and their names are given in the Directory in Chapter V. The work is done separately and there is no system of pool. The total outturn in 1922 was 37,414 maunds cotton and the total annual labour amounted to 21,744 persons. The daily wages vary from 6 annas to 8 annas for a woman and 10 to 12 annas for a man. The pressing charges are Rs. 7-8 per bale of 4½ maunds, while the ginning charges are Rs. 3-8 per maund.

The total production of cotton in 1922 was 81,000 maunds. Out of this 37,400 maunds were ginned in the factories, while about 28,600 maunds were hand-ginned by 1,430 persons in a season of 80 days at 10 chhataks per head per day. Thus the total quantity ginned in the district comes to 66,000 maunds. About 15,000 maunds of cotton, which is equivalent to about 45,000 maunds of kapas, is exported out of the district as unginned to the neighbouring districts of the Punjab. The average price of machine-ginned cotton was 1 seer 4 chhataks per rupee in 1922, while that of hand-ginned cotton was 18 chhataks per rupee. Unginned cotton was sold at 3 seers 4 chhataks per rupee.

Out of the total of 66,000 maunds of ginned cotton about 11,200 maunds were locally consumed for stuffing libafs, toshaks, razais, and winter clothings by 937,000 persons at an average of half a seer per head making an allowance for children and for the fact that poor persons and villagers usually renew the stuffing in every two or three years.

About 14,648 maunds were required by the local spinners as given below under "Spinning." Thus a total of about 25,848 maunds were consumed in the district while about 40,100 maunds were exported to Bombay, Calcutta and the neighbouring districts.

(iii) *Spinning*.—Spinning is usually practised by female Julahas and village women as a subsidiary work during leisure hours. According to the census of 1921 there were 6,631 cotton spinners in the district out of whom 5,999 were females,

The Khaddar movement increased the demand for hand-spun yarn and a large number of other castes also took to spinning. Thus about 15,000 persons were engaged in spinning cotton yarn on charkhas. Their total annual outturn would be about 14,600 maunds yarn at an average of  $2\frac{1}{2}$  chhataks per head per day for 250 working days. Most of this yarn corresponds to 7s while occasionally to 8s and 10s. The average price of hand-spun yarn is 10 chhataks per rupee. Out of a total of about 14,600 maunds of yarn about 13,800 maunds were locally consumed for swadeshi cloth as given below under "Weaving," and about 800 maunds were exported to the neighbouring places.

(iv) *Weaving*.—The district of Saharanpur contains the largest number of Julahas in these provinces. According to the census of 1921, 31,740 persons are actually engaged in weaving. There are about 5,000 looms in the district. The average outturn of a loom being one "than" (full piece) usually 12 yards in length and  $\frac{3}{4}$  to 1 yard in width; the total annual outturn of 5,000 looms for 250 working days comes to 125,000 pieces of swadeshi cloth worth about Rs. 37,50,000 at an average price of Rs. 3 per piece. The outturn in weight is about 46,900 maunds at an average of  $1\frac{1}{2}$  seers per piece. The amount of yarn used in a piece weighing 1 seer 8 chhataks is 1 seer  $9\frac{1}{2}$  chhataks as one chhatak is wasted in sizing and weaving processes. Thus the consumption of yarn in weaving 46,900 maunds garha pieces is about 49,800 maunds.

As the proportion of mill and hand-spun yarn is a little more than 2 : 3 and a little less than 1 : 3, the total amount of mill yarn used is about 36,000 maunds and that of hand-spun yarn about 13,800 maunds. The mill yarn is mostly of 21 $\frac{1}{2}$ s 14 $\frac{1}{2}$ s and occasionally of 20s or 27s and is imported from Moradabad, Agra and Ahmedabad Spinning Mills. The imported yarn is well worth Rs. 20,88,000 at an average price of Rs. 7.4 per bundle of 10 lbs. The value of hand-spun yarn is about Rs. 34,500.

Deoband and Saharanpur are the chief centres of this industry, the former being noted for its chautahis or bed-sheets. A few checks, twills and towels are also woven. The Julahas mostly sell their manufactures to the dealers at Saharanpur, or in big villages on market days and to a small extent by hawking in the city.

The average daily earning of a Julaha when assisted by his wife and children is about Re. 1-4. Seldom does the weaver work on wages, but when it is so, the following wages are charged :—

	A. p.	A. p.
For a plain piece 28" in width	... 1 3	to 2 0 per yard.
For a twill piece 28" in width	... 1 9	to 2 6 ,,
For a piece 36" in width	... 2 0	to 2 6 ,,
For a piece 54" in width	... 4 0	per yard.

The above charges depend on the number of picks per inch which is ordinarily 30. Besides the above wages one chhatak per seer of yarn is deducted for wastage during sizing and weaving processes.

The estimated annual local consumption is about 5½ lakhs of pieces worth Rs. 16½ lakhs, and the export is about 7 lakhs of pieces worth Rs. 21 lakhs mostly to the Punjab.

*Suggestions for improvements.*—The weaving of towels should be increased as they find a ready market. The opening of a weaving school at Deoband or Saharanpur is needed to teach the weavers the use of fly-shuttles and proper sizing for the single yarn.

(vi) *Hosiery.*—The industry is a promising one and is attracting the attention of several small capitalists at Saharanpur. There are at present 12 small concerns equipped with 20 Harrison machines and 40 workmen including the owners.

The total outturn of these factories is worth Rs. 12,000. The local consumption is estimated to be about Rs. 5,000 in value and the export to Muzaffarnagar, Ambala and other neighbouring places, about Rs. 7,000 in value. The machines are generally of 120 needles each and consequently fine socks are not woven. Yarn, usually of 10, 12, 16 and 20 counts, is imported from Cawnpore to the value of about Rs. 6,000 annually. Work is done on a system of piece work contract in which wages varying with the size and quality are paid to the workmen. The rates are given below :—

			Rs. a. p.	Rs. a. p.
Children size	...	...	0 6 0	per dozen.
6" to 8"	...	...	0 12 0	,, ,,
Full size	...	...	1 0 0	,, ,,
Full size (striped and other designs)	...	...	1 2 0	to 1 6 0
Full size (socks)	...	...	2 8 0	to 3 4 0

The daily earning of a workman is 10 to 15 annas as he can knit about a dozen of ordinary socks. The factory owners sell their manufactures to the general merchants in the city at the following wholesale rates :—

Description.	Price of dozen.	
	Rs. a. p.	Rs. a. p.
Children's size (plain) ...	1 12 0	
Do. (striped) ...	1 14 0 to 2 2 0	
Full size (socks) ...	4 12 0 to 5 8 0	

*Suggestions for improvements.*—Properly organized factories with machines of higher order for knitting finer stockings should be started. Due to an increasing demand of hosiery there is a possibility of Saharanpur becoming a small centre of supply for the neighbouring places. Broad advertisement through papers, exhibitions, and travelling agents should then be resorted to popularize the industry in the neighbouring markets.

#### 11. Wood work.

(i) *Wood carving.*—Wood carving is the main and ancient industry of Saharanpur—one which has made the district known far and wide. It is said that it has much declined of late. Still there are no less than 250 wood carvers solely engaged in the work. There are about 6,000 wood workers in the district out of whom about 250 are wood carvers, 200 wooden comb-makers, 100 makers of musical instruments, 70 makers of the means of transport, 150 engaged in furniture industry and the rest are town and village carpenters and smiths.

*Raw materials.*—(i) Shisham wood is extensively used for carving superior articles as it is the best wood for the purpose durable and not easily attacked by insects (borers). Articles made are screens, tables, chairs, boxes, teapoys, etc. The wood is purchased from the local bazars where it is imported from the local forests. (ii) Tun, the staple timber of cabinet makers, is used in making small trays, toilet boxes, inkstands, brackets, small teapoys, book cases, and other cheaper articles mostly of fretwork. The wood being soft is easily worked and takes a natural dull red polish. It is imported from Dehra Dun. (iii) Dudhi, a soft white wood very easily chiselled is obtained from the local

forests of Siwaliks. Plaques, picture frames, toilet boxes and other articles of an inferior quality are manufactured from it.

*Number of factories and principal manufacturers.*—The number of properly organized factories with more than 10 persons is only 4. They deal with outside orders and carry out export business. The most up-to-date one with 18 to 20 workmen is in Sarai Faiz Ali at Saharanpur and belongs to Md. Imam Md. Ikram, the principal and the best wood carver of the place. Others are in Pilkhan Tala Mohalla and belong to Nazar Mohammad Fazle Haque, Mukhtar Ahmad Tufail Ahmad, Naseem Uddin Abdus Salam, and Ali Hasan and Sons.

*Characteristics of the work.*—The industry is practically confined to the city of Saharanpur. The old form of carving doors and gateways is nearly dead and has given place to the manufacture and carving of the articles of modern requirements chiefly of European taste, e.g., partition screens, tables, teapoys, trays, boxes, picture frames, brackets, lamp stands, book cases, handkerchief and cigarette boxes, inkstands, watch cases, etc. Floral carving is confined to that of the vine leaves with bunches of the fruit accompanied with or without fretwork. "Jali" carving is confined to that of the hexagonal fretwork. Partition screens of superior quality are carved on both the sides. No attempt has yet been made for any other design in carvings. The patterns are permanently cut on tin or zinc sheets. These are laid on the wood to be carved and blacking is spread over with a piece of cloth, or the design is traced with pencil. Thus the portions of the wood required to be carved, fretted or chiselled are painted black while the design is left blank. It is then given to the fret worker for making holes and removing the black portions or to the carver for chiselling the black portions and repoussé carving of the design. Fret work is done with a fine saw needle worked by a small locally made foot machine. The up and down motion of the needle saw cuts the wood right through as the workman moves the piece with his hands taking care that the saw is moving along the outline of the design. The work is done very fast, as an ordinary worker makes about 500 holes in a day while a skilled artisan can make from 700 to 1,000 holes. The rest of the work, i.e., the repoussé chiselling and final finish is done by the carver with

hand chisels. Boys are employed for rough work while getting a training in the line. All the work is done on piece work system of contracts which are different for different articles. The following rates for a tray will give an idea of the system :—

	Rs.	a.	p.
(i) Making a 2' x 16" tray ... ..	0	10	0
,,    1½' x 16" .....	0	9	0
,,    1¼' x 16" .....	0	8	0
,,    1' x 16" .....	0	6	0
(ii) Fret work, 3 to 5 pice per hundred ordinary holes. Re. 1 for 700 bigger holes and so on according to the skill.			
	Rs.	a.	p.
(iii) Carving 2' x 16" 1 4 6	Re. 1	to	Re. 1-8 according to size.
(iv) Chhilai ... 0 12 0	Re. 0-10-0	to	Re. 0-14-0 according to size.
(v) Finishing ... 0 2 0			
(vi) Fitting ... 0 2 0			

Some times permanent labour is also engaged on Rs. 30 to Rs. 50 per mensem and occasionally even on Rs. 60 per mensem.

*Inlaying and outlaying.*—The most important development in the industry is the new form of inlaying or outlaying of brass, copper and German silver on plain Shisham. Floral pieces of the metal are cut, shaped, filed and polished by ordinary hand tools. The outlaying repoussé work is done on small articles such as picture frames, caskets, toilet, handkerchief and cigar boxes. The inlaying work is done on bigger as well as smaller articles. The metal pieces for the outlaying repoussé work are fitted to the wood by fine nails of the same metal and filed so as to make them invisible. Md. Imam Md. Ikram and Gulam Murtaza both of Sarai Faiz Ali, Saharanpur, are highly skilled workmen in the art. Md. Imam Md. Ikram, who has recently been awarded a gold medal at the Nauchandi Exhibition, showed a number of articles commanding exceptional merit and excellent workmanship in both repoussé and inlaid work. Carved and inlaid folding chairs; both easy and office, appear to be his speciality.

With a view to provide facilities in packing and export articles are usually made folding on hinges. America is becoming the principal importer of Saharanpur wood work.

*Calculations of the cost of manufacture and profits.*—  
Taking a tray 2' x 16" as a specimen the following are the details of the cost :—

		Rs.	a.	p.
Shisham wood	...	...	1	0 0
Making charges	...	...	0	10 0
Fret work	...	...	0	1 0
Carving	...	...	1	4 0
Chbilai	...	...	0	12 0
Finishing	...	...	0	2 0
Fitting (hinges, nails, etc.)	...	...	0	2 0
Final finish and polish	...	...	0	1 0
Establishment charges	...	...	0	4 0
			<hr/>	
Total cost	...	...	4	4 0
			<hr/>	
Selling price	...	...	5	0 0
Hence profit	...	...	0	12 0

*List of the names of some articles with their wholesale prices.*

Names of articles.	Dimensions and descriptions.	Price.		
		Carved	Inlaid.	Overlaid.
Photo frames ..	10"X12" Shisham wood .. ..	Rs. a. p. 0 14 0	Rs. a. p. 48 0 0 a dozen.	} First quality Rs. 8-8 each, second quality Rs. 8 each.
	8"X10" " " .. ..	0 9 0	36 0 0 "	
	6"X8" " " .. ..	0 8 0	30 0 0 "	
	12"X14" " " .. ..	1 4 0	66 0 0 "	
	6"X4" " " .. ..	0 5 0	..	
	7"X7" round, Shisham wood ..	0 8 0	..	
	11"X7½" " " .. ..	0 10 0	..	
Tray table ..	27"X21"X24" with folding stand and take down model.	..	25 0 0 each	..
Screens ..	4 folds each 20"X6" carved on both the sides.	..	50 0 0 "	..
Cigarette box ..	8 folds each 14"X89"	10 8 0	..	..
Cigar box ..	8½"X2½" .. ..	1 12 0 each	4 8 0 each	Rupees 7-8 each.
Handkerchief box ..	10"X6"X5" .. ..	2 8 0 "	6 8 0 "	" 10 "
Tray ..	Ordinary size .. ..	..	..	" 7-3 "
Lamp-stand ..	5"X16" .. ..	5 0 0 each	10 0 0	} " 10 "
	2"X14" .. ..	4 8 0 "	8 0 0	
	1½"X12" .. ..	2 8 0 "	6 0 0	
Chair ..	39" high .. ..	8 8 0 "	..	..
Book case ..	Easy and folding, carved and inlaid ..	..	40 0 0 each	..
	Ordinary office, carved and inlaid ..	..	420 or 27 8 0 a dozen	..
	16"X7" when folded and 28"X7" when fully extended.	1 8 0 each	300 0 0 a dozen	..

N. B. - Articles of Tun wood are 2 to 4 annas in a rupee less than those of Shisham wood.

SAHARANPUR DISTRICT.



*Suggestions for improvement.*—(1) Attempts should be made to introduce new designs in carving and jali work. The only designs in use at present are the vine leaf and hexagonal jali. This can be done by the deputation of a peripatetic instructor in designs to train the carvers in their own factories. (2) The industry is in the hands of practically illiterate persons who cannot deal with foreign countries, the chief patronizers of the work. Educated persons well versed in foreign trade may come forward to open an export bureau at Saharanpur. Such a company will be a sort of medium for the introduction of the manufacture of newer articles according to the foreign tastes.

(ii) *Combs.*—A large number of combs of Haldu wood is made at Saharanpur by about 200 persons. They live mostly in mohalla Atishbazan where there are about 30 factories employing about 125 men and a number of boys. The rest of the manufacturers do the work in their own homes and sell their products to the factory owners. The work in the factories is done on a system of piece work contract. Rupees 10 to Rs. 13 are paid to a workman for making one thousand combs. Thus the daily earnings of a manufacturer come to 8 annas to 9 annas as with ordinary skill he can make about three dozen combs in a day. The total daily outturn of 150 men is about 450 dozen or 5,400 combs, but it is estimated that not more than 3,000 combs are made daily. Boys are not paid any wages. They generally learn the work in the factories which serve the purpose of technical institutions.

Haldu wood is brought to Saharanpur from "Chimma Bans Phatori" forests and sold to the comb makers in cart-loads of 13 to 15 maunds for 25 to 30 rupees, i.e., about Rs. 2 a maund while two years back it was Rs. 15 a cart-load.

Local sale of combs is considerable. The chief place of export is Bombay and after it comes Amritsar. The wholesale dealers of Bombay, e.g., Husain Seth, near Musafir-khana, Abdul Karim Abdul Rahim, Ibrahim Bashir Ali, Ali Bhoy, Mohd. Ali Bhoy, "Chawalwale" of mohalla Khoka place large orders with the factory owners at Saharanpur for being supplied in a specified time. The railway freight from Saharanpur to Bombay is Rs. 2-12-0 per maund. Thus there is no difficulty either about the purchase of raw material or the sale of combs.

(iii) *Tonga manufacture*.—A carpenter Mahmud, near Nakhasa Bazar, Saharanpur, makes tolerably good tongas of Peshawar pattern to order. The annual outturn is only five tongas as he takes two to three months to make a complete tonga. Iron-tyred tonga is sold for Rs. 300 and a rubber-tyred one for Rs. 350. Shisham is the only wood employed for the purpose.

*Cost of manufacture of an ordinary iron-tyred tonga.*

	Rs.
Shisham wood ... ..	30
Wheels ... ..	25
Iron tyres and their fittings ... ..	20
Spring fittings ... ..	20
Foot irons ... ..	5
Leather for seats, etc. ... ..	15
Cloth (water proof and other) ... ..	8
Labour for 80 days at Rs. 2 a day ... ..	160
Cocoonut fibre for stuffing ... ..	2
Varnish, paints and other miscellaneous charges ... ..	5
Total ... ..	290
Selling price ... ..	300

Hence profits, exclusive of wages and all other charges, i.e., profits accrued by the way, Rs. 10.

*Total cost of rubber-tyred wheels only—*

	Rs.
Wheels ... ..	25
Rubber tyres (pair) ... ..	50
Channels ... ..	13
Fitting charges ... ..	7
Total ... ..	95

Deducting Rs. 45, i.e., the charges for iron tyred wheels (i.e., wheels Rs. 25, iron tyres Rs. 20) Rs. 50 are the additional charges to be paid for a rubber tyred complete tonga.

(iv) *Walking sticks.*—Forest people cut sticks from the forest tree branches, shrubs or sleepers and make crude walking sticks out of them. These crude sticks are brought to Saharanpur and sold to the manufacturers at Rs. 5 a dozen. The manufacturer then does the smoothing, straightening and polishing. About Rs. 10 are realized from the sale of one dozen finished sticks which vary in price from 4 annas to Re. 1-8 each. There are five such shopkeepers at Saharanpur. During the hill season they take their shops to Mussoorie where the sale price realized is about  $1\frac{1}{2}$  times more than at Saharanpur.

## CHAPTER III.

## INDUSTRIAL POSSIBILITIES OF THE DISTRICT.

(i) *Paper pulp*.—The consumption of paper throughout India is rapidly increasing. The annual consumption of paper in India is on an average about 110,000 tons, out of which about 80,000 tons are imported and only about 30,000 tons are produced in the country. Import of paper in 1920-21 amounted to Rs. 7,34,00,000 and in 1921-22 to Rs. 2,34,00,000 in value. The amount of paper pulp imported in 1920-21 was Rs. 44 lakhs in value and in 1921-22 was Rs. 50 lakhs " (vide page 21 of Dehra Dun Survey Report by the same author).

Saharanpur forests can supply enormous quantities of bhabar grass and bamboo which can produce good paper pulp.

Bhabar grass of the Saharanpur Forest Division has been sold to Messrs. F. W. Helgiers and Company, Calcutta, for 10 years at Rs. 37,000 per year, thus shutting out the possibilities of starting a paper mill in the province for some time. Next time that the lease is to be given the claims of an U. P. mill should be considered superior to that of a non-province man *caeteris paribus*. An attempt should be made to test other long grasses of the forest for manufacture of pulp and if success is attained there, to start a pulp factory at the base. The report of the paper expert at Dehra should be published for general information.

*Place of location*.—Jwalapur, a railway station near Hardwar, is the best place for a paper mill or factory, as it is close to the forests whence raw material can be obtained without much difficulty.

(ii) *Cutch or katha industry*.—Saharanpur forests can supply considerable quantities of raw material, i.e., Khair wood (*Acacia Catechu*) for katha making. The industry can profitably be started by a small capitalist at Saharanpur. There will not be any difficulty about the market as the demand for katha is considerable everywhere in Northern

India. Expert labour will have to be recruited from other districts like Pilibhit.

(iii) *Minor industries*.—An inventory of minor forest produce, which can be utilized in starting several small industries, is given in Chapter VI.

## CHAPTER IV.

## STATISTICS.

## 1. Grains—

## Wheat—

Production.—3,025,000 maunds nearly.

Exports to the Punjab.—235,300 maunds nearly.

Value of exports.—Rupees 11,76,500 nearly.

In stock.—204,000 maunds nearly.

Value.—Rupees 10,20,000 nearly.

Local consumption.—2,585,800 maunds.

## Rice—

Production.—1,240,000 maunds nearly.

Exports to the Punjab.—13,000 maunds nearly.

Value of exports.—Rupees 17,333 nearly.

Imports.—46,000 maunds nearly from eastern parts of U. P. and Rangoon.

Value of imports.—Rupees 4,60,000.

## (i) Seth Radha Kishan Rice, Cotton and Flour Mills.

Year.	Labour (daily).		Wages.		Annual.	Outturn.	Remarks.
	Men.	Women.	Men.	Women.			
			As.	As.		Mds.	
1921 ...	33	22	10	7	Rice	11,939	See under Cotton.

## (ii) Seth Shugan Chand Jagan Nath Rice and Cotton Factory.

1922 ...	30	25	10	7	Rice	1,000	See under Cotton.
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## (iii) Flour Mills of Mr. Rice, Saharanpur.

1921 ...	25 men and women.	...	...	Rice Flour	7,025 2,498 30 srs.	See under Cotton.
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*(iv) Shri Parbati Mills.*

Year.	(Labour daily)		Wages.		Total annual labour.	Total number of working days.	Output	Remarks.
	Men.	Women.	Men.	Women				
1921	125	men and women.		..	..	..	..	See under Mds. Cotton.
1922	48	40	10 as. to 12 as.	7 as. to 9 as.	9,072	104	Rice 8,706 Flour 1,665 0	15 srs.

*(v) Krishna Rice and Flour Mills, Saharanpur.*

1922	7	..	Rs 8 for seven men.	..	2,500	300	No figures are kept.	25 H. P.
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*(vi) Hindustan Flour Mills, Saharanpur.*

1922	5	..	Rs. 8-6 for five men.	..	1,825	270	No figures are available.	32 H. P. engine.
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*(vii) Arya Flour Mills, Saharanpur.*

1922	7	..	Rs. 6-6 for seven men.	..	2,500	Whole year.	220 mls. flour daily.	28 H. P. engine.
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*(viii) Anand Rice and Flour Mills, Saharanpur.*

1922	5	..	Rs. 14 to Rs. 15's month.	..	..	180	50 to 250 mds. a day.	Permanent staff. engine. 70 H P.
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**2. Sola Hats—****Raw material (annual consumption).—**

Name.	Quantity and price.	Whence obtained and remarks.
Pith ...	800 chhataks worth Rs. 50.	Obtained locally from 4,800 seers of chari.
Twill cloth ...	Rupees 200	Obtained from the local bazar.
Mercerised cotton for lining.	" 100	Ditto.
Leather for inner lining strap.	" 25	
Leather strap with buckle.	" 12½	

*Annual outturn.*—800 topis worth about Rs. 2,000.

*Exports.*—About 600 topis, i.e., about 500 to Lahore, Rawalpindi and Delhi and about 100 to Dehra Dun and other places.

*Local consumption.*—About 200 topis are sold locally in the district.

*Number of persons employed.*—10.

*Outturn per head.*—Two hats in three days.

*Daily earnings per head.*—About Re. 0-11-6.

*Selling price of a topi.*—Rupees 1-4 to Rs. 8 according to the quality of the cloth and the skill. Price of an ordinary hat is Rs. 2.

### 3. *Leather*—

*Raw material.*—5,300 hides, 2,900 skins.

*Value.*—Rupees 14,515 (hides) and Rs. 1,631 (skins).

*Exports.*—7,700 maunds of hides and skins.

*Place of consignment.*—Chiefly Cawnpore and to a small extent to Amritsar.

#### (i) *Tanning.*

#### *Manufactures*—

*Number of persons employed.*—1,200 or 300 families.

*Outturn.*—One family tans 30 hides a month, or 60 to 100 skins in 7 to 10 days.

*Wages.*—No wages are paid as usually no labourers are engaged.

#### (ii) *Leather articles.*

*Number of persons employed.*—30 Mochis.

*Outturn.*—Not definite.

*Wages.*—The average daily earnings of a mochi is 8 annas.

#### (iii) *Shoes.*

*Number of persons employed.*—250 Chamars and Mochis.

*Outturn.*—It is estimated that shoes and sandals worth about Rs. 1,000 are daily made out of good skin (nari).

*Wages.*—Daily earnings of a Mochi vary from 6 annas to 14 annas.



4. *Textiles—*(1) *Cotton ginning and pressing—*

Weight and value.	Production.	Factory ginned.	Hand ginned.	Total ginned.	Exports Unginned Kapas.	Ginned.
1. Weight in maunds.	81,000	37,414	23,600	66,014	45,000	40,100
2. Value in rupees	9,96,900	19,63,500	12,87,000	32,50,500	4,50,000	12,33,200

*Local consumption—*

(i) *Consumed for stuffing.*—11,200 maunds nearly.  
*Value.*—Rupees 37,700 nearly.

(ii) *Consumed by local spinners.*—14,648 maunds nearly.  
*Value.*—Rupees 5,01,800 nearly.

*Statement of Ginning Factories.*

Year.	Name of occupier.	Daily labour.		Total annual labour.	Daily wages.		Total number of working days.	H. P. of engine.	Total annual outturn.	
		Men.	Women.		Men.	Women.			Mds.	srs.
<i>(i) R. B. Amolakchand Mewa Ram Ginning Factory, Saharanpur.</i>										
1921 ...	B. B. Amolakchand Mewa Ram.	29	27	560	12 as.	6 as.	10 days.	47	862	15
1922 ...	Ditto ...	31	28	1,420	12 as.	6 as.	24 days.	47	1,813	25
<i>(ii) Radha Kishan Rice, Cotton and Flour Mills, Saharanpur.</i>										
1921 ...	Seth Radha Kishan.	49	19	7,000	10 as.	7 as.	100	19	5,982	6
1922 ...	Ditto ...	33	22	4,620	10 as.	7 as.	84	19	7,076	0
<i>N.B.—Rice husking is the subsidiary work.</i>										
<i>(iii) Shri Parbati Mills, Saharanpur.</i>										
1921 ...	L. Gaiind Raj ...	80	60	6,250	10 as. to 12 as.	7 as. to 8 as.	50	50	5,425	30
1922 ...	Ditto ...	48	40	9,072	10 as. to 12 as.	7 as. to 8 as.	104	50	3,708	15
<i>N.B.—Rice husking is the subsidiary work.</i>										
<i>(iv) Shankar Lal Sri Ram Cotton Mills, Saharanpur.</i>										
1921 ...	B. Sunder Lal...			Closed.				65		
1922 ...	Ditto ...			Ditto.				65		

Year.	Name of occupier.	Daily labour.		Total annual labour.	Daily wages.		Total number of working days.	H. P. of engine.	Total annual outturn.
		Men.	Women.		Men	Women.			
<b>(v) Sett Shugan Chand Jagan Nath Cotton and Rice Mills Saharanpur.</b>									
									Mds. srs.
1921 ...	B. Sri Ram ...	45	22	3,350	10 as.	7 as.	50	59	6,077 16
1922 ..	Ditto ..	30	25	2,640	10 as.	7 as.	48	59	7,030 C
<i>N.B.</i> —Rice husking is the subsidiary work.									
<b>(vi) West's Patent Press Co., Ltd., Saharanpur.</b>									
1921 ...	...	...	...	...	Daily wages for		...	20	...
1922 ...	...	40	...	1,960	40 men is		49	20	3,397 bundles.
Rs. 21-8-0									
<b>(vii) Flour Mills of Mr. Rice, Saharanpur.</b>									
1921 ...	Mr. Rice ...	25 men and women		3,875	...	...	4 months and 10 days		571 13
<i>N.B.</i> —Rice husking and flour grading are the main industries.									
<b>(viii) The Patel Mills Limited, Saharanpur.*</b>									
1921 ...	...	...	Whole year as ice factory.						
1922 ...	...	40	10	Rs. 1,000 to Rs. 1,200 a year.			Whole year 100 B. H. P.		
No figures year.									
<b>(ix) Darbar Mills, Saharanpur.</b>									
1922 ...	...	11	13	1,112	10 as. to	7 as. to	49	55 B. H. P.	1,652 15
12 as. 8 as.									

\* Newly introduced.

(2) *Spinning*—*Raw materials*.—*Ginned cotton*.—14,648 maunds.*Value*.—Rupees 5,01,800.*Exports*.—800 maunds.*Value*.—Rupees 20,000.*Imports*.—Nil.*Manufacture*.—As a subsidiary work during leisure hours by village women on a cottage industry basis.*Number of persons engaged*.—15,000.*Outturn*.—14,600 maunds.*Value*.—Rupees 54,500.(3) *Weaving*—*Raw materials*.—49,800 maunds of yarn.*Mill yarn*.—36,000 maunds.*Hand-spun*.—13,800 maunds.*Imports*.—From Agra, Moradabad and Ahmedabad 36,000 maunds.*Value*.—Rupees 20,88,000.*Exports*.—Nil.*Manufacture*.—On a cottage industry basis.*Number of persons employed*.—31,740.*Outturn*.—1,250,000 pieces of cloth.*Value*.—Rupees 37,50,000.*Wages*.—Rupees 1-4 per head per family.*Exports*.—About 7 lakhs of pieces.*Value*.—About 17 lakhs of rupees.*Local consumption*.—About 5½ lakhs of pieces.*Value*.—About 16½ lakhs of rupees.5. **Wood work.**(i) *Wood carving*.*Raw materials*.—Shisham, tun and Dudhi wood.*Exports*.—The estimated value of the annual export carved articles is about Rs. 1,20,000.*Places of consignment*.—America, England, France and all parts of India excepting Kashmere.*Imports*.—Nil, as all wood is obtained from the local forests

*Local consumption.*—Negligible as compared with the exports.

*Manufacture.*—Both on a small factory and on a cottage industry basis.

*Number of persons employed.*—About 200 persons including boys.

*Annual outturn.*—Rupees 1,20,000 in value.

*Wages.*—The work is done on a system of piece work contract as given under Wood Carving in Chapter II.

(ii) *Wooden combs.*

*Raw materials.*—Haldu wood.

*Quantity.*—About 2,800 maunds.

*Value.*—About Rs. 5,600.

*Exports.*—About 6 lakhs.

*Value.*—Rupees 18,500.

*Place of consignment.*—Chiefly Bombay and to a small extent Amritsar.

*Local consumption.*—Negligible as compared with exports.

*Manufacture.*—Both on a small factory and on a cottage industry basis.

*Number of persons employed.*—200 in all, out of whom about 150 are employed in small factories.

*Outturn*—

*Annual outturn.*—About 6 lakhs.

*Daily outturn.*—About 3,000.

*Outturn per head.*—About 3 dozen.

*Wages.*—Work is done on a system of contract by which Rs. 13 to Rs. 15 are paid for 1,000 combs. Daily earning of workman thus come to 8 to 9 annas.

### 6. Miscellaneous.

Year.	Name of occupier.	Daily labour.		Total labour in the year.		Total number of working days.	H. P. of engine.	Annual outturn.	Remarks.
		Men.	Boys.	Men.	Boys.				
<i>(1) Canal Foundary and Workshops, Roorkee.</i>									
1921	Messrs. Joti Prasad Beni Prasad and Kishori Saran.	262	28	...	...	Whole year except Sundays and 10 Government gazetted holidays.	Mechanical power.	Variable, depending on contracts secured.	
<i>(2) N. W. Ry. Workshop, Saharanpur.</i>									
1921	N.-W. Railway Company.	370	54	...	...	Throughout the year, excepting holidays.	Mechanical power.	No figures. No goods for sale, purely a Government railway concern for locomotive repairs and other works.	
<i>(3) Park Regimental Workshops and Press, 1st K. G. O.... Sappers and Miners, Roorkee.</i>									
1921	Commandant, 1st K. G. O. Sappers and Miners, Officer in charge Regimental Workshops and Press.	100	...	...	...	Throughout the year, excepting holidays.	Mechanical power.	Purely military works. Manufacture of articles of Engineering equipment for Government.	

Year.	Name of occupier.	Daily labour.		Total labour in the year.		Total number of working days.	H. P. of engine.	Annual outturn.	Remarks.
		Men.	Boys.	Men.	Boys.				
<i>(4) Thomason Colleges, Roorkee.</i>									
1921	Major W. C. Sandes, D.S.O., M.C., R.E.	36 students	53 operators	...	...	College Sessions	Electrical power.	Instructional purposes.	Govt. concern.
<i>(5) Printing, Photo-mechanical and Lithographic work of Thomason College, Roorkee.</i>									
1921	Principal, Thomason College, Roorkee.	192	...	...	...	Throughout the year, excepting gazetted holidays.	Electrical power.	...	Both Govt. and private work is done.
<i>(6) Military Works Central Workshops, Roorkee.</i>									
1921	Military Works Services.	113 men and boys		...	...	Throughout the year, excepting Sundays.	Mechanical power.	Government Military Work.	

Year.	Daily labour.	Total daily wages.	Total labour.	Outturn	Value.
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(7) *Jaini Lal Mechanical Printing Press, Saharanpur.*

		Rs.			Rs.
1921	...	21	...	...	...
1922	..	17	10	5,700	7,000

(8) *Shanti Printing Press, Saharanpur.*

1921	...	18	...	...	...
1922	...	20	15	7,200	10,000 paper.

(9) *Akhtar-e-Hind Press, Saharanpur.*

1921	...	4	.	7 mos.	3 lakhs papers.	600
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(10) *Faruqi Press, Saharanpur.*

1921	...	6	...	Throughout 225,000 the year.	340
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(11) *Ittihad Press, Saharanpur.*

1921	...	3	...	10 mos.	15,000	200
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(12) *Hindu Printing Press.*(13) *Shaman Press, Saharanpur.*

1921	...	4	...	8 mos.	...
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(14) *Tarjuman Press, Saharanpur.*

Not working.

(15) *New Press, Saharanpur.*

Figures not available.

(16) *Government Distillery, Saharanpur.*

Year.	Daily labour.	Annual outturn.		Power.	Remarks.
		Quantity.	Value.		
1921	...	70	Gallons, 41,000	Rs 57,125	Machanical power.



## CHAPTER V.

### DIRECTORY.

#### (1) *List of Banks.*

Benares Bank, Ltd., Saharanpur.  
Bhagwan Das Bank, Ltd., Saharanpur.

#### (2) *Industrial and Technical Schools.*

S. P. G. Mission School, Roorkee.  
A. P. M. Mission School, Saharanpur.  
National Typewriting School, Nakhasa Bazar, Saharanpur.  
Islamia School, Saharanpur (Carpentry Class).

#### (3) *Cotton Ginning and Pressing Factories.*

West's Patent Press, Co., Ltd., Saharanpur.  
Amolakchand Mewa Ram Ginning Factory, Saharanpur.  
Radha Kishen Ginning Factory, Saharanpur.  
Shugan Chand Jagannath Factory, Saharanpur.  
Darbar Mills, Saharanpur.  
Shree Partab Mills, Saharanpur.  
Rice Ginning Factory, Saharanpur.  
Patel Mills, Ltd., Saharanpur.  
Shankar Lal Sri Ram Ginning Factory, Saharanpur.

#### (4) *Rice Husking Mills.*

Radha Kishen Rice, Cotton and Flour Mills, Saharanpur.  
Shugan Chand and Jagannath Rice and Cotton Mills, Saharanpur.  
Shree Partab Mills, Saharanpur.  
Rice Mills, Saharanpur.  
Krishna Rice and Flour Mills, Saharanpur.  
Anand Rice and Flour Mills, Saharanpur.

#### (5) *Flour Mills.*

Radha Kishen Mills, Saharanpur.  
Rice Mills, Saharanpur.  
Krishna Rice and Flour Mills, Saharanpur.

Anand Rice and Flour Mills, Saharanpur.

Arya Mills, Saharanpur.

Canal Flour Mills, Roorkee.

Bhagirath Lal Chajjimal, Roorkee.

(6) *List of Workshops.*

N.-W. Ry. Locomotive Repairs and Workshops, Saharanpur.

Regimental Workshops and Press (1st K. G. O. Sappers and Miners), Roorkee.

Canal Foundry and Workshops, Roorkee.

Thomason College Workshops, Roorkee.

Military Works, Central Workshops, Roorkee.

(7) *Foundry (Iron).*

Canal Foundry and Workshops, Roorkee.

(8) *Distillery.*

Government Distillery, Saharanpur.

(9) *Ice Factory.*

Patel Mills, Ltd., Saharanpur.

(10) *Printing Presses.*

Photo-Mechanical and Litho Dept., Thomason College, Roorkee.

Regimental Workshops and Press (1st K. G. O Sappers and Miners), Roorkee.

Jaini Lal Machine Press, Saharanpur.

Akhtar Hind Press, Nakhasa Bazar, Saharanpur.

Ittihad Press, Saharanpur.

Shanti Printing Press, Saharanpur.

Faruqi Press, Saharanpur.

Hindu Printing Press, Saharanpur.

Shaman Printing Press, Saharanpur.

Turjuman Printing Press, Saharanpur.

New Press, Nakhasa Bazar, Saharanpur.

(11) *Wood Carving Factory.*

Md. Imam Md. Ikram's Factory, Sarai Faiz Ali, Saharanpur.

Nazar Mohammad Fazle Haq Factory, Pilkhan Tala, Saharanpur.

Mukhtar Ahmad Tufail Ahmad, Saharanpur.

Naseem-ud-din Abdus Salam, Saharanpur.

Abdul Ghafoor, Saharanpur.

Ali Hasan and Sons, Saharanpur.

Gulam Murtaza, Sarai Faiz Ali, Saharanpur.

Mushtaq Ahmad, Sarai Faiz Ali, Saharanpur.

Mohd. Siddique, Sarai Faiz Ali, Saharanpur.

Din Mohd. Husain Bux, Sarai Faiz Ali, Saharanpur.

(12) *Brass Inlaying and Outlaying Factory.*

Md. Imam Md. Ikram, Sarai Faiz Ali, Saharanpur.

Gulam Murtaza, Sarai Faiz Ali, Saharanpur.

(13) *Comb makers.*

Abdul Latif, mohalla Atishbazan, Saharanpur.

Faizul Hasan, mohalla Atishbazan, Saharanpur.

Md. Omar, mohalla Atishbazan, Saharanpur.

Gulam Nabi, mohalla Atishbazan, Saharanpur.

Nihal Ahmad, mohalla Atishbazan, Saharanpur.

Alla Rakhkha, mohalla Atishbazan, Saharanpur.

Munshi Khairat Ullah, mohalla Atishbazan, Saharanpur.

Yasin Khan, mohalla Khajoor Tala, Saharanpur.

Moizuddin, mohalla Banjaran, Saharanpur.

Mohd. Saddique, Mohalla Banjaran, Saharanpur.

Mohd. Yamin, mohalla Banjaran, Saharanpur.

Gulam Husain, mohalla Atishbazan, Saharanpur.

(14) *Grain Merchants.*

Mani Chand Radha Kishen, Saharanpur.

Ch. Sant Lal, Saharanpur.

Ch. Genda Mull, Saharanpur.

Bhiku Mull, Saharanpur.

Behu Mull, Saharanpur.

Mansab Rai, Saharanpur.

Beni Pershad, Deoband.

Jadu Rai Badri Dass, Deoband.

(15) *General Merchants and Dealers in Hosiery.*

Babar Ahmad, Shahan Shahi Bazar, Saharanpur.

Tufel Ahmad Khisal Ahmad, Shahan Shahi Bazar, Saharanpur.

Mohd. Yamin, Shahan Shahi Bazar, Saharanpur.  
 Mohd. Yasin, Shahan Shahi Bazar, Saharanpur.  
 Karbar Samiti, Gau Ghat, Saharanpur.  
 Sh. Nisar Ahmad, Halwai Hatta, Saharanpur.  
 H. Kala Khan and Sons, Roorkee.

(16) *Hosiery Manufacturer.*

Meeri Mull, near Imam Bara, Saharanpur.

(17) *Glass Bangle Manufacturers and Dealers.*

Noor Mohammad, son of Mohammad Kasim, mohalla Shirazan, Saharanpur.

Abdul Karim, Saharanpur.

Abdulla, Saharanpur.

Adbul Majid Seth, Saharanpur.

(18) *Dealers in and Repairers of Iron kolhus.*

Musaddi Lal, Khale Par, Saharanpur.

Imam-ud-din, Khale Par, Saharanpur.

Mohd. Shah, Shah Bahlol, Saharanpur.

Daulat Ram, Hat Raja, Saharanpur.

Bhagwanpur Factory, Roorkee.

(19) *Dealers in Water pipes and Force pumps.*

Shib Sahai, Madrasa Arabia, Saharanpur.

Md. Saddiq, Qumran Bridge, Saharanpur.

Gulam Murtaza, wood carver, Sarai Faiz Ali, Saharanpur.

Canal Foundry and Workshops, Roorkee (manufacturers of force pumps).

(20) *Leather Article Manufacturers.*

Kareem-ud-din, mohalla Shirazan, Saharanpur.

Qamar-ud-din, mohalla Shiradan, Saharanpur.

(21) *Dealers in Hides and Skins.*

Mohd. Yasin, Shahanshahi Bazar, Saharanpur.

Khursbaid Ahmad, Shahanshahi Bazar, Saharanpur.

(22) *Shoe Merchants and Factories.*

John Bros., Roorkee.

Mujib Ahmad, son of Md. Yasin, Shahanshahi Bazar, Saharanpur.

Md. Yamin, Shahanshahi Bazar, Saharanpur.

(23) *Tonga Manufacturer.*

Mahmud Carpenter, near Nakhasa Bazar, Saharanpur.

(24) *Weaving Factory.*

Nakhasa Bazar Weaving Factory, Saharanpur.

(25) *Soap Factory.*

N. S. Bharat Soap Factory, Saharanpur.

(26) *Dealers in country cloth locally woven.*

Khilafat Swadesi Stores, near Juma Masjid, Saharanpur.

Vaish Swadesi Stores, near Juma Masjid, Saharanpur.

Bakhtawar Singh, near Juma Masjid, Saharanpur.

(27) *Brick kiln owners.*

Saadat, Saharanpur.

Rahim Bux, Saharanpur.

L. Shadi Ram, Saharanpur.

I'haggoo Mull, Saharanpur.

(28) *Sola Hat Manufacturer.*

Md. Yoonus, son of Md. Yoosuf, Fatehpuri, Roorkee.

(29) *Chief forest contractors.*

Noor Mohammad, Lakhi Bag, Dehra Dun.

Jai Prakash, Saharanpur.

Sudha, V. Gandyura, P. O. Fatehpur, Saharanpur.

Gulam Jilani Khan, P. O. Sakranda, Saharanpur.

Bakhshi Kundan Lal, Dandipur, Dehra Dun.

Jahrumal, V. Kurri Khera, P. O. Mohand, Saharanpur.

Gangan Singh, V. Bahadurpur, P. O. Jwalapur, Saharanpur.

Tulsi, V. Bhojpur, Saharanpur.

Noorul Hasan, Jwalapur, Saharanpur.

Abdul Majid Khan, V. Sansarpur, Saharanpur.

(30) *Exporters of Saharanpur wood work to foreign countries, e. g., America and Europe.*

S. M. Kelley and Co., Kaisurganj Rd., Meerut.

Emporium of Arts and Crafts, Lucknow.

## CHAPTER VI.

## MISCELLANEOUS.

(i) *Tariff Schedule.*

Article.	Duty.
Grain and pulse ...	2½ per cent.
Provisions and oilman's stores	11 ,,
Sugar ... ..	15 ,,
Salt ... ..	Free.
Cigars and cigarettes ...	75 per cent.
Petroleum ... ..	1½ anna per gallon.
Silk waste and raw silk ...	11 per cent.
Wood and timber ...	11 ,,
Apparel ... ..	11 ,,
Arms and ammunition ...	20 ,,
Motor cars and cycles, etc ...	20 ,,
Chemicals and drugs ...	11 ,,
Cutlery ... ..	11 ,,
Aniline dyes ... ..	11 ,,
Glass and glass wares ...	11 ,,
Machinery ... ..	2½ ,,
Iron and steel ... ..	2½ ,,
Paper ... ..	11 ,,
Cotton piece goods ...	11 ,,
Matches ... ..	12 annas per gross.
Wire and tinsel ... ..	20 per cent.

(ii) *Railway rates.*

Class.	Maximum pie per maund per mile.	Minimum pie per md. per mile.
1 ... ..	.36	100
2 ... ..	.42	
3 ... ..	.58	166
4 ... ..	.62	
5 ... ..	.71	
6 ... ..	.88	
7 ... ..	.96	
8 ... ..	1.04	
9 ... ..	1.25	
10 ... ..	1.87	

(iii) *General classifications of chief articles of export and import.*

Commodity.		B.B., i.e. railway risk.	O.B., i.e. owner's risk.
Grain and pulse	...	1	...
Preserves	...	6	4
Sugar	...	2	...
Salt	...	4	...
Cigars, cigarettes	...	6	...
Kerosine oil	...	4	2
Wood and timber	...	1	...
Arms and ammunition	...	8	...
Motor cars and cycles	...	8	6
Chemicals	...	8	...
Drugs	...	4	...
Musical instrument	...	9	...
Glass (plate)	...	8	...
Cutlery	...	6	...
Glass (chimneys)	...	6	4
Glass (mirrors)	...	9	...
Glass (broken)	...	1	...
Aniline dyes	...	6	4
Machinery	...	4	2
Iron and steel	...	2	...
Paper (bales or bundles)	...	2	...
Paper (in cases)	...	4	...
Cotton (pressed)	...	4	...
Cotton (piece goods)	...	6	4
Matches	...	9	8
Bell-metal wares	...	6	...
Bell-metal scraps	...	2	...
Brass vessels	...	4	...
Bricks and tiles	...	1	...
Flour	...	2	...
Coal and coke	...	1	...

(iv) *Inventory of minor forest produce : Shiwalik Division and Saharanpur forests.*

N.B.—1. Only those products that are found in accessible parts of the hills and forests and can be had in sufficient quantities are dealt with in this list in alphabetical order.

2. English and vernacular names where available are given within brackets.

I.—*Abrus Precatorius* (Crab's eye, Ghungehi). A climbing thorny shrub common up to 3,000 feet.

*Produce.*—1. *Weight.*—Beads are used as weights for gold and other similar articles.

2. *Poison.*—Ground down to a paste with a little cold water the beads are made into small pointed cylinders which if inserted below the skin of an animal cause death.

II.—*Acacia Arabica* (Babul, Kikar). A well-known tree, is common to all the forests and cultivated lands.

*Produce and uses.*—1. *Gum.*—The tree yields gum arabic which is used in calico printing and other industries where a mucilage is necessary as medicine and as an edible gum. Maximum yield is 2 lbs. per tree per year, but the average is only a few ounces.

2. *Tooth brushes.*—Short twigs are used as tooth brushes.

3. *Baskets* are made of young green twigs.

4. *Bark* used extensively in tanning and is the chief tanning ingredient. Pods give a good colour to leather.

5. *Fishing hooks.*—Young shoots and spines are occasionally employed as fishing hooks.

III.—*Acacia Catechu* (Catechu tree, Khair, Kattha). A well-known tree, common all over.

*Produce.*—1. Yields catechu or "kattha" by burning chips of wood. A ton of wood yields 280 to 300 lbs. of cutch.

2. Gum.

3. Charcoal.

IV.—*Acacia Concinna* and *Sapindus Emarginatus* (Soap pod tree, Ritha). Prickly scandent bushes of yellow and hard wood, plentiful in the Siwalik Division.

*Produce.*—1. *Washing material.*—The fruit is largely employed in washing silk and woollen goods. Commonly employed in washing hairs and in cleaning tarnished silver plates.

2. *Medicine.*—The fruit "Lahsora" or "Sapistan" is a well known specific for bronchitis and cough.

3. *Poison.*—In North Bengal the fruit is used for poisoning fish.

V.—*Acacia Farnesiana* (Cassie, "Wilayati Babul," Wilayati Kikar). A well-known tree, common throughout.

*Produce.*—Cassie flowers.

VI.—*Acochynomena Aspera* (Sola pith plant, "Shola," Sola). Common in the Siwaliks.



*Produce.*—Pith; Sola pith is obtained from it for the manufacture of topis, but it is inferior to Bengal pith.

VII.—*Artemisia Maritima* (Worm wood, "Kirmala"). An aromatic herb, common in South Siwaliks.

*Produce.*—Santonin: Santonin, the well known specific is obtained from the plant. Flower beads are used for their anthelmintic, deobstruent and stomachic tonic qualities.

VIII.—*Azadirashta Indica* (Margosa tree, "Neem"). A well-known common tree, scattered in the hotter portions.

*Produce.*—1. *Oil.*—Neem or Margosa oil is extracted from the seeds, and used in medicines and soap. Oil cake is a fertilizer and is supposed to keep off white ants.

2. *Gum.*—Bright amber coloured gum exudes from the bark which is collected in small tears or fragments. It is esteemed medicinally as a stimulant.

3. *Tooth brush.*—Twigs are largely used as tooth brushes.

4. *Leaves* are utilized for preserving papers, cloth, etc.

5. *Bark* is used in medicine as a blood purifier. Supposed to be a great antiseptic and disinfectant and good to the liver.

IX.—*Bassia Butyracca* (Butter tree, "Phulwara Mahua"). A large deciduous tree, scattered in sub-Himalayas up to 4,000 feet. Available quantity about 100 mds. in the whole of the United Provinces at 10 to 12 rupees per maund.

*Produce.*—*Oil.*—Yields a fixed oil which is used for the same purpose as mahwa oil. Oil cake is a manure and termit-fuge.

X.—*Bombax Malabaricum* (silk cotton tree, "Semul"). A very large deciduous, well-known tree, scattered to a height of 3,500 ft. The tree has to be cut up green as it becomes discoloured.

*Produce.*—1. *Floss.*—The pod yields floss known as "Kapok" in the market. It is a silky cotton, not very long but soft and strong.

2. *Gum.*—Mochras is well known in the market as a specific.

3. *Fibre.*—The inner barks yield a good fibre suitable for cordage. In order to impart a silky gloss it should be employed mixed with other fibres.

XI.—*Bauhinia Vahlia* (Maljhan). A well known climber plentiful in the Siwalik Division,

*Produce. Fibre.*—The fibre is used locally for rope making but is inferior to moonj and jute.

XII.—*Bauhinia Retusa* ("Semla, Kandla"). A common, moderate sized deciduous tree which exudes a gum which is a useful cheap mucilage, but not very long.

XIII.—*Boswellia Serrata* (the incense tree, "Salar," Salai). A moderate sized deciduous tree is common on dry hills.

*Produce. Gum resin.*—The tree contains much gum resin of greenish colour which is burnt as incense and possesses a not unpleasant smell.

It is employed in rheumatism and various diseases and is an ingredient in certain ointments.

N.B.—The gum exudes only on injury to the tree.

XIV.—*Butea Poulosa* (Bastard teak, "Dhak," Palas, Kakria, China). A well-known tree, common throughout the district and in warmer parts of the forest.

*Produce. Gum.*—It yields naturally or from artificial scars on the bark a gum called "Chunia Gond" which occurs in round tears as large as pea.

XV.—*Calamus Tenius* (cane, "Bet," Bent'). A very large scandent plant abundant in South Himalayan tracts.

Uses: Cane is largely used for basket work, cane chairs, screens, mats, moonchas, etc.

XVI.—*Calotropis Gigantea* and *Calotropis Procera* (Madar). Closely allied large shrubs of soft and white wood.

*Produce. 1.*—Floss.

2. *Fibre.*—The bark fibre is one of the best of Indian fibres. The stem fibre is very strong. An acre of ground planted 4' x 4' will yield 10 tons of green stems and 582 lbs. of fibre, i.e. an yield of 20 per cent. fibre can be used both for textile and paper industries.

XVII.—*Casia Fistula* (Indian Laburnum, "Amaltas," Sundali, Sonali). A moderate sized tree, well known in the plains, plentiful in sub-Himalayan tracts up to 3,000 ft.

*Produce.*—1. *Tanning material.*—Bark is used in South India and at Cawnpore for tanning leather.

2. *Drugs.*—As a drug amaltas is well known to the physicians. The pulp of the fruit yields a most effective purgative and is commonly used for this purpose.

3. It is largely used in Bengal in smoking mixtures to flavour the tobacco.

XVIII.—*Celastrus Paniculata* (black oil plant, "Mal-kungni"). A scandent shrub common in outer Himalayas up to 4,000 ft.

*Produce.*—1. *Oil.*—The seed yields by expression a deep scarlet or yellow oil used in medicine for external application, also burnt in lamps and in certain religious ceremonies.

2. *Drugs.*—The red seed and leaves are employed in native medicine.

3. *Oleum Nigrum.*—Destructive distillation with Benzine, Cloves, Nutmego and Mace gives *Oleum Nigrum* of pharmacy and empyrenmatic fluid employed in the treatment of "beri-beri."

XIX.—*Helicterus Isora*, a shrub yielding a slight brown fibre, is plentiful along the southern slopes of the Siwaliks and obtainable in sufficient quantities to be worthy of trade.

*Produce. Fibre.*—The bark gives a useful fibre which is made into ropes, is used for tying rice bundles in Southern India, as cordage for sewing gunny bags, making bullock nose ropes and is useful in the manufacture of paper.

N.B.—The least is difficult to separate from the bark and therefore requires longer soaking in water. It is to be more carefully retted before it can be made into ropes.

XX.—*Ioddala Acculeata*. A scattered shrub the root bark of which gives a yellow dye but not fast.

XXI.—*Mallotus Philippinensis* (Kamela). A small tree, usually with a buttressed trunk, plentiful in Ganges sub-Himalayan Division up to 5,000 ft. It requires special attention for collection and export or for local industries specially dyeing.

*Produce.*—1. *Dye.*—Kamala powder is a dye formed of the red glands on the surface of the capsule.

2. *Bark* can be used for leather tanning.

XXII.—*Marsdenia Tenacis Sima* (Rajmahl hemp, "Tongas," Jiti, Babaljak). A climbing shrub of the sub-Himalayas scattered from the Jumna to the Ganges.

*Produce. Fibre.*—The bark yields a valuable fibre known as Rajmahl fibre said to be the second best in India. Used by hill tribes for bow strings and nets.

N.B.—Investigations for the cultivation of the plant should be made as the fibre has been pronounced to be a very valuable one for textile industry.

XXIII.—*Moringa Pterygosperma* (horse radish tree, "Sunjna"). A well-known tree wild in sub-Himalayan tract up to Oudh.

*Produce.*—1. *Gum.*—It yields a gum which is blood red when it exudes but turns to a mahogany colour forming a thick hard mass.

2. *Oil.*—From the seeds a clear, limpid, almost colourless highly valued Ben oil is easily extracted by pressure. Ben oil is used for lubricating delicate machinery such as watches. Owing to its power of absorbing and retaining odours it is largely employed in Europe by perfumers.

3. *Root.*—The root is a substitute for horse radish.

4. *Edible product.*—The fruit is made into curry.

XXIV.—*Phœnix Acanthis* and *Phœnix Humilis* (date palm, Khajoor). The two allied varieties of palm tree are common in Saharanpur forests and other usar Khadir lands.

*Uses.* Mats are largely made of the leaves and fibre is used for hard brushes.

XXV.—*Pinus Spp.*, (pine "Chir," "Kail"). A large well-known deciduous tree, abundant in the Shiwaliks.

*Produce.*—Turpentine, Colophony or Rosin and Resin : 18 tons of crude resin yield 1,340 gallons of turpentine and 11 tons of rosin in Jaunsar. In Naini Tal 574 tons of resin yield 22,252 gallons of turpentine and 341 tons of rosin. The manufacture is under Government monopoly.

XXVI.—*Rosa Moschata* (rose bush, "Gulab"). A well known thorny bush common all over the district.

Rose itr and water are extracted from the flowers.

XXVII.—*Schleichera Trijuga* (Sapindaca, "Kosum"). A large spreading tree of great economic importance, owing to the value of its timber and seeds and to the fact that it is the tree from which the best lac is obtained. It is found along the banks of streams.

*Produce.*—1. *Oil.*—A yellow oil most suitable for soap making is obtained from the seed. It should first be rectified, and then used. Amount available from Kumaun is approximately 120 cwt.

2. *Lac*.—As laid down above the best kind of lac is obtained from this tree.

XXVIII.—*Shorea Robusta* (Sal). A large well-known tree never quite leafless, abundant in the Siwalik forests.

*Produce*.—1. *Resin*.—When tapped the tree exudes large quantities of resin whitish at first but becoming brown when dry.

2. *Tannin*.—Bark from young poles is used in tanning.

XXIX.—*Semicarpus Anacardium* (marking nut, "Bhilawa"). A deciduous tree found in warmer parts of sub-Himalayan tracts up to 3,500 ft.

*Produce*.—1. *Marking nut*.—The pericarp of the fruit contains a bitter and powerful astringent principally used as marking ink.

2. *Varnish*.—The tree yields by tapping an acid, viscid juice from which a varnish is made.

3. *Dye and medicine*.—In Bengal the fruits are used as a dye either alone or with alum. In other parts it is used in medicine.

XXX.—*Sapium Sebiferum* (Chinese tallow tree, "Pipal-yang," "Momchina," "Tar-charvi"). A small glabrous tree wild in the northern parts of the Siwalik Division. Being in abundance it deserves special attention for commercial and industrial purposes.

*Produce*.—1. *Tallow*.—The fruit is a three-celled capsule, each cell having a single seed surrounded with a thick greasy substance the vegetable tallow. In China this vegetable tallow is used in place of animal tallow for the manufacture of candles and soaps also in dressing cloth.

2. *Oil*.—The red kernels yield 50 per cent. of a brownish yellow oil used in medicine, in umbrella varnish, and as a burning oil.

3. *Dye*.—Leaves give a black dye.

XXXI.—*Sterculia Vilos* ("Godgodala"). A moderate sized deciduous tree, common in forests of sub-Himalayan tracts and valuable on account of its fibre. Wood greyish brown, very soft and light.

*Produce*. *Fibre*.—Yields a coarse, strong, whitish pink fibre of a peculiar net like appearance, stripping off the tree in broad, long flakes. It is extensively used on the Malabar

coast for tying the rafters, bamboo and firewood bundles, making bags and cattle halters. In Dehra it is used for ropes, elephant gear ropes and halters.

XXXII.—*Terminalia Arjuna* (myrobalans Harra, Bahera). A large deciduous well-known tree common in the forests along the banks of rivers and streams.

1. *Medicine*.—The fruit is used for a number of diseases in Greek pharmacoepia.

2. *Tannin*.—The bark is a suitable tanning material.

3. *Gum*.—A clear transparent gum used as a ding excudes from the tree.

N.B.—It is almost impossible to give the area or available quantity of the produce. The minor produce is scattered all over the forests and not separately sold. None of the forest officers could give any idea about the area or produce. They say that such figures will be absurd and misleading. A rough idea about the quantity can be obtained by enquiries from all the forest contractors who are in a position to give some information about the produce extracted by them. Under these circumstances it was thought best to mention the localities where a certain species is found and to say whether it is in abundance or not.

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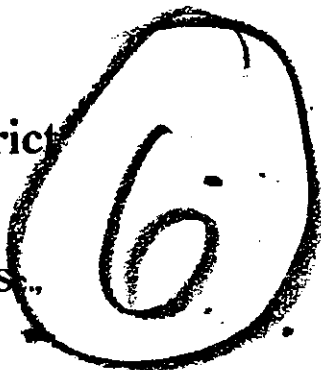
A. C. Chatterjee's notes on the Industries of the United Provinces.

Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

Shahjahanpur District

*By*

MOHAMED MUSHTAQ, B.S.



ALLAHABAD

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1 s. d.

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# CHAPTER I.

## INTRODUCTION.

### 1. Boundaries.

*North.*—Pilibhit district.

*South.*—Hardoi and Farrukhabad districts.

*East.*—Kheri district.

*West.*—Budaun and Bareilly districts.

### 2. (i) General appearance.

The country presents the appearance of an open plain. In the north-east corner there is a fair amount of unreclaimed forest, while elsewhere occur broad stretches of open land, singularly devoid of trees. The bulk of the district resembles the upland plains of the Gangetic valley and produces every kind of crop. The general level is broken only by the valleys of the numerous streams which in most cases flow in a south-easterly direction.

### (ii) Natural divisions.

The first of the natural divisions is the forest tract in the extreme north-east. There is an abundance of forest and waste, with a naturally fertile soil, a higher water level, a climate which is popularly supposed to be most unhealthy, and a somewhat sparse and fluctuating population. This belt terminates in a raised strip of high country with a light and sandy soil of a most unfertile character. Here the population is very scanty, irrigation is deficient and the crops are of the most inferior description. The succeeding tract is a plain of light though moderately fertile loam. The loam area includes the bulk of the Pawayan, Baragaon, Nigohi and Shahjahanpur parganas. This is followed by the alluvial valley of the Garra which covers the greater part of the Jalalpur and Tilhar parganas. Here the soil is a rich loam admirably suited to the growth of sugarcane, wheat and the more valuable staples. To the south of the Garra alluvium lies the bhur tract in which the prevalence of sand is the predominant feature. It is fully

cultivated, for means of irrigation are fairly abundant. Then comes the tarai basin of the Ramganga, some 5 miles in width and which is of great value and fertility producing large quantities of wheat and other valuable crops. The last remaining tract is the bankati of a low-lying expanse of hard clay soil in places rendered sterile by usar and the saline efflorescences known as reh. Rice is the main crop and irrigation is of vital importance.

### 3. Population.

The population in the year 1921 was 839,115 consisting of 452,837 males and 386,278 females.

### 4. Area.

The total area of the district is 1724.2 square miles. The following is the area statement of the year 1922-23 :—

Total area	...	...	1724.2 square miles.
Barren area	...	...	156.2 including 52 square miles covered with water.

#### Land out of cultivation—

Culturable waste	...	150	square miles.
Groves	...	45	„
Old fallow	...	99	„
New fallow	...	93	„
Prepared for sugarcane	...	24.5	„

#### Cultivated area—

Irrigated	...	168	„
Non-irrigated	...	988	„
Total cultivated	...	1,156	„
Double-cropped	...	26.5	„

### 5. Forests.

There are some 31 square miles of forest in the extreme north-east of the Pawayan tahsil in continuation of that in the Kheri and Pilibhit districts. It consists for the most part of sal trees, though the growth is generally inferior and large timber is scarce. Besides the sal which is here generally called "koron" there are several other species, but none of any value except perhaps the *asna* and the *mahua*, though these are

comparatively scarce. The forest is the property of the zamindars who do little in the way of conservancy. Timber is generally cut in the form of ballis, each of which represents a young tree. It is well fitted for agricultural implements, country carts and building purposes, as well as for fuel and charcoal. No regular search has been made for medicinal or other drugs.

**6. Railways.**

Name of railway.	Name of line.	Length in miles.	Stations.
Oadh and Rohilkhand Railway.	Main Line	27	Miranpur Katra, Tilhar, Banthra, Shahjahanpur, Rosa Junction, Kahilia.
Ditto.	Shahjahanpur-Sitapur Branch.	5	Shahjahanpur. Rosa Junction.
Rohilkhand and Kumaun Railway.	Pilibhit-Carewganj section.	24	Carewganj, Shahjahanpur, Shahbaznagar, Areli, Nigohi.
Ditto.	Lucknow Junction to Kasganj section.	4	Kuriya, Sehramau.

**7. List of Roads.**

*A. Provincial.*

	Distance in miles.
Bareilly, Fatehganj and Goshainganj Road	... 31
Lucknow, Sitapur and Shahjahanpur Road	... 29

\*  
B. Local.

## I. Metalled roads—

	Distance miles.
Shahjahanpur to Jalalabad ...	19
Shahjahanpur to Pawayan ...	17
City Branch of Sitapur Road ...	3
Prince of Wales Road ...	2
Pilibhit Division Road ...	$\frac{5}{8}$
Katra Railway Station Road ...	1 $\frac{1}{2}$
Shahjahanpur to Daniapur ...	2
Cutchery Road ...	$\frac{5}{8}$
Jalabad Tahsil Road ...	$\frac{1}{2}$
	46

## IIA. Unmetalled roads, bridged and drained throughout—

Shahjahanpur to Pilibhit ...	20
Shahjahanpur to Muhamdi ...	6
Shahjahanpur to Hardoi ...	9 $\frac{1}{2}$
Pawayan to Khutar ...	14
Pawayan to Bisalpur ...	12
Katra to Khudaganj ...	14
Kant to Madnapur ...	8 $\frac{1}{2}$
Jalalabad to Dhaighat ...	12
Azizganj to Nibiaghat ...	4 $\frac{1}{2}$
Kahilia Station Road ...	2
Bantra Station Road ...	1
	103 $\frac{1}{2}$

## IIB. Unmetalled roads, partially bridged and drained—

Puraur to Dhaighat ...	15
Khutar to Puranpur ...	13
	28

III. Unmetalled roads, banked but not surfaced, partially bridged and drained—

	Distance in miles.
Shahjahanpur to Paina ... ..	2
Khutar to Banda ... ..	10
Pawayan to Banda and Puranpur ... ..	23½
Pawayan to Nigohi ... ..	15
Pawayan to Jiwan ... ..	3
Khudaganj to Faridpur ... ..	4½
Tilhar to Jaitipur ... ..	10
Fatehganj to Budaun ... ..	9½
Jalalabad to Kundaria ... ..	12
	89½

Besides the above there are 105 miles of IV and V class roads.

8. List of ferries.

Name of river.	Name of ferries.
Gumti	... Gutaiya, Panghat, Dhirighat.
Khanaut	... Tilsanda, Nathaura, Satighat, Chaprawi, Goraghat, Lodipur, Pakaria-ghat.
Garra	... Kochighat, Khiriaghat, Nibiaghat, Kakraghat, Rajghat, Udelaghat, Khirkighat.
Bahgul	... Gauhabar, Umarsanda.
Ramganga	... Kola, Khubupur, Paraur, Shahpur.
Ganges	... Bharatpur.
Sot	... Kabra, Behta.

9. List of markets.

Tahsil.	Name of market.	Market days.
Shahjahanpur ...	Sehramau ...	Monday and Friday.
Ditto ...	Kahilia Rudrapur ...	Sunday and Thursday.
Ditto ...	Qasimganj ...	Tuesday and Saturday.
Ditto ...	Munawarganj ...	Sunday and Wednesday.

## INDUSTRIAL SURVEY.

Tehsil.	Name of market.	Market days.
Tilhar	... Janura ...	Monday and Wednesday.
Do.	... Nigohi ...	Thursday and Saturday.
Do.	... Jathaura ...	Ditto.
Do.	... Udara ...	Thursday.
Do.	... Areli Ismailpur ...	Wednesday and Saturday.
Do.	... Zindpura ...	Sunday and Wednesday.
Do.	... Banthra ...	Tuesday and Saturday.
Do.	... Khudaganj ...	Wednesday and Saturday.
Do.	... Jalalpur ...	Ditto.
Do.	... Nawada Ilaqa Palia	Tuesday and Friday.
Jalalabad	... Jalalabad ...	Monday and Thursday.
Do.	... Haidarpur ...	Thursday.
Do.	... Bangaon ...	Sunday and Wednesday.
Do.	... Kilapur Kalan ...	Ditto.
Do.	... Zarinpur ...	Wednesday and Saturday.
Do.	... Mirzapur ...	Tuesday and Friday.
Do.	... Behta Jangal ...	Sunday and Thursday.
Do.	... Kundaria ...	Tuesday and Saturday.
Pawayan	... Pawayan ...	Sunday and Wednesday.
Do.	... Bhagwantpur ...	Ditto.
Do.	... Gularia ...	Sunday and Thursday.



Tahsil.	Name of market.	Market days.
Pawayan	... Jiwan ...	Tuesday and Friday.
Do.	... Nahil ...	Ditto.
Do.	... Baragaon ...	Monday and Friday.
Do.	... Khutar ...	Tuesday and Friday.
Do.	... Sultanpur ...	Sunday and Wednesday.
Do.	... Khamaria ...	Monday and Friday.

10. List of fairs.

Tahsil.	Locality.	Name of fair.	Date.
Shahjahanpur.	Babli ...	Debi-ka-mela	Amawas of Chait Baisakh and Jeth.
Do. ...	Sebraman	Ditto ...	Asarh Badi 2nd.
Do. ...	Do. ...	Kalsen ...	Asarh Sudi 15th.
Do. ...	Bhargawan	Chhariyan ...	First Monday in Chait.
Do. ...	Sundarpur	Gulaula Khera	Puranmashi of Asarh.
Do. ...	Paraincha	Debi-ka-mela	Chait Puranmashi.
Jalalabad	Jalalabad	Ditto ...	Baisakh Badi 2nd.
Do. ...	Do. ...	Ramlila ...	Kuar Sudi 10th.
Do. ...	Khandar ...	Ditto ...	Ditto.
Do. ...	Bharatpur	Ditto ...	Ditto.
Do. ...	Do. ...	Ganga Ashnan	Kartik Puranmashi.
Do. ...	Do. ...	Ditto ...	Magh Puranmashi.
Do. ...	Do. ...	Ditto ...	Jeth Sudi 10th.
Do. ...	Kundaria ..	Ramlila ...	Kuar Sudi 10th.
Do. ...	Kilapur Kalan.	Baramdeo ...	Chait Sudi 15th.
Do. ...	Khajuri ...	Baba Nahal Das.	Kuar Sudi 10th.
Tilhar ...	Tilhar ...	Dasehra ...	Ditto.
Do. ...	Chausenda	Debi-ka-mela	First Monday and 2nd Friday of Asarh Sudi.
Do. ...	Manwabari	Mahadeo ...	Jeth Sudi 10th.
Do. ...	Do. ..	Ditto ...	Kartik Sudi 15th.
Do. ...	Sunasar ...	Ditto ...	Every Amawas.
Do. ...	Sheopuri ...	Gumti Ashnan	Kartik Sudi 15th and Magh Amawas.

## 11. Industrial census of Shahjahanpur district. Year 1921.

Means of livelihood (occupation).	Total workers and depend- ants.	Actual workers.				Depend- ants.
		Total.		Partially agricul- turalist.		
		Male.	Female.	Male.	Fe- male.	
1. Lac collectors ...	4	4	...	...	...	...
2. Fishing ...	2,490	556	78	44	1	856
3. Cotton ginning, cleaning and pressing.	1,421	264	78	64	2	1,079
4. Cotton spinning	1,797	76	363	26	...	1,358
5. Cotton sizing and weaving.	14,813	4,281	711	327	10	9,821
6. Rope, twine and string.	977	71	188	8	...	718
7. Wool carding and spinning.	60	1	11	...	...	48
8. Weaving of wool- len blankets.	1,691	198	72	14	...	1,421
9. Dyeing, bleaching and printing.	69	23	...	9	...	43
10. Tanuers, curriers and leather dressers.	6,609	844	57	157	...	5,708
11. Sawyers ...	833	114	9	4	...	700
12. Carpenters, tur- ners and joiners.	7,115	2,384	193	659	2	4,538
13. Basket makers, thatchers, etc.	1,233	355	72	49	...	806
14. Workers in brass, copper and bell- metal.	561	165	31	29	...	425
15. Potters and ear- then pipe and bowl makers.	4,269	1,097	437	244	20	2,685
16. Manufacture and refining of vegetable oils.	8,112	2,044	1,905	505	220	4,163
17. Rice pounders, huskers and flour grinders.	7,794	178	5,186	2	209	2,430

Means of livelihood (occupation).	Total workers and depend- ants.	Actual workers.				Depend- ants.
		Total.		Partially agricul- turst.		
		Male.	Female.	Male.	Fe- male.	
18. Shoe, boot and sandal makers.	1,247	458	7	30	...	782
19. Cabinet makers and carriage painters.	135	40	5	4	...	90
20. Furniture indus- tries.	138	40	5	4	...	93

12. Cattle census. Year 1920.

Bulls ...	...	...	...	74
Bullocks ...	...	...	...	149,180
Cows ...	...	...	...	81,060
Cow-calves ...	...	...	...	97,279
Buffaloes ...	...	...	...	48,486
Cow-buffaloes ...	...	...	...	63,098
Buffaloe-calves ...	...	...	...	62,041
Sheep ...	...	...	...	19,073
Goats ...	...	...	...	55,300

## CHAPTER II.

DESCRIPTION OF, AND SUGGESTIONS FOR, THE IMPROVEMENT  
OF VARIOUS INDUSTRIES OF DISTRICT.

## 1. Art industries.

(a) *Painting work of Tilhar.*—Tilhar has long been famous for its paintings on brassware and wooden articles. This industry has all along been in the hands of a class of people called Kamangars. In former days they used to make kamans (bows) and which gave them their name. But when the work of bow making was ruined they took to painting work. They paint trays, flower vases of brass, and teapoys, brackets and bed-posts of wood. The lack of demand has very much ruined this industry and its workers have given it up and practise masonry. At present there are only five men in Tilhar who know this art. Some 15 years back this industry was in a very flourishing condition and there were about 100 men for practising this art. The chief reasons for the downfall of this industry are the lack of advertisement and irregular system of sale. There is no shop where these articles could be had from, nor is there any sort of agency to push their sale. These things are only obtained from the workmen on orders. Only those men go in for them who know of its existence, and it is rather doubtful if people know of its existence at all. The sale is entirely local.

In painting articles of brass, they first make a rough sketch of the design in pencil and then paint in various aniline colours. The designs are generally floral, but the shapes of animals and birds are also made in suitable places. The brass articles after being painted are varnished. This gives a comparative permanence to the colours. The designs and colours are so very perfect that they give a very enhancing and attractive appearance to the article. The brass articles (mostly trays) are obtained from the Shahjahanpur town at Rs. 2 per seer. A tray of the value of Rs. 6 will be painted by one man in about five days. The dyes will cost Re. 1, and the tray after painting will sell for Rs. 12 or Rs. 13. The wages of one man thus come to Re. 1 per day.

In painting wooden articles they at first give them a coating of black or white enamel and then paint them in the way similar to the painting of brass articles. Trays, brackets, bed-posts and teapoys are made of shisham wood by local carpenters, but are also had from Shahjahanpur town. The brackets are made in numerous designs, and sometimes they are made of the shape of a bird with outstretched wings. The designs are sometimes made in gilt and silver and occasionally raised carving is done on trays and teapoys by applying the colours thickly. Brackets are sold for Rs. 2 and upwards and teapoys for Rs. 3 and upwards.

The annual outturn is estimated to be worth about Rs. 1,800. The sale is mostly confined to the local people. The Europeans like these articles very much, and so most of them are bought for giving away in presents to the Europeans. In former days, when the industry was in a flourishing condition, these articles were also sent to England and other European countries, but now the export trade of this work is altogether stopped. The sale is very little and it often happens that an article is kept for months, sometimes years, before it is sold.

As this is one of the oldest Indian art industries it would be advisable to maintain this art. The first attention that this industry wants is the maintenance of the quality of the workmanship. There is only one man (Imam Ali) who knows the art perfectly well. He is an old man, and if he dies, the art dies with him too. One of the Commissioners of the Rohilkhand division came on tour to Tilhar and saw these articles made here. He was very much struck with the art and, in order to encourage it, he moved the municipal board of Tilhar to give a scholarship to a man who may learn the art under Imam Ali. Accordingly a scholarship of Rs. 6 was given to one Asad Ali who practised the art under the instructions of Imam Ali. But after six months the municipal board stopped the scholarship and Asad Ali had to go on his own way.

In order to maintain this work the same method as suggested by the Commissioner may be repeated. And at the same time the workmen should be organized to turn out articles of modern tastes and requirements. The School of Arts and

Crafts, Lucknow, with the help of the Arts Emporium can give a helping hand to this industry.

(b) *Silver ornaments*.—Shahjahanpur enjoys a good reputation of being a reliable and big market for silver ornaments. Though the workmanship is not of a very superior quality, the industry is very extensive. The only reason of its success in trade is that the dealers take special care to maintain the purity of the metal.

About 8 lakhs worth of silver is annually imported in bars from Bombay and Calcutta. The dealers are mostly *Khaltris*.

*Organization*.—The manufacturers are all sonars who have either their own shops where they make goods on their own accounts and sell them to the dealers, or are paid servants of some firm in the Chowk. Each family of sonar specializes in one particular kind of ornament and make that throughout. Wages are charged according to piece-work, and are different for every kind of work and design. Generally the dealers make agreements with them for making a particular kind of ornament at a particular rate, and advance them silver and have the ornaments made on their own account. When the sonars work on their own account they sell the goods to the dealers on the price of silver plus the piece wages of those goods. In this case they have a chance of getting more wages for the dealers compete with one another in purchasing their goods. Almost all kinds of silver ornaments are made here, but the following ones are the specialities of Shahjahanpur :—

- (1) Kangan—Wages paid from 2 annas to 2 annas 6 pies per tola.
- (2) Tauq—Wages paid from 2 annas per tola.
- (3) Jhumak—Wages paid from 3 annas to 6 annas per pair.
- (4) Pauzeb—Wages paid from 3 annas per tola.

In the case of pauzeb generally no wages are paid and the sonars are paid an equal weight in silver (the sonars working on their own account). The sonars get the price of silver which is obtained in place of solder, which is used to an extent of 20 per cent. in pauzebs. The daily earnings of a sonar are

estimated to be about Re. 1 to Rs. 2-8. There are about 500 sonars in Shahjahanpur who practise this industry.

*Marketing.*—All the dealers have got shops in the city, where they conduct wholesale and retail sales. There are about 55 such shops. Beoparis come from Delhi and all the districts of the United Provinces to make purchases. Sometimes the dealers send goods on orders. The reputation of this market helps much in the business, for goods are forwarded on orders and the customers accept them without the fear of any kind of fraud. Almost all goods that are made here are exported. Some silver goods, such as trays, dibias, buttons, etc., are imported from Delhi for sale. The annual imports value about Rs. 8,000.

*Price and outturn.*—Price on the silver ornaments is marked by adding the price of silver, the wages and 6 pies to 1 anna per rupee, which is the dealer's profit. The annual outturn is estimated to be worth 8 lakhs of rupees.

*Suggestions.*—1. The number of dealers is increasing gradually, and after some time the competition in silver trade, which is very little at present, will be keen. This will only result in the practising of fraud, which will hamper the silver market of Shahjahanpur. This market is doing very successful business only on account of its reputation in pure and fraudless goods. To avoid this coming danger the dealers should form a sort of association to control the morality of the trade. The system of Hall Marking will also prove very useful.

2. In good many cases the silver has to be made into a sheet before moulding it into the required shape. It would prove profitable if some one were to start a small power-factory to roll silver into sheets. I understand that some men are considering about this undertaking.

## 2. Building materials.

(a) *Lime kilns.*—There are 10 lime factories in the Shahjahanpur city. Kankar is obtained from Shahbaznagar and Gurri at Rs. 12-8 to Rs. 15 per 100 cubic feet, including cartage. Coal cinder is used for fuel, but some wood is also used to start

fire. Coal cinder is obtained in Shahjahanpur from the Railway Loco. Dépôt at Rs. 50\* per 1,000 cubic feet. But about 50 percent. of this coal cinder is wasted for the ashes being quite useless are separated from the coke pieces. Each of the factories has got three to four permanent kachcha kilns in which 80 to 100 cubic feet of kankar is burnt at a time. And each employs four to six men on monthly salaries of Rs. 10 to Rs. 12 each for loading the kiln or doing other work. Grinding is done by buffalo-driven stone mills. The factories generally keep buffaloes for this work, and those who do not, engage outside buffaloes on Re. 1-8 a day. In one day a pair of buffaloes grind about 30 cubic feet of lime. There is a loss in weight of 20 per cent. of kankar in burning and grinding. Lime is sold at Rs. 35 per 100 cubic feet including the conveyance charges within the municipal limits. The margin of profit in manufacturing lime is estimated to be as follows :—

	Rs. a.
Kankar, 100 cubic feet ... ..	12 8
Coke ... ..	2 4
Wood ... ..	0 2
Labour ... ..	4 4
Grinding ... ..	4 0
Cartage at Rs. 3 per 100 cubic feet ...	2 8
	25 10
This would give 80 cubic feet of lime sold at Rs. 35 per 100 cubic feet ... ..	28 0
	2 6

The profit comes to about Rs. 3 per 100 cubic feet.

In addition to the above there is a power-grinding lime factory belonging to Mr. Adamji. This factory has got a steam engine of 16 N. H. P. and an engine of 16 H. P. which have got the grinding capacity of 400 cubic feet of lime daily. The factory has got an outturn of only 5,000 cubic feet annually, for it sells lime at Rs. 40 per 100 cubic feet. But the lime is of very high and pure quality and is very finely ground.

\* Recently the price has increased to Rs. 70 per 1,000 cubic feet.



The cost of manufacture of lime in this case may be calculated as follows :—

	Rs.	s.	p.
500 cubic feet of kankar	62	8	0
170 cubic feet of coke	17	0	0
Labour in loading the kiln at Rs. 2 per 100 cubic feet	10	0	0
Labour in unloading and grinding at Rs. 5 per 100 cubic feet	20	0	0
Grinding—Coal for engine	20	0	0
Engine driver	1	8	0
Cartage of 400 cubic feet of lime	12	0	0
Depreciation and establishment	5	0	0
	148	0	0
This will give 400 cubic feet of lime sold at Rs. 40 per 100 cubic feet	160	0	0
Profit	12	0	0

or Rs. 3 per 100 cubic feet of lime.

The sale of lime of this factory is very limited, for only those people buy its lime who know its value and worth.

The work of lime manufacture is carried on throughout the year. But in the rainy season it is slackened. The total annual outturn of lime is estimated to be 85,000 cubic feet. All this is used locally.

(b) *Brick kilns*.—Suitable clay for moulding bricks are obtained near Shahjahanpur, especially on its northern side where there are many bhattas. The bhattas are either desi or pajawa, or " Bull's " trench kilns. The pajawas are mostly to be seen in villages where bricks are in no great demand.

There are six Bull's trench kilns in the district : five in the city and one in Tilhar. Land for the construction of the kiln is taken from the zamindars on an annual rent of Rs. 100 to Rs. 150, while for the brick-earth the zamindars are paid Rs. 30 per lakh of bricks. The initial expenses comprise the cost of two chimneys (which comes to about Rs. 500) and the construction of the trench kiln, which is also about Rs. 500.

*Organization*.—Labourers mould bricks on contract wages of Rs. 2 per thousand. Earth, water and sand are supplied to

them by the proprietor. Water and sand cost about 5 annas per thousand. Kachcha bricks are laid in the kiln at 10 annas 6 pies per thousand and about as much is spent in taking the bricks out of the kiln when they are baked. Firemen and mistris are engaged on monthly salaries of about Rs. 20 for looking after the baking of the bricks. Coal is used for fuel, but wood is also used for heating the kiln for the first time. These kilns take from 300,000 to 500,000 of bricks at a time, from which 20,000 to 25,000 bricks are taken out and replaced by sun-dried bricks every second or third day. The quantity of bricks taken out is very uncertain and depends on the supply of coal and skill of labour. Under all favourable conditions a kiln yield about 50 per cent. first class, 20 per cent. second class and 20 per cent. third class bricks. About 10 per cent. bricks are wasted by being overburnt.

*Sale.*—Bricks are sold at the following rates. The price includes carting charges (about Rs. 2-8 per thousand) to the house of customer and octroi charges, which are  $3\frac{1}{2}$  annas per thousand :—

First class bricks	...	at Rs. 18 per thousand.
Second ,,	,,	... ,, ,, 16 ,,
Third ,,	,,	... ,, ,, 10 ,,

The annual outturn of one kiln is about 1,500,000 bricks.

The cost of manufacture of 100,000 bricks can be calculated as follows :—

	Rs.	a.
Initial expenses (per lakh of bricks)	...	80 0
Brick-earth	...	30 0
Kachcha bricks	...	200 0
Laying of bricks in kiln	...	65 8
Sand	...	15 8
Water	...	15 8
Taking of bricks out of kiln	...	60 0
Coal (25 tons at Rs. 18 per ton)	...	450 0
Wood	...	60 0
Carting and octroi charges	...	225 0
Labour	...	80 0
		...
Total	...	1,281 8

The price that will be received by the sale of the bricks will be Rs. 1,420. And so the profit comes to Rs. 139. This includes the interest on the capital and other contingent charges.

### 3. Chemicals.

*Saltpetre.*—Crude saltpetre is extracted by Loniya from nitrous soils found in the neighbourhood of old inhabited sites. For description of the process the reader is referred to my note in the Industrial Survey Report of the Azamgarh district. The following table gives the area under saltpetre in the various tahsils :—

Tahsil.	Area.
Jalalabad ...	332
Tilhar ...	150

Licenses for extraction of crude saltpetre are issued by the Northern India Salt Revenue department through post offices on payment of Re. 1. In the year 1922-23 45 licenses were issued in the Shahjahanpur district. The working season is from October to June.

*Organization.*—This work is mostly in the hands of Loniya who form batches of two or three men to work together in a factory. Work is divided between them. Fuel in the form of dried leaves and brushwood is obtained from the neighbouring groves. This work is generally done by women and children of the family. Saltpetre is stored in pits in the ground. In one factory 10-15 seers of crude saltpetre is extracted daily. The zamindars charge an annual royalty of Rs. 10 to Rs. 15 per factory for giving permission to use the nitrous earths. The annual outturn of one factory is about 50 maunds. It is sold to the purchasers of Farrukhabad who come on tour. The sale price varies from Rs. 3 to Rs. 3-8 per maund.

This industry is practised as a subsidiary work. The monthly earning of one family comes to about Rs. 11. But as the manufacture costs nothing everything that could be had out of it is welcomed. There is very little scope of expansion of this industry in this district.

## 4. Food grains.

(a) *Acreage outturn.*—Year 1330F.—The following table gives the area under each kind of crop with the estimated yield :—

Name of crop.	Area in acres.		Production in maunds.
	Irrigated.	Non-irrigated.	
Cotton... ..	...	662	968 (cleaned).
Cotton and arhar ...	...	3,766	..
Juar ..	5	34,754	275,536
Juar and arhar ...	...	25,174	...
Bajra ...	1	16,270	118,835
Bajra and arhar ...	...	94,438	...
Arhar ...	3	554	4,098
Sugarcane ...	22,879	7,958	902,546 (gur).
Til ...	...	946	3,784
Sanai ...	...	2,566	12,830
Rice (early) ...	9	88,476	1,241,888
„ (late) ...	124	21,737	
Maize ...	25	4,446	65,415
Ur and mung ...	...	24,424	...
Moth ...	...	1,207	...
Wheat... ..	49,879	119,499	192,620
Wheat and gram ...	5,851	4,058	..
Wheat and barley ..	2,490	12,535	...
Barley ...	2,432	33,560	446,341
Barley and gram ...	3,172	32,533	..
Gram ...	536	178,748	1,750,419
Peas ...	114	5,874	28,240
Masur ...	102	8,312	50,664
Opium ...	7,278	1,260	1,474
Tobacco ...	1,637	92	302
Linseed ...	...	600	2,927
Mustard ...	...	73	383

(b) *Wheat-grinding.*—Wheat-grinding by power is only seen in the Shahjahanpur town and nowhere else in the district. There are five such factories, three of which are worked by steam and the other two by oil-engines. At present they all work on commission and not on their own account, for they

cannot compete with the Punjab markets which are sending in wheat flour at cheaper rates. Charges of grinding are 6 annas per maund for bigger and 8 annas per maund for smaller consignments. A wastage of one seer per maund is deducted. The factories have very little work to do and are closed for the most part of the day.

*Suggestions.*—It would be advisable for the proprietors of the factories, especially those who work with steam, to start some other work such as dal-splitting or rice-hulling along with the wheat-grinding. In this way they will be able to utilize their steam engines and the services of the establishment to their full extent. Arhar and rice are produced in great quantities in the district, and so the quantity of raw materials could be available.

## 5. Hardware.

### (a) Brassware.

Brasswares are made at Pawayan and Jewan in the Pawayan tahsil and Miranpur Katra and Tinnagar in Tilhar tahsil. Kans obtained from Fatehganj (Bareilly), Mirzapur and Hathras at 13 annas per seer is mostly used, but phul brass obtained at Re. 1-4 per seer is also used. Batulis and thalis are mostly made, but lotas and katoras are also made at Jewan to a little extent. There are altogether 44 men engaged in manufacturing brasswares.

1. *Batuli manufacture.*—Batulis are made out of kans. The process of manufacture is the same as described by Mr. Dampier in his "Monograph on Brasswares." At Pawayan moulds are made by a particular class of men for the manufacturers at Rs. 25 per 100, while in other places the manufacturers themselves make moulds. Royalty for the use of earth is paid only at Pawayan and Jewan at 8 annas per maund of vessel. Excepting at Pawayan where they melt 3 maunds everywhere 1 maund of metal is melted at a time. Wood fuel is used and costs Rs. 2-8 per maund of metal. Wastage of kans is 3 seers per maund. Batulis are sold at Re. 1-4 per seer. At Pawayan (where there are eight men) every workman turns out 8 maunds of vessels in a month, while in other places

only 3 maunds. The details of the manufacture from one maund of metal are as follows :—

	Rs. a.
Kans, 1 maund at 13 annas per seer	... 32 8
Fuel ... ..	... 2 8
Filer at 1 anna per vessel ...	... 0 12
Latheman at 1 anna per vessel ...	... 0 12
Assistant latheman at 9 pies per vessel ...	... 0 9
Firemen (two) at 6 annas a day ...	... 0 12
Moulds ... ..	... 2 8
Earth for mould ... ..	... 0 8
Total	... 40 13
Outturn of vessels—	
37 seers sold at Re. 1-4 per seer ...	... 46 4
Income per maund ... ..	... 5 7

Annual outturn of batulis is about 1,400 maunds.

2. *Thali manufacture.*—Thalis are made only at Miranpur Katra and Tinnagar. There are 15 men for this work. Thalis are made out of old brass obtained at 12 annas per seer. The manufacturers sometimes work of the dealers when they get wages at Rs. 30 per maund of manufactured ware. Generally 1 maund of brass is melted at a time. Wood and coal is used for fuel and costs Rs. 3-8. Wastage of brass is 3 seers in melting and 7 seers in hammering (about 6 seers of the latter wastage are re-utilized). The hammermen charge Re. 1-4 per maund. While melting they mix about 2½ seers of jasta (pewter) obtained at 11 annas 6 pies per seer. Thalis are sold at Re. 1-10 per seer. The details of the manufacture of thalis from 1 maund of brass are as follows :—

	Rs. a.
Brass, 1 maund at 12 annas per seer	... 30 0
Jasta, 2½ seers at 11 annas 6 pies per seer	... 1 13
Hammering ... ..	... 1 4
Firemen ... ..	... 0 12
Fuel ... ..	... 3 8
Total	... 37 5

Outturn of vessels—

	Rs. a.
Thalis, 30 seers, sold at Re. 1-10 per seer	... 48 12
Price of 6 seers of brass which is re-utilized	... 4 8
Total	... 53 4
Income per maund about	... 16 0

The following are the details when the workmen work for the dealers and get Rs. 30 per maund as wages :—

Expenses—

Waste of brass	... 3 0
Hammering	... 1 4
Firemen	... 0 12
Fuel	... 3 8
Jasta	... 1 13
Income	... 10 5
Wages paid to the workman for 30 seers	... 22 8
Saving of the workman about	... 12 3

Dealer's profit can be calculated :—

Expenses—

Price of 30 seers of brass	... 22 8
Wages paid to the workman	... 22 8
Total	... 45 0

Income—

By sale of 30 seers of thalis at Re. 1-10 per seer 48 12

Dealer's profit (per 30 seers) ... 3 12  
or 2 annas per seer or Rs. 5 per maund.

The annual outturn of thalis is about 550 mands.

3. *Lota manufacture.*—Lotas are manufactured at Jewan and Miranpur Katra out of phul brass obtained at Re. 1-4 per seer. Moulds are made by the workmen themselves. Lotas

are mostly made to weigh about  $1\frac{1}{2}$  seers. Generally 1 maund of phul is melted at a time. Wastage in melting is about 2 seers and in filing and turning 5 seers; 4 seers of the filings and turning are re-utilized. Fuel costs Rs. 3. They are sold at Rs. 2 per seer. The details of manufacture of lotas out of 1 maund of phul are as follows :—

	Rs. a
Phul, 1 maund at Re. 1-4 per seer	... 50 0
Fuel	... 3 0
Latheman at 1 anna per lota	... 1 8
Assistant latheman at 9 pies per lota	... 1 2
Filer at 1 anna per lota	... 1 8
Firemen, two	... 0 12
Earth for moulds	... 0 8
<b>Total</b>	<b>... 58 6</b>
<hr/>	
<b>Outturn of vessels—</b>	
32 seers sold at Rs. 2 per seer	... 64 0
4 seers of filings and turnings	... 5 0
<b>Total</b>	<b>... 69 0</b>
<b>Income per maund</b>	<b>... 10 10</b>

Annual outturn of lotas is about 120 maunds.

*Marketing.*—The workmen being poor class of people cannot afford to store these wares and carry on the work of the manufacture, and so they have to sell it to the dealers at slightly reduced rates (2 annas per seer). They are sold in retail in the dealer's shop. The workmen also sell it by hawking in villages. The batulis are also sold in exchange of old vessels, in which case wages of 6 annas per seer are charged. Dealers come from Fatehganj and Pilibhit to buy these wares. These vessels are crude in design, heavy in weight and poor in finish. They are mostly used by villagers and also by the Nepalese.

#### (b) *Cutlery.*

Shahjahanpur was once noted for its swords and daggers, but now the industry is only limited to the manufacture of sarotās (betelnut crackers) and knives; and that, too, is on a



very small scale. There are six saikalgars who get ready-made sarotas and knives from blacksmiths and sharpen and polish them on whetting wheels. Very cheap kinds of sarotas and knives are made. The saikalgars get sarotas at 5 to 12 to a rupee and knives at 12 to 16 to a rupee. Each engages two men, one for driving the wheel and the other to do miscellaneous work, and pays them piece wages at 4 and 2 pice per sarota to each respectively. Sometimes bones are attached to the handle. One man can sharpen and polish 12 to 16 sarotas or 24 knives in a day. The sale price of sarotas is 3 to 8 to a rupee, and of knives 9 to a rupee. The daily earning of a saikalgar is estimated to be 12 annas to a rupee.

Scissors for hair-cutting are made by a blacksmith in Bahadurganj (city) named Janki. They are supposed to be the best in the market for hair-cutting. They sell at Re. 1-8 per pair.

#### 6. Leather.

Nowhere is leather industry important in the district. The mochis prepare shoes, etc., for the villagers, but their number too is not large in any village. The bigger markets get their supplies from Agra and Cawnpore. In the year 1922-23 the import of leather and articles from leather in the Shahjahanpur city valued Rs. 67,633.

There are 214 Chamars who tan leather for desi shoes and buckets, etc. They are mostly agriculturists and tan leather as a subsidiary source of income. They turn out about 3,000 hides annually. They are all scattered over the district and so the industry does not warrant co-operative organization. They earn about Rs. 2 to Rs. 3 per hide by tanning.

#### *Export trade.*

1. *Hides.*—About 12,000 hides are obtained from the animals slaughtered in the slaughter-houses, and about as much is obtained from outside the municipal limits. About 3,000 is utilized locally by the tanners and the rest is exported to Calcutta and Cawnpore. The price of the hides is as follows:—

Bullock hides (8 to 10 per maund).	...	Sun-dried Rs. 25 to Rs. 28 per maund.
		Framed about Rs. 60 per maund.

Buffalo hides (4 to 5 per maund) ...	Sun-dried	Rs. 20
	to Rs.	22 per
	maund.	
	Framed	Rs. 35 to
	to Rs.	40 per
	maund.	

Hides are packed dry in cold season, but in hot and wet seasons they have to be treated with salt. The export of hides is brisk from October to March.

2. *Skins*.—About 15,000 skins are obtained from the slaughter-houses and about 5,000 from outside. They are all exported to Cawnpore and Calcutta. They are treated with salt and packed in gunny bags. Their price is charged according to their size, and is from 12 annas to Re. 1-8 per skin. The export of skins continues throughout the year, but is brisk in April.

## 7. Miscellaneous.

### (a) *Bones*.

About 12,500 maunds of bones are available from bigger animals at 20 seers per animal, and about 1,500 maunds are available from smaller animals at 2½ seers per animal. Bones are not put to any use in the district, all that can be collected is exported abroad.

*Suggestions*.—Bone-meal is a good fertilizer and will probably find favour with the people, especially the sugar planters. Sugarcane is a very valuable and rich crop of the district and the bone-meal can have a good local sale.

### (b) *Jail industries*.

In the District Jail there are 87 prisoners engaged in the factories. The jail takes to manufacture dosuti cloth, newar and baib matting. The number of the prisoners employed in the factories depends on the population of the jail and remains changing.

1. *Dosuti cloth weaving*.—There are three throw-shuttle looms on which dosuti cloth is woven out of mill yarn of 10 counts. Yarn is received from Cawnpore through the United Provinces Stores Purchase department and costs Rs. 8-14-0 per bundle of 5 seers. Dosuti cloth is woven 28 inches wide and is prepared for jail use. One man weaves 25 feet in a day.

of eight hours. It is sold at 10 annas per yard. Calculation of the cost of labour is the same as given in the Industrial Survey Report of the Budaun district.

2. *Newar-making*.—Yarn of 10 counts is also used in newar-making. Size of one piece is 150' × 2" and it weighs 2 seers 1 chhattak. One man weaves 60 feet of newar in a day; it is sold at Rs. 2-8 per seer. Calculation of the cost of labour is the same as given in the Industrial Survey Report of the Budaun district.

3. *Baib matting*.—Baib is purchased from the local market at Rs. 3 to Rs. 3-8 per maund. Baib is at first twisted into ban and then woven into mats. Each prisoner employed in the ban-making factory has to twist 300 yards of ban in a day. Wastage of baib is as follows:—

Ban-making	...	...	4 seers per maund.
Cleaning	...	...	4 ,, ,,
Mat-making	...	...	4 ,, ,,

In 1 maund of baib only 28 seers of matting are made. One man with the help of one assistant can weave 16 square feet of mat in one day. One square yard of matting weighs about 2½ seers and is sold for 12 annas.

*Calculation of cost of labour.*

			Rs.	a.
One maund of baib	...	...	3	8
Gives 28 seers or 10½ square yards of matting, sold for	...	...	7	14
			<hr/>	
	Profit	...	4	6
			<hr/>	

*Total number of hands employed*.—Thirty-eight.

*Cost of labour per hand per day*.—About 2 annas.

(c) *Distillation of country spirit (rum)*.

Messrs. Carew and Company distil country spirit from molasses. They are contractors to the United Provinces Government for supplying country spirit to the bonded warehouses. The main source of molasses is their sugar factory, but they

also purchase from the neighbouring markets of Chandausi and Seohara. The annual consumption is 42,000 maunds.

*Process.*—A wash is prepared consisting of a solution of about 40 maunds of molasses (made up to 1,400 gallons), 600 gallons of yeast solution and lees of still or dunder, and 14 lbs. of ammonium sulphate. Dunder consists of the residue of the still from previous distillations, and it takes the place of a ferment, besides which the acetic acid it contains, derived from the fermenting wash of previous operations, has a favourable influence on the progress of attenuation. The wash prepared as above is pumped into the fermentation vats, where fermentation is completed in 18 hours. When sufficiently attenuated the wash is pumped into the "wash charger," which serves the purpose of storing the wash and feeding the still with it. The wash trickles downwards into the still, where it meets an ascending current of steam and is distilled over. A constant temperature is maintained in the still at which the spirit distils over and is carried away by a tube to the condensers where it is cooled. From the condensers the spirit goes to the receiver for storage, but on its way it has to pass through a safe glass where its strength is measured. From the receiver the spirit is taken out and made proof by the excise officers stationed at the distillery for the purpose.

The distillery has got three stills and 19 fermentation vats. Two stills are old and are not used. Daily outturn is 900 L.P. gallons. The molasses transferred from the sugar factory give an average of 3.5 per cent. of spirit, while the purchased ones give 4.5 per cent. The annual outturn for the year 1922-23 was 184,644 proof gallons of spirit.

*Sale.*—The company holds a contract from the United Provinces Government for the supply of country spirit. It is responsible for keeping a stock at the bonded warehouses. The rate of sale for the United Provinces Government is Rs. 2-2-6 per L. P. gallon. The company also supplies this spirit to the regiments and Commissariat departments at Rs. 2-4 per L. P. gallon. The rate of public sale is Rs. 2-12 per L. P. gallon.

(d) *Engineering work.*

The Indian Machinery Stores (owned by B. L. Akhtar and Company) make some small machines that can be worked

by hand. They have got a workshop equipped by only hand-driven machines and presses. They have engaged 26 men on monthly salaries of Rs. 15 to Rs. 50 per month to do the necessary work. Iron and brass is imported from Cawnpore and Calcutta, and is also purchased from the Railway Loco. department in the form of broken pieces. They annually consume about Rs. 5,000 worth of iron and brass. The machines that are made here are detailed below :—

1. *Envelope-making machines.*

(a) *Machine no. 1.*—This consists of a press with which pressure is put on the die which cuts the paper into the required size. Dies of every size of envelope can be fitted in this press. Two men with one die can cut about 25,000 envelopes in 10 hours. Two dies for commercial and square size of envelopes are supplied with the machine. Gumming stencils are also supplied free. The machine is sold for Rs. 150. Additional dies can be had at Rs. 30 each.

(b) *Machine no. 1, Model A.*—This machine excels no. 1 in the fact that it can be put to the following extra uses :—

- (i) Strawboard box-making.
- (ii) Book-binding.
- (iii) Letter paper-cutting.
- (iv) Card-cutting.

Two dies for cutting envelopes and other apparatus for gumming and folding are supplied with this machine. It is sold for Rs. 225. If the machine is to be put to the above uses a cutting frame and a knife 20 inches long is supplied at an extra cost of Rs. 35. Wrench and other tools for fitting are supplied free of charge.

(c) *Machine no. 2.*—This is a cheaper kind of machine and has the following details.

Daily outturn of envelopes on this machine is about 10,000. Size of press is 14 inches. The cost of the machine with only one die, folding and gumming stencils is Rs. 100 Extra dies at Rs. 30.

2. *Paper-cutting machine.*—This machine is used for cutting paper and is useful for printers and also for envelope makers. The price is as follows :—

		Thickness of cut.	Length of cut.	Weight.	Price.
		Inches.	Inches.	Maunds.	Rs.
No. 1	... ..	3	14	3	150
" 2	... ..	4	20	4	200
" 3	... ..	5	26	5	260
" 4	... ..	6	30	6	300

3. *Strawboard box-making machine.*—It is suitable for making boxes for boots and shoes, soap, medicine, etc. They are made in various sizes and sold for Rs. 25 to Rs. 40. Card-board box folding machine is supplied at an extra cost of Rs. 150.

4. *Castor oil presses.*—These presses are made of wrought iron and the screw works on a vertical plain. Its price is Rs. 600.

In addition to the above machines for the following purposes are also made :—

- (i) Tin toys-making,
- (ii) Button-making,
- (iii) Castor seed cracking,
- (iv) Envelope-folding.

*Marketing.*—All these machines are only made to order. They have been supplied all over India and also Burma. The annual outturn is about Rs. 15,000. In addition to making machines they also take repairs in iron and brass works. Mostly the envelope-making machines are ordered.

(e) *Envelope-making.*

The Indian Machinery Stores manufacture envelopes of various kinds. They are made for sale and for sending samples for their envelope-cutting machines. The demand is only local and is worth about Rs. 1,000 annually. Paper is imported from Lucknow. Envelopes are sold from Rs. 1 to

Rs. 7-8 per 1,000. The margin of profit may be calculated thus :—

	Rs.	a.
Paper (20" × 30"), 500 sheets	...	7 8
(outturn of envelopes, 4,000 at 8 to a sheet):		
Labour at 12 annas per 1,000	...	3 0
Gum, etc. ... ..	...	1 0
		<hr/>
		11 8
Sold at Rs. 4* per 1,000 ...	...	16 0
		<hr/>
		4 8
Profit per 1,000 ...	...	1 2
		<hr/>

Some years before the Economical Industrial Stores also used to make envelopes, but in those days paper being dear they could not compete with imported envelopes and had stopped the work.

### 8. Oils.

*Castor seed pressing.*—There are 15 factories in Shahjahanpur town for crushing castor seed. Crushing is done in screw presses. Each factory has from one to six presses, and the total number of screw presses between them is 31. These presses are made up of iron and have got 75 to 100 plates each.

The presses consist of two screwed iron bars having a grooved wheel at one end. When these wheels are revolved by putting wooden levers in the grooves, the free ends of the screwed bars come nearer to each other and press the plates placed between them. Castor seed, which has previously been split into pieces, is put in gunny cloth and placed between the plates. The size of the plates 15" × 8". Both wheels are moved to give pressure sufficient to cause oozing of oil from the bags. Charcoal and *upla* fire is kindled and all the plates are heated from below and sides for castor seed gives oil more readily when heated.

The main supply of castor seed is obtained from the Lakhimpur district, but it is also obtained locally. The price of the seed fluctuates between Rs. 8 to Rs. 9-8 per maund.

The total consumption of castor seed is estimated to be 45,000 maunds annually.

About 55 seers of seed are crushed at a time which give 20 seers of oil. Four men work together on one press—one splits the seed and puts it in gunny cloth and the rest work the press. They are paid on contract wages of 6 annas for each 55 seers of seed. In one day they crush 13½ maunds of seed, and thereby earn 15 annas each. The charges of coal and *upla* come to 10 annas per 55 seers. The gunny cloth which is obtained at Rs. 11 per 100 square yards becomes useless and has to be renewed daily. About Rs. 2-8 worth of gunny cloth is daily required for one press.

Castor oil sells at Rs. 20 to Rs. 26 per maund. The price fluctuates according to the supply and demand. The following are the details of manufacture:—

	Ra.	a.
Castor seed, 55 seers, at Rs. 9-8 per maund	13	1
Fuel	...	0 10
Wages	...	0 6
Gunny cloth	...	0 4
Total	...	14 5
Outturn of oil—		
20 seers, sold at Rs. 25-8 per maund	...	12 12
Oilcakes, 35 seers	...	2 7
Total	...	15 3

The factory owner saves 14 annas per 55 seers.

Saving per press per day Rs. 8-12.

The work is seasonal and depends on the supply of castor seed. Those factories which can store seed work for six months and the others work only for three months. The season of work is from February to May, but the factories which keep a stock of seed also work in the winter. The annual outturn of oil is about 15,500 maunds.

*Marketing.*—No advertisement system is adopted nor any travelling agents are employed. The beoparis from the various districts come here and make purchases through the



commission agents. The factories have to pay the following charges at the time of sale :—

To commission agent—

2 annas per maund of oil sold, as commission.

2 annas per Rs. 100 on transaction.

4 annas per 100 tins by way of tinning charges.

To weighman—

One pice per maund.

To customer—

$\frac{1}{4}$  seer per maund of oil by way of weighing shortage.

The commission agents are found very useful for they use their own capital for sending the oil to outside dealers, and thus help the manufacturers in disposing of their oil without locking up their capital. Oil is exported to the Punjab, Calcutta, Delhi and other districts. The oilcake finds a ready sale among the cultivators for it forms an excellent manure. It is also sold to the potato cultivators of Farrukhabad.

## 9. Textiles.

### A. COTTON.

1. *Cultivation of cotton.*—Cotton sown by itself or mixed with arhar is grown in Tilhar and Jalalabad tahsils. The yield is poor and does not suffice to meet the local demands. The acreage return of 1330F. (1922-23) shows 662 acres under cotton and 3,766 acres under cotton mixed with arhar. It is estimated that the produce of seed cotton is about 10,200 maunds.

2. *Ginning and pressing.*—There is no ginning factory in the district. All the cotton grown is hand ginned. Census of 1921 returned 264 men and 78 women as engaged in ginning and cleaning. Hand-ginning is practised as a subsidiary work during the season. It is estimated that they turn out about 3,700 maunds of cleaned cotton.

3. *Spinning.*—According to the census return of 1921, 363 women were engaged in cotton spinning. This is practised as a subsidiary work at leisure times. Daily outturn per head is about 2 to 3 chattaks. Their total annual outturn is about 300 maunds in a year of 250 days. Raw cotton sells at 12 annas per seer. Carding charges are 2 annas per seer. There is a wastage of one chattak per seer of cotton in spinning. Each woman earns about 1 anna 6 pies daily by this

work. All hand-spun yarn is used in cloth weaving. Those villages that lie on the borders of the Budaun district sell their yarn in that district. Hand-spun yarn is sold at 10 to 12 chattaks per rupee.

4. *Weaving.*—(a) *Cloth weaving.*—The chief kinds of cotton cloth made by the weavers in the towns and villages are merely the ordinary coarse cloths known as garha and gazi and lanhga cloth. In the city they also make doria and twill. The weavers are mostly Musalman Julahas, but Koris are also found in villages. The latter class, as a rule, prepares garha mostly. The old type of throw-shuttles are largely used all over the district. Fly-shuttle looms are to be found in the city and other big towns. Both hand-spun and mill yarns are used. One man weaves about 7 yards of cloth in a day. The census of 1921 returned 4,281 men as actually engaged in cotton sizing and weaving. It is estimated that they have about 2,100 looms between them.

*Consumption of yarn.*—All the looms consume about 12,000 maunds of cotton yarn, of which about 1,500 maunds is desi hand-spun and the rest is mill yarn obtained from Moradabad and Cawnpore. About 750 maunds of desi yarn is used in pile carpet-making. Total consumption of desi yarn thus comes to 2,250 maunds, of which about 250 maunds are supplied from local spinning, and the rest, i.e., 2,000 maunds, is imported from Sambhal and Moradabad and other neighbouring districts.

*Manufacture*—(i) *Garha.*—Garha is made all over the district. It is made either from desi hand-spun yarn or mill yarn of 12½ counts. Piece-length is 20 yards and width varies from 27 to 30 inches. Seven yards of cloth are woven on one loom in a day. One piece-length requires about 2 seers of desi yarn. The following are the details of manufacture of garha cloth from desi yarn :—

		Rs.	a-
Desi yarn, 2 seers	...	...	2 12
Mari, etc.	...	...	0 2
			-----
Total	...	...	2 14
			-----

One piece-length of 20 yards by  
27 inches will be prepared in  
four days and will sell for Rs. 4-8 to Rs. 5.

Income for four days ... Rs. 1-10 to Rs. 2-2.

In manufacturing garha from  $12\frac{1}{2}$  counts of mill yarn, 50 yards of cloth are made out of one bundle of yarn obtained at Rs. 8-6:—

		Rs. a.
Mill yarn one bundle ...	...	8 6
Mari, etc. ...	...	0 4
		8 10
Total	...	8 10

The outturn will be  $2\frac{1}{2}$  piece-lengths of  
cloth of 20 yards by 30 inches woven  
in eight days and sold for Rs. 5 to  
Rs. 6 per piece ... 13 12

Income for eight days ... 5 2

or daily income comes to 10 annas 3 pies.

(ii) *Lanhga cloth, i.e., coloured charkhana (checks), used by women for making skirts.*—It is made out of  $12\frac{1}{2}$  counts of yarn. The piece-length is 9 yards by 27 inches to 30 inches. In one bundle of yarn  $5\frac{1}{2}$  to 6 piece-lengths are prepared. The weavers dye the yarn themselves. For dyeing one bundle of yarn about 13 annas 6 pies worth of dyes are used. On one loom 7 yards of cloth are woven in a day. The sale price is Rs. 2-8 to Rs. 3 per piece. In this case the weavers earn about 12 annas a day.

The annual outturn of all kinds of cloth is about Rs. 9,50,000.

*Marketing.*—In the interior of the district cloth is sold in the village markets on market days or by hawking in neighbouring villages. In the city and town markets the weavers are seen in the evenings in the market with their cloths. In

case they fail to sell it to casual purchasers, they sell it to the dealers.

*Suggestions.*—1. In order to improve the condition of the weavers it is necessary that co-operative societies should be formed for the production of cloth on a factory system. Co-operative stores at convenient centres would be a great help, to the industry.

2. Demonstration parties should be organized to popularize fly-shuttle looms in places where they are not in use.

(b) *Pile carpet-making.*—There are four firms in the city (Bahadurganj) who have got from five to eight looms each for cotton pile carpet-making. They teach apprentices and also engage expert workers. The work goes on throughout the year. In addition to the above factories there are also independent workers. It is estimated that there are more than 100 looms for pile carpet-making. Mill yarn of 10 counts is used in the warp and desi hand-spun in the weft. But occasionally mill yarn is used in both the warp and the weft. They dye their own yarn. Indigo-dyed yarn is mostly used, but other shades are also used. The designs are simple and perfect. The body of the carpet is white and the floral designs are worked in black. Sometime the body of the carpet is made red, green, mauve or other colour and the design is worked in various shades. The workmanship is of very high class and the carpets very attractive and beautiful. Generally bed carpets of  $6\frac{1}{2}' \times 4'$  are made and sold for Rs. 10. to Rs. 15. Bigger carpets are made to order. Carpets of good quality are sold up to Rs. 30 each. They are made purely of mill-yarn.

*Organization.*—Ordinarily two men work together, one an apprentice and the other an expert who knows the art very well. The sketch of the design is made on a piece of paper from memory or by tracing the design of a finished carpet. The expert weaves the design first and the apprentice follows it. The factories engage boys as apprentices for making cheap kinds of carpets and pay them 3 annas to 4 annas each per day. In one day two boys weave about 12 to 15 inches. Cheap carpets are also made on contract wages at Rs. 3 each. There is a wastage of  $\frac{1}{2}$  to  $\frac{3}{4}$  seer of yarn.

The following are the details of a carpet weighing 5 seers and sold for Rs. 12 :—

		Rs. a.
Desi yarn 5 seers	...	6 10
Mill yarn $\frac{1}{2}$ seer	...	0 13
Dyeing	...	0 4
Unravelling of yarn	...	0 4
Wages	...	3 0
Total		10 15
Sold for	...	12 0
		1 1
The factories save about		or 8 per cent.

High class carpets are made by the experts only. They are commonly made out of mill yarn. The following are the details of a carpet costing Rs. 25 :—

		Rs. a.
Mill yarn 8 seers (10 counts)	...	13 8
Dyeing	...	0 8
Wages at 13 annas per day per head	...	9 0
		23 0
Sold for	...	25 0
		2 0
Profit made by factory		2 0

*Outturn.*—The work is carried on all the year round. It is estimated that about 4,800 carpets are turned out annually costing Rs. 72,000 at an average of Rs. 15 per carpet.

*Marketing.*—The independent workers sell their carpets to the factory owners at the market price less a commission of 8 annas on carpets up to Rs. 15 and Re. 1 on carpets worth more than Rs. 15. These carpets are exported to Bareilly, Moradabad, Mirzapur, Gorakhpur and other districts.

*Suggestions.*—1. The necessity of a dyeing factory is felt here. It would be worth while to open a dyeing factory. This factory can also take up silk-dyeing which is equally needed.

2. This industry is badly in need of advertisement. In order to popularize this industry it should be vastly advertised.

3. A co-operative store for the joint purchase of raw materials and for joint produce and sale will prove greatly beneficial.

(c) *Hosiery*.—The term hosiery includes all kinds of knitted articles, but in Shahjahanpur only socks and hoses are made on hand machines. There are 21 round machines in the city, but all of them are not working for want of demand. Cotton socks are generally made. Mercerized ones have also been tried, but they have not good sale. Cotton yarns of  $12\frac{1}{2}$  to  $16\frac{1}{2}$  counts are used and are obtained from the yarn dealers who import them from Cawnpore and Moradabad.

There is no difficulty in getting workmen; the machine owners train boys to work on their machines. The Tyler Weaving School also trains and turns out such workmen. They work on piece-wages of 12 annas to Re. 1-2 per dozen. The breakage of needles is charged from the workers. In one day one man makes from 1 to  $1\frac{1}{2}$  dozen socks (half size). The machine owners dye the yarn themselves.

The sale price of the socks is as follows :—

Cotton socks (half size) ...	Rs. 3 to Rs. 4 per dozen.
„ hose ...	Rs. 4-8 to 6 per dozen.
Mercerized socks (half size)	Rs. 6 per dozen.

The margin of profit may be calculated thus :—

	Rs.	a.
One bundle yarn ( $16\frac{1}{2}$ counts) ...	10	4
Dyeing charges ...	2	4
Labour ...	6	0
Interest on capital, wear and tear etc. ...	2	0
<b>Total</b> ...	<b>20</b>	<b>8</b>
This will give 8 dozen (half) socks sold for Rs. 3-4 per dozen ...	26	0
<b>Profit</b> ...	<b>5</b>	<b>8</b>

or 11 annas per dozen socks.

*Marketing*.—The marketing system of these socks is very irregular, for there is no constant demand. Sometimes many machines lie idle for want of sale of their output. The sale

mostly proceeds in the retail shops which each machine owner has got in the bazar. Sometime the owners take them to Hardoi and Sitapur to dispose them off. The imported China-made socks have very much prevented the introduction of these socks, for they are comparatively cheap and more durable.

The annual outturn is estimated to be about 2,800 dozen pairs.

*Suggestions.*—Better training of knitters in all kinds of improved methods of double sole making is necessary. The local weaving school should give such training.

### B. SILK.

(a) *Silk fabrics.*—The silk-weaving industry of Shahjahanpur has been built in the year 1910 after the opening of the Tyler Weaving School. The school has given a great stimulus to it by supplying trained workers. Since then the industry has got a firm foothold and has been gradually progressing. At first silk-weaving was tried and demonstrated in the school and people seeing its possibilities began to take it up and open weaving factories. At present there are 11 factories in the city. There is no scarcity of weavers who work on wages. All these factories are equipped with fly-shuttle looms. Some of the factories, for want of space for looms, give yarn to the weavers to work at home. The industry is wholly in the hands of the factory owners, for it requires a fair capital which the weavers are not possessed of. Shirting and suiting cloths, muslins, saris, turbans and handkerchiefs are generally made. The season of work is from December to July. In slack seasons the factories stop some looms.

(b) *Silk yarn.*—Waste, cordonet (spun) and Indian silk yarns are used. Waste and cordonet silk is obtained from Calcutta, Bombay, Amritsar and Benares, while Indian silk is imported from Kashmir, Assam and Bengal. Spun silk of 60/2 to 340/2 counts is used, the common counts being 280/2, 210/2 and 140/2. Indian silk of 24/28 to 90/10 counts is used, and 24/2 to 40/2 counts of waste silk is used. The factories import yarn themselves and often sell to one another. It is estimated that silk yarn worth a lakh of rupees is imported annually.

*Warping.*—Warping and other preliminaries before weaving are done by the weavers. They are paid Re. 1-8 for a warp of 100 to 150 yards. All the weavers in a factory join hands and work together to help one another by turns. They take six days in warping, beaming and healing. Some of the factories pay 3 annas 6 pies to 5 annas per day for warping. No sizing is resorted to.

*Weaving.*—The weavers are paid by piece-work from 1 anna 6 pies to 6 annas per yard for weaving. The following are the details of wages :—

• For 36/2 to 60/2 counts wages are paid at 1 anna 6 pies to 3 annas per yard of 27 inches in width.

For finer counts wages are paid at 3 to 4 annas per yard of 27 inches in width.

• For Indian silk they are paid 1 anna per yard more.

In one day one man can weave 9 to 10 yards of cloth of 60/2 counts or 10 to 12 yards (width 27 inches) of 36/2 counts or 4 to 5 yards of finer counts. The average income of a weaver is estimated to be Rs. 40 to Rs. 50 per month.

*Prices.*—The following are the wholesale prices; the retail prices are 4 annas per yard extra :—

	Rs.	a.	
Cloth of 340/2 counts	...	5	0 per yard.
„ 280/2 „	...	4	0 „
„ 210/2 „	...	4	0 „
„ 60/2 „	...	3	12 „
„ 36/2 „	...	1	12 „

The margin of profit may be estimated thus :—

(i) Spun silk of 280/2 counts—

	Rs.	a.
One bundle of yarn	...	195 0
Warping	...	1 8
Wages for 70 yards of cloth at 6 annas per yard	...	26 4
Washing and other expenses	...	2 4

---

225 0

Cloth sold at Rs. 4 per yard ... 280 0

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55 0

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Profit about 12 annas per yard.

(ii) Waste silk 36/2 counts—

	Rs.	a.
1 bundle of yarn ...	41	0
Warping ...	1	8
Wages for 40 yards of cloth at 1 anna 6 pies ...	4	12
Washing and other expenses ...	2	4
	49	8
Cloth sold at Re. 1-12 per yard ...	70	0
	20	8

Profit about 8 annas per yard.

*Washing.*—For washing they engage a man on a monthly salary of Rs. 16 who washes and calenders the cloth. Cloths are washed in the river Khanaut which is close by. The water of this river is said to be well suited for washing silk and so the washing of silk is a speciality here.

*Marketing and outturn.*—No sort of advertisement is done. Orders are received from outside, and the dealers send cloths on order. Sometimes the customers themselves come to place orders. The annual outturn is estimated to be Rs. 1,60,000.

*Difficulties in the manufacture.*—(i) The traders feel the want of a good bank to facilitate trade. They want money on the security of goods manufactured. The work is seasonal and so cloths have to be stocked and for continuing the work the factory owners want financial help.

(ii) There is no dyeing factory here: A properly-equipped dye-house for dyeing silk is very badly wanted. The same factory can also dye cotton yarn for the pile carpet weavers.

### C. WOOL.

1. *Raw wool.*—The cattle census of 1920 shows that there were 19,073 sheep in the Shahjahanpur district. They would annually give about 350 maunds of wool at an average of 12 chattaks of wool per sheep. The quantity of wool produced locally is sufficient for local requirements. It is estimated that about 300 maunds of wool is consumed annually

and about 50 maunds are exported to the neighbouring districts and Cawnpore. Black wool is locally available at Rs. 25 to Rs. 30 per maund, and white wool at Rs. 30 to Rs. 35 per maund.

2. *Cleaning and carding.*—Cleaning and carding is done by dhunas at 8 to 12 annas per 5 seers. In some villages the Gadariyas themselves do this work. Carding is done by the old bow and muthia described fully by Mr. Pinn in his "Monograph on Woollen Fabrics." One man can card from 3 to 4 seers of wool in a day.

3. *Spinning.*—Spinning of wool is done by Gadariyas themselves and also by their women and children. It is done only in the families of those Gadariyas who weave blankets. Wool is also spun by other women at 5 seers for a rupee on qarkhas turning out about 5 to 6 chattaks a day. There is a wastage of 3 chattaks per seer of wool in carding and spinning.

4. *Weaving.*—Weaving of blankets is done on narrow throw-shuttle looms. Fly-shuttle looms are supposed to be unsuitable for weaving with the uneven and weak hand-spun yarn. Sizing is done by sanai seed. Blankets woven are mostly cheap black ones; white ones are woven to a certain extent. Pattis about 10 to 12 inches wide are woven, four to six of which when sewn together make a blanket. Blankets are made in the following three sizes:—

(1) 9' × 6' requires 3 seers of wool.

(2) 7½' × 5' .. 2½ .. ..

(3) 6' × 4' .. 1½ .. ..

No kneading and milling is done, for they twist the yarn before weaving which does not require kneading and milling. One patti of about 9 feet long is woven in a day by one man. Male members of the family other than the weaver help him in making skeins, winding bobbins, warping, sizing and sewing the pattis, and women help in spinning. Every family turns out about five blankets in a month. The work is stopped during the rains for two months. According to the census return of 1921 there were 198 actual workers engaged in weaving woollen blankets. It is estimated that there are about 100 looms for blanket weaving in the district. They would give an annual outturn of about 5,000 blankets.

Price.—The following table gives the price of the various kinds of blankets :—

Size.	Price per blanket.			
	Black wool.		White wool.	
	Rs. s	Rs. a.	Rs. a	Rs. a.
9' x 6' ... ..	4	8 to 5 8	6 0	to 7 0
7½' x 5' ... ..	4	0 „ 5 0	5 8	„ 6 0
6' x 4' ... ..	2	12 „ 3 0		

Details of a blanket (7½' x 5') may be calculated as follows :—

	Rs. a.
Cost of 2½ seers of wool	... 1 11
Carding charges	... 0 4
	1 15
It is spun and woven in five days and sold for	... 4 0
	2 1

This gives a saving of Rs. 2-1 per blanket, representing the Gadariya's wages of spinning and weaving. Though this saving is very little, but since it is accrued from a subsidiary occupation, it is welcomed by the Gadariyas.

These blankets are sold in the village markets on market days. They are also taken to melas and fairs. They are hardly exported.

In addition to the blankets, bags for khandsar are also made. They are made up of two pattis each 4½ feet long and 7 to 8 inches wide. They are joined and doubled. These pattis are sparsely woven. Five seers of yarn are used for 24 such pattis or a set of 12 bags. In one day they make five to six pattis. One set is sold for Rs. 9 to Rs. 10.

*Suggestions.*—The greatest need of the industry is the introduction of better and wider looms, and also better carding, and spinning processes.

#### D. FIBRES.

(a) *Tat patti.*—There are about 74 families of Kahars in the Shahjahanpur town who make tat pattis out of sann-hemp. About 20 families are in the Tilhar tahsil scattered over different villages. Sann-hemp is grown here. There is no difficulty in obtaining water which is available in rivers and village ponds. All the sann grown is for fibre. No portion of it is ploughed in to increase the nitrogen contents of the soil. The acreage return shows that 2,566 acres was under sann in 1330F. This would yield about 12,830 maunds fibre at an average of 5 maunds per acre.

Sann is first twisted into fine strings called sutli. Women and children also help here. For the process of weaving and the implements that are used in it the reader is referred to my note on the Industrial Survey Report of the Azamgarh district.

Tat pattis are made in two sizes, one is 27' × 9" and the other 36' × 12". The former is used for covering bullock carts, and the latter for sugar work. The smaller ones require  $3\frac{3}{4}$  seers of sann and weigh about  $2\frac{1}{2}$  seers, and the larger ones require 7 seers of sann and weigh 4 seers. Two seers of sann are spun on an average by a family in a day, and 27 feet of 9 inches wide patti are woven by one man in a day. Sann-hemp is purchased at Rs. 8 per maund. Sale price is Re. 1-8 for smaller ones and Rs. 3-8 for the larger ones. Every family turns out seven pattis (both smaller and larger) in one month. The work lasts for 10 months and is stopped in the rains. Daily earnings of a family can be calculated :—

##### (1) Smaller patti—

	Rs. a.
Sann $3\frac{3}{4}$ seers ... ..	0 11
Spun in two days woven in one day, sold for ... ..	1 8
Earning for three days ... ..	0 13

(2) Larger pattis—

	Rs.	a.
Sann, 7 seers ... ..	...	1 7
Spun in four days, woven in two days, sold for ... ..	...	3 8
		—
Earning for six days ... ..	...	2 1
		—

Annual outturn is estimated to be 7,000 pattis.

*Marketing.*—Tat pattis are sold in the village markets on market days. Dealers come from Pilibhit and Kheri to buy them. They are taken to the melas, particularly to the Misri Fair. They are also sold by the local dealers in the city.

The work brings very little income to the family, and the pinning is a tedious and difficult process. Moreover, it takes away most of the time.

*Suggestions.*—Introduction of an easier and quicker mode of spinning is the prime necessity of the industry. The Kahars of the Shahjahanpur town can be formed to work on co-operative lines.

(b) *Baib matting.*—The city was once noted for the matting made from baib grass. This matting was exported, but now the industry is not so popular owing to its replacement by munj matting. The latter proves more durable and less dust absorbing. The baib matting is woven by merely plaiting the fibres together, and not by first twisting the grass into strings and then weaving after the manner of munj matting. Some punkhas are also made here out of baib grass.

Baib grass is imported from Mailani, Sahramau and other places on the banks of the Sarda. It sells here at Rs. 3 to Rs. 3-8 per maund. The workmen generally store the grass in season. There are 15 families of such workmen and they are all Musalmans. There is a wastage of 7 to 8 seers per maund of grass in the manufacture. One man can make 4 square yards of matting with ready cleaned and thrashed grass, and 3 square yards if he has to thrash the baib. One square yard of matting requires 3 seers of grass and weighs, after being woven, 2½ seers. The matting is sold at 8 annas to 9 annas per square yard. The average income

of one man is 14 annas daily. The details of income may be calculated thus :—

	Rs. a.
One maund of baib grass ... ..	3 8
Will give 32 seers of matting, which will measure 13 square yards, sold at 8 annas per square yard will cost ...	6 8
Woven in four days by one man ...	3 8

Daily earning of one man comes to 14 annas.

*Marketing.*—Baib matting is made only to order. The demand comes from the cantonment towns. The Europeans like it for it prevents the wear of carpets and is softer than the munj matting. The annual outturn is worth about Rs. 4,000.

*Sale price.*—Baib matting is sold at 8 annas to 9 annas per square yard. Punkhas are sold at 9 annas per square yard for plain and 4 annas per square foot for hemmed ones.

The workmen also work on wages, charging 3 annas per square yard of baib matting or punkhas and one meal. The work is rather slack and does not give them full work.

## 10. Wood work.

1. *Furniture making.*—There are two small factories for making furniture and other kinds of wooden articles. Shisham wood is available locally. They make only cheap kinds of furniture, bed-posts etc. The close proximity of Bareilly does not allow the industry to flourish. People generally go there to purchase their furniture and other wooden requirements.

2. *Turnery.*—A small amount of turnery work is done in Shahjahanpur and Tilhar. There are about 40 carpenters who make mostly bed-posts, and some times *dholaks* as well. At Tilhar this industry is in the hands of dealers, for the carpenters have not got enough means to do the manufacture and export trade. They work for the dealers and get piece wages of 10 annas per set of bed-posts. Shisham wood is purchased locally.

The following are the details of the manufacture of the bed-posts :—

	Rs.	a.	p.
Shisham wood, for one set	...	0	4 0
Sawyer	...	0	2 6
Turner (carpenter)	...	0	10 0
Lathe driver	...	0	2 0
Other expenses	...	0	1 6
		<hr/>	
Total	...	1	4 0
		<hr/>	

This when sold will fetch Re. 1-12, giving a profit of 8 annas per set to the dealer.

A carpenter can turn two sets of bed-posts in a day and thereby earn Re. 1-4. Bed posts are sold for Re. 1 to Rs. 2 per set. They are plain and unpolished. *Dholaks* are sold for Rs. 50 to Rs. 150 per 100 according to size and quality. These articles are exported to Meerut, Delhi Lahore and other districts. The annual outturn is estimated to be worth Rs. 30,000.

## CHAPTER II.

### INDUSTRIAL POSSIBILITIES OF THE DISTRICT.

1. *Dal-splitting*.—Dal-splitting is at present carried on by old indigenous methods. If this industry is coupled with the existing wheat-grinding one, it would require a small capital and a few more workmen. The wheat-grinding factories have not got work enough to utilize the cost of their establishment or their engines to their full extent. The district produces over 300,000 maunds of arhar and they can find enough raw material to keep them busy.

2. *Dyeing factory*.—The Shahjahanpur city requires a dyeing factory that can dye on modern lines. The silk weaving factories have to dye silk yarn themselves. The factory can also dye cotton yarn for the weavers and the *Rile*, *carpet* weavers. A dyeing factory will be a great success here.

3. *Bone meal*.—About 14,000 maunds of bones are at present exported to Bally and Sealdah for exporting abroad. Shahjahanpur is a good agricultural district and sugarcane is its special crop. Bone meal is a good fertilizer and will soon find favour with the agriculturists, especially with the sugarcane planters. It could be very well popularized by the local agricultural farm. A small plant for crushing bones should be tried. It can also import bones for crushing from the neighbouring districts.

4. *Handloom weaving*.—Cotton weaving is the chief industry of the district, but the weaving is done on old-fashioned looms. Though there is a weaving school in the district, very little has been done towards popularizing the fly-shuttle looms. It should take special steps to extend its activities and special efforts should be made to popularize the improved methods of warping and weaving by giving demonstrations at suitable centres.

5. *Fat*.—Large quantities of fat are available and find export. It should be utilized in the manufacture of *dhobi* soaps.



## CHAPTER IV.

## STATISTICS.

## 1. Art Industries.

(a) *Painting work of Tilhar.*

*Number of persons engaged.*—Five.

*Articles painted.*—Trays, flower vases of brass, and trays, teapoy, brackets and bed-posts of wood.

*Sale price—*

Painted brass trays, Rs. 12 to Rs. 15 each.

Painted wooden teapoy, Rs. 3 and upwards.

Painted wooden brackets, Rs. 2 and upwards.

*Daily earnings of a man.*—Rupee 1.

*Annual outturn.*—About Rs. 1,800 worth.

(b) *Silver ornaments.*

*Raw material.*—Silver.

*Imports—*

*Value.*—About Rs. 8,00,000.

*Places of origin.*—Bombay, Cawnpore and Calcutta.

*Number of workmen.*—About 500.

*Piece-wages.*—One anna to 6 annas per tola.

*Daily earning of one man.*—Rupee 1 to Rs. 2-8.

*Number of dealers.*—About 55.

*Dealer's profit.*—Six pies to 1 anna per rupee.

*Annual outturn.*—Worth about Rs. 8,00,000.

*Import of silver ware—*

*Value.*—About Rs. 8,000.

*Place of origin.*—Delhi.

## 2. Building materials.

(a) *Lime kilns.*

*Raw material.*—Kankar.

*Local consumption—*

*Quantity.*—110,000 cubic feet.

*Value.*—At Rs. 12-8 per 100 cubic feet.

*Obtained from.*—Shahbaznagar, Gurri, Nigohi etc.

*Price of coke.*—Rupees 50 per 1,000 cubic feet.

*Number of factories.*—Ten.

*Annual outturn.*—About 85,000 cubic feet of lime.

*Sale price of lime.*—Rupees 35 per 100 cubic feet.

*Profit.*—Rupees 3 per 100 cubic feet.

*Adamji's lime factory.*

*Capital.*—Rupees 8,000.

*Engine.*—Steam engine of 16 N. H. P.

Engine of 16 H. P.

*Annual outturn of lime.*—5,000 cubic feet.

*Sale price.*—Rupees 40 per 100 cubic feet.

*Grinding capacity of engine.*—400 cubic feet daily.

(b) *Brick kilns.*

*Number of kilns in the district.*—Six.

*Rent for site of kilns.*—Rupees 100 to Rs. 150.

*Charges for brick-earth.*—Rupees 30 per lakh.

*Wages—*

*Brick-moulding.*—Rupees 2 per thousand.

*Laying of bricks in kilns.*—Ten annas six pies per thousand.

*Taking of bricks out of kiln.*—Rupees 60 per lakh.

*Carting charges.*—Rupees 2-8 per thousand.

*Octori charges.*—Three annas six pies per thousand.

*Number of permanent hands—*

Four firemen on a monthly salary of Rs. 20 each.

One mistri on Rs. 20 to Rs. 30 monthly.

One clerk on Rs. 20 monthly.

*Annual outturn.*—15,000,000 per kiln.

*Sale price—*

First class at Rs. 18 per thousand.

Second class at Rs. 16 per thousand.

Third class at Rs. 10 per thousand.

*Estimated profit.*—Rupees 139 per lakh, including interest on capital.

### 3. Chemicals.

*Saltpetre.*—Year 1922-23.

*Licenses issued.*—Forty-five.

*License fee.*—Rupees 1.

*Working season.*—October to June.

*Daily outturn per factory.*—Ten to 15 seers.

*Royalty paid to zamindar.*—Rupees 10 to Rs. 15 per season.

*Annual outturn.*—2,250 maunds of crude saltpetre.

*Sale price.*—Rupees 3 to Rs. 3-8 per maund.

*Monthly earning of one man.*—Rupees 11.

#### 4. Food grains.

##### *Wheat-grinding.*

*Number of factories.*—Five.

*Nature of work.*—Work of commission alone.

*Commission charges.*—Eight annas per maund in retail and 6 annas per maund in wholesale.

The following are the big factories and are described in detail :—

(1) *Flour Mills Company Limited (Bahadurganj).*—

This has been closed since March, 1922 on account of the breakage of machinery.

(2) *Muniz Flour Mills (Bahadurganj).*—

*Engines.*—Boiler, 30 N. H. P.

Engine, 15 H. P.

*Number of grinding mills.*—Three mills, but only one works regularly.

*Commission charges.*—Same as shown above.

*Number of hands*—

One driver at Rs. 50 per mensem.

One assistant driver at Rs. 35 per mensem.

Two millmen at Rs. 16 and Rs. 8 per mensem.

Two clerks at Rs. 15 each per mensem.

Two extra at Rs. 13 each per mensem.

*Annual outturn.*—About 8,000 maunds.

(3) *Joury Flour Mills (Bahadurganj).*—

*Engines.*—Boiler, 19 N. H. P.

Engine, 25 B. H. P.

*Number of grinding mills.*—One

*Capital invested.*—Rupees 5,000.

*Commission charges.*—Same as shown above.

*Number of hands.*—Seven. The proprietor drives the engine himself.

*Annual outturn.*—About 1,800 maunds.

### 5. Hardware.

#### BRASSWARE.

##### (1) *Batuli manufacture.*

*Raw material.*—Kans.

*Import*—

*Quantity.*—About 1,500 maunds.

*Value.*—Rupees 29,250 at 13 annas per seer.

*Places of origin.*—From Fatehganj, Mirzapur and Hathras.

*Number of workmen.*—Twenty-five.

*Monthly outturn*—

In Pawayan, 8 maunds per man.

In other places, 3 maunds per man.

*Sale price.*—Rupee 1-4 per seer.

*Earnings of the workman.*—Rupees 5-7 per maund.

*Wages paid by the workman*—

Latheman, 1 anna per vessel.

Assistant latheman  $\frac{3}{4}$  anna per vessel.

Fireman, 6 annas per day each.

Piler, 1 anna per vessel.

Mould maker, Rs. 25 per 100.

*Total annual outturn.*—About 1,400 maunds.

##### (2) *Thali manufacture.*

*Raw material.*—Brass.

*Imports*—

*Quantity.*—About 600 maunds.

*Value.*—Rupees 18,000 at 12 annas per seer.

*Place of origin.*—Fatehganj, Mirzapur and Hathras.

*Number of workmen.*—Fifteen.

*Monthly outturn per man.*—Three maunds.

*Sale price.*—Rupee 1-10 per seer.

*Earnings of workmen.*—Rupees 16 per maund.

*Wages paid by the workman*—

Hammering, Re. 1-4 per maund.

Firemen, 6 annas per day each.

*In case the workmen work for the dealers:—*

*Wages paid by dealers.*—Rupees 30 per maund.

*Earnings of workmen after deducting expenses.*—

Rupees 12-3 per maund.

*Profit made by the dealers.*—Rupees 3-12 per 30 seers  
or 2 annas per seer.

*Total annual outturn*—

*Quantity.*—550 maunds.

*Value.*—Rupees 35,750.

(3) *Lota manufacture.*

*Raw material.*—Phul brass.

*Import*—

*Quantity.*—150 maunds.

*Value.*—Rupees 7,500.

*Places or origin.*—Fatehganj, Mirzapur and Hathras.

*Number of workmen.*—Six.

*Monthly outturn per man.*—Three maunds.

*Sale price.*—Rupees 2 per seer.

*Earnings of workmen.*—Rupees 10-10 per maund.

*Wages paid by the workman*—

Firemen, 6 annas per day each.

Latheman, 1 annas per vessel.

Assistant latheman,  $\frac{3}{4}$  anna per vessel.

Filer 1 anna per vessel.

*Total annual outturn.*—About 120 maunds.

*Value.*—Rupees 9,600.

6. **Leather.**

*Export*—

*Hides.*—22,000 hides.

*Skins.*—20,000 skins.

*Places of consignment.*—Cawnpore and Calcutta.

*Price*—

(1) Bullock hide (8 to 10 per maund).

Sundried, Rs. 25 to Rs. 28 per maund.

Framed, Rs. 60 per maund.

(2) Buffalo hide (4 to 5 per maund).

Sundried, Rs. 20 to Rs. 22 per maund.

Framed, Rs. 35 to Rs. 40 per maund.

(3) Skin, 12 annas to Re. 1-8 per skin.

- Quantity consumed locally.—About 3,000 hides.
- Number of tanners.—214.
- Income in tanning.—Rupees 2 to Rs. 3 per hide.
- Leather and leather articles imported in city.—Rupees 67,633 worth.

## 7. Miscellaneous.

### Engineering work.

*Indian Machinery Stores.*—Factory owned by B. U. Akhtar and Company.

*Capital.*—Rupees 35,000.

*Raw material.*—Iron and brass.

*Import—*

*Value.*—Rupees 4,000 worth.

*Place of origin.*—Cawnpore and Calcutta.

*Consumption of iron and brass.*—Rupees 5,000 worth.

*Number of hands.*—Twenty-six.

*System of payment.*—Rupees 15 to Rs. 50 per month.

*Names of machines made and their prices—*

- (1) Envelope-making no. 1, Rs. 150; no. 2, Model A, Rs. 225.

Cutting frame and knife for Model A, Rs. 35.

Cutting frame and knife for no. 2, Rs. 100.

Extra dies, Rs. 30 each.

- (2) Paper-cutting, Rs. 150 to Rs. 300 (according to thickness of paper cut).

- (3) Straw board box-making, Rs. 25 to Rs. 40.

- (4) Castor oil press, Rs. 600.

- (5) Tin toy-making, Rs. 300.

- (6) Leather button-making, Rs. 50.

- (7) Castor seed-cracking, Rs. 150.

- (8) Envelope-folding, Rs. 60.

*Annual outturn.*—Rupees 15,000. Also get repairs.

## 8. Oils.

### Castor oil pressing.

*Raw material.*—Castor seed.

*Local consumption.*—About 45,000 maunds.

*Rate of purchase.*—Rupees 8 to Rs. 9-8 per maund.

*Manufacture—**Number of factories.—Fifteen.**Number of screw presses.—Thirty-one.**Number of plates in one press.—75 to 100.**Quantity of seed crushed at one time.—55 seers.**Oil obtained.—20 seers.**Percentage of oil in castor seed.—36 to 38 per cent.**Wages.—Six annas per 55 seers.**Number of hands.—Four per screw press.**Cost of fuel.—Ten annas per 55 seers.**Quantity of seed crushed daily.—13½ maunds per press.**Price of gunny cloth.—Rupees 11 per 100 square yards.**Cost of gunny cloth per 55 seers.—Four annas.**Saving to the press owner.—Fourteen annas per 55 seers.**Sale price—**Oil, Rs. 25-8 per maund.**Oilcake, Rs. 2-13 per maund.**Total annual outturn.—About 15,500 maunds of castor oil.**Commissions—**To commission agents—**Two annas per maund of oil sold.**Two annas per Rs. 100 on transaction.**Four annas per 100 tins as tinning charges.**To weighman—**One pice per maund of oil.**To customer—**One-fourth seer per maund of oil as shortage in weighing.***9. Textiles.****A.—Cotton.****1. Raw cotton—***Area under cotton in 1330F—**Cotton.—662 acres.**Mixed with arhar.—3,766 acres.**Production of seed cotton.—10,200 maunds.***2. Ginning and pressing—***Number of persons engaged.—264 men and 78 women.**Total outturn.—3,700 maunds of ginned cotton.*

3. *Spinning—*

*Number of women engaged.*—363.

*Daily outturn per woman.*—Two to 8 chattaks.

*Daily income per woman.*—One anna six pies.

*Wages paid for carding.*—Two annas per seer.

*Wastage of cotton in spinning.*—One chattak per seer.

*Sale price.*—Ten to 12 chattaks a rupee.

*Total annual outturn.*—300 maunds of yarn.

*Export.*—About 50 maunds to Budaun and other districts.

*Locally consumed.*—250 maunds.

4. *Manufacture.—Weaving—*

*Raw materials—*

*Import—*

(i) *Desi yarn—*

*Quantity.*—About 2,000 maunds.

*Places of origin.*—Sambhal, Moradabad, etc.

*Value.*—About Rs. 1,07,000.

(ii) *Mill yarn—*

*Quantity.*—11,000 maunds of yarn.

*Place of origin.*—Moradabad and Cawnpore.

*Value.*—Rupees 7,04,000 approximately.

*Local consumption of yarn—*

*For cloth weaving—*

*Desi yarn.*—About 1,500 maunds.

*Mill yarn.*—About 10,500 maunds.

*For Pile carpet-making—*

*Desi yarn.*—750 maunds.

*Mill-yarn.*—About 120 maunds.

(a) *Cloth weaving.*

*Number of persons engaged.*—4,281 men.

*Number of looms in the district.*—About 2,100.

*Kinds of cloth woven.*—Garha, lahnga cloth and also doria and twill to a little extent.

*Quantity of cloth woven daily on one loom.*—Seven yards.

*Annual outturn.*—About Rs. 9,50,000.

*Daily income of a man.*—Eight annas to 12 annas.

*Sale price of cloth (per piece)—*

*Garha of desi yarn.*—Size 20 yards by 27 inches, Rs. 4-8 to Rs. 5.



*Garha of mill yarn.*—Size 20 yards by 30 inches Rs. 5 to Rs. 6.

*Lahnga cloth.*—Size 9 yards by 27 to 30 inches, Rs. 2-8 to Rs. 3.

(b) *Pile carpet-making.*

*Number of looms.*—More than 100.

*Size of carpets.*— $6\frac{1}{2}' \times 4'$ .

*Quantity woven in a day.*—Twelve to 15 inches.

*Wages paid—*

*To boys.*—Three annas to 4 annas a day.

*To men.*—Thirteen annas a day.

*Sale price.*—Rupees 10 to Rs. 30.

*Profit of factory owners.*—Eight per cent. on sale price.

*Commission paid by independent workers.*—Eight annas for carpets up to Rs. 15, and Re. 1 for more than Rs. 15.

*Annual outturn—*

*Quantity.*—4,800 carpets.

*Value.*—Rupees 72,000.

*Dyeing charges.*—Rupee 1-4 per 5 seers of dyed yarn.

(c) *Hosiery.*

*Number of machines.*—Twenty-one.

*Number of workmen.*—Twenty-one on 21 machines.

*Consumption of cotton yarn.*—About 45 maunds.

*Quantity of work per day.*—One dozen socks.

*Sale price—*

*Cotton socks.*—Rupees 3 to Rs. 3-4 per dozen.

*Cotton hose.*—Rupees 4-8 to Rs. 6 per dozen.

*Mercerised socks.*—Rupees 6 per dozen.

*Profit.*—Eleven annas per dozen socks.

*Annual outturn.*—2,800 dozen socks.

B.—*Silk.*

*Silk fabrics—*

*Raw material.*—Silk yarn.

*Import—*

*Value.*—Worth Rs. 1,00,000.

*Places of origin.*—Bombay, Calcutta, Amritsar, Benares  
Kashmir, Assam and Bengal.

*Price of yarn—*

*Spun silk—*

			Rs.	
340/2	counts	...	300	per bundle of 11 lb.
280/2	"	...	195	" " " "
210/2	I "	...	180	" " " "
	II "	...	160	" " " "
	III "	...	140	" " " "
160/2	"	...	145	" " " "
140/2	"	...	140	" " " "
60/2	"	...	20	" " " 2 lb.

*Indian silk—*

24/28	"	...	24	" lb.
50/55	"	...	23	" "
90/110	"	...	19	" "

*Waste silk—*

40/2	"	...	45	per bundle of 11 lb.
36/2	"	...	41	" " " "
24/2	"	...	22	" " " "

*Number of factories.*—Eleven.

*Number of looms.*—About 100.

*Number of workmen.*—100 on 100 looms,

*Wages—*

*For washing.*—Rupee 1-8 per warp of 100 to 150 yards.

*For weaving.*—36/2 to 60/2 counts 1 anna 6 pies to  
3 annas per yard 27 inches in width.

*For weaving.*—finer counts 3 annas to 4 annas per yard  
27 inches width.

*For weaving.*—finer counts 4 annas to 6 annas per yard  
45 inches width.

For Indian silk wages are 1 anna per yard more.

*Quantity of cloth woven by one man in one day.—*

60/2 counts 9 to 10 yards.

36/2 counts 10 to 12 yards.

Finer counts 4 to 5 yards.

*Prices.*—The following are wholesale prices; the retail prices are 4 annas per yard extra :—

		Rs. a.
Cloth of—		
340/2 counts	...	5 0 per yard.
280/2 „	...	4 0 „
210/2 „	...	4 0 „
60/2 „	...	3 12 „
36/2 „	...	1 12 „

*Profit of factory owners.*—Eight annas to 12 annas per yard.

*Total outturn.*—Rupees 1,60,000.

*C.—Wool.*

*Raw material.*—Wool.

*Number of sheep in the district.*—19,073.

*Annual yield of wool from sheep.*—350 maunds.

*Quantity consumed locally.*—300 maunds.

*Quantity exported.*—50 maunds.

*Rate of purchase of wool—*

*Black wool.*—Rupees 25 to Rs. 30 per maund.

*White wool.*—Rupees 30 to Rs. 35 per maund.

*Number of persons engaged in blanket weaving.*—198.

*Number of looms.*—About 100.

*Wages paid—*

Carding 8 annas per 5 seers.

Spinning Re. 1 per 5 seers.

The following table shows the size of blankets woven, price etc. :—

Size of blanket.	Quantity of wool required.	Price per blanket.			
		White wool.		Black wool.	
	Seers.	Rs. a	Rs. a	Rs. a	Rs. a.
9' × 6' ...	3	6 0 to 7 0		4 8 to 5 8	
7½' × 5' ...	2½	5 8 „ 6 0		4 0 „ 5 0	
6' × 4' ...	1½	...		2 12 „ 3 0	

*Annual outturn.*—About 5,000 blankets.

*Daily earning of one family.*—Six annas to 8 annas.

*Khandsar bags.*—Size  $4\frac{1}{2}' \times 8''$  (double). •

*Quantity of wool required.*—Five seers for 24 pattis of  $4\frac{1}{2}' \times 8''$ .

*Sale price.*—Rupees 9 to Rs. 10 for 12 bags.

*D.—Fibres.*

(a) *Tat pattis*—

*Raw material.*—Sann-hemp.

*Area under sann-hemp.*—2,566 acres (1330 F).

*Total yield.*—12,830 maunds.

*Consumed in tat pattis.*—About 1,000 maunds.

*Price of sann-hemp.*—Rupees 8 per maund.

*Number of families engaged.*—Ninety-five.

*Size of pattis*—

*Smaller.*— $27' \times 9''$ .

*Larger.*— $36' \times 12''$ .

*Size woven in a day by one man.*—27 feet.

*Sale price*—

*Smaller.*—At Re. 1-8 each.

*Larger.*—At Rs. 3-8 each.

*Daily earnings of one family*—

*In the case of smaller pattis.*—Four annas three pies.

*In the case of larger pattis.*—Five annas.

*Annual outturn.*—7,000 pattis.

(b) *Baib matting*—

*Raw material.*—Baib grass.

*Import*—

*Quantity.*—About 2,000 maunds.

*Value.*—Rupees 5,000.

*Places of origin.*—Mailani and Sehramau.

*Number of persons engaged.*—Fifteen families.

*Quantity woven in one day.*—Three to 4 square yards by one man.

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*Wastage of baib in manufacture.*—Seven to 8 seers per maund.

*Sale price—*

Matting at 8 annas to 9 annas per square yard.

Punkhas, plain, 9 annas per square yard.

Punkhas, hemmed, 4 annas per square foot.

*Annual outturn.*—About Rs. 4,000 worth.

*Daily earning of one man.*—Fourteen annas

*Daily wages of one man.*—Three annas per square yard and one meal.

## CHAPTER V.

### DIRECTORY.

#### 1. List of banks.

The Allahabad Bank, Limited.

#### 2. List of industrial schools.

Tyler Weaving School, Shahjahanpur.

#### 3. List of flour mills.

Flour Mills Company, Limited, Bahadurganj, Shahjahanpur.

Muniz Flour Mills, Bahadurganj, Shahjahanpur.

Joury Flower Mills, Bahadurganj, Shahjahanpur.

Bajinath's Flour Mills, Rangmahla, Shahjahanpur.

Ganga Ram's Flour Mills, Chowk, Shahjahanpur.

#### 4. List of lime factories.

Adamji's Lime Mills, Shahjahanpur.

#### 5. List of silk-weaving factories.

The Bharat Silk Weaving Factory, Limited, Bahadurganj, Shahjahanpur.

The Willowbank Silk Weaving Factory, Bahadurganj, Shahjahanpur.

The Lakshmi Silk Weaving Factory, Bahadurganj, Shahjahanpur.

The National Silk Weaving Factory, Bahadurganj, Shahjahanpur.

K. S. Brothers, Silk Weaving Factory, Bahadurganj, Shahjahanpur.

S. S. Tandon's Silk Weaving Factory, Bahadurganj, Shahjahanpur.

The Silk Embassy Weaving Factory, Bahadurganj, Shahjahanpur.

The Silk Palace, Bahadurganj, Shahjahanpur.

Krishna Silk Institute, Bahadurganj, Shahjahanpur.  
Manni Lal's Silk Weaving Factory, Chowk, Shahjahanpur.

Baijnath's Silk Weaving Factory, Chowk, Shahjahanpur.

**6. List of castor oil press owners.**

Pitam Das Jaggannath (four presses), Roshanganj, Shahjahanpur.

Parmanand Reoti Ram (six presses), Roshanganj, Shahjahanpur.

Md. Azim Khan (two presses), Wafazai, Shahjahanpur.

Ichha (two presses), Wafazai, Shahjahanpur.

Patrakhan (three presses), Husainpura, Shahjahanpur.

Mulchand (one press), Dalelganj, Shahjahanpur.

Nangu Lal Shivcharanlal (two presses), Garipura, Shahjahanpur.

Durga Prasad and Gulab (one press), Garipura, Shahjahanpur.

Mohamed Husain Moula Bux (one press), Garipura, Shahjahanpur.

Md. Yusuf Ali Khan (two presses), Baksariyan, Shahjahanpur.

Gopal Ram (two presses), Kaiya Sari, Shahjahanpur.

Deoki Nandan (two presses), Bhuran Talaiya, Shahjahanpur.

Brij Mohan Lal (two presses), Juma Masjid, Shahjahanpur.

Ram Sarup (two presses), Bhuran Talaiya, Shahjahanpur.

Taffa Khan (one press), Khalil Sarai, Shahjahanpur.

**7. List of pile carpet factory owners.**

Imamuddin Maqbul Husain, Bahadurganj, Shahjahanpur.

Rafiullah Hyder Ali, Bahadurganj, Shahjahanpur.

Nazir Ahmad Bashir Ahmad, Bahadurganj, Shahjahanpur.

Nathu and Abdul Hasan, Bahadurganj, Shahjahanpur.

**8. List of spirit distilleries.**

Carew and Company, Limited, Rosa, Shahjahanpur

**9. List of hosliery factory owners.**

Economical Industrial Stores, Garipura, Shahjahanpur.  
 Hafiz Mohamed Taqi, Bahadurganj, Shahjahanpur.  
 Md. Wali Khan Tafazzul Khan, Bahadurganj Shahjahan-  
 pur.

Hafiz Md. Shafi, Bahadurganj, Shahjahanpur.  
 Rafiullah, Jalalnagar, Shahjahanpur.

**10. List of engineering companies.**

B. L. Akhtar and Company, Bahadurganj (The Indian  
 Machinery Stores).

**11. List of envelope-making factories.**

B. L. Akhtar and Company, Bahadurganj, Shahjahanpur  
 Economical Industrial Stores, Garipura, Shahjahanpur.

**12. List of brick kiln owners.**

Safiullah Khan, Jalalnagar, Shahjahanpur.  
 Jumman Khan, Jalalnagar, Shahjahanpur.  
 Haji Mohd Saied Khan, Jalalnagar, Shahjahanpur.  
 Bhajja, Jalalnagar, Shahjahanpur.  
 Mohd. Azim Khan, Garipura, Shahjahanpur.

**13. List of lime kiln owners.**

Haji Md. Saied Khan, Bahadurganj, Shahjahanpur.  
 Wahidullah, Bahadurganj, Shahjahanpur.  
 Manullah, Bahadurganj, Shahjahanpur.  
 Bhajja, Bahadurganj, Shahjahanpur.  
 Wilayatullah, Chowk, Shahjahanpur.  
 Fazal Darzi, Chowk, Shahjahanpur.  
 Nizam Ali Mistri, Chowk, Shahjahanpur.  
 Fida Husain, Chowk, Shahjahanpur.

**14. List of furniture factories.**

B. L. Akhtar and Company, Bahadurganj, Shahjahanpur  
 Wilayat and Company, Bahadurganj, Shahjahanpur.

**15. List of hide exporters.**

Khwaja Bux, Babuzai, Shahjahanpur.  
 Karam Ali, Babuzai, Shahjahanpur.  
 Haji Ali Bux, Babuzai, Shahjahanpur.



Masitullah, Dalelganj, Shahjahanpur.  
 Habibullah, Dalelganj, Shahjahanpur.  
 Mazharul Haq, Mohamedzai, Shahjahanpur.

**16. List of castor oil dealers.**

Thakur Das Shyam Sundar, Carewganj, Shahjahanpur.  
 Shyam Lal Mathura Prasad, Carewganj, Shahjahanpur.  
 Hardayal Behari Lal, Carewganj, Shahjahanpur.  
 Kirpa Ram Bateshi Ram, Carewganj, Shahjahanpur.  
 Sita Ram Babu Ram, Carewganj, Shahjahanpur.

**17. List of lac exporters.**

Lalla Manibar, Tilhar, Shahjahanpur.  
 Inayat Rangrez, Tilhar, Shahjahanpur.  
 Saktey, Tilhar, Shahjahanpur.

**18. List of sann-hemp dealers.**

Ram Bhajan Pearey, Carewganj, Shahjahanpur.  
 Babu Ram Suraj Prasad, Carewganj, Shahjahanpur.  
 Ganga Ram Harnam Das, Bholaganj, Shahjahanpur.

**19. List of balb grass dealers.**

Pearey Lal, Bahadurganj, Shahjahanpur.  
 Mangli Lal, Bahadurganj, Shahjahanpur.  
 Imdad Ali, Bahadurganj, Shahjahanpur.  
 Lallu Khan, Bahadurganj, Shahjahanpur.

**20. List of painters of wood and brass.**

Imam Ali, Tilhar, Shahjahanpur.  
 Karimullah, Tilhar, Shahjahanpur.  
 Asad Ali, Tilhar, Shahjahanpur.

**21. List of cloth merchants.**

Badri Prasad Debi Das, Chowk, Shahjahanpur.  
 Girdhari Lal Lachhmi Narain, Chowk, Shahjahanpur.  
 Deeki Nandan Ram Bharose, Chowk, Shahjahanpur.  
 Hazari Lal Madan Lal, Chowk, Shahjahanpur.  
 Sri Krishna Balgovind, Chowk, Shahjahanpur.  
 Pt. Dedutta, Tilhar, Shahjahanpur.  
 Raddu Bania, Tilhar, Shahjahanpur.  
 Salamat, Tilhar, Shahjahanpur.

Nannhe, Tilhar, Shahjahanpur.  
 Misri Lal, Miranpur Katra, Shahjahanpur.  
 Munna Lal, Miranpur Katra, Shahjahanpur.

#### 22. List of yarn dealers.

Behari Lal Radhakrishna, Chowk, Shahjahanpur.  
 Anant Ram Bhagwandas, Chowk, Shahjahanpur.  
 Gauri Lal, Balmakund, Chowk, Shahjahanpur.  
 Nagarmal, Bahadurganj, Shahjahanpur.  
 Hafiz Saifullah, Bahadurganj, Shahjahanpur.  
 Sheo Charan Lal, Tilhar, Shahjahanpur.  
 Ram Lal Shyam Lal, Tilhar, Shahjahanpur.  
 Asharfi, Tilhar, Shahjahanpur.  
 Misri Lal, Miranpur Katra, Shahjahanpur.  
 Munna Lal, Miranpur Katra, Shahjahanpur.

#### 23. List of saikalgars.

Mumtaz Ali, Chowk, Shahjahanpur.  
 Hasan Ali, Chowk, Shahjahanpur.  
 Kazim Ali, Chowk, Shahjahanpur.  
 Inayat Ali, Chowk, Shahjahanpur.

#### 24. Names of some of the baib grass workers.

Habibullah, Babuzai, Shahjahanpur.  
 Abdul Razzaq, Babuzai, Shahjahanpur.  
 Amanatullah, Babuzai, Shahjahanpur.  
 Ghulam Husain, Babuzai, Shahjahanpur.  
 Ilahi Bux, Babuzai, Shahjahanpur.  
 Habib Bux, Babuzai, Shahjahanpur.

#### 25. List of dealers in wooden bed-posts.

Nathu Lal, Tilhar, Shahjahanpur.  
 Kanhyalal, Tilhar, Shahjahanpur.  
 Nazir Ahmad, Tilhar, Shahjahanpur.  
 Mangli Prasad, Tilhar, Shahjahanpur.

#### 26. List of important dealers in silver ornaments.

Kakay Mal Raj Narain, Chowk, Shahjahanpur.  
 Lala Kashi Nath Seth, Chowk, Shahjahanpur.  
 Hardwari Lal Kunji Lal, Chowk, Shahjahanpur.  
 Banwari Lal Salig Ram, Chowk, Shahjahanpur.

**27. List of important goldsmiths.**

Kedar Nath, Chowk, Shahjahanpur.  
Ganga Prasad, Chowk Shahjahanpur.  
Mata Din, Chowk, Shahjahanpur.  
Babaji Sundar Das, Chowk, Shahjahanpur.

**28. List of dealers in brasswares.**

Banwari Lal Kunji Lal, Chowk, Shahjahanpur.  
Bansidhar Mathura Prasad, Chowk, Shahjahanpur.  
Satya Lal Shyam Sundar, Chowk, Shahjahanpur.  
Shankar Bhagat, Pawayan, Shahjahanpur.  
Behari Lal, Pawayan, Shahjahanpur.  
Mangli Prasad, Pawayan, Shahjahanpur.  
Parmeshwari Lal, Pawayan, Shahjahanpur.  
Sundar Dass, Pawayan, Shahjahanpur.  
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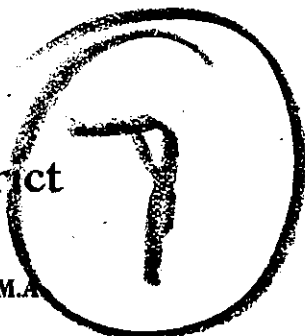
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Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

Sitapur District

*By*

B. K. GHOSHAL, M.A.



ALLAHABAD :

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## FOREWORD.

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SITAPUR has two important places of pilgrimage—Nimsar and Misrikh—both of which are visited by a very large number of pilgrims throughout the year, yet none of them have any industries of any name. This can only be attributed to bad communications. They have now been connected by rail and have begun to attract merchants from the districts of Benares, Shahjahanpur, Moradabad and other places. A metalled road to these places may cause a few industries to spring up locally.

The district has very few industries, and they too are in a very backward condition. The pottery of the district, as of every other district, requires experiments to be conducted in finding a suitable glaze and devising an improved furnace. Experiments should also be made in finding out whether the Rungpur variety of foreign tobacco or any other variety fit for cigar-making cannot be acclimatised here. The necessity of starting the experiments by the Agricultural department has been mentioned in several other reports. Co-operative societies are wanted for manufacturers of baskets and mats and makers of tazias.

Weaving schools are wanted at Khairabad and Larpur, and the school at the former place had better have a dyeing wing also attached to it. The municipal board is willing to co-operate in starting the school, and every help is expected from the Secretary. A model button factory should also be started somewhere. River mussel shells are available in many districts of the province, and demonstration of a set of machinery is likely to result in the springing up of several factories in various districts.

The report is drawn up on the lines of the Lucknow report which has already been published. The introduction consists of lists of roads, markets, ferries, fairs, etc. The resources

of the district are enumerated in the second chapter, and the third chapter gives description of, and suggestions for the improvement of various industries of the district. The fourth chapter contains the industrial possibilities, and in the fifth are collected statistics for the compilation of the provincial hand-book, while a directory of principal firms and dealers ends the report.

The result of the experiments undertaken by the Court of Wards in jute growing in the Ganjar will be watched with interest by many who look at it as fraught with facilities and great potentialities.

The report has been revised by Mr. S. T. Gadre, Industrial Chemist to Government, United Provinces, and my thanks are due to him. Thanks of the department are also due to the following gentlemen who helped the Superintendent in his survey work:—

1. Mr. S. R. de Courcy Ireland, I.C.S., Deputy Commissioner.
2. Mr. W. C. G. Dunne, M.B.E., Manager, Court of Wards, Sitapur.
3. Munshi Faiyaz Hussain Rizvi, Tahsildar, Sitapur.
4. B. Sarju Prashad Sahib, Tahsildar, Biswan.
5. Maulvi Abdul Hakim, Tahsildar, Sidhauri.
6. M. Islam Khan, Naib-Tahsildar, Misrikh.
7. The Manager, Mahmuda' ad estate.
8. Mr. Muzaffar Mohammad, Deputy Collector, Sitapur.
9. Lala Prag Narain Sahib, Talukdar and Honorary Magistrate, Biswan.

CHAMPA RAM MISRA.

The 27th April, 1922.



## CHAPTER I.

### INTRODUCTION.

#### 1. General features of the district.

The district can be divided into two parts: the uplands or Uparhar and the lowlands or Ganjar. The Uparhar is very much the same as other Oudh tracts, but the Ganjar is marshy and traversed by innumerable rivulets like the tracts of Eastern Bengal and is practically under water throughout the rainy season. The floods of the river Chauka are very common and often do much damage to the crops. For the crops they sometimes prove to be good when they deposit a thick layer of clay loam, but not unoften they also spoil it by a deposit of sand as they did in some parts during last year. On account of the rains and the floods sugarcane and rice are the only crops that thrive in Ganjar which covers two-thirds of Biswan tahsil and one-third of Sidhauri. Sugarcane is the mainstay of the Ganjar people, but the *gur* made there is not considered good for eating purposes. In Ganjar long grasses, called Jhapti, Gondi and Kans, and Jhau trees grow in abundance. There are Jhau and Babul jungles also, but not covering very large areas. The men in the Ganjar tract are not at all industrious, and even weaving is not carried on anywhere, but there are many fishermen who do a lot of fishing in the rivers and jheels. Ganjar soil is very good for hemp, but on account of the excise restrictions it is not at all sown, and all that grows spontaneously is cut down and the trees are used when dried up for thatching purposes.

#### 2. Boundaries.

The Gomti divides Sitapur from Lucknow on the west and south-west border, while Ghagra separates it from Bahraich in the east. To its north lies the Kheri district.

### 3. Area.

Its total area is about 1,440,248 acres or 2,250.38 square miles.

### 4. Rivers.

The chief rivers are the Gomti with its tributaries, the Kathna and the Sarayan, and their affluents, the Jamwari, Purai, Behta and Gond. The Chauka is in the lowlands with its tributaries, the Kewani and Ghagra.

### 5. Jheels.

The district has a large number of jheels and tanks which are of great value for irrigation purposes. The jheels are Barela, Bakhera, Nasirpur, Kundoui, Benipure, Paraini, Tundwa, Pipariya and Rajepur Gundwa in Biswan tahsil, Bhandia Jehaugirpur, Chaurnia, Surjanpur and Kurar in Sidhaulti tahsil, Daleora, Madanian, Nansoha, Gundlamau, Tikra, Rohila and Bhurkura in Misrikh tahsil.

### 6. Minerals.

Kaukar is the only mineral product of the district.

### 7. Communications.

There are no metalled roads in the Ganjar which is difficult to traverse in the rains. Men have to go on boats or on foot. A railway is going to be constructed across the Gaujar tract via Moghalpur and will then make transport of Ganjar products an easy affair. Metalled roads would be very difficult and expensive to maintain in the Ganjar. Sitapur tahsil is very well connected by roads, but the kuchcha road from Sitapur to Laharpur needs to be metalled. Laharpur is a weaving centre and one of the most flourishing town-areas in the district. Biswan and Sidhaulti tahsils are also well connected, except in the Gaujar tract. But Misrikh tahsil is very backward and has not got a single metalled road, except the portion of the Lucknow-Shahjahanpur road which passes through Maholi pargana. The kuchcha road from Sitapur to Hardoi and the road from

Bari to Chandra should be metalled. On the Bari-Chandra road is Kutubnagar where a considerable manufacture of metal utensil is done and the manufacturers feel much trouble in getting their raw material and sending over their finished products. The gariwalas charge them much as the road is not metalled. It is  $7\frac{1}{2}$  miles from the Misrikh station and can flourish like Oel in the Kheri district if the road to Misrikh be metalled. The Sitapur-Hardoi road would be a boon to the traders and the pilgrims who flock to the Misrikh and Nimsar fairs. Merchants from Hardoi and Lakhimpur and Lucknow send much merchandise to Misrikh. The traders, however, have to experience much difficulty in transporting their goods. Lakhimpur and Lucknow men send their goods all right up to Sitapur, but have to spend nearly as much or even more for taking them to Misrikh by the kucha road. The need for metalling these two roads is very great and some steps should be taken at once. I am told that the metalling of the Sitapur-Hardoi road has been sanctioned; if so, the work should be taken in hand immediately. The river Katna should be bridged to make communication safe and easy between Kutubnagar and Chandra pargana which remains practically cut off during rains.

### 8. Roads.

#### *Provincial.*

	Miles.
Metalled roads, bridged and drained throughout—	
Lucknow to Sitapur and Shahjahanpur ...	... 56
Kamalpur railway feeder ...	... 1 fur.

#### *Local.*

First class roads, metalled, bridged and drained throughout :—

Sitapur to Bahramghat ...	... 18
Sitapur to Mehdighat ...	... 2
Sitapur to Lakhimpur ...	... 1
Sitapur to Tarinpur ...	... 1
Khairabad to Bargadiaghat ...	... 5

	Miles.
Khairabad railway feeder ... ..	1
Bari to Mahmudabad ... ..	17
Bari to Biswan ... ..	17
Biswan to Bahraich ... ..	1
Biswan to Lakhimpur ... ..	1
Misrikh to Rajghat ... ..	1
Kamalpur to Jaraura ... ..	4
<b>Second class roads, unmetalled, partially bridged and drained :—</b>	
Sitapur to Mallanpur, ... ..	41
Sitapur to Gola ... ..	14
Sitapur to Dadhnamaughat and Hardoi ... ..	19
Khairabad to Laharpur ... ..	5
Khairabad to Bargadiaghat ... ..	16
Biswan to Lakhimpur ... ..	22
Biswan to Bahraich ... ..	17
Lakhimpur to Bahraich ... ..	10
Lakhimpur to Lucknow road ... ..	2
Mahmudabad to Tambaur ... ..	33
Mahmudabad to Lucknow ... ..	2
Mahmudabad to Bilehra ... ..	6
Misrikh to Rajghat ... ..	6
Misrikh to Jalalpur ... ..	17
Bari to Chandra ... ..	41
Chandra to Pibani ... ..	10
Maholi, Chandra, Pisawan and Gopamau ... ..	11
Maholi, Baragaon, Hargam and Laharpur ... ..	32
Wazirnagar to Mabsunian ... ..	8
Manwau to Sandila ... ..	4
Ataria to Magraura ... ..	6
Mahmudabad and Junction road ... ..	1
<b>Second class roads, unmetalled, bridged and drained through-out :—</b>	
Sitapur to Bahramghat ... ..	18
Do. Mehdighat ... ..	18
Do. Lakhimpur ... ..	16

	Miles.
Bari to Mahmudabad ... ..	1
Bari to Biswan ... ..	1
Others ... ..	52

9. Ferries.

River.	Ferry.
Gomti ..	Kulhabarghat.
*Do. ...	Dadnuman.
Do. ...	Rajghat.
Do. ...	Mahadewaghat.
Do. ...	Hataghat.
Do. ...	Bhatpurwaghat.
Do. ..	Khampur.
Do. ...	Ramghat.
Chauka ...	Jairampur.
Do. ...	Bansura.
Do. ...	Gobarghat.
Do. ...	Chandauli.
Ghagra ...	Pharuaghat.
Do. ...	Chahlari.
Do. ...	Kataighat.
Dahawar ...	Bairagipur.
Do. ...	Chandwapur.
Chauka ...	Rasulpur.
Do. ...	Gwari.
Gobaria ...	Domatha.
Do. ...	Dheopur.
Dahawar ...	Dubar.
Do. ...	Amatia Bhimaila.
Chauka ...	Daheli.
Do. ...	Chandi.
Do. ...	Zalimpur.

10. Markets

Town or village.	Name of bazar.	Market days.
Sitapur ...	Sadar bazar	Daily.
Do. ...	Thompsonganj ...	Wednesday and Saturday.

Name of village.	Name of bazar.	Market days.
Khairabad ...	Bari bazar ...	Daily.
Wazirganj ...	Raniganj ...	Do.
Ramganj ...	Rakabganj ...	Do.
Do. ...	Kesra ...	Do.
Unsia ..	Unsia ...	Monday and Friday.
Hajipur ..	Hajipur ...	Tuesday and Saturday.
Narsohi ...	Shah Mahuli ...	Sunday and Thursday.
Bambhaura ..	Bambhaura ...	Ditto.
Neri Kalan ...	Neri ...	Ditto.
Amilia Sultanpur	Amilia ...	Tuesday and Saturday.
Udhaia grant ...	Kateli ...	Tuesday and Friday.
Kamunia ...	Kamunia ...	Monday and Friday.
Bithauli ...	Bithauli ...	Ditto.
Maholi ...	Maholi ...	Tuesday and Saturday.
Akbarpur ...	Akbarpur ...	Tuesday and Saturday.
Tanda Khurd ..	Tanda ...	Ditto.
Dhakra ...	Kedar Tanda ...	Ditto.
Mandrasan ...	Mandrasan ...	Ditto.
Ibrahimpur ...	Ibrahimpur ...	Wednesday and Saturday.
Angrasi ...	Sbeikhwapur ...	Ditto.
Pahladpur ...	Bangadia ...	Ditto.
Parsendi ...	Parsendi ...	Monday and Friday.
Raiganj ...	Ganeshganj ...	Ditto.
Rorapur ...	Rorapur ...	Ditto.
Talgaon ...	Hasanganj ...	Sunday and Thursday.
Jarthua ...	Bajepur ...	Ditto.
Sultanpur ...	Sultanpur ...	Ditto.
Kakrahi ...	Bardahia ...	Ditto.
Jitaman Kalan ...	Jitaman ...	Sunday and Saturday.
Shahqulipur ..	Mungrahia ...	Tuesday.
Sherpur ...	Paharpur ...	Wednesday.
Daryapur ...	Daryapur ...	Monday and Thursday.
Katiara ...	Katiara ..	Tuesday and Friday.
Tirpatpur ...	Narpatpur ...	Ditto.
Gurdhapa ...	Gordhapa ...	Ditto.

SITAPUR DISTRICT.

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Name of village.	Name of basar.	Market days.
Jhangirabad ...	Ganj Mahewa ...	Daily.
Jilapur ...	Jialipur ...	Sunday.
Pipra Ghori ...	Pipra Ghori ...	Do.
Bajebra ...	Seoraha ...	Monday and Friday.
Haidarpur ...	Colonelganj ...	Tuesday and Wednesday.
Saraimau ...	Saraimau ...	Monday and Thursday.
Mumtazpur ...	Mumtazpur ...	Sunday and Thursday.
Keonti Kulan ...	Keonti ...	Wednesday and Saturday.
Biswan ...	Raiganj ...	Ditto.
Do. ...	Qila Darwaza ...	Tuesday and Wednesday.
Manpur ...	Manpur ...	Sunday and Thursday.
Hasanpur ...	Sarana ...	Ditto.
Sarai ...	Sarai ...	Ditto.
Maharajnagar ...	Maharajnagar ...	Ditto.
Shahpur ...	Bohra ...	Ditto.
Jalalpur ...	Katra ...	Sunday and Thursday.
Do. ...	Mianganj ...	Sunday and Friday.
Do. ...	Aliganj ...	Tuesday and Saturday.
Jahangirabad ...	Jahangirabad ...	Ditto.
Bhitaura ...	Bhitaura ...	Ditto.
Sanda ...	Sanda ...	Ditto.
Ahmadabad ...	Ahmadabad ...	Sunday and Wednesday.
Ramuapur ...	Ramuapur ...	Ditto.
Bhaukalganj ...	Dhaukalganj ...	Wednesday and Saturday.
Bambhaura ...	Bambhaura ...	Monday and Friday.
Basedi ...	Basedi ...	Ditto.
Mahrajnagar ...	Ghazipur ...	Ditto.
Ahrauri ...	Ahrauri ...	Ditto.
Pipra Khurd ...	Haraiya ...	Ditto.
Seota ...	Sheta ...	Ditto.
Mallapur ...	Mallapur ...	Sunday and Wednesday.
Harharpur ...	Kusmaura ...	Ditto.

Name of village,	Name of bazar	Market days
Airapur ...	Sipauli ...	Sunday and Thursday.
Itauri ...	Itauri ...	Ditto.
Ranipur Gundwa	Ranipur ...	Ditto.
Sipauli ...	Sipanli ...	Tuesday and Saturday.
Kursa ...	Kursa ..	Ditto.
Bambniawan ...	Bambniawan ...	Ditto.
Ditto ...	Do. cattle	Monday and Saturday.
Khanpur ...	Khanpur ...	Wednesday and Saturday.
Bhadewan ...	Bhadewan ...	Monday and Thursday.
Thanagaon ...	Thanagaon ...	Ditto.
Anantgaon ...	Anantgaon ...	Wednesday and Thursday.
Hataura ...	Hataura ...	Tuesday and Friday.
Jagdispur Hazaria	Jagsipur ...	Ditto.
Tambaur ...	Tambaur ...	Sunday and Wednesday.
Sakran ...	Sakran ...	Ditto.
Bhadphar ...	Bhadphar ...	Ditto.
Musiana ...	Musiana ...	Ditto.
Ahauri Samaria	Maraucha ...	Ditto.
Shahpur ...	Shahpur ...	Tuesday and Saturday.
Behta ...	Behta ...	Ditto.
Phulpur Gyan ...	Phulpur Gyan ...	Monday and Thursday.
Hazratpur ...	Hazratpur ...	Ditto.
Mundila ...	Mundila ...	Sunday and Thursday.
Bhawanipur ...	Bhawanipur ...	Ditto.
Khairi ...	Khairi ...	Tuesday and Friday.
Dumahi ...	Raghatarganj ...	Monday and Friday.
Rehar ...	Rehar ...	Ditto.
Mughalpur ...	Mughalpur ...	Ditto.
Bari ...	Bari ...	Ditto.
Sarauli ...	Sarauli ...	Ditto.
Kasmanda ..	Kasmanda ...	Ditto.
Mirzapur ...	Mirzapur ...	Ditto.
Sidhauli ...	Sidhauli ...	Tuesday and Saturday.
Uncha Khera ..	Uncha Khera ..	Ditto.
Rampur Kalan ...	Rampur ...	Wednesday and Saturday.



Name of village.	Name of bazar.	Market days.
Bhandia ...	Bhandia ...	Sunday and Thursday.
Mahmudabad ...	Mahmudabad ...	Ditto.
Paintepur ...	Paintepur ...	Ditto.
Bilauli ...	Bilauli ...	Monday and Thursday.
Hariharpur ...	Hariharpur ...	Monday and Friday.
Sarauli ...	Sarauli ...	Ditto.
Isarwara ...	Isarwara ...	Ditto.
Murshidabad ...	Murshidabad ...	Tuesday and Thursday.
Niamatpur Liborha ...	Niamatpur ...	Tuesday and Saturday.
Rasulpur ...	Rasulpur ...	Sunday and Wednesday.
Manwan ...	Manwan ...	Ditto.
Ataria ...	Ataria ...	Tuesday and Saturday.
Keshopur ...	Gangaganj ...	Sunday and Thursday.
Bansura ...	Bausura ...	Ditto.
Sadrpur ..	Sadrpur ...	Monday and Thursday.
Bakhawan .	Bakhawan ...	Monday and Friday.
Intia ...	Iotia ...	Ditto.
Chandpur ...	Chandpur ...	Tuesday and Saturday.
Bilauli ...	Bilauli ...	Ditto.
Madhoganj ...	Madhoganj ..	Sunday and Wednesday.
Bahloli ...	Bahloli ...	Ditto.
Ranganj ...	Ranganj ...	Ditto.
Rampur ...	Rampur ...	Monday and Thursday.
Kudsura ..	Kudaura ...	Ditto.
Bahadurganj ...	Bahadurganj ...	Sunday and Tuesday.
Bhagotipur .	Bhagotipur ...	Monday and Friday.
Chukri ...	Chukri ...	Ditto.
Misrikk ...	Misrikk ..	Tuesday and Friday.
Qutubnagar ..	Qutubnagar ...	Ditto.
Bihat Gaur ...	Bihat Gaur ...	Ditto.
Ant ...	Ant ..	Monday and Thursday.
Arthana ...	Arthana ...	Ditto.
Patabojh ...	Patabojh ...	Tuesday and Saturday.
Wazirnagar ...	Wazirnagar ...	Sunday and Thursday.
Nimkhar ...	Nimkhar ...	Ditto.
Aurangabad ...	Aurangabad ...	Wednesday and Saturday.

Name of village.	Name of bazar.	Market days.
Machhrehta ...	Machhrehta ...	Wednesday and Saturday.
Ditto ...	Ditto ...	Sunday and Thursday.
Dingra ...	Dingra ...	Sunday and Wednesday.
Mirzapur ...	Mirzapur ...	Tuesday and Saturday.
Bihat Bairam ...	Bihat Bairam ...	Ditto.
Bhitaura ...	Bhitaura ...	Wednesday and Saturday.
Baniamau ...	Baniamau ...	Monday and Friday.
Korauna ...	Korauna ...	Ditto.
Mohkamganj ...	Mohkamganj ...	Sunday and Thursday.
Pisawan ...	Pisawan ...	Ditto.
Kherwa ...	Kherwa ...	Wednesday and Saturday.
Pipri Shadipur ...	Pipri Shadipur ...	Tuesday and Saturday.
Munda Kalan ...	Munda Kalan ...	Monday and Friday.
Gursanda ...	Gursanda ...	Ditto.
Gundlamau ...	Gundlamau ...	Ditto.
Dharauli ...	Dharauli ...	Ditto.
Alipur ...	Alipur ...	Tuesday and Saturday.
Maholi ...	Maholi ...	Sunday and Wednesday.
Kusela ...	Kusela ...	Ditto.
Gharka Tara ...	Gharka Tara ...	Tuesday and Friday.
Selapur ...	Selapur ...	Ditto.
Amilia ...	Amilia ...	Ditto.
Baragaon ...	Baragaon ...	Wednesday and Saturday.
Urdauli ...	Urdauli ...	Monday and Thursday.

## 11. Fairs.

Town or village.	Name of fair.	Date.
Sitapur ...	Ramlila ...	Kuar Sudi 10.
Do. ...	Dhanusjag ...	End of Aghan.
Keshopur ...	Ditto ...	Ditto.
Parai Raipur ...	Ditto ...	Ditto.
Jar ...	Bamaria Fir ...	Two last Sundays of Jeth and two first of Asark.
Padarkha ...	Lalta Debi ...	Every Amawas.

Town or village.	Name of fair.	Date.
Khagasiamau ...	Jalbihar ...	Bhadon Sudi 12.
Bamhaura ...	Ditto ...	Ditto.
Amilia ...	Ditto ...	Ditto.
Basaili ...	Ditto ..	Ditto.
Nawada ...	Ditto ...	Ditto.
Rajha ...	Ditto ...	Ditto.
Khairabad ...	Ramlila ...	Kuar Sudi 10.
Ditto ...	Jalbihar ...	Bhadon Sudi 12.
Ditto ..	Gur Parab ...	Kuar Badi 12.
Qasimpur ...	Nazar Ali Shah ...	Magh Sudi 5.
Ramkot ...	Dhanusjag ...	End of Aghan.
Raiganj ...	Ditto ...	Aghan Sudi 1.
Akbarpur ...	Surajkund ...	Kartik Puranmashi and Jeth Sudi 10.
Tahpur ...	Jangli Nath ...	Sawan Puranmashi and Sheoratri.
Parsendi ...	Ramlila ...	Kuar Sudi 10.
Udnapur ...	Do. ...	Ditto.
Rampur Barwa ...	Katki ...	Kartik Puranmashi.
Ditto ...	Dasehra ...	Jeth Sudi 10.
Alawalpur ...	Dhanusjag ...	Aghan Sudi 5.
Jairampur ...	Bansibat ...	Aghan Sudi 7.
Maholi ...	Mahothi ...	Chait Sudi 14.
Kamalpur ...	Ramlila ...	Kuar Sudi 10.
Bhitauli ...	Husaina Dih ...	End of Jeth.
Tools ...	Bala Pir ...	First Sunday in Jeth.
Kundasa ...	Nandprayag ...	Kartik Puranmashi.
Sanda ...	Nela Dargah ..	Id-ul-Fitr.
Mandarwa ...	Budhan Baba ..	Middle of Jeth.
Sukhawan ...	Bhagat Baba ...	First Sunday in Jeth Sudi.
Amarnagar ...	Mansa Ram ...	Every full moon.
Maharajnagar ...	Ramlila ...	Kuar Sudi 10.
Katra ...	Dhanusjag ...	Aghan Singh 1 to 8.
Deotapur ...	Mabadeo ...	Sheoratri.
Jalalpur ...	Ramlila ...	Kuar Sudi 10.

Town or village.	Name of fair.	Date.
Ahmadabad ...	Saiyid Burhan-ud-din.	First Sunday in Jeth.
Guraila ...	Mandwa ...	End of Aghan to end of Pus.
Tambaur ...	Dhanusjag ...	Aghan Badi 1 to 8.
Mallanpur ...	Ditto ...	Aghan Sudi 1 to 8.
Khairandesnagar	Sheo Ashnan Ramkund.	Jeth and Kartik Puranmashi.
Saraiyan ...	Dhanusjag ...	Aghan Sudi 10.
Kaima ...	Gangesbwar Nath	Every Monday in Sawan.
Manwan ...	Dasehra ...	Jeth Sudi 10.
Ditto ...	Katki Ashnan ...	Kartik Puranmashi.
Barazpur ...	Ditto ...	Ditto.
Dharanagri ...	Amarnag ...	Ditto.
Dharampur ...	Ashnan Daria ...	Kartik and Magh Mauni Amawas.
Bansura ...	Panchon Pir ...	First Sunday of Jeth.
Bahlolnagar ...	Ramlila ..	Kuar Sudi 10.
Mathura ...	Mela Malang ...	Aghan Badi 9.
Rampur ...	Dhanusjag ...	Aghan Sudi 5.
Paintepur ...	Ditto ...	Ditto.
Ditto ...	Sangat Nanak Shah	Kartik Sudi 11.
Ditto ...	Mian Mansab Ali	Twenty first of Shaban.
Mahmudabad ...	Nathua Pir ...	First Sunday of Jeth.
Ditto ...	Shahid Mard ...	End of Jeth.
Sehlumau ...	Ramlila ...	Kuar Sudi Puranmashi.
Misrikh ...	Katki Ashnan ...	Kartik Puranmashi.
Ditto ...	Ramlila ...	Kuar Sudi 2.
Ditto ...	Parikrama ...	Bhagun Sudi 11.
Deogson ...	Parikrama ...	Phagun Sudi 6.
Mandarwa ...	Ditto ...	Phagun Sudi 7.
Barehti ...	Ditto ...	Phagun Sudi 10.
Qutbnagar ...	Kanslila ...	Kartik Sudi 2.
Wazirnagar ...	Dhanusjag ...	Aghan Sudi 2.

Town or village.	Name of fair.	Date.
Nimkhar ...	Chakra Tirath and Lalta Debi.	Every Amawas and Puranmashi.
Ditto ...	Parikrama ...	Phagun Sudi 9.
Korauna ...	Ditto ...	Phagun Sudi 1.
Jargawan ...	Ditto ...	Phagun Sudi 8.
Marhia ...	Ramlila ...	Kuar Sudi 1.
Kali ...	Kanslila ...	Bhadon Sudi 8.
Kunera ...	Ditto ...	Ditto.
Chheolaghat ...	Ganga Ashnan ...	Kartik Puranmashi.
Dhakha Ramghat ...	Ditto ...	Ditto.
Machhrohta ...	Ramlila ...	Kuar Sudi 10.
Sikrara ...	Ditto ...	Ditto.
Dingra ...	Mahasen ka Mela ...	Asarh Sudi 7.
Do. ...	Dhanusjag ...	Aghan Sudi 5.
Sailapur ...	Silhat ...	Chait and Kuar Badi 8.
Bagehan ...	Salon ...	Sawan Puranmashi.

## 12. Cattle census.

	Rs.
Cows and buffaloes ...	2,86,371
Bulls and buffaloes ...	3,04,981
Calves ...	2,58,715
Sheep ...	34,431
Goats ...	1,19,801
Total ...	10,03,009

## CHAPTER II.

## RESOURCES.

## 1. Agricultural produce.

(a) *Arhar*.—Area cultivated; 18,314 acres. Yield, 146,512 maunds.

(b) *Bajra*.—Area cultivated, 84,598 acres. Yield, 592,186 maunds.

(c) *Barley*.—Area cultivated, 238,928 acres. Yield 2,628,208 maunds.

*Prices*.—Rs. 4 to Rs. 4-8 per maund.

*Export duty*.—Free.

*Import duty*.—Free in England, Belgium and Holland and 20 per cent. in France, 28 per cent. in Germany, 37 per cent. in U. S. A. and 13 per cent. in Japan.

The unit of sale in Sitapur is the maund of 82 lbs. and it is shipped in bags of 2 maunds each.

(d) *Cotton*.—Area under cultivation: 10,042 acres. Yield 2,739 bales.

*Prices*.—Rs. 36 to Rs. 40 per maund.

*Export duty*.—Free.

*Import duty*.—Free in all countries, except Italy 2 per cent. and Russia 49 per cent.

*Freight*.—It is charged on measurement, 100 bales of 400 lbs. each will weigh about 25 tons or about 675 maunds.

There are no ginning or pressing factories in the district. Only the short stapled variety is grown here.

(e) *Gram*.—Area cultivated, 262,474 acres. Yield, 3,937,110 maunds.

*Prices*.—Rupees 4-8 per maund.

*Export duty.*—Free.

*Import duty.*—Free everywhere except in Germany 18 per cent. and Japan 16 per cent.

The unit of sale is the maund and the units of shipment are bags of 2 cwts. in Karachi and 2 maunds in Bombay.

(f) *Ground-nut.*—Area cultivated, 662 acres. Yield 5,958 maunds.

*Prices.*—Rupees 8 to Rs. 11 per maund during the cold season.

*Export duty.*—Free.

*Import duty.*—Not known.

*Freight.*—£3-5-0 per ton of 27 maunds from Madras to Marseilles.

It is not an important article for export, but its cultivation is increasing as it fetches a good return for the outlay. Its oil is being mixed largely with ghee and it is very much liked by all during the cold season as a spare repast after being roasted in sand.

(g) *Juar.*—Area cultivated, 10,287 acres. Yield, 82,296 maunds.

This is not exported and the villagers use it mostly as food.

(h) *Linsed.*—Area cultivated, 11,945 acres. Yield, 47,780 maunds.

*Prices.*—Rupees 8 to Rs. 9 per maund.

*Export duty.*—Free.

*Import duty.*—Free in all countries except Italy 18 per cent.

*Freight.*—£1-4-2 per ton of 27 maunds from Calcutta to London.

It is packed in gunny bags of about 2 maunds and the unit of sale is the maund.

The plant can produce good fibre, but the long cultivation of the plant for the seed only has produced a branching habit which has spoilt the fibre.

(i) *Maise.*—Area cultivated, 39,085 acres. Yield, 547,190 maunds.

(j) *Munj.*—Munj is seen by the side of gardens and railway lines as in Sitapur on the Sitapur-Balawan line. In Mirik there is an extensive area under munj which extends across the river Gumti into the Hardoi district. The approximate area

in the tahsil is about 1,000 acres. Total area in the district is 1,500 acres.

The villages on the Gumti like Lachhmanganj Fouladganj, Champaria, Bhamesaur, etc., have munj areas and the men there make munj rope or 'ban' which is sold in large quantities in the Dharauli bazar in Sidhauri tahsil. Wazir Mian of Lachhmanganj makes very fine 'ban' like twine. Ban worth about Rs. 80,000 is prepared in the tahsil and sold in the Nimnar and Dharauli bazars. The place offers a good field for the manufacture of munj matting.

(k) *Peas*.—Area cultivated, 8,829. Yield, 106,068 maunds.

*Prices*.—Rupees 5 per maund.

*Import duty*.—Same as for gram.

(l) *Poppy (Opium)*.—Area cultivated, 7,093 acres. Yield, 38,752 maunds of seed.

*Prices*.—Rupees 10-10 per maund.

*Export duty*.—Free.

*Import duty*.—The seed is imported free in England, Belgium, France and Holland, while Germany levies 6 per cent. The 'white' variety is common. The seed is used in India mostly as food and very little of it is crushed. The oil is an important ingredient of paints in France where it is also used as an edible.

The unit of sale for the seed is the maund and of shipment a bag of 140 lbs. to 168 lbs. Opium is shipped and sold in chests of 140 lbs.

(m) *Rape and Mustard seed*.—Area cultivated, 1,316 acres. Yield, 7,896 maunds.

*Prices*.—Rupees 9 to Rs. 9-8-0 per maund.

*Export duty*.—Free.

*Import duty*.—Free in all countries except Hungary 12 per cent, Germany 9 per cent. and Italy 16 per cent.

*Freight*.—Same as of Linseed.

(n) *Rice*.—Area cultivated, 2,78,836 acres. Yield, 3,067,196 maunds.

*Prices*.—Rupees 7-4-0 to Rs. 9-0-0 per maund.

*Export duty*.—Rupees 0-3-0 per maund of 82 pounds.



*Import duty.*—Free in the United Kingdom, Belgium and Holland. 23 per cent. in Austria Hungary. 5 per cent. in France, 30 per cent. in Germany, 65 in Italy, 115 per cent. in Russia, 41 per cent. in U. S. A. and 26 per cent. in Japan. Sitapur rice is not very good, but is fit for local consumption. Ganjar produces most of the rice, but there are no hulling machines in the district. A hulling machine in connection with an oil mill and pulse breaking mill will be profitable.

(e) *Sanai and Hemp.*—Area under Sanai, 1,259 acres. Yield, 8,813 maunds. Area under Hemp, 20 acres. Yield, 140 maunds.

*Export duty.*—Free.

San and Sanai are not sown separately but as mixed crops, and nowhere are they sown in large quantities. Sanai is used up in the villages by the Kahars who make ropes, etc. Very few are sold in the market.

(p) *Sugarcane.*—Area cultivated, 26,505 acres. Yield, 840 463 maunds of gur.

*Prices.*—Rupees 8-6-0 per maund at the harvest time and Rs. 12-7-0 per maund at the time of my enquiry.

*Export duty.*—Free.

*Import duty.*—Free elsewhere and 18 per cent. in the U. S. A.

*Freight.*—From Madras to London £ 7 for 27 maunds.

The villages get kolhus or sugarcane pressing machines from the mahajans or the suppliers of the mills—Mr. Perfect of Bara Banki and Shiva Dayal of Delhi. Gur is made in blocks which are wrapped in gunny bags and exported. The Ganjar gur is not considered good by the villagers, but it is utilised by the sugar mills of Gorakhpur, Unao, etc. Sugarcane and gur of Maholi is famous and most of it is utilised by the Rosa Sugar Factory.

(q) *Til or Sesamum.*—Area cultivated, 2,850 acres. Yield, 9,400 maunds.

*Prices.*—Rupees 9 to Rs. 11 per maund.

*Export duty.*—Free.

*Import duty.*—Free elsewhere except Germany 6 per cent., Italy 16 per cent., and Russia 10 per cent.

(r) *Tobacco*.—Area cultivated, 4,015 acres. Yield, 28,105 maunds.

*Export*.—About three-fourths of the produce.

*Prices*.—Maghi or Strong (for preparing eating tobacco) at Rs. 25 per maund and Kalkatia or ordinary at Rs. 18 per maund.

It is not an article for foreign exports. The unit of sale is the maund of 46 seers. The exports go to Lucknow (the superior variety), the Punjab, Gonda and Nepal, Dehra Dun, Naini Tal, etc. The Hillmen come to Laharpur and Biswan and purchase pounded tobacco.

The leaves of Biswan tahsil and Laharpur pargana of the Sitapur tahsil are famous for eating and smoking tobacco. The Maghi variety grows in soils in which the proportion of salts is greater and where irrigation is possible. They are left to lie on the field after being cut and turned during the day to avoid the heat becoming too much. Some of these Maghi leaves are also treated to a boiled solution of the stems, and this is said to be the best for eating tobacco.

There are many rich people at Biswan who would encourage the sowing of such seeds as would produce varieties suitable for cigar-making.

(s) *Wheat*.—Area cultivated, 305,734 acres. Total yield, 3,668,808 maunds.

*Exports*.—About two-thirds of the entire produce.

*Prices*.—Rupees 6 to Rupees 6-8-0 per maund.

*Freight*.—From Karachi to London £ 5-19 per ton of 27 maunds.

*Export duty*.—Free.

*Import duty*.—Free in England, Belgium and Holland. In France 40 per cent., Germany 37 per cent., Italy 41 per cent., and in Japan 19 per cent.

Sitapur wheat is very good and Sidhanli, Sitapur, Kamalpur, Biswan and Misrikh are the chief markets for collecting grain. It is packed in gunny bags of 2 maunds each. The Corn Trade Association in England regulates the quality of the exports

and the exporter has to guarantee to supply wheat which should have only 2 per cent. of other grains and no dirt.

## 2. Animal resources.

There is no special dearth of grazing areas for cattle in the Uparhar or Upland, but in the Ganjar it becomes extremely difficult to keep cattle during the rainy season. The cultivators have to sell many of their cattle during the rains and repurchase them after the rains. The markets of Ghaznipur and Mahmudabad are flooded with cattle from the Ganjar tract during this season.

(a) *Bones*.—The slaughter-houses do not offer a good field for the collection of bones and the merchants have to depend upon bone-pickers and village chamars who collect bones on payment of a small royalty to zamindar.

Bone available from bigger animals: 2,000 maunds at 20 seers per animal slaughtered or dead.

Bone available from smaller animals: 750 maunds at 2½ seers per animal.

Bones are not put to any use in the district, and all that can be collected are either exported abroad or taken up by Messrs. Allen Brother's Bone Factory at Mogarwara.

(b) *Hides*.—Slaughtered hides: 2,000 in all the slaughter-houses. Other hides: 2,000 in the district.

The unit of sale is either 20 pieces or 20 lbs.

*Freight*.—£ 7-19-2 per ton of 27 maunds from Calcutta to London.

(c) *Horns*.—Horn is also collected like bones and sent out to Lucknow or Cawnpore. They are not put to any use.

(d) *Skins*.—Slaughtered: 6,760 in Sitapur.

Total slaughtered in the district: 12,000.

*Export*.—12,000. The majority is goat skin, and all of it comes to Lucknow or goes to Cawnpore for being exported.

*Prices*.—Rupees 170 or Rs. 190 per 100 skins.

*Export duty*.—Raw free everywhere.

*Freight*.—Same as for hides.

**Season.**—The skins are in the best condition from January to May. They are very soon spoiled during the rainy season when the prices fall very low.

The skins go to Lucknow mostly and are packed in barrels of salt solution and sent to America and England. The Sitapur skins are classed as North, Wests. They are classed according to size. The best skins called "heavy" are 36" long and 21" wide. Size smaller than 25" is classed as kid skin.

(e) **Wool.**—Production from sheep: 51,646 lbs. or 630 maunds, taking  $1\frac{1}{2}$  lbs. per sheep per annum—three shearings.

Production from slaughtered sheep: 1,050 lbs. or 12 maunds 32 seers at  $\frac{1}{2}$  lb. per sheep.

**Prices.**—Rupees 18 to Rs. 20 per maund.

**Used by local Gadariyas**—20,000 lbs. or 244 maunds.

**Exports.**—32,696 lbs. or about 400 maunds.

The jails are the principal purchasers of this wool for coarse blankets.

### 3. Mineral resources.

(a) **Calcium deposits.**—In Maharajnagar in Biswan tahsil there is an extensive deposit of yellow earth called 'pili mitti' which is used for making moulds for metal utensils and for making Kanp by burning the earth as they do it in Lucknow with the Dularmau deposits. The approximate area is about 300 acres.

In Akbarpur on the borders of the Biswan and Sadhauri tahsils there is a stretch of Terai land extending over a distance of about 3 miles where rice is grown in abundance. The soil of this Terai is very hard and almost white and is used for white-washing and also for preparing Kanp by burning it.

(b) **Kankar.**—Baghelia, Sirsi, Shewthana, Ambdabad in Biswan tahsil and Gauria, Kedarpur in Sidhauri. The deposits here are good and considerable.

Kankar is found on the surface in the following places :—In Sarayan on the banks of the river Kewani big boulders are found adjoining this village. The area is about 200 acres. In Ranui in Sidhauri tahsil blocks of kankar are found on the surface.

(c) *Reh*.—There are no extensive reh deposits at any place. The total area under reh is about 350 acres.

(d) *Clay*.—Clay found in the pond at Corona in Misrikh tahsil is very good for pottery and I believe will do very well for a better class of work than what is being done at present. At present they are making ordinary domestic utensils and a few specimens of articles like amsitbans, etc., and some coloured toys.

*General*.—Industrially Sitapur is very backward. Weaving and gur making are the only industries that exist there on any scale. Weaving is of the most ordinary kind and gur is made after the old crude method. In Biswan earthen vessels used to be very artistically painted, but now the art is practically dead. Only four men are engaged, and even they do this work to order only. Bandu (dead) used to do very good work and got a bronze medal and a certificate of merit at the Colonial and Indian Exhibition held in London in 1886. Moulded utensils of mixed metals, such as Brass, Kaskut and Phool, are made, but at two places only—Maharajnagar in Biswan tahsil and Kuta'nagar in Misrikh tahsil. At Biswan a class of people called Kamangars are engaged in making taxias or paper mausoleums of Imam worshipped in Muharram by Musalmans.

## CHAPTER III.

DESCRIPTION OF AND SUGGESTIONS FOR THE IMPROVEMENT  
OF THE VARIOUS DISTRICT INDUSTRIES.

## I. Building materials.

(i) *Brick kilns.*—Brick kiln owners have mostly Bull's kiln, but have permanent brick chimneys instead of the moving iron chimneys. The bricks burnt at Sitapur, etc., are not good and none can be classed as Lucknow's first class.

*Prices.*—Bricks Rs. 16 to Rs. 18 per 1,000.

Patis Rs. 40 per 1,000.

Bricks for wells Rs. 25 to Rs. 27 per 1,000.

Cost of burning all the different varieties is nearly the same, but the cost of preparing mud bricks which is done on contract system is different.

*Profits.*—Cost of 1,000 bricks Rs. 14 to Rs. 15.

Cost of 1,000 patis Rs. 15.

Cost of 1,000 well bricks Rs. 16.

There is very little profit in ordinary bricks, but as it is burnt along with others its cost becomes practically negligible. Those who burn bricks alone do not get much profit except at Sitapur proper where the rate for first class bricks is Rs. 20.

(ii) *Lime mills.*—With the exception of two power mills, there are no other mills in the district. Of these two, only one is working regularly. Both are at Sitapur proper. Others have the old stone rollers driven by a pair of bullocks. Kankar is usually burnt by laying out alternate layers of kankar and fuel in the shape of a pyramid and then firing from below.

*Marketing.*—Lime is supplied to the customers in the carts of the lime mill-owners

*Improvement.*—At Biswan and at Sitapur they should have steam engines or crude oil engines and good disintegrators because

they can get work also from the tobacco dealers who would get the leaves crushed in the disintegrators. For lime grinding the kankar should be burnt in permanent kilns and ground in rollers. There is a general complaint that the lime is not good.

	Rs.
<i>Profits.</i> —Cost of kankar ...	... 7
Cost of burning ...	... 8
Cost of grinding, etc. ...	... 6
	21 per 100 c. ft.

This is sold at Rs. 30 and Rs. 35 per 100 c. ft.—profit Rs. 9 to Rs. 14.

## 2. Chemicals.

*Saltpetre.*—Loniya who are well-to-do or mahajans generally take out the leases for the scraping and collection of the lonas or nitrous earth from zamindars. The mahajan who takes the lease transfers it to Loniya who have to take out the licence for preparing saltpetre from the Salt department at a cost of one rupee. The Loniya give one-third to the mahajan and keep two-thirds for themselves from the sale of which they pay the price of karhais or pots which cost Rs. 8 each. These karhais last for two seasons only as they are very thin.

*Marketing.*—The Loniya sell their produce to the mahajan and they in their turn to the refineries at Khairabad and Hardoi.

*Profits.*—The business is very risky as untimely rains and miscalculations as to the quantity of salt in the soil cause a loss.

*Wages.*—The income of a Loniya comes to Rs. 74 per season, out of which he has to pay for karhai and Rs. 20 as wages for additional labour. His net income is therefore Rs. 46 per season of five months.

*Season.*—From January to June.

### 3. Food grains.

*Splitting of pulses.*—Many of the grain merchants have set up hand machines for kibbling. There are six such works at Thomsonganj, Sitapur, one at Salimpur and another at Tarimpur, post office Sitapur. Three at Jehangirabad, post office Hargoon. One at Biswan. Four at Misrikh and two at Sidhaulti. These machines are an improvement upon the hand chakkis of stone. They do the work much quicker and two men can produce ten times the product of chakki.

*Wages.*—The men are given 6 to 8 annas per day as wages.

### 4. Hardware.

(i) *Iron ware.*—Almost every village has a *lohar* or blacksmith who repairs the agricultural implements. But the blacksmiths of the following places are good workmen :—

*Sitapur tahsil.*—Khairabad (Nawab Bahir Ahmad), Shahpurkariaman Parsenhra Saraura, Phalawan, Teri Kalan, Raghnathpur, Bechobhan.

*Sidhaulti tahsil.*—Sheerganj, Kashipur, Ramdana, Terai, Bhandiya Jai Rampur, Neelgaon, Baubeerpur, Mau, Muzaffarpur, Behdadpur, Seora, Saraora, Palia, Sarwarjalapur.

*Biswan.*—Sewta and Nabikaraila.

(ii) *Metal utensils.*—Utensils of mixed metals of copper, zinc and lead are moulded at three or four places, but the work is done on a large scale at Mahrajnagar and Kutubnagar only. They make Hindu utensils by the moulding process. They mould old utensils and also bars of old metal made at Calcutta. Batua, batloi are made at Mahrajnagar and Khairabad and lots, batloi and tumblers are made at Kutubnagar.

*Organization.*—At Mahrajnagar the manufacturers mostly make things for the mahajans and get wages, but at Kutubnagar they are all independent manufacturers. The manufacturers who sell their own things are better off. They employ journeymen labourers and pay them monthly wages of Rs. 10 to Rs. 12 per month. The itinerant merchants play an important part in this business. They bring old utensils from the villagers and give



them to the manufacturers and take the finished articles of the manufacturers to sell them to the villagers. At Khairabad they get moulds for bigger utensils made at Maharajnagar where the clay of the pouds is most suitable. A medium sized batua's mould will cost Rs. 20 per 100.

*Profits.*— Price of old kaskut 10 annas to 12 annas a seer. Price of ready made article Re. 1-4-0 to Re. 1-8-0.

The profit of 10 to 12 annas per seer includes the cost of preparing the mould and firing the furnace.

*Production.*—There are 20 shops at Kutubnagar, 6 shops at Maharajnagar, 3 shops at Khairabad, and 2 at Paintepur.

In Kutubnagar 6 big shops produce 300 maunds and 14 small ones produce 308 maunds per annum.

In Maharajnagar: 6 shops produce 300 maunds.

In Khairabad: 3 shops produce 25 maunds annually.

In Pintepur: 2 shops produce 10 maunds. One of them is well-known in the vicinity and can make all kinds of things. At Kutubnagar Dharam Singh can make hukkas, katoras, glasses, etc., of kansa or phul. They also make utensils of 'gilat,' i.e., the old zinc ornaments mixed with kaskut. These utensils shine like German silver.

### B. Miscellaneous.

(i) *Fisheries.*—The principal places for fishing are the rivers and rivulets and the big jheels. The rivers Ghagra, Chauka, Gumti, Sarayan, Gubrahiya are the chief among rivers and the jheels Pipariya, Ajaiपुर in Biswan Tikra and Sheothan in Misrikh. Besides these there are innumerable other places where fishing is done from October to May.

The fisheries are claimed by the samindars who lease out by auction particular areas for a season.

*Kinds of nets.*—Nets made of cotton cord cost Rs. 2 to Rs. 4 per square yard and those made of hemp cord cost Re. 1-4-0 to Rs. 2 per square yard. A cotton net will last for five years with small repairs, while the hemp one will not last for more than three years.

*Kinds of fish.*—Mahasheer (rare, but most esteemed). Rohu, Naini, Gaint, Tengan, Jheenga, Moey, Patela, Bhor, Saur, Seengi, Paroi, Bam, Girai, Parhan.

*Rate.*—In Sitapur they sell for 8 annas (the bigger varieties) and 6 annas per seer the smaller ones.

There is no system of drying or curing and only small Jheenga is sun-dried to some extent. Fishermen themselves let off the young ones of Rohu, etc., in rivers and permanent jheels.

(ii) *Manufacture of lac bangles.*—Manihars melt lac and make bangles by the hand. They colour the churis by the lac dye obtained locally. The average production per man is about 30 churis per day. They put coloured lead leaf or sheets made at Malihabad on the churis. The churis are sold in sets of 24 churis and two kangans or bangles proper. The bangles are high brimmed and coloured green and red and are meant to fix up the churis. Each set costs from 6 annas to 8 annas. Tree lac is sold at  $\frac{1}{2}$  to  $\frac{3}{4}$  seer per rupee and chapra or tikia lac from Rs. 2-8-0 to Rs. 3 per seer. About one-third of the tree lac is wasted in washing and remainder is fit for use. It is melted and coated over the churis. There are about 100 manihars in the district producing about 100 sets each for 150 days (they are all cultivators also), i.e., producing 390,000 churis in the year. They sell their churis in the neighbouring bazars.

(iii) *Tazia making at Biswan.*—A considerable amount of work is done at Biswan in connection with the Muharram. The Kamangars are engaged throughout the year in preparing frames of the imitation tomb of Imam Husain. The frames are first covered with white hand made paper which they get from the paper dealers, who in their turn buy it from the Bbutias coming down in the cold season in Kheri district. This paper is very strong. It is sold per seer and a seer contains about 200 sheets  $2\frac{1}{2}$  feet  $\times$   $1\frac{1}{2}$  feet. It is sold at Re. 1-12-0 to Rs. 2 per seer.

When the papering is complete they paste mica sheets on it. The Kamangars get mica from Lucknow and get the small pieces split up, or opened up, as it is called, by their women by

means of a needle. The latter open out very thin sheets of mica and join them with transparent glue or Canada Balsam to make bigger sheets. These sheets are then painted by means of white paint. Very artistic designs are painted by hand for costly tazias and by blocks for ordinary ones. The outlines are painted with white paint while the details are filled in by means of red and green paints. Red is mostly lac dye or "Mahaur," while green is the ordinary chemical dye. In the remaining space on the mica, green, red and golden copper sheets (thin sheets which crackle and are called dak in vernacular) are pasted from behind. The tazia is then ready.

*Organisation.*—The Kamangars make tazias on their own account or work on wages for other dealers. The bamboo is split by Bansphors who charge 5 annas to 7 annas per day in which they split up at least 15 bamboos. The Kamangars take these chips and reduce them to required size and fineness by means of their working knifa. There are a class of Kamangars who paint the mica sheets and paste on the paper frame. The frame makers charge Rs. 12 to Rs. 15 per month. They can prepare two small sized tazias per day. The painters get Rs. 15 per month and mica openers Re. 0-4-0 per seer.

The cost of a medium sized tazia which sells for Rs. 5 is Rs. 3-5-0.

*Season.*—The work continues all the year round, but is brisk after Id to Muharram.

*Production*—There are about 100 men who are engaged in the trade. They can produce two small tazias in a day. Taking the average to be 1 and 200 to be the number of working days, the total number comes to about 20,000 tazias.

(iv) *Jail industries.*—Durries, carpets and mattings are manufactured mostly to order; garha, jharna, lungi, chadar, newar are made for sale; while sarson oil, earthen pots, etc., are made for jail consumption.

The following articles were made in 1922:—

- (1) Aloe newar: weight 30 seers, 5 chataks, valued at Rs. 18-15-2.

- (2) Cotton pit bags: 97 bags, weighing 1 maund  $9\frac{1}{2}$  seers at Rs. 1-4-0 each. Cotton yarn used: 1 maund  $11\frac{1}{2}$  seers. Cost Rs. 102-8-0.
- (3) Katapatti durries. 107 durries weighing 3 maunds 29 seers at Rs. 3 per square yard. Yarn used: 3 maunds 35 seers. Cost Rs. 354-9-3 at 7 chataks a rupee. Besides two plain durries and seven flowered durries were made. Flowered durries are sold at Rs. 4 per square yard.
- (4) Carpets: weighing 3 maunds 16 seers at Rs. 4-8-0 and Rs. 5 per seer. Yarn used: 3 maunds 37 seers at 7 chataks a rupee.
- (5) Cotton newar; 5 maunds at Rs. 2-8-0 a seer. Yarn used: 5 maunds  $7\frac{1}{2}$  seers at 8 chataks per rupee.
- (6) Dosuti cloth: 22 maunds and 8 seers at 10 annas a yard, Yarn used: 22 maunds 36 seers at 8 chataks per rupee.
- (7) Jharans: 589 jharans weighing 1 maund 14 seers at 6 annas each. Yarn used: 1 maund  $15\frac{1}{2}$  seers at 8 chataks per rupee.
- (8) Garha: 687 yards at 8 annas and 6 annas a yard. Yarn used: 2 maunds 12 seers at 6 chataks and 8 chataks per rupee
- (9) Baib beddings: 125 baib beddings weighing 8 maunds 3 seers at 13 annas 4 pies each. Baib grass used:  $11\frac{1}{2}$  maunds valued at Rs. 27.
- (10) Baib mattings: 48 mattings weighing 50 maunds 8 seers at 10 annas per square yard. Baib grass used: 65 maunds 8 seers costing Rs. 168-6-0.
- (11) Baib patti: 363 pattis weighing 47 maunds 33 seers at 10 annas per square yard. Baib used: 62 maunds 9 seers costing Rs. 160-8-0.
- (12) Munj mattings: 14 mattings weighing 14 maunds 12 seers at Re. 1 per square yard. Munj used: 22 maunds 12 seers costing Rs. 44-9-6.
- (13) Hemp mats: 625 mats weighing 115 maunds 30 seers at 14 annas and Re. 1 per square yard. Hemp used: 150 maunds.

Besides these, 25 lungis, 76 chadars (cotton), 9 maunds of baib ropes and 36 seers of munj ban, 15½ maunds of hemp ropes, 55 maunds of mustard oil, 110 maunds of oilcake, 21,000 bricks, 1,606 leg rings, 1,186 neck rings, 43 sirki pal, 210 earthen pitchers, 162 handis, 160 gumlas, 220 small mondhas and chicks were also manufactured during the year 1922.

Yarn is obtained from—

- (1) Tulshi Das Tej Pal Mills, Hathras.
- (2) Muir Mills Company, Limited, Cawnpore.
- (3) Empress Mills, Nagpur.

### 6. Non-food crops.

*Smoking tobacco.*—The business at Biswan is mostly in pounded leaves. The merchants of the hill stations come to Kesariganj and Biswan for pounded tobacco. Wholesale business in prepared tobacco is very little and is confined to Sitapur dealers and to the itinerant dealers who take pony loads to the neighbouring bazars,

	Rs.	a.	p.
<i>Profits.</i> —Price of dry leaf, 1 maund ...	15	0	0
Shira about 80 seers or 2 maunds	9	0	0
Khamira about 2 seers ...	0	8	0
Spices, etc. ...	1	8	0
Pounding of leaves ...	1	0	0
Miscellaneous charges ...	1	0	0
Total ...	28	0	0

This will give him three and half maunds of tobacco selling at 4 annas per seer, giving him Rs. 35.

*Season.*—Tobacco for smoking purposes cannot be long preserved and so manufacturers have to be busy all the year round.

*Suggestions.*—The crushing and pounding of the leaves is a very troublesome task. A disintegrator can very well be kept by one of the lime-makers who can get enough work from the tobaccoists besides his own work lime-making.

*Production.*—Biswan, Laharpur, Mahmudabad and Sitapur are the chief places of manufacture. Tobacco leaves weighing

about 4,000 maunds and shira weighing about 8,000 maunds are used in the manufacture of smoking tobacco in the district.

### 7. Oil pressing.

Nowhere in the district is oil pressing carried on as an industry. Bari near Sidhauri is the only place where there are about 30 kolhus. Otherwise oil pressing is confined to the village telis.

*Profits.*—A kolhu can crush 9 seers per day on the average. Of this one-third is oil and two-thirds oilcake.

His profit is the oilcake which he sells for Re. 1-2-0.

From this he has to feed his cattle and family.

The average annual crushing of a kolhu is 45 maunds of oil-seeds.

There are about 1,500 kolhus in the district.

### 8. Textiles.

#### A.—Cotton.

(i) *Carpet weaving*.—At Paintepur there are four carpet weavers, but only two of them weave good carpets, and the other two weave very cheap ones, such as are used for presentation to the Mahabrahmans at the time of the funeral ceremonies of the rich people. There are three weavers at Mahmudabad who can weave the very best variety, both woollen and cotton, but they are practically estate employees and find very little time to weave for the public. The number of weavers is small and they cannot weave enough to sell in the markets. They work on orders.

Cut pieces of yarn from the mills are used, the longer ones for weft and the shorter ones for the pile by arranging ten to fifteen in small strips three to four inches long. The cut pieces cost Re. 1-4-0 per seer. The rugs of two colours cost Rs. 2 to Rs. 3 per seer. Usually blue yarn is used which is dyed locally by indigo. A carpet weighing  $6\frac{1}{2}$  seers requires 7 seers of yarn and can be prepared in a week or six days—cost of yarn Rs. 8-12-0. Cost of dyeing Re. 1-4-0. Total cost Rs. 10. Sale price at Rs. 2-8-0 per seer—Rs. 16-4-0. Profit Rs. 6-4-0 which is the income of six days.

Although the price is nearly the same as is charged by jail, the material is not so good, nor is the workmanship of that quality.

(ii) *Durrie weaving.*—At Ohilwara in Sitapur tahsil there are ten weavers who weave durrries. A durrie costs from Rs. 4 to Rs. 8 ordinarily. The weaver has to spend about Rs. 2-8-0 to Rs. 5 on yarn and dyeing of the yarn. They prepare a durrie in one and a half to three days' time according to the intricacy of the design.

They sell their goods just as the weavers do theirs through itinerant vendors and mahajans or chaudharis. Sitapur market offers them a good field.

(iii) *Dyeing of cloth.*—There are about fifty families of dyers who dye cloth with indigo for use by Ghosis and low class women as "urhni" or dupatta.

(iv) *Dyeing of yarn.*—Weavers usually dye their own yarn with red, yellow, green and blue, but none of them is fast. At Khairabad there are eleven dyers who dye yarn for the weavers and they are anxious to learn better methods of dyeing. A peripatetic school for dyeing along with the weaving school will be very useful. Chean Japan dyes are commonly used and they are very fugitive.

(v) *Fard printing.*—There are four chhlpis at Manua in Sidhaulti tahsil and a drawing master at Mahmudabad who prints cloth with the various designs for fard, lihaf and toshak. At Manua the work is purely kuchcha, i.e., fugitive dyes are used, and the pieces do not withstand washing. The red colour is the fastest of all. For black they use kasis and for yellowish red Tesu flower. A garha than of 12 yards costs them Rs. 5 to Rs. 5-8-0. They have to spend dyes, etc., worth annas 12 and sell the piece for Rs. 7 to Rs. 7-8-0. I tried to induce them to go to the Dyeing School at Cawnpore, but they would not agree. They are ready to go there if a scholarship is given and they are guaranteed a job after training. They say that even if they could produce better work no one would pay for it and there would be great difficulty in getting good dyes.

Mahmudabad drawing master is the son of Lala, printer of Lucknow, and prints cheaper varieties after the Lucknow fashion. His printed pieces are very much in demand. His blue, black and red are fast, but green is not. He makes his own blocks and has made two or three very good designs. He has trained five boys, three of whom are already working in his shop. He is paying them Rs. 7 to Rs. 10 per month, while no payment was made during the training period. The prices are from Rs. 2 to Rs. 4-8-0 per piece. He is a drawing master of the Colvin High School, Mahmudabad.

(vi) *Weaving*.—This is the only industry that is being carried on at Sitapur on some scale, but the workmanship is very ordinary and garha, tapli, charkhana (check) and jora or dhotis are the common varieties woven. Laharpur and Khairabad are the two big weaving centres. They all use ordinary looms, but fly-shuttle looms have also been introduced at some places, specially at Itari in Sitapur tahsil. But they are not yet popular for reasons given in the Lucknow report.

*Yarn*.—They all use mill yarn and the yarn comes mostly from Cawnpore and Ahmedabad. The Lucknow mill does not command any sale among these weavers because the dealers find it more profitable and convenient to purchase things from the Cawnpore merchants. Counts 22½, 16½, 20½ and 13½ are mostly used. Occasionally some weavers get 34s. and 40s. also.

*Marketing system*.—Besides the usual village system of individual marketing, the chaudharis of the weavers advance money to the weavers and compel them to sell their entire produce to them at a price fixed by them (the chaudharis). These chaudharis exploit the weavers in their capacity as creditors and also as head of the panchayat. At Khairabad Thakur Chandrika Prasad Singh, a benevolent and enterprising zamindar, tried to wean the weavers from the chaudharis, but the chaudharis proved to be too strong for him. They outcasted the men who went to work at his place or sold their goods to him. The influence of these chaudharis and the mahajans who supply them with yarn militates against the spread of the co-operative movement.



*Family income—*

	Rs.	a.	p.
Cost of 20s. yarn for 10 yards, i.e., 3 lbs....	3	10	0
Other charges, e.g., sizing, dressing, etc. ...	0	4	0
Total cost	3	14	0

This will sell for Rs. 5 leaving a balance of Re. 1-2-0 which each unit earns in one and a half days.

This would be the income if he put in 3 lbs. of yarn. But they do not use so much yarn and hide the defect by oversizing and dressing and thus derive greater profit. Their income in these days of swadeshi movement is never less than Re. 1-8-0 per than which they weave in one and a half days.

*Suggestions.*—The weavers of Khairabad and Laharpur are anxious to learn the uses of the fly-shuttle loom in a peripatetic school. Thakur Chandrika Prasad Singh and the secretary of the municipal board are prepared to render any help that may be required of them.

*Production.*—There are 1,028 looms for weaving plain cloth and 1,223 for weaving tapti and other coloured cloth. A man can produce six yards of plain and five yards of coloured cloth. The number of working days can be put at 250.

Thus 1,542,000 yards of plain and 1,528,750 yards of tapt are woven annually.

*B.—Wool.*

*Weaving of woollen blankets.*—Nowhere is the industry localized. The blanket is made up of four long strips, each 1 foot wide and 2½ yards long. A weaver can weave one strip in a day if his wife can spin yarn for him. Women usually card the wool and spin yarn on the country charkha. These Gadariyas are all cultivators and weave blankets in their leisure hours only. The weavers do not usually have sheep and they collect wool from their relatives and friends. There are about 200 Gadariyas who weave blankets. One blanket weighs from 3 lbs.

to 4 lbs. each and about 4 to 5 lbs. of wool is used. They sell these blankets for Rs. 2-12-0 to Rs. 3-4-0 each.

*Income—*

			Rs.	s.	p.
Cost of 4 lbs. of wool	...	...	1	0	0
Sale price	...	...	2	12	0

*Profits.*—Rupees 1-12-0 which he earns in four days with the help of his wife.

*Production.*—Two hundred Gadariyas can produce twenty-five blankets each in a season of 100 days in the year, or 5,000 blankets in all, consuming about 20,000 lbs. of wool.

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## CHAPTER IV.

### INDUSTRIAL POSSIBILITIES OF THE DISTRICT.

#### 1. Calcium deposits.

Kankar deposits are not worked out to any great extent but exist in the district in abundance, and according to general report Pili Kankar mitti or the yellow earth of Maharajnagar and white earth at Akbarpur are rich in calcium and are used for kank or lime making. They are obtainable in large quantities.

#### 2. Clay

Of Corona and Maharajnagar is very good and pottery made of it is strong. Only a little baking is necessary to make Corona pottery. The use of glazing materials is not known, otherwise some very good work could be turned out at Corona.

#### 3. Hemp.

This plant is suitable for Ganjar where it grows spontaneously. But no use is made of its excellent fibres on account of the existing excise restrictions. Some way out of the difficulty has to be improvised that could benefit the zamindar without infringing excise regulations.

#### 4. Munj.

In Misrikh tahsil about 1,000 acres is under munj and it is utilized for "ban" making. Some people are anxious to start a munj factory.

#### 5. Mussel shells.

Mussel shells are found in many of the numerous jheels and river-beds of the Ganjar. These could be utilized for making buttons and many other knick-knacks as they are doing at Dacca.

### 6. Oilseeds.

The production of oilseeds, which amounts to nearly 1 lakh of maunds, is sufficient to feed an oil mill. This mill could get a good supply of castor seeds also. Linseed, rape and mustard and til and poppy seeds are all available.

### 7. Sugarcane.

This is a special crop of the district, specially of the Ganjar tract, and about 840,463 maunds of gur are produced annually. Maholi, Mahmudabad, Bansra and Nabinagar are important gur centres and one mill at a place midway between Sitapur and Kheri districts can flourish with the supplies of both the districts. Maholi is already supplying the Rosa Factory at Shahjahanpur.

### 8. Tobacco.

A considerable amount, 28,105 maunds, is grown in the district, specially in the Biswan tahsil. As most of the tobacco is used either for smoking or chewing purposes, the crushing or pounding of the leaves is an important branch of the industry. A crushing mill started at Biswan or Laharpur would pay. It will remove a great obstacle from the way of the smaller manufacturers if not of the bigger ones.

An effort deserves to be made by the Agricultural department to try and grow special varieties of tobacco used for cigar at Biswan.

### 9. Wheat flour.

About 3,668,808 maunds of wheat are produced in the district and most of it is exported. A flour mill at Sidhauri or Sitapur would pay just as mills at Chandansi are paying. Sitapur wheat is very good and they could export wheat flour instead of wheat.

### 10. Textile industries.

(1) *Cotton weaving.*—Cotton weaving, though considerable, is being carried on on old looms only and the cloth woven is coarse. The commonest count used is 16s. and rarely one finds 30s. or 40s.

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A school at Khairabad and, if possible, another at Laharpur would be very beneficial. In some places bordering on the Bara Banki district they have introduced the warping machine, but still most of the weavers need to be told about the fly-shuttle.

(ii) *Dyeing and printing.*—Dyeing of yarn and cloth is very defective. They all use fugitive dyes. A dyeing section in connection with the weaving school will be a welcome feature.

#### 11. Long grass and jungle products.

In the Ganjar long grass—jhapti, kans, bharhui, gondi and jhau—and babul trees are to be found in abundance. Gondi and jhapti is used to some extent for rope-making and chatai plating, but they are not serviceable. Jhau—the younger trees on the banks of the Chauka—are used for basket-making.

They could perhaps be utilized (long grass) for pulp-making.

## CHAPTER V.

## STATISTICS!

## 1. Chemicals.

*Saltpetre.*

*Year.*—1921-22.

*Raw material.*—Lona or nitrous earth.

*Number of persons engaged.*—120 men.

*Wages.*—Rupees 5 per month part labourer.

*Outturn in weight or value.*—810 maunds of crude saltpetre.

*Quantity exported.*—700 maunds.

*Where exported.*—Hardoi.

*Prices.*—Rupees 7 per maund.

*Average production.*—About 13½ maunds per pot.

## 2. Hardware.

*Metal utensils.*

*Year.*—1921-22.

*Raw material.*—Old utensils of kaskut (zinc and lead and copper), phool, gilat.

*Quantity used.*—1,002 maunds for all varieties.

*Value and rate.*—Kaskut 10 annas to 12 annas per seer. Phool Rs. 1-12-0 to Rs. 2 per seer.

*Import (quantity or value).*—About 300 maunds of old utensils:

*Whence imported.*—From neighbouring districts and Cawnpore.

*Number of men engaged.*—115 men.

*Wages.*—Rupees 10 to Rs. 12 per mensem for journeymen labourers.

*Outturn.*—913 maunds.

*Quantity exported.*—About 200 maunds.

*Where exported.*—To neighbouring districts.

*Prices.*—Kaskut Rs. 1-4-0 to Rs. 1-8-0. Phool Rs. 3-8-0 to Rs. 4-8-0.

## 3. Miscellaneous.

*Taxia making.*

Year.—1921-22.

Raw material.	Quantity used.	Value and rate.	Imports.	Whence imported.
Bamboo ...	40,000 bamboos.	Rs. 5,000 at 2 annas each.	10,000	Kheri.
White bamboo paper.	62½ maunds of paper.	Rs. 5,000...	62½ maunds.	Nepal.
Mica ...	125 maunds	Rs. 8,125...	125 maunds.	Lucknow.
Paint ...	Not known	Rs. 25 per maund.	...	(Ranee-ganj) in Bihar.
Dak or copper sheet.	Ditto ...	...	...	...
Strings, paste, etc.	Ditto ...	...	...	...

*Number of men engaged.*—100.*Wages.*—Rupees 15 per month for Kamangars, Rs. 12 for Bansphor.*Outturn in weight or value.*—20,000 medium sized taxias.*Quantity exported.*—15,000.*Where exported*—To neighbouring districts.*Prices.*—Rupee 0-8-0 to Rs. 200; average of those on which calculations have been made = Rs. 5 each.*Average production per man.*—One taxia per day.

## 4. Non-food crops.

*Tobacco (smoking and pounded leaves).*

Year.—1921-22.

Raw material.	Quantity used.	Value and rate.	Import.	Whence imported.
	Mds.		Mds.	
Tobacco leaf	10,000	Rs. 2,00,000 at Rs. 20 per maund, both leaf and pounded.	...	...
Shira ...	8,000	Rs. 36,000 at Rs. 4-8-0 per maund.	8,000	Gorakhpur, Unao and Shahjahan- pur.
Khamira ...	250	Rs. 2,500 at Rs. 10 per maund.	...	...
Spices ...	...	...	...	...

*Number of men engaged.*—125 men.*Outturn in weight or value.*—Tobacco 15,000 maunds.  
Pounded leaf 6,000 maunds.*Quantity exported.*—Tobacco 5,000 maunds. Pounded leaf  
6,000 maunds.*Where exported.*—Naini Tal, Dehra Dun, Bahraich, Gonda,  
Lucknow.*Wages.*—Rupees 8 to Rs. 12 per month. Rupee 1 per maund  
for pounding.*Prices.*—Rupee 0-4-0 to Re. 1 per seer tobacco. Pounded leaf  
Rs. 20 to Rs. 25 per maund.

## 5. Textiles.

(i) *Cotton weaving.*

Year.—1921-22.

*Raw material.*—Mill yarn 20s, 22s, and 13s. and 16s.*Quantity used.*—921,225 lbs.



*Value and rate.*—Rupees 10-8-0 to Rs. 12-8-0 per bundle of 10½ lbs.

*Imports.*—921,225 lbs.

*Whence imported.*—Ahmedabad, Cawnpore and Agra.

*Number of men engaged.*—About 5,000 men and women on 2,251 looms.

*Wages.*—Rupee 0-12-0 to Rs. 1-8-0 per day, i.e., profits.

*Outturn in weight or value.*—3,070,750 yards of tapti, check and garha.

*Quantity exported.*—1,023,588 yards.

*Where exported.*—Lucknow, Kheri, etc.

*Prices.*—Rupees 2-12-0, Rs. 3, Rs. 4, Rs. 5 and Rs. 6-8-0 per piece of eight to ten yards.

*Average production per man.*—Coloured check five yards a day, plain six yards a day.

(ii) *Blanket weaving.*

*Year.*—1921-22.

*Raw material.*—Raw wool.

*Quantity used.*—20,000 lbs.

*Value and rate.*—Rupees 5,000, Re. 0-4-0 per lb.

*Imports.*—Local wool.

*Number of men engaged.*—200.

*Wages.*—Rupee 0-7-0 per day, i.e., his profit.

*Outturn in weight or value.*—5,000 blankets.

*Prices.*—Rupees 2-12-0 to Rs. 3-4-0 per blanket.

*Average production per man.*—One blanket in four days.

## CHAPTER VI.

## DIRECTORY.

## 1. List of chief brick-kiln owners.

Hira Lal, Tarimpur.  
 Abdul Majid Khan, Tarimpur.  
 Ramjan, Laharpur.  
 Hussaini, Laharpur.  
 Lala Beni Madho, Biswan.  
 Babu Shyama Charan, Biswan.  
 Paragi Beldar, Biswan.  
 Ali Jan, Biswan.  
 Kalka Prasad, Misrikh.  
 Udai Ram, Misrikh.  
 Kripa Dayal, Mahmudabad.  
 Paragi, Mahmudabad.

## 2. List of lime factories.

Hafiz Ullah (eight men), Engine driven by steam, about 10 N. H. P., Sitapur.

Abdul Majid Khan (not working) at Sitapur.

Hira Lal,

Kalka Prasad, Misrikh.

Lala Beni Madho at Biswan with two others.

Besides these there are two others at Sitapur. One at Mahmudabad, one at Laharpur.

## 3. List of important centres of saltpetre making :—

Tambour.

Biswan.

Rampur.

Dalpatpur.

Nagraoli.

Unehgaon.

Mallanpur.

Mehsi.

Bhadphar.

Rampur.

Mathura.

Khairpur-Bansra.

*N.B.*—There are 45 villages where saltpetre is extracted and there are 60 pans or karhais in all producing about 810 maunds of saltpetre.

4. List of factories with the number of men engaged in splitting of pulses in the season :—

			Men.
Mulchand ...	...	Thomsonganj.	12
Prem Chand...	...	Ditto	25
Ashraf All ...	...	Ditto	18
Bhikari ...	...	Ditto	16
Barati Lal ...	...	Ditto	24
Munshi Ram	...	Ditto	20
Nihal Teli ..	...	Tarimpur	12
Gorawar ...	...	Ditto	12
Chbedi ...	...	Ditto	12
Angni with two other factories.	...	Jehangirabad, Post Office Hargaon.	10
Manohar ...	...	Biswan	10
Bramha Deen	...	Misrikh	10
Ganga Deen...	...	Do.	10
Ganga Ram...	...	Do.	10
Bhagat Ram	...	Do.	10
Gaya Deen ..	...	Sidhaulti	10
Bhagwan Deen	...	Ditto	10

5. List of important centres of manufacture of lac bangles.

Biswan.	Bansara.
Tambour.	Thagaon.
Saraora.	Sewta.
Kusmanda.	Mallanpur.
Sitarasain.	Parbatpur.
Rewali.	Labarpur.
Maholi.	Parsendi.
Sadarpur.	Talgaon.

Sitapur.

6. Taxis makers.

Nabi Bux is the best workman. Other good workmen are the sons of Bandu and one Amiad.

**7. List of important dealers in biswan tobacco.**

Hafiz Muhammad Ali Ahmad Ali, Biswan.

Jian Teli, Biswan.

Chhedi Lal, Biswan.

Chheddu, Biswan.

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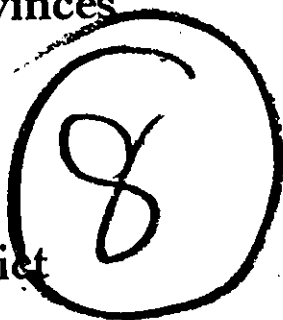
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Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

Sultanpur District

*By*

H. N. SAPRU, B.A.



**ALLAHABAD :**

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## FOREWORD.

SULTANPUR is a purely agricultural district and has few mineral raw materials capable of application to modern manufacturing industries. Its "reh" is not worked into glass or glass bangles. Cow and the manihars have taken to the sale of foreign bangles. Ram munj is not made much use of; only a few ropes are made for local use or a little string for export. Its hides and skins are all exported, and the usual complaint, that leather tanned locally is no good for the manufacture of shoes of superior quality, leading to the import of leather from outside exists here also, although the tanning material is there as also the raw hides with plenty of water and good drainage. Demonstrations in improved methods of tanning are required. Co-operative credit societies are successfully working in Lucknow and may succeed anywhere where workers can be found and a sufficiently large colony at any one centre. Tat-pattis of sann can be easily improved by co-operative organizations. Improved looms are being worked out in the Central Weaving Institute, Benares, and the reader is referred to the possibilities of improvement in this direction to Mr. Dutt's note in the Industrial Survey report of Basti district. Co-operative societies may also benefit the blanket weavers by helping them in the direct export of blankets to centres of consumption at better rates. But co-operative societies will hardly succeed unless honorary selfless workers can be persuaded to take interest in the work. These are unfortunately to be found very few in the country at present.

Amongst the agricultural produce wheat, rice and arhar attract notice, but the export of rice and arhar from the two big exporting stations of Sultanpur and Amethi is not much and rice is husked and dal split for local consumption only. Here it will be hard to beat the manual worker, who works in leisure time either for himself or considers even a little addition to his income a sufficient remuneration for his labour. The district is industrially backward, nor does it appear to have many possibilities of development. But there are possibilities of reviving the

indigo industry by improving the present system of cultivation and methods of manufacture, though these are of all-India interest.

The main difficulty in sending manihars to Ferozabad will be found in persuading the factory owners there to take in apprentices. Steps may be taken to bring them and some subsidy per student may be given to the firm willing to take in apprentices nominated by the Government. The introduction of improved furnaces requires experiments, as they will have to be adapted to the present-day needs of the manihars who still prefer to work on individual basis.

The possibility of improving the domestic utensils of Bandhua lies in the introduction of labour-saving appliances which could increase production. At present there is no inconsiderable import of Mirzapur utensils. This import can be shut out by increasing the output. But the introduction of such appliances is naturally bound to take time, as experiments will have to be undertaken to find out the best machinery suited to local requirements. There is a great possibility of starting an oil mill at Sultanpur. The figures of the agricultural returns are misleading, inasmuch as sarson is mostly sown along with wheat and no proper record is kept of such mixed crops. It is said that most of the oil-seeds which are exported from Sultanpur or Amethi station are local. Small hand presses for castor and neem seeds are flourishing in many districts and should succeed here also. Baskets of munj ought to be organized and are likely to pay.

The only feature distinguishing the report from others is the collection of figures of export of two main stations of the district in one place, otherwise the report is drawn up on the lines of previously published reports.

I owe special acknowledgments to Mr. S. T. Gadre, Industrial Chemist, for his revising the report and making valuable suggestions. Thanks are also due to the following gentlemen for helping in survey work :—

1. R. F. Mudie, Esq., I.C.S., O.B.E., Deputy Commissioner, Sultanpur.

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- 2 Mr. Ram Behari Sahi, Deputy Collector.
  3. Mr. Kenyon of Musafirkhana.
  4. Mr. Ram Prasad Adib, Vakil.
  5. Mr. B. K. Ghare of the Cawnpore Agricultural College.

CHAMPA RAM MISRA.

The 30th May, 1923.

# CHAPTER I.

## INTRODUCTION.

### 1.—General features.

Boundaries are—

*North.*—Fyzabad.

*South.*—Partabgarh district.

*North-west.*—Bara Banki district.

*West.*—Rae Bareli district.

*East*—Jaunpur and Azamgarh districts.

Sultanpur district lies in the east of the province of Oudh on both sides of the river Gumti.

### 2—Ferries.

#### *Tehsil musafirkhana.*

Village.	Ferry.
Khoumun ...	Richhghat.
Pali ...	Pali.
Urerman ...	Bakhra.
Rasulabad ...	Balaudaghat.
Makhdampur ...	Kirkighat.
Urerman ...	Urerman.
Kishni ...	Kishni.
Sheikhpur Bhandra	Mohan.
Nandi ...	Nandi.
Mohiuddipur	Hajiganj.
Sathin ...	Sathin.
Atwara ...	Kondwa.
Chandipur ...	Chandipur Kailaspur.
Isauli ...	Rajghat

#### *Tehsil Sultanpur.*

Mithnepur ...	Mithnepur.
Saraiyan ...	Saraiyan.
Kurwar ...	Kurwar.
Chandaur ...	Chandaur.

*Tehsil Kadipur.*

Village.	Ferry.
Mandwa ...	Mundwa.
Bhandra-Parasrampur ..	Bhandra.
Nirsahiya ...	Nirsahiya.
Katawan ...	Katawan.
Sirwara ...	Sirwara.
Hayatnagar ...	Hayatnagar.
Batuhangaon ...	Batuhangaon.
Bilahri ...	Bilahri.
Shahpur-Harbans ...	Paparghat.
Nanemau ...	Zaframau Nanemau.
Dera ...	Deraghat.
Sabsukhpur ...	Sabsukhpur.
Katsari ...	Katsari.
Chhapar ...	Gopinathpur.
Dewarh ...	Sarai Chhapar, Dewarh.
Pakarpur ...	Pakarpur.
Patna ...	Patna.
Shafipur ...	Shafipur.
Gudra ...	Gudraghat.
Hinduabad ...	Dwarka Hinduabad.

*3.—Roads.*

The important roads in the district are the following :—

1. Allahabad-Sultanpur-Fyzabad.
2. Fyzabad to Rae Bareli.
3. Sultanpur to Rae Bareli.
4. Sultanpur to Isauli.
5. Lucknow, Sultanpur and Jaunpur.
6. Akbarpur, Dostpur, Patti and Partabgarh.
7. Dera to Kurebhar railway station.
8. Gouriganj to Musafirkhana.
9. Gouriganj to Partabgarh.
10. Sultanpur to Amethi.
11. Partabgarh, Kadipur, Dostpur and Malipur railway station.
12. Sultanpur, Chanda and Jaunpur.

13. Gouriganj, Amethi and Piparpur railway station.  
 14. Gouriganj, Jagdishpur to Bazar Sukul and Rudauli railway station.  
 15. Sukul Bazar to Hydergarh.

4.—*Rivers.*

- (i) The Gumti with its tributaries the Kandu Nala, Bed Nala, Paniha, Chunha, Gabharia Nala, Jamwaria and Khub Nala.  
 (ii) The Sai and its small tributaries.  
 (iii) Majhui and Mangar.

5.—*Lakes and swamps.*

Drainage in the district is defective, resulting in the accumulation of the surface water in swamps and lakes. Some of the important ones are Tal Moriaon, Naiya Jhil, Raja-ka-bandh, Lodhi Tal, Karahwa Jhil Asrawan, Bhain, Ehojwa, Lambhua, Dib.

6.—*Railways.*

Line.		Length.	Station.
Oudh and Rohilkhand Railway.	Fyzabad-Allahabad branch.	19 miles	Kurebhar, Dwaraganj, Sultanpur, Piparpur.
Ditto	... Main Line ...	17 do.	Anta, Amethi, Gouriganj.
Ditto	... Loop Line ...	10 do.	Bilwai.

7.—*Markets.*

Some of the important markets are:—

*Tehsil Sultanpur.*

Town or village.	Market.	Days.
Sultanpur	.. Perkinaganj ...	Tuesday and Saturday.
Baudhua	.. Husainganj ...	Monday and Friday.
Kurwar	... Kurwar ...	Ditto.
Bhandra	... Bhandra ...	Sunday and Wednesday.
Dhamapur	... Dhamaur ...	Ditto.

*Tehsil Sultanpur—(conold.).*

Town or village.	Market.	Days.
Maniari	... Aliganj ...	Thursday.
Bindwan	... Raniganj ...	Monday and Friday.
<i>Tehsil Amethi.</i>		
Madhopur	... Gouriganj ...	Monday and Friday.
Raipur	... Katra Himmat-singh.	Sunday and Thursday.
Himmatgarh	... Bishesharganj...	Wednesday and Saturday.

*Tehsil Musafirkhana.*

Banauli	... Bazar Musafir-khana.	Monday and Friday.
Aurangabad	... Aurangabad ...	Tuesday and Saturday.
Pendara	... Bazar Pendara	Sunday and Wednesday.
Mawaiya Rahmatgarh	Bazar Sukul ...	Ditto.
Daulatpur	... Bazar Rani ...	Tuesday and Friday.

*Tehsil Kadipur.*

Kadipur	... Kadipur ...	Tuesday and Saturday.
Bilwai	... Bilwai ...	Ditto.
Dera	... Dera ...	Monday and Friday.
Dostpur	... Dostpur ...	Ditto.
Lambhwa	.. Lambhwa ...	Ditto.
Partabpur	... Chanda ...	Ditto.

## 8.—Fairs.

The important fairs in the district are :—

*Tehsil Sultanpur.*

Village.	Name of fair.	Date.
Banahua	... Mela Sagra ...	Kartik Sudi Panchmi and Chait Sudi 9th.
Baghua	... Karia ...	Baisakh and Aghan Sudi every Tuesday.

*Tehsil Amethi.*

Raghipur	... Mela Durga ...	Kuar and Chait Sudi 8th.
Shamsheria	... Ditto ...	Ditto.
Kanun	... Kalka Bhawani	Every Monday.

SULTANPUR DISTRICT.

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Village.	<i>Tahsil Musafirkhana.</i>		Date.
	Name of fair.		
Kotwa ...	... Set Barah ...	...	Kartik Sudi Puran- mashi and Chait Sudi 9th.
Math Sursatgir ...	Kand Mahar ...	...	Ditto.
Pandara Karnal ...	Sheoratri ...	...	Phagun Badi 13th.
	<i>Tahsil Kadipur.</i>		
Bagethua ...	Mahabir ...	...	Tuesday after Nag- panohmi.
Barbauna Dih ...	Pande Baba ...	...	Kuar Sudi 10th.
Raja Patti ...	Dhorapghat ...	...	Chait Sudi 10th.

9.—Population.

According to the latest census of 1921 there were 1,003,912 souls living in the district.



## CHAPTER II.

*Description and suggestions for the improvement of the various district industries.*

## 1.—Building materials.

(i) *Bricks*.—Three brick kilns have recently come into existence. They sell bricks at the following rates:—

	Rs.	a.	p.	
1st class	13	8	0	per 1,000 with cartage.
2nd do. ...	9	0	0	ditto.
3rd do. ...	7	0	0	ditto.

But as the demand for bricks has increased of late, the prices have also been raised. They are to be had now for—

	Rs.		
for 1st class	15	per 1,000	
for 2nd do.	10	ditto	
for 3rd do.	8	ditto	

though old prices still prevail with those customers who had advanced the money four months back.

(ii) *Lime*.—Kankar is found in abundance and is available everywhere in the district. Lime is made out of it by a few *mallahs* for supplying the local needs and is sold at Rs. 25 to Rs. 30 per 100 cubic feet. Attempts should be made to increase the production by starting a lime mill. This would cheapen the price of lime and yield a surplus for export outside the city.

(iii) *Tiles*.—Only country tiles are made by four kumhars of the place who supply them to local purchasers. They are sold at Rs. 6 to Rs. 7 per thousand, *naria* and *khapra* being given half and half.

## 2. Chemicals.

*Indigo.*

The statement of crops shows 613 acres of land under indigo cultivation. This would give an outturn of 153 maunds of manufactured indigo annually at the rate of 10 seers per acre.

Out of this about 120 maunds are manufactured by Mr. Kenyon of Musafirkhana. The rest is shared by petty zemindars, chief amongst whom is Thakur Suraj Baksh Singh, also of Musafirkhana.

The seed is to be had at 7 annas a seer and is generally supplied by the factory owners. The stalks are bought at 6 annas a maund from the cultivators; 1,000 maunds of plants produce about three maunds of indigo.

At present there are only two factories running. Others have closed down. The tenants had a few grievances which were accentuated by the Oudh Kisan movement, with the result that indigo cultivation has very much diminished. The work lasts for four to six weeks. During this season not less than 180 persons were employed in different processes. They are paid at the rate of 4 to 6 annas per day.

There is very little hope for natural indigo to hold its own against the competition of cheap artificial dye until improved methods of cultivation and manufacture are adopted. In the year 1916-17 Mr. W. A. Davies, an expert, was appointed by the Government of India and his report was hopeful. The Government of India has recently decided that the income from the manufacture of indigo will not be assessable to income-tax. Advantage should be taken of these facilities by the manufacturers if the industry is to be saved from its slow death.

Indigo is exported to Calcutta and Safdarganj (in Oudh) and the average price last year was Rs. 475 to Rs. 500 per maund.

#### *Improvements.*

1. Two of the chief advantages which have always been claimed for synthetic indigotin in comparison with natural indigo are uniformity of colour, strength and fineness of division. It has been supplied in the form of a paste containing 20 per cent. of dry indigotin. Mr. Davies showed that from natural indigo as well water could be removed from the precipitated indigo to the extent required to give a paste containing 20 per cent. of indigotin. It is necessary for planters to put upon the market a paste of fixed composition comparable with that supplied by the Germans.

2. Pusa 4 wheat and Java indigo could be grown together with advantage. But as the condition of soil is generally poor, it is necessary to sow them on soils treated with superphosphates and either sanna or seet.

3. The indigo seet from an acre would suffice to manure an acre of land if the latter is not very poor. It is also an admissible manure for sugarcane and tobacco.

4. Steeping process should be stopped after 12 hours; if continued beyond that destructive changes rapidly set in, which involve both a loss of indigo and an increase of impurities in the product. Two hours' over-steeping incurs a loss of two-third of indigotin.

5. The use of river water near the hills gives a very high yield and improves the quality.

6. Bones should be utilised for yielding phosphates.

### 3. — Food-grains.

(a) Statement of acreage and production of crops in the district for Falsi 1329.

Crop.	Acreage.	Production per acre.	Total outturn.
<i>Kharif.</i>			
Juar ... ..	6,143	8 mds. 5 srs.	49,911 mds.
Bajra ... ..	4,638	8 " 5 "	37,637 "
Juar and arhar ...	72,186	5 " "	366,925 "
Bajra and arhar ...	2,206	5 " "	11,040 "
Rice ... ..	166,841	12 " 20 "	2,085,512 "
Jarhan ... ..	66,305	12 " 20 "	628,812 "
Maize ... ..	8,443	13 " 30 "	116,091 " 10 srs.
Arhar ... ..	520	10 " 25 "	5,525 " "
Indigo ... ..	613	10 " "	153 " 10 srs.
Sugarcane ... ..	15,651	22 " 20 " gar.	508,657 " gar.
Bana ... ..	4,000	6 1/2 " "	35,000 " "
<i>Rabi.</i>			
Wheat ... ..	86,125	11 " 35 srs.	1,022,853 "
Wheat and gram ...	437	8 " "	8,486 "
Wheat and barley ...	36,752	8 " "	294,016 "
Barley ... ..	58,027	14 " 15 srs.	834,128 "
Barley and gram ...	33,062	12 " "	404,164 "
Gram ... ..	74,042	12 " 7 srs.	902,461 "
Pesa ... ..	69,246	11 " 22 "	799,791 "
Potatoes ... ..	1,270	60 " "	76,200 "
Opium ... ..	2,823	4 cwt.	11,298 cwts.
Tobacco and its extra crop.	1,028	7 mds.	7,196 mds.
Linseed ... ..	769	6 " 10 srs.	4,806 "

*(b) Wheat grinding.*

There are two wheat grinding mills in the district, both situated in the city. They work for wages, and charge 10 annas a maund from small customers and 8 annas a maund for big orders.

Wheat is to be had locally in abundance. The agricultural statement shows an annual production of over 10 lac maunds. Out of this the local mills deal only with 12,400 maunds.

The fixed capital of both the mills is Rs. 17,000 invested in engines and grinding mills. There are in all 15 hands working in them and they get a monthly salary varying from Rs. 8 to Rs. 40. The annual outturn of wheat flour is estimated to be 12,090 maunds, a wastage of one seer to a maund being incurred in the process of grinding. As regards the profits, the mill-owners are very reluctant in giving any idea about it. But it seems that the income-tax was assessed on an income of more than Rs. 2,000 on each in 1922.

There is immense scope for expansion; if instead of wheat being exported the wheat flour is sent out, it is hoped that market for flour will be found in Allahabad, Benares, Ayodhia and Lucknow.

The mechanical appliances used in the mills are the "crude oil" engines and flour mills. The former purchased at about Rs. 8,000 each and the latter at Rs. 300 each.

The only suggestions that could be made are :—(1) Grinding on their own account and exploiting of outside markets; (2) adding some side activity for off-season; (3) purchase of bran from other customers at cheap rates and exporting it.

**4.—Manufacture of glass bangles.**

Glass bangles used to be made by numerous Musalman churihars and Hindu manihars. They were exported to Fyzabad. But for a year or two the industry has ceased to exist, and at present the manufacturers only deal in foreign and Ferozabad products.

Resin is largely available in the district and is at present only used by washermen as a substitute for soap. It is also exported

to Gonda in some quantities. In pargana Amethi the amount of usar is proverbial and nearly the same conditions prevail in the Kadipur tehsil. This should be utilised for the manufacture of glass which could be easily turned into bangles.

The causes which led to the decline of this industry are :—

1. The influx of cheap and superior bangles made in Firozabad and foreign countries.
2. Persistence in old methods of manufacture and the absence of any improvements.
3. The scarcity and consequent high prices of wood fuel.

These could be easily removed by—

1. Sending a few mauihars to Firozabad to learn the improved methods.
2. The introduction of improved appliances, adoption of Firozabad furnaces and the use of coal.

#### 5.—Hardware.

##### *Brass and phul utensils.*

This is one of the chief manufactures of the district and there are about 100 persons working in the metal. The most important centre is Bandbua, six miles west of Sultanpur, where there are about 70 workers, who make batwas of kaskut and thalis and katoras of phul. These are unusually heavy and are liked by the villagers, as they last long and wear well. Batwas of kaskut are sold at Re. 1-3 per seer, thalis of phul at Rs. 2-12 per seer and katoras made of inferior phul at Ra. 1-14 per seer. Only one man, Bhagwandin Lohar of Bankipur, makes utensils of superior quality and lighter weight. His manufactures are generally exported to Sultanpur city and sometimes to distant markets. They are not sold by weight, but by fixed prices. Katoras are to be had for Re. 1-2 to Re. 1-4. The raw material is old brass or phul obtained from broken utensils. The old kaskut is purchased at 12 annas per seer and phul at Rs. 1-12 a seer. The rates are regulated by the Mirzapur prices. The annual consumption of kaskut and phul is estimated to be 9,600 maunds.

Journeyman labourers are paid at Rs. 8 to Rs. 10 each per month, while the employers earn much more. Their casting

charges are 6 annas per seer for kaskut and 14 annas a seer for phul. The annual outturn of ready-made articles is 7,200 maunds. The average individual output is comparatively larger here than elsewhere, as the utensils are heavy and are not filed or polished. One man is supposed to cast at least eight maunds of metal each month in four instalments.

The marketing system of the place is typical of this industry. The merchant or the wholesale dealer is the middleman, who gives out the raw material to the actual manufacturers and gets the ready-made articles from them. The itinerant dealer or the *pheriwala* forms another link between the consumers and the wholesale dealers. The following figures will show the advancing prices, as articles pass from one middleman to the other :—

Cost of manufacture.			Selling price of—	
Raw material.	Wages.	Total.	Wholesale dealers.	Retailer's selling price.
	As.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Kaskut, 12 annas ...	6	1 2 0	1 8 0	1 4 0 or over.
Phul, Rs. 1-12 ...	14	2 10 0	2 12 0	2 14 0 ..

Profits in the industry are said to be very low, but neither the number of wholesale dealers, which is ten at this small place, nor the employing of wage-earners by the manufacturers justify this assumption. Considering the present output, it cannot be maintained that this industry is declining or the manufacturers are poor. The fate of the hired labourer who gets only Rs. 8 to Rs. 10 per month is really pitiable. He takes part in all the processes, and though he works very well, he is considered to be a sort of apprentice even after years of expert knowledge. The reason is that he has neither capital nor credit and so naturally he sticks to his employer and depends upon his bounty and good-will.

Attempts should be made to introduce better and lighter articles and to cater for the demand of the middle class people also.

## 6.—Leather.

(a) *General.*—The number of cattle according to the census of 1920 was as follows :—

Bulls	...	...	...	...	2,585
Bullocks	...	...	...	...	211,020
Cows	...	...	...	...	131,870
Buffaloes	...	...	...	...	8,509
She-buffaloes	...	...	...	...	87,159
Sheep	...	...	...	...	83,217
Goats	...	...	...	...	120,325

(b) *Hides and skins.*—4,880 hides and 8,328 skins are available from retail dealers on bazar days and from the slaughter-house at Sultanpur. Bazar Sukul and Jagdishpur are the chief markets. The figures of hides and skins in each tehsil are approximately given below :—

	Hides.	Skins.
1. Sultanpur slaughter-house	640	5,264
2. Kedipur	894	556
3. Munsafirkhans and neighbourhood	1152	1,008
4. Bazar Sukul	2304	600
5. Amethi	400	500
<b>Total available</b>	<b>4880</b>	<b>8,328</b>

Sultanpur station alone showed an export of 1,808 maunds in 1921 and Amethi station 187 maunds of hides and skins.

(c) *Manufacture of country shoes and other articles of leather.*—There are 182 men according to the census of 1911 who make leather articles such as charsa, but chiefly country shoes. This industry is, however, particularly centred in Sukul-kabazar, where there are eight firms of chamars who make these shoes and export them principally to Kheta Sarai, Malipur, Khorasan Road, Saral Mir and Rani-ki-Sarai through Rudauli station. The shoes are also sent at times to Jaunpur, Shahganj and Azamgarh. They are locally to be had at 12 to 14 annas per pair. The hides are purchased at Rs. 5 each, and out of one 10 pairs are made. Each man earns about 12 annas a day and is expected to make two pairs of shoes daily. The chamars exported 219 maunds of country shoes in 1921 from the Rudauli station.

## 7.—Miscellaneous.

(i) *Cocoanut shell*.—Cocoanut shell is imported from Bengal and Sultanpur is only a distributing centre. The railway figures of 1921 at Sultanpur station show an export of 1,162 maunds of cocoanut shell. These are probably used for hukkas. Lucknow used to import it from Calcutta and now it has been supplemented from Sultanpur.

(ii) *Fishing*.—Fish abound in the rivers and streams and in the large lakes and jhils. They are chiefly found in the Gumti and other streamlets of the district. Nearly 75 per cent. of the population is fish-eating, but the supply is small and prices prohibitive for poorer classes. The kinds of fish available in the district are of three classes :—(1) Rohu, Bhakur, Naini, Karaunchi, (2) Tengna, Belgagra, Silland, (3) Mungri, Chilhwa, Anwari, Souri, Banbi, Singi Jhinga Sahri and Patra. There are no particularly big markets of fish. It is mostly sold in Sultanpur, Raniganj and Sahibganj bazars. Fish are caught by Mallahs, Gurias and Kahars who live in villages along the Gumti, especially in Ashrafpur, Chaudipur, Bhadaur Ranjitpur and Gajapur. Fish are sold at rates varying from 4 to 6 annas per seer. But in isolated village markets where the supply is in excess of the demand it is sold at 2 to 3 annas per seer. If the supply could be increased in bigger bazars, it would easily replace mutton as the price of mutton is comparatively high. The proportion of young fry in the catches is nearly three-fourths and no close time is observed. Fish is caught by rod, line basket traps and nets of all sizes of mesh. Hooks are sold at Re. 1 each, pachki 8 annas, tap 4 annas and halka. They are both indigenous and imported. Good hooks and *dagan* with *ferki* come from outside. Mahajal is to be had for Rs. 100 to Rs. 150, Chita-jal 20 baths Rs. 12, Paie Rs. 40, Uhangra Rs. 12, Chadar Rs. 10, Phikwahi Rs. 8, Arwara Rs. 3, and Khol Rs. 14. Nets are said to last for 6 months ordinarily, but if they are used with care they last up to 2 years. The nets of small mesh cause a great destruction of frys. The tanks and jhils are generally the property of zamindars and they take 50 per cent. from the catches. But more often the rights of fishing



is sold for a year by auction or otherwise. By fishing, the fisherman hardly earns 4 annas per day.

The improvements to be made in this industry are :—

- (1) Greater exploitation of the river.
- (2) Export to outside markets, if later on catches are found to be in excess of the demand.
- (3) Using nets of only big mesh to save the fry.
- (4) Organization for widening the existing markets.
- (5) Observance of a close season.
- (6) Fish culture in tanks.

(iii) *Jail industries.*

(a) *Munj*.—Munj is bought at Rs. 4 a maund from Etah and is at times supplemented by local purchase and the ready-made string is sold at Rs. 8 a maund. The outturn is 309 yards per head per day. A waste of 25 per cent. is allowed in the process.

(b) *Munj matting*.—Munj is bought as above. One matting 24 square yards is said to take 1 maund 24 seers and 12 chataks of raw material. It is sold at Re. 1 a square yard. One man can make 6' × 2' of plain matting in a day.

(c) *Durries* of different patterns are woven. They are sold at Rs. 3-4, Rs. 3 and Rs. 2-12 per square yard according to design and size.

(d) *Cotton rugs*.—Cotton rugs—blue, white and flowered—are made. Three persons working together produce 3 inches in 9 hours. Thread of counts 10 is used. The carpet is sold at Rs. 4 a seer. Wool is not used at all.

(iv) *Slaughter-house bye-products.*

(a) *Bone*.—It is estimated that over 2,700 maunds of bones can be collected by proper organization. The railway figures for 1921 show an export of 1,606 and 300 maunds from Sultanpur and Amethi respectively. Attempts should be made to collect this raw material and utilise it in manure. A small bone-crushing factory could attract all the available bones from neighbouring districts as well. There is a great prejudice against this trade among the Hindus and some Moslims. But even then it will have to be taken over by somebody who has no religious objection.

(b) *Blood and hair.*—These are at present wasted in the slaughter-houses.

(c) *Horns.*—9,700 big horns are available from the slaughter-houses, but no use is made of them.

(v) *Waste paper.*

Two hundred and ninety-four maunds of waste paper is available for export.

8.—Oil.

There is no power oil mill in the district, although it abounds in many oil-seeds. Some oil pressing is carried on by indigenous method. But it does not utilise even a fraction of it. The export figures given below will give an idea of the different raw materials found here:—

	Sultanpur station.	Amethi station,	Total export from two stations.
	Mds.	Mds.	Mds.
Rape and caron	38,079	4,036	42,115
Til seed	9,193	618	9,750
Linseed	8,182	604	8,786
Mabua seed	6,403	7,217	13,620
Castor	4,056	436	4,492
Neem	1,243	"	1,243
Poppy	1,038	1,250	2,288
Barra	799	3,261	4,060

The oil expressed locally with indigenous methods is done for local consumption only. An export of only 172 maunds of barra oil has come to light. There is great scope for a small oil mill in some central place where all the raw materials could be collected. Sultanpur city would be the most suitable place.

9.—Textiles.

A.—Cotton.

Only coarse cotton cloth called garha is made in villages and is sold in the neighbouring markets. There are said to be about 3,500 weavers—men, women and children. It is estimated that the district has 1,000 looms. They are all throw-shuttle and no fly-shuttle was to be seen anywhere. The yarn is sold by cloth importers. At Musafirkhana it is supplied by Mr. Kenyon, an

indigo planter. Six thousand seven hundred and fifty maunds is imported from Cawnpore and the present rate is Rs. 9-8 per bundle for 16½ counts. The workers earn wages at the rate of 2 annas per yard. The district's outturn of cloth is estimated at 2,160,000 yards. The weavers are dispersed all over the district and there is no big centre of weaving. No improvement can therefore be suggested. Private factories with fly-shuttle looms should be tried.

*B.—Fibres.*

(i) *Munj ban.*

*Raw materials.*—Munj is the most useful of all fibrous products. The rapidity of its production, the strength of its fibres and the ease with which it is collected and worked up renders it indispensable to the zamindars and tenants alike. It grows near lakes and rivers, the sandy soil being specially favourable for it. It matures after two years, after which a regular supply is obtainable annually. It shoots in spring and is cut in autumn—the bundles are stalked until slack season arrives. The different parts of the plant are : (1) Sar (*Saccharum Spontaneum*)—the coarse leaves at the base used for thatching, (2) Sarkanda (*Saccharum Sara*)—knotted stem when stripped of munj—the largest reed used chiefly in chick, screen making and in mondhas, (3) Munj (*Saccharum Munja*)—sheaths and spathes of the stem, out of which valuable rope or string is made, (4) Tili or seenk, the finer part stem without knots used for brooms, etc., (5) Sirki—the tapering flower stalk used for roofing of carts, etc. Munj is to be had in the district on the banks of all lakes and specially along Gumti. Sheaths are beaten with a wooden mallet and the fibre is extracted from them. An average day's work is the pounding of 5 to 7 seers of munj. Ten thousand maunds of munj is worked up in the district. It is generally owned by zamindars, who sell it to their tenants at Re. 1 to Re. 1-8-0 per maund.

*Manufacture of ban.*—It is not exported anywhere, but is locally turned into ban, which is used for stringing charpoys. At places thicker ropes are also made which are used for tying

attle at night or taking out water from wells. It is particularly adapted for the latter purpose, as the fibre does not rot by exposure to water. A large number of mallahs and other low class tenants, living in villages along the Gumti, carry on the manufacture of ban as an industry supplementary to agriculture. The manufacture is wholly done with hand and no appliances are used. One person is said to manufacture 2 seers of ban in a day and a waste of about 25 per cent. of munj is involved in the process. There are 155 men and 733 women workers engaged in this industry. The work lasts for 6 months—from Magh to Asar—and the total outturn is estimated to be 8,000 maunds annually. It is locally sold at Re. 1 to Re. 1-4 per seer. One man earns 3 to 6 annas a day or Rs. 7-8 to Rs. 11-4 per month. The chief centres for the sale of ban are : Kadipur and its neighbouring villages like Gopalpur and Lachhmanpur ; Dearah, Sultanpur, Isauli and Sukul-ka-bazar. A little ban is exported to Lucknow and Allahabad by the dealers of Sultanpur. A large portion of it passes from Sukul-ka-bazar to Rudauli and Hyderabad (Bazar Tika Raman) in the Bara Banki district.

The improvements to be introduced are :—

- (1) increasing the production by introducing mechanical appliances. There have been a few factories running in Delhi on improved lines. The introduction of simple instruments or wheels like "Vatna" and "Dewa" employed in Lahore or "Bhirni" and "Dhairni" used in Dera Ismail Khan and Montgomery respectively should not only increase the production fourfold, but would as well manufacture more evenly and firmly twisted twine.
- (2) Utilising the bye-products—sarkanda into chicks, mondhias, baskets, sieves, nechas (hukka tubes) and gatlas (part of hukkias), tili or seenk into chicks, baskets and fine sieves.
- (3) Organization for collecting the product from villages and putting it into market.

(ii) *Sann hemp.*

Sann of a somewhat inferior quality is produced to the extent of 35,000 maunds. Amethi is by far the most important tehsil

for this crop. After cutting, the stems are made into bund and steeped under water in the village tanks for 3 or 4 days. When sufficiently decomposed, they are stripped of this fibre. The fibre is cleaned in water and utilised in spinning sutli and then woven into tat-pattis. The fibre is not sold except when the tenant is hard pressed for rent. In many cases where fibre has been sold, it had to be repurchased on credit at higher rate. Every effort is therefore made not to sell the fibre. Its current price is Rs. 5 per maund.

#### *Sutli and Tat-patti.*

The fibre is twisted into sutli partly by hand and partly by wooden appliance. One man can twist two seers of sutli in a day. The work is generally done in slack season as this industry is only subsidiary to agriculture. The waste involved in spinning is  $\frac{1}{2}$  pao of sanai in one seer of sutli. One seer of it is worth annas and six pies in bazar. But sutli is seldom manufactured for sale, except that a little is locally consumed as string for charpoys. It is manufactured for being woven into tat-pattis. Pattis are woven in 4 lengths: 24, 22, 20 and 18 haths; they require at an average 4, 3,  $2\frac{1}{2}$  and  $2\frac{1}{2}$  seers of sutli respectively. An average patti is 9 inches wide and 24 haths long and weighs  $3\frac{1}{2}$  seers. One such patti is woven in a day. There are three kinds of pattis sold in the market: (1) at Rs. 1-12-0 to Rs. 2, (2) at Rs. 1-8-0 to Rs. 1-12-0, and (3) at Rs. 1-2-0 to Rs. 1-4.

There are 112 men and 432 women workers engaged in string making and tat weaving. Their wages are 4 annas a day for sutli and 8 annas to 10 annas a day for weaving tat-pattis. The workers mostly live on the border of Amethi tehsil which adjoins Partabgarh district. They produce over 4,000 maunds of sutli, out of which over 50,000 tat-pattis are woven. The chief centres are Bishesharganj, Beheliapur, Derhpasār, Tarapur and Gauriganj, and the exporting stations are Gauriganj, Amethi, Jagesharganj and Antu, the last two being situated on the boundary of the Partabgarh district. An export of over 70 maunds was recorded at the first and the second stations. Tat-patti weavers though poor are yet free from debt, and it is only at times that they have to borrow money for purchasing the raw

material. In such cases mahajan charges 2 pice per rupee per month as interest which works out to Rs. 37-8 per cent. per annum.

The improvements that could be suggested are :—

- (1) Co-operative credit societies for financing the weavers at the time of emergency.
- (2) Employment of some simple machinery for crushing and for spinning.
- (3) Wider looms if possible.
- (4) Retting and cleaning in purer water.
- (5) Experiment in weaving cloth as is done in Banda and Basti.
- (6) Its introduction among other castes besides kurmis.
- (7) Employing waste sanai into other articles such as ropes, chinkas and money bags.

#### *C.—Wool.*

*Blanket weaving.*—It is estimated that about 62,413 seers of wool is available in the district. In 1921 wool weighing 3,600 seers was exported from Sultanpur railway station. The number of wool carders, spinners and weavers of woollen blankets here is comparatively least as compared to other districts of the Fyzabad division. In Hameedpur, about 7 miles north-east of Kadipur, two small factories, with much wider looms, have been started where quite decent blankets are made. Fifty weavers of woollen blankets together with two factories produce 1,200 coarse and 140 superior blankets. They take in all 3,700 seers of local wool, so that 58,700 seers of wool is available for export. Ordinarily rough blankets—2½ seers each in weight—are produced and sold by gadariyas in every village market.

The local wool is available at 2 seers per rupee, but at times the new factory owners import superior quality of wool from Munaffarpur and other places at half a seer for a rupee. This seems to be very dear and the importers should have been well advised to buy at Aligarh where Bikaner wool is available at cheaper rates.

There are in all about 50 weavers throughout the district. They prepare coarse blankets at the rate of one per week and

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earn about Rs. 10 or Rs. 12 monthly. The two factories produce blankets of several designs and sell them for Rs. 6-8 (black), Rs. 7 (black and white) and Rs. 9 (white). Their weight varies from  $2\frac{1}{2}$  seers to 5 seers. But ordinarily blankets weighing 5 seers are manufactured with wool worth Rs. 2-8 to Rs. 3. It takes a man about 4 days to weave one of these blankets. The owner of the factory earns Re. 1-4 to Rs. 1-8 for his labour. The total outturn in the district appears to be about 1,200 rough blankets and 40 blankets of superior quality. They are all sold locally. The latter are popular amongst the middle class people and the touring officials.

*Improvements.*—(1) Attempts should be made to improve the local breed of sheep. The death rate among them is smaller in this district and Partabgarh than anywhere else in Oudh and so it is peculiarly well fitted for sheep breeding.

(2) Improved looms should be introduced wherever possible.

## CHAPTER III.

## INDUSTRIAL POSSIBILITIES.

## 1.—Oil mills.

Two oil mills could very easily run in the Sultanpur district, one in Amethi and another somewhere near Sultanpur city. The oil-seeds available in Sultanpur and Amethi are as follows :—

Name of seed.	Sultanpur station.	Place of consignment.	Amethi station.	Place of consignment.
	Mds.		Mds.	
rape and mustard.	88,079	Howrah and Cawnpore	4,036	Howrah.
Nil seed ...	9,132	Cawnpore and Bombay	618	Bombay.
linseed ...	8,132	Ditto ...	604	Do.
mahua seed ..	6,408	Cawnpore and Allahabad.	7,271	Cawnpore and Delhi.
castor seed ...	4,056	Cawnpore ..	436	Howrah.
soam seed ...	1,243	Lalgopalganj and Sitait.	Nil.	..
Poppy seed .	1,038	Bombay and Cawnpore	1,250	Bombay and Howrah.
Barro seed ...	1,486	Ahmadnagar ...	3,261	Bombay and Ahmadnagar.
Total ...	69,519	Total ...	17,422	

Mahua is largely grown in Amethi tehsil and one small oil mill could very well specialise in it. Barre is already crushed and an export of 172 maunds of oil is shown by railway figures (vide appendix). But this is done in country ghanis and the oil mill could take this up as well. Both Sultanpur and Amethi have got the facility of communication by railways. Cheap labour is also available here, so the seeds which are sent to Cawnpore, Allahabad and other places should be crushed here profitably. The industry will yield a large amount of oil-cake



which would prove of much value to local and neighbouring agriculture land.

### 2.—*Rice hulling.*

About 33 lakhs of maunds of rice is produced in the district and Kadipur and Sultanpur tehsils contribute a large proportion. A rice mill anywhere between the two would be quite successful. Labour is cheap, and the railway line passes through the district. Rice hulling is at present carried on on old methods. The use of machinery will set free a great deal of labour which could be employed in other profitable undertakings. The successful experiment at Bahraich should stimulate the capitalists to begin the same here as well. The mill may be started on a small scale and gradually expanded as experience is gained.

### 3.—*Dal kibbling.*

Dal kibbling could also be taken up at the proposed oil mills at Sultanpur and Amethi. It would require only small extra capital. The district produces over 3½ lakh maunds of arbar, all of which is exported in a raw state. This should be split into dal in the district before export.

### 4.—*Sugar refining.*

Gur over 5 lakhs of maunds is produced in the district. With the rise in duty on Java sugar, the industry is bound to pay. Jaisinghpur in Baraunsa and Bishenganj in Chanda have been famous for a long time for this industry.

### 5.—*Lime factory.*

Kankar is abundantly found everywhere in the district. But as there is very little local demand for lime, it is not manufactured on a large scale. If markets are found outside, the product can be turned out cheaply here. Cheap raw material, cheap labour, facility of communication, etc., will make it an ideal place for lime manufacture.

### 6.—*Munj rope factory and sann rope factory.*

Munj is found all along the Gumti and on the banks of tanks and lakes. No figures are available for this, but a minimum of 10,000 maunds is at present worked up. Ban is already

manufactured in villages along the river, but it is done on primitive lines and the production is small. This could be increased by the introduction of machinery. Delhi had a few factories and one or two of the same sort could be established here. The easy collection of raw materials through the river can facilitate in large scale production. There is also the production of 35,000 maunds of sann, a portion of which is turned into sutli and tat-patti. This could also be manufactured on large scale if work is carried on a factory basis.

#### 7.—*Tanning.*

Four thousand eight hundred and eighty hides and 8,328 skins are available in the district. Most of them are exported and only a few are utilised in the manufacture of country shoes. Shoes made in Sukul-ka-bazar have been exported to outside markets. But curing and tanning done locally is very crude. If improved methods are employed, they would fetch higher price and improve the local manufacture. Attempts should be made to demonstrate the improved methods.

#### 8.—*Indigo.*

It must receive some impetus by the recent Government notification that its manufacture will be free of any income-tax for the next two or three years. The zamindars must therefore revive their old industry and the indigo planters must increase their production. For other improvements the reader is referred to Chapter II under Chemicals.

#### 9.—*Reh.*

Reh could again be used for bangle making and for the manufacture of soda, nitre, etc. Skilled labour is still available in the district, but now the manihars only sell the imported articles. If only a few of them are sent out to Firozabad to learn the latest method, the local industry could again be revived. For this purpose the grant of stipends and the giving of facilities in training are absolutely necessary.

#### 10.—*Sheep breeding.*

Sultanpur is said to be free from all diseases which affect the animals. Hence the death rate amongst them is smaller

here than in other districts. Sheep breeding should be encouraged by (a) setting apart enough grazing ground, and (b) introducing better blood amongst the existing stock. This should improve both the quality and the quantity of wool.

## CHAPTER IV.

## STATISTICS.

1.—*Indigo.*

*Raw material.*—Quantity : 51,000 maunds of stalk.

Place of origin : local.

Price : 6 annas per maund.

*Manufacture.*—Number of persons employed : 180 men.

Wages : 4 annas a day.

Outturn : 153 maunds.

Disposal : Exported to Safdarganj and Calcutta.

2.—*Wheat grinding.*

*Raw material.*—Quantity : 12,400 maunds annually.

Place of origin : Local.

Value : 7—9 seers for a rupee.

*Manufacture.*—Working capital : Rs. 17,000.

Number of persons employed : 15 persons.

Wages : Mistris, Rs. 40 to Rs. 50.

Coolies, Rs. 8 to Rs. 15.

Outturn : 12,090 maunds annually.

Profit : Rs. 5,000 a year.

Machinery : Engines, Rs. 8,000 each.

Mill, Rs. 300.

3.—*Kaskut and phul utensils.*

*Raw material.*—(Old utensils) Quantity : 9,600 maunds.

Place of origin : local and Mirzapur.

Value : Phul, Rs. 1-12 a seer ; kaskut, 12 annas a seer.

*Manufacture.*—Number of persons employed : 100 persons.

Wages : Rs. 8 to Rs. 10 per month for hired labour.

6 to 14 annas per seer charged by Thatheras.  
 Outturn : 7,200 maunds.  
 Price : Kaskut, Rs. 1-3 and phul Rs. 2-12 per  
 seer.

4.—*Country' shoes.*

*Raw material.*—Quantity available : 2,304 hides annually.  
 Place of origin : Local.  
 Value : Rs. 5 per hide.  
*Manufacture.*—Number of persons employed : 182 men.  
 Wages : 12 annas per day.  
 Outturn : 300 maunds of shoes.

5.—*Cotton cloth.*

*Raw material.*—Quantity : 6,750 maunds.  
 Place of origin : Cawnpore.  
 Value : Rs. 9-8 per bundle of 16½ counts.  
*Manufacture.*—Number of looms employed : 1,000 looms.  
 Wages : 2 annas a yard.  
 Outturn : 2,160,000 yards.

6.—*Woollen blankets.*

*Raw material.*—Quantity available : about 63,000 seers.  
 Origin : Local.  
 Value : 2 seers per rupee.  
*Manufacture.*—Number of persons employed : 50 men.  
 Wages : Re. 1-4 to Rs. 1-8-0 per day. Average  
 monthly : Rs. 10 to Rs. 12.  
 Outturn : 1,340 blankets.

7.—*Sutli and tat-patti.*

*Raw material.*—Quantity available : 35,000 maunds.  
 Origin : Local.  
 Value : 7 to 8 seers per rupee.  
*Manufacture.*—Number of persons employed : 112 men and  
 432 women.  
 Wages : 4 annas for sutli per day.  
 8 annas to 10 annas per day for tat-  
 patti.  
 Outturn : 4,000 maund or 50,000 tat-pattis.

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8.—*Munj ban.*

*Raw material.*—Quantity: 10,000 maunds.

Origin: Local.

Value: Re. 1 to Rs. 1-8 per maund.

*Manufacture.*—Number of persons employed: 155 men and  
733 women.

Wages: 4 to 6 annas a day or Rs. 7-8 to  
Rs. 11-4 per month.

Outturn: 8,000 maunds of ban.

## CHAPTER V.

## DIRECTORY.

1.—*List of Banks.*

District Co-operative Bank, Sultaepur.

2.—*List of Indigo Factories.*

Mr. Kenyon's Factory, Musafirkhana.

Thakur Suraj Bakhsh Singh's Factory, Musafirkhana.

3.—*List of Flour Mills.*

Mr. Khuda Bux, Sultanpur.

Messrs. Sehrumal, Ramgopal of Partabgarh.

4.—*List of brass and phul utensil sellers.*

Kashi Ram, Musafirkhana.

Musai,

"

Salig Ram,

"

Badri Dass,

"

Badri,

"

Gaya Praead,

"

Bhagwan Din, Lohar, manufacturer, Bandhua, tahsil  
Sultanpur.

Matkesar Sankar, Bandua.

Seligram Suraj Bali, Bandua

Ram Kishan, Bandua.

Angnu, Bandua.

Tulsi Hanumandin, Bandua.

Mathkesar Sankar, Sultaepur.

Ram Dayal, Bhagwati, Sultanpur.

Sheo Batan Nageshar,

"

Ram Prasad Mahadeva,

"

Basdeolal Mathura,

"

Ram Dyal, Mathura.

"

5.—*List of yarn sellers.*

1. Mr. Kenyon, Musafirkhana.

6.—*List of blanket weaving factories.*

Behari Singh, Humeedpur, tabsil Kadipur.

Babu Ram Narain Singh, " "

7.—*List of manufacturers of country shoes.*

Ramcharan chamar, Sukul-ka-bazar.

Badal chamar, "

Jawahir chamar. "

Bisheswar chamar. "

Ghirran chamar. "

Sheoraj chamar. "

Paran mochi, "

Bhusai chamar. "

8.—*List of tat-patti and ban dealers.*

Tulsi Ram, Sultanpur.

Ram Das, "

9.—*List of dealers in bricks.*

Babu Ajodhia Nath.

Babu Sukh Raj Singh.

Bechu Khan.

10.—*List of dealers in tiles.*

Ajodhia Kumbar.

Badal Kumbar.

11.—*List of dealers in lime.*

Badri Mallah.

Durjan Mallah.

Ram Harak Mallah.

Ram Autar Mallah.



## CHAPTER VI.

## APPENDIX.

*Export trade of Sultanpur district.*

Article.	Sultanpur station.	Amethi.	Total.	Place of consignment.
	Mds.	Mds.	Mds.	
Wheat ...	46,662	5,690	52,352	Cawnpore, Allahabad, Howrah, Bombay, Jhansi and the Punjab
Rape seed and mustard.	38,079	4,086	42,115	Cawnpore, Howrah and the Punjab
Till seed ...	9,132	618	9,750	Bombay, Karachi and Agra.
Lin seed ...	8,132	604	8,736	Bombay and Cawnpore.
Mahua seed ...	6,408	7,217	13,620	Cawnpore, Allahabad and Delhi.
Castor seed ...	4,066	483	4,492	Cawnpore and Howrah.
Neem seed	1,243	Nil	1,243	Lalgopalganj and Siwail,
Poppy seed ..	1,038	1,260	2,298	Bombay, Cawnpore and Howrah.
Barre seed. ...	799	3,261	4,060	Ahmedabad and Bombay.
Arhar ...	1,436	Nil	1,436	Cawnpore and Fyzabad.
Jute and hemp ...	1,379	60	1,439	Agra.
Wool ...	90	Nil	90	Cawnpore and Sitamarhi.
Cotton ...	90	Nil	90	
Hides and skins ...	1,808	187	1,995	Cawnpore and Lucknow.
Tallow ...	15	6	21	
Bone ...	1,606	300	1,906	Bally and Sealdah.
Horn ...	85	Nil	85	Fyzabad.
Coconut shell ...	1,162	Nil	1,162	Allahabad, Behraich, Gorakhpur and Buzar, etc.
Reh ...	96	Nil	96	Gonda.
Sirki ...	53	Nil	53	
Waste paper ...	294	Nil	294	Agra and Cawnpore.
Rice ..	445	31	516	Fyzabad.
Old metal ...	9	Nil	9	Ajodhia.
Hadhi or ban ...	244	Nil	244	Oudh district.
Indigo ...	96	Nil	96	Howrah and Saffarganj.
Brass utensils ...	22	Nil	22	
Ha-gles ...	33	Nil	33	Ajodhia, Behraich and Howrah.
Tat-patti ...	Nil	326	326	Cawnpore and Behraich.
Sutli ...	2	2	4	Lakhimpur.
Oil-cake ...	Nil	1,433	1,433	Allahabad and Benares.
Wooden wheels, 10 in no.	Nil	31	31	
Burnt oil ...	Nil	172	172	Cawnpore.
Country shoes, from Sukul-ka- bazar to Rudauli station.	...	...	...	Kbeta Serai, Khorasan Road, Serai Mir, Serai Rasi, Jauspur and Shabganj.

Article.	Sultanpur station.	Amethi.	Total.	Place of consignment.
	Mds.	Mds.	Mds.	
Handlooms ...	15	Nil	15	Benares School.
Wool (Babul) ...	28½	8½	37	Tanda and Cawnpore.
Wool ...	13	Nil	13	Tanda.
Wool ...	52	Nil	52	Fyzabad
Wool ...	165	Nil	165	Do.
Wool ...	33	Nil	33	Mirzapur.
Wool ...	Nil	1,526	1,526	Sultanpur.
Wool ...	Nil	250	250	

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Report on the  
**INDUSTRIAL SURVEY**  
of the United Provinces

**Unao District**

*By*

**B. K. GHOSHAL, M.A.**



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## FOREWORD.

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UNAO is a purely agricultural district with practically no industries except that of manufacture of brass and kaskut utensils.

The district has large tracts of "usar" which extend not infrequently to several miles consecutively. But the usar has no reh on the surface. Therefore it has not been found to be of any industrial use. The Gazetteer says that, perhaps, the reh exists at a short depth below the surface—"an unusual phenomenon which has not been observed elsewhere." Investigation should be made to find out if such reh could at all be industrially workable.

Handloom weaving and the manufacture of blankets can be improved by the introduction of better looms and modern methods of working. A store should be organized and demonstration of improved methods given on spot.

The dyeing and printing industry can only be saved from extinction by improving the quality of prints and arrangements should be made to impart instruction to printers in improved methods.

The manufacture of hardware would improve immensely with the introduction of new designs.

The splitting of *arkar* in larger factories should be started and use made of the large amount of sanai in weaving tat and other useful articles. A short note by Mr. Dutta of the Benares Central Weaving Institute will be found in the Industrial Survey Report of the Basti district. Power hulling of rice may commend to some of the flour mills as a side activity. This has been tried by Bahraich mills and found to be successful.

The liquidation of the Pioneer Sugar Works of Unao was announced as this report was going to press. The other sugar factory which has been contemplated has not yet made any appreciable progress which may also be withheld for some time to come in consequence of the failure of its neighbour.

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Unao is in close proximity to Cawnpore which is a growing industrial place. Most of the labour which Unao has to spare is naturally tapped by Cawnpore. Its close vicinity to Cawnpore gives Unao the facility for new factories which can conveniently be situated on the Cawnpore side of the Ganges.

The report has been written on the lines of the industrial Survey Report of the Lucknow district which has been published previously. It has been revised by Mr. S. T. Gadre, Industrial Chemist to Government, whose help I have to acknowledge specially.

Thanks are also due to the following gentlemen for assisting in one way or the other :—

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Chaudhri Ganesh Singh of Bangarmanu.

B. K. Ghare, Esq., of the Agricultural College, Cawnpore

CHAMPA RAN MISRA.

*The 8th June, 1923*

# CHAPTER I.

## INTRODUCTION.

### 1.—General features of the district.

(a) *Area*.—Unao is a small district with an area of 1,737 square miles.

#### (b) *Boundaries*—

*North*.—Hardoi district.

*East*.—Lucknow.

*South*.—Rae Bareli.

*West*.—River Ganges separating the Unao district from Cawnpore and Fatehpur districts.

### 2.—Rivers.

The Ganges is the most important river and is bridged both for railway and other wheeled traffic and consequently its ferries are of no importance. The other rivers are the Sai, the Kalyani, the Tanai, the Loni and the Naurahi. The Ganges often overflows its banks and the entire western ridge along the river is a precarious tract. The other rivers are a source of irrigation.

### 3.—Crop and harvest.

They are as usual. Wheat is grown over the largest area.

### 4.—Minerals.

On account of the great extent of barren waste—*usar*—*reh* is found in many places. Besides *reh*, *kankar* is also an important mineral product.

### 5.—Irrigation.

There are no canals. The Ghaziuddin Hyder Canal is of no use for irrigation purposes. Besides the rivers, the wells and *jheels* are the sources of irrigation.



### 6.—Jheels and tanks.

The district possesses an unusual number of swamps and lakes of great size and value. The important tanks are of Mawai Bhari, Kursat, Harial Tal in Safipur tahsil ; Kundra Samundar, Kullu Bain, Jalesar, Basaha, Katgari and Amerpur in Hussanganj tahsil ; Kantha, Bhadain, Unchgaon, Quila, Murri, Zorwarganj, Sarwan, Bachua, Mohna, Sukrar, Sahrawan, Kubha and Barila in Purwa tahsil.

### 7.—Communications.

Communications are good, but the following kuchcha roads ought to be metalled to facilitate trade :—

- (1) The road between Purwa town and Bhagwantnagar, the great centre of utensil making. If the entire road—about 23 miles—cannot be metalled, at least the road between Bhagwantnagar and Baiswara railway station, about 7 miles, or Takia railway station, about 8 miles, should be immediately metalled to remove the difficulty of the utensil manufacturers, who would be willing to contribute towards the cost. About Rs. 40,000 worth of merchandise passes over the roads.
- (2) *Bangarmau to Sultanpur*—Seven miles. This will connect by means of a pucca road the northern portion of the district with the Mathoganj market where cotton is ginned.

*The road between Newalganj and Lucknow*—Twelve miles: 4 miles in the Unao district and 8 miles in Lucknow. Newalganj is a big trade centre for grain and utensils which are manufactured there.

All these are very important roads and command a considerable volume of traffic. The district board is unfortunately short of funds and may not be able to take up the work immediately.

### 8.—Industries.

Unao is not of any great industrial importance, although its proximity to Cawnpore has encouraged some companies to

establish factories there. The manufacture of metal utensils is its most important industry. Next comes weaving, but it is not of any high order. Laheris (bullock carts), boxes and doors are made for local use and form important items in the fairs of Takia and Bihar.

There are two factories: the Pioneer Sugar Mills, Ltd., and the Cawnpore Bone Mills. The former is not working successfully, although it had taken up the manufacture of motor spirit from alcohol. The bone mill will be able to consume a major portion of the supplies of Oudh. Another sugar mill is in course of erection.

There are a few flour mills—small and of no industrial importance.

### 9.—Trade.

There are no big centres as there is already such a big trade centre as Cawnpore within easy reach. Newalganj is of some importance but the bulk of the district produce is shared between Cawnpore, Lalganj (in Rae Bareli) and Madhoganj (in Hardoi).

### 10.—List of Ferries.

River	Pargana	Name of ferry.
Ganges	... Bangarmau	... Sajeti Badshahpur.
Do.	... Ditto	... Nanamau.
Do.	... Ditto	... Akbarpur Saing.
Do.	.. Fatehpur Chaurasi	Saraiyan Badhan.
Do.	... Ditto	... Bandi Mata.
Do.	... Pariar ...	... Bithur Patkapur.
Do.	... Sikandarpur	... Kanta Bakarganj.
Do.	... Ditto	... Permitghat.
Do.	... Harha ...	... Jajmau.
Do.	... Do. ...	... Dhauri.
Do.	... Do. ...	... Rajpur Najafgarh.
Do.	... Do. ...	... Domanpur.
Do.	... Daundia Khara	... Sheorajpur.
Sai	... Auras-Mohan	... Inayatpur Bara.

## 11.—List of Roads.

## I.—Provincial.

	Length miles.
Cawnpore and Lucknow Trunk road	... 29
Feeder to Ajjain railway station	... $\frac{1}{2}$

II.—First class local roads, metalled, bridged and drained throughout.

Unao-Hardoi road	... 31
Unao-Dalmau road	... 20
Ajjain-Mohan and Hassanganj	... 14
Maurawan-Jabraili road	... 11
Unao-Rae Bareli road	... 24
Unao-Sandila road	... 3
Municipal roads in the town	... 3
Circular road	... $\frac{1}{2}$
Opium godown road	... $\frac{1}{2}$

III.—Second class roads, unmetalled but drained and bridged throughout.

	Length miles.
Unao-Hardoi road	... 11
Unao-Sandila road	... 28
Sheikhpur and Nawabganj road	... 3
Nawabganj and Kusambhi road	... 1
Barmaki Chaube and Ajjain	... $\frac{1}{2}$
Bikrampur Rae Bareli road	... 16
Ajjain and Munshiganj road	... 11
Unao and Rae Bareli road	... 10
Maurawan and Jabraili road	... 11
Purwa and Chaubi Jait road	... 25
Unao and Dalmau road	... 16
Mohan and Malibabad road	... 6

The other roads are not important, their total length is 234 miles.

## 12.—List of Fairs.

Name of place.	Name of fair.	Date.
Unao ...	Ram Lila ...	Kuar Puraumashi.
Pariar ...	Ganga Ashnan ...	Kartiki Puraumashi.
Kalhuagarha ...	Kalhuagarha ...	Magh Badi 15th.
Khairaha and Nateoa.	Gangaghat ...	Kartiki Puraumashi.
Bangarmau ...	Ramlila ...	Kuar Sudi 10th.
Mela Balamshah...	Kartiki Ashnan ...	Kartiki Puraumashi.
Bihar ...	Bidyadhar ...	2nd Thursday of Pus.
Patan (Takia) ...	Takia Mohabbat... Shah.	First Thursday of Pus
Baksar ...	Ganga Ashnan ...	Kartiki Puraumashi.
Nawabganj ...	Durga Kusehri ...	Chait Sudi 14th.

## 13.—Railways.

Name of the railway system.	Distance.	Stations.
1. Oudh and Rohilkhand Railway, Lucknow-Cawnpore Branch.	27 miles ...	Jaitipur, Kusumbhi, Ajpgain, Sonik, Unao, Magarwara and Cawnpore bridge.
2. Oudh and Rohilkhand Railway, Kuchahar-Cawnpore Section.	39 miles ...	Baiswara, Takia, Bighapur Takauli, Rawatpur, Ochalganj, Unao, Magarwara and Cawnpore bridge.
3. Bengal and North-Western Railway, Main Line (Cawnpore to Katihar).	27 miles ..	Jaitipur, Kusumbhi, Ajpgain, Souik, Unao, Magarwa and Cawnpore bridge.

## 14.—Important Markets.

Market place.	Market days.
Unao ...	Sundays and Wednesdays.
Pariar ...	Mondays and Fridays.
Sikandarpur...	Ditto.
Achalganj ...	Sundays and Thursdays.
Hadha ...	Mondays and Fridays.
Bashiratganj ...	Ditto.

Market place.	Market days.
Bangarmau ...	... Fridays, Mondays, Sunday Wednesdays and Thursday
Atwa ...	... Mondays and Thursdays.
Moradabad ...	... Sundays and Thursdays.
Mustafabad ...	... Mondays and Fridays.
Safipur ...	... All the seven days of t week.
Kursat ...	... Sundays and Wednesdays.
Ugu ...	... Sundays and Thursdays.
Mirzapur ...	... Tuesdays and Saturdays.
Fatehpur Chaurasi ...	... Tuesdays and Fridays.
Purwa ...	... Saturdays and Tuesdays.
Bhagwantnagar ...	... Mondays and Fridays.
Panhan ...	... Ditto.
Patan ...	... Ditto.
Chaupai ...	... Tuesdays and Fridays.
Bigahpurkalan ...	... Ditto.
Lalganj ...	... Sundays and Wednesdays.
Bihar ...	... Wednesdays and Saturdays.
Maurawan ...	... Saturdays and Wednesdays.
Hilauli ...	... Sundays and Thursdays.
Ghatampur ...	... Mondays and Thursdays.
Unchgaon. ...	... Saturdays and Tuesdays.
Newalganj ...	... Fridays and Mondays.
Rasulabad ...	... Mondays and Fridays.
Hyderabad ...	... Ditto.
Asiwan ...	... { Sundays and Thursdays. Tuesdays and Saturdays.
Mianganj ...	... Sundays and Wednesdays.
Mirzapur ...	... Tuesdays and Saturdays.
Auras ...	... Sundays and Thursdays.
Ajgain ...	... Mondays and Fridays.
Jaitipur ...	... Ditto.
Orinda ...	... Wednesdays and Saturdays.
Mohan ...	... Sundays and Thursdays.

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Market places.		Market days.	
Mahrajanj	... ..	...	Mondays and Fridays.
Hassanganj	... ..	...	Tuesdays and Saturdays.
Neotani	... ..	...	Sundays and Wednesdays.

## 15.—Cattle Census.

Bulls and bullocks	...	...	189,294
Cows	...	...	94,759
Calves	...	...	111,727
Buffaloes	...	...	22,836
She-buffaloes	...	...	76,984
Calves	...	...	66,887
Sheep	...	...	50,182
Goats	...	...	95,029
Horses	...	...	4,963
Mares	...	...	2,502
Colts	...	...	1,714
Asses	...	...	4,592
Mules	...	...	27
Camels	...	...	210

## CHAPTER II.

## RESOURCES.

## 1.—Agricultural produce,

## (A) RABI OR WINTER HARVEST.

The crops of this harvest come to the market in April and the business for export trade is very brisk in May and June as early shipments of wheat, etc., fetch a higher price in Europe where the local supply becomes well nigh exhausted and the Canadian and American supplies come later.

(a) *Barley.*

Year 1921-22—1329 Fasli.

*Area cultivated.*—117,530 acres.

*Outturn.*—1,998,010 maunds.

*Export.*—About 800,000 maunds.

*Prices.*—11 to 11½ seers for a rupee.

*Export duty.*—Free.

*Import duty.*—Free in other countries, except in France 20 per cent., Germany 28 per cent., U. S. A. 37 per cent. and Japan 13 per cent.

The unit of sale locally is the maund, but export quotations from Karachi are sent at so much per candy of 656 lbs. Shipments are made in bags of 2 to 2½ maunds. This is not an important item of export except to the United Kingdom as the internal consumption is very large.

(b) *Gram.*

*Area cultivated.*—107,074 acres

*Outturn.*—1,284,888 maunds.

*Export.*—700,000 maunds.

*Prices.*—10 to 12 seers per rupee

*Export duty.*—Free.

*Import duty.*—Free in other countries, except in Germany 18 per cent, and Japan 16 per cent.

It is not important for foreign export. The unit of sale is the maund. It is sent out in bags of about 2 maunds for inland trade and about 2 cwt., for foreign trade.

(c) *Linseed.*

*Area cultivated.*—176 acres.

*Outturn.*—880 maunds.

*Export.*—700 maunds.

*Prices.*—5 to 5½ seers per rupee.

*Export duty.*—Free in all countries, except Italy 18 per cent. The bulk of the seed obtained is of mixed "Brown" variety. Linseed is grown only for the seed and not for the fibre.

(d) *Peas.*

*Area cultivated.*—8,022 acres.

*Outturn.*—112,308 maunds.

*Prices.*—Rs. 4-8 to Rs. 5 per maund.

*Export duty.*—Free.

*Import duty.*—Same as for gram.

The unit of sale is the maund and of shipment the bag of about 2 maunds.

(e) *Poppy (seed).*

*Area cultivated.*—648 acres.

*Outturn.*—3,240 maunds of seed.

*Export.*—2,000 maunds.

*Prices.*—4½ to 5 seers per rupee.

*Export duty.*—Free.

*Import duty.*—The seed is imported free in England, Belgium, France and Holland, while Germany levies 6 per cent.

The "White" variety is commonly grown. In India the use of the seed is for food and not for oil. The oil is used in France for edibles and for paint, etc., as a substitute for olive oil. The crop in India is grown chiefly for opium under the control of the Government. The cultivation of the crop is being annually reduced.



The unit of sale for seed is the maund and shipments are made in bags of 140 to 168 lbs. Opium is shipped and sold wholesale in chests of 140 lbs.

(f) *Rape and mustard.*

*Area cultivated.*—314 acres.

*Outturn.*—1,884 maunds.

These are mostly grown as a mixed crop; these figures represent the area shown in the Jinawar as exclusively under them.

*Export.*—8,000 maunds.

*Prices.*—5½ to 6½ seers per rupee (Brown variety), 4 to 4½ seers (Yellow variety).

*Export duty.*—Free.

*Import duty.*—Free in other countries, except Hungary 12 per cent., Germany 9 per cent. and Italy 9 per cent.

This is the most important oil-seed both for internal and export trade. India is the principal source of European supply and United Provinces has the foremost place.

The unit of sale is the maund, but shipments are made in bags of 168 to 182 lbs. from Bombay and 164 to 206 lbs. from Karachi.

(g) *Tobacco.*

*Area cultivated.*—834 acres.

*Outturn.*—5,838 maunds.

*Export.*—Nil. Tobacco grown here is not of good quality.

*Prices.*—Rs. 10 to Rs. 12 per maund.

(h) *Wheat.*

Year 1921-22—1329 Faslî.

*Area cultivated.*—98,275 acres.

*Outturn.*—1,474,125 maunds.

*Export.*—700,000 maunds.

*Prices.*—Fluctuated between Rs. 5-11 to Rs. 6-4 per maund.

*Export duty.*—Free. Free private export was disallowed during the War, but owing to high prices the restriction was continued after the termination of hostilities, and even now

only 400,000 tons are allowed to be exported provided the purchases are not made above the price limit of Rs. 6-2-6 per maund f. o. r. Karachi. This is subject to variation by ordinances issued according to the conditions of the Indian market.

*Import duty.*—Free in England, Belgium and Holland, 40 per cent. in France, 37 per cent. in Germany, 41 per cent. in Italy and 19 per cent. in Japan.

Wheat is packed in gunny bags of about 2 maunds and is exported mostly from Karachi, where the port is safe from the monsoons.

The Corn Trade Association in England allows 2 per cent. dust and 2 per cent. food grain in their standard quality of wheat.

### (B) KHARIF CROPS.

The crops come to market in December, and the marketing goes on till March. Rice is the most important crop of this harvest.

#### (a) Arhar.

*Area cultivated.*—101,480 acres.

*Outturn.*—362,580 maunds.

*Export.*—470,000 maunds (mostly for internal trade).

#### (b) Bajra.

*Area cultivated.*—56,246 acres.

*Outturn.*—393,722 maunds.

#### (c) Cotton.

*Area cultivated.*—12,267 acres.

*Outturn.*—1,349,370 lbs. of cleaned cotton.

*Export.*—1,000,000 lbs.

*Prices.*—Rs. 12 to Rs. 15 per maund.

*Export duty.*—Free.

*Import duty.*—Free in other countries, except Italy 2 per cent. and Russia 49 per cent.

Very little of this raw cotton is exported out of the quality as the quality is not good. It is grown for Cawnpore factories

mostly, although some goes to Madhoganj also. The introduction of a long stapled variety is very badly wanted to supply the Indian and Japan mills with better cotton.

(d) *Ground-nut.*

*Area cultivated.*—589.

*Outturn.*—6,479 maunds.

*Prices.*—Rs. 8 to Rs. 10 per maund.

*Export.*—2,500 maunds (for internal trade only).

*Export duty.*—Free.

The fruits are consumed as food in the province.

(e) *Juar.*

*Area cultivated.*—64,654 acres.

*Outturn.*—517,232 maunds.

This is important for local village consumption and the export is insignificant.

(f) *Maize.*

*Area cultivated.*—47,599 acres.

*Outturn.*—618,787 maunds.

(g) *Munj.*

Total area about 1,045 acres.

It is used for "ban" or rope-making and for munj matting in the jail. It is found largely in Bangarmau pargana of Safipur tabsil and "ban" comes in large quantities to the Bangarmau market.

(h) *Rice.*

*Area cultivated.*—79,606 acres.

*Outturn.*—955,272 maunds.

*Export.*—450,000 maunds.

*Prices.*—Rs. 7 to Rs. 8-8 per maund.

*Export duty.*—3 annas per maund of 82 lbs.

*Import duty.*—Free in the United Kingdom, Belgium and Holland, 23 per cent. in Austria, 50 per cent. in France, 30 per cent. in Germany, 66 per cent. in Italy, 115 per cent. in Russia,

1 per cent. in the United States of America and 26 per cent. in Japan.

Rice of Unao is not very important for export trade.

(i) *Sanai.*

*Area cultivated.*—4,578 acres.

*Outturn.*—36,624 maunds.

*Export.*—15,000 maunds (mostly for internal trade).

Sanai is "*Crotalaria juncia*" and is sown for protecting the fields and for its fibre which is largely used by the villagers for ropes. The fibre is either used by the villagers themselves or sold to Kahars who make ropes for sale and sell to merchants doing export business.

(j) *Sugarcane.*

*Area cultivated.*—11,431 acres.

*Outturn.*—360,076 maunds of gur.

*Export.*—100,000 maunds of gur.

*Prices.*—4 to 5½ seers per rupee.

*Export duty.*—Free.

*Import duty.*—Free elsewhere, in United States America 18 per cent.

(k) *Til.*

*Area cultivated.*—969 acres.

*Outturn.*—3,391 maunds.

*Export.*—2,500 maunds.

*Export duty.*—Free.

*Import duty.*—Free in other countries, except Italy 16 per cent., Germany 6 per cent. and Russia 10 per cent.

The White and the Black varieties are grown. The Black variety is more common, but the White one is preferred for scented oils and for food. In France ground-nut oil is replacing it for edibles.

The unit of sale is the maund and it is shipped in bags of 2 maunds each

## 2. — Animal products.

### (a) Bones.

*From bovine animals.*—5,129 maunds from 10,259 animals at 10 seers per animal.

*From ovine animals.*—1,046 maunds.

Bone pickers, mostly Chamars, pick them from the outskirts of the villages and collect at dépôts near railway stations. Bones are weighed there and when a wagon load is collected they are sent to Calcutta or Magarwara. Magarwara mills are receiving the Unao supplies.

### (b) Hides and skins.

(i) <i>Hides.</i> —Slaughtered in the slaughter-			
houses	...	...	3,259 hides.
Others, including dead and privately			
slaughtered	...	...	7,000 "
			7,000
Total hides available	...	...	10,259

*Export.*—7,259 hides.

*Locally used.*—3,000.

*Export duty.*—15 per cent. "ad valorem."

A rebate of two-third of the duty is allowed to shipment within the British Empire upon production of a certificate that the hides have been tanned there.

*Import duty (raw hides).*—Free everywhere.

*Prices.*—Cow-hides Rs. 2-4-0 to Rs. 5 each; buffalo hides Rs. 4 to Rs. 6-8 each, small Rs. 6 to Rs. 9 each big.

The term "hides" is used for the skins of all bovine animals. There is a slump in the market owing to overstocking in Europe for War purposes and owing to the financial collapse of Germany, India's biggest purchaser. There are signs of demand in Europe and the reduction in freight and the suggested reduction of export duty in the coming Financial budget (1922-23) will help exports. Unao hides go mostly to Cawnpore where they are either tanned or exported in the raw state.

The hides are classed as "North-Wests" or "Agras" and are graded according to quality as follows:—

- (1) *Slaughtered*.—Hides without yoke marks or cuts.
- (2) *Dead*.—Hides with slight cuts or marks.
- (3) *Rejections*.—Hides with more cuts or marks.
- (4) *Double and treble rejections*.—Badly damaged or badly cured.

The unit of sale in the local markets is a single hide, but it is exported in bundles of 20 or 30 and weighed. The unit is a bundle of 20 lbs.

(ii) <i>Skins</i> .—Skins from animals (goats and sheep) -slaughtered in the slaughter-houses ... ..	6,749 skins.
Others, including those dead and privately slaughtered ... ..	10,000 ..
Total	16,749 ..

*Export*.—15,000 skins average.

*Export duty*.—Same as for hides.

*Import duty*.—Same as for hides.

*Prices*—10 annas to Re. 1 each.

*Season*.—Hides and skins are in the best condition from December to May.

United Provinces supplies the best skins (goat) for American and French trade. There was a slump in the market, but America has shown signs of reverting to Indian supplies. Unao skins go mostly to Cawnpore where from the goat-skins are packed in barrels of salt solution. Those exported in these barrels are preferred for "Glacé" kid, but as this is expensive skins are taken out of the barrels at the ports and dry salted. The unit is a consignment of 100 skins. The Unao skins are called "North-Wests." They are graded according to size:—

Heavy, i.e., 36" long × 21" wide. Sizes smaller than 25" are called kid-skins.

The skins are collected by Chikwas for merchants or byo-paris who send their consignments to their arhatias at Lucknow or Cawnpore.

(c) *Wool.*

Produce from living sheep (from 50,182 sheep at 1½ lbs. per sheep per annum)...	75,273 lbs. = 913 maunds.
Produce from skins of dead sheep (from 1,914 sheep slaughtered at ½ lb. per sheep) ... ..	657 lbs. = 11½ maunds.
<b>Total produce of wool</b> ...	<b>76,230 lbs. or 929½ maunds.</b>

*Wool used locally.*—10,000 lbs.

*Wool exported.*—66,230 lbs.

*Prices.*—Rs. 14 to Rs. 18 and Rs. 26 per maund.

The district jail utilises some of this wool and the balance goes mostly to Cawnpore. Wool is coarse and not of good quality and white, black and brown are all mixed together. This further lowers the price.

*Export duty.*—Free.

*Import duty.*—Free everywhere else, except United States of America 8 per cent

Unao wool is seldom exported out of India. Wool is collected by Gadariyas or Chikwas who sell their collections to biyoparis.—The latter supply the Cawnpore merchants or jails.

3.—*Calcareous deposits.*

Parsendi, Bhatkherwa and Anwarpur in Purwa tahsil have small patches of calcareous deposits in the ponds which are burnt and used by "Panwalas" for slaked lime, but the area at any one place is not large enough for a cement factory.

4.—*Minerals.*(a) *Kankar.*

Kankar is found in large quantities, but is not excavated on a large scale. There are quarries at the following places:—

Ajgain, Jaitipur, Pali, Khawana, Motni and Makhri in H assanganj tahsil; Magarwara, Dib, Kurairi, Niwarana,

Shazadipur, Tikargarhi and Saharan in Unao tahsil; Ferozepur, Rampur, Makhdumnagar, Fazilpur, Argu, Dandi Sehora, Nurallapur, Kazipur, Bhikharipur, Amirpur and Gauharpur in Safipur tahsil; and Maurawan, Chaksirian, Basudeo Khera, Chaushekora, Pathakpur, Bachhrauli and Langarpur in Purwa tahsil.

Kankar is used by the District and Municipal Boards for metalling roads and by the lime factories.

(b) *Reh.*

Area under reh 1,445 acres, scattered all over the district in usar lands. Safipur tahsil has 175 acres, Unao 200 acres and Hassanganj 1,075 acres.

Reh is used by dhobis only.

5.—Vegetables and fruits.

Vegetables of all kinds are grown, but not in abundance. 1,168 acres are under potato producing about 70,080 maunds, a portion of which goes to Cawnpore also.

*Fruits.*—No fruits are of any importance.

6.—Labour and capital.

*Capital.*

There are three Co-operative Banks called Central Banks with a District Bank at Unao. Besides these, there is the Unao Commercial Bank, Limited, which is a Joint Stock Company. The Purwa, Safipur and Unao Co-operative Banks are doing credit and ordinary banking business with their societies.

*Labour.*

Labour is installed, but not scarce in the district. It rather supplies Cawnpore with day labourers who go back to their fields at harvesting and sowing times.



## CHAPTER III.

*Description of, and suggestions for the improvement of, the district industries.*

### 1.—Building materials.

#### (a) Brick kilns.

There are five kilns at Unao working regularly. Besides these temporary kilns are set up in the mufassil when required. There is another at Bhagwantnagar. Bull kilns are in use. The chimneys are either of iron which can be moved from one chamber to another or are built of bricks over every chamber.

Commonly "Gummas" or rectangular bricks are prepared, but for wells they prepare curved bricks which fetch a higher price.

*Organization.*—Loniyas make kachcha bricks on wooden moulds supplied by brick kiln owners. They are paid contract wages at Rs. 1-8 to Rs. 2 per 1,000. The kiln owners have to pay about Rs. 200 to Rs. 250 per bigha royalty to the zamindars for working for three years. The labourers are all temporary, except the mistri who looks to the firing. Bricks are supplied to order.

*Production.*—About 3,000,000 bricks are annually prepared. It takes 18 to 20 tons of coal to burn 1 lakh bricks. Normally 50,000 first class, 10,000 second class and 40,000 third class bricks are prepared which sell for Rs. 16, Rs. 14 and Rs. 13 per 1,000. The expenses of burning and preparing 1,000 bricks come to Rs. 10 to Rs. 11 on the average.

The cost of carting is according to distance. On the average it is Rs. 1-8 to Rs. 2 for Unao.

#### (b) Lime mills.

There are three power driven mills in Unao and two at Bhagwantnagar, but the "Nagar" mills work when they get orders as tehdemand there is not regular

**Process.**—Kankar is burnt in permanent brick kilns and also by the old process of laying out alternate layers of fuel (wood) and kankar and then coating the entire mass with mud.

Besides the power driven disintegrators, bullock driven stone "chakkis" and wooden "dhenkis" worked by men are also to be seen in use.

**Organisation.**—Land from which kankar has to be extracted is taken on lease from the zamindar on payment of a royalty of about Rs. 300 per bigha. Kankar is carted to the mills and the expenses are about Rs. 1.8 to Rs. 2 per 100 c.ft. The cost of burning 1,000 c.ft. of kankar comes to about Rs. 19 including labour. Price of lime is about Rs. 30 per 100 c.ft.

There is not much demand for lime in Unao. A factory is being set up at Ajgain to meet Lucknow and Cawnpore demands. There is enough supply of good kankar near Ajgain.

## 2.—Chemicals.

### *Manufacture of crude saltpetre.*

At one time saltpetre industry was very prosperous and there were many refineries. But now only a few loniyas manufacture crude saltpetre and send it to Farrukhabad or Cawnpore refineries as there are no refineries in the district.

The loniyas collect the nitrous deposits scraped from the villages in a mango grove. Nitrous earth is dissolved in water in pits. This liquid is then transferred to filters made by spreading leaves over a bamboo frame. The filtered liquid is collected in another pit near the filter and is eventually boiled in pans or "karahis" of iron leaving a brown coloured powder with shining crystals of common salt mixed with it.

**Organisation.**—Every loniya has to take a licence from the Salt department by paying Re. 1. He has to pay royalty to the zamindar if he can afford to take the contract for his villages at the rate of about Rs. 1.8 to Rs. 2 per village or has to pay one-third of his produce to the mahajan who takes the lease for the zamindar's villages. He usually works with the help of his family, but some have to engage a labourer. The loniyas sell their produce to mahajans or to agents of refineries.

There were 63 pans in use this year (1922) producing about 850 maunds. The crude saltpetre works of Dakari in Unao tahsil and Munshiganj, Mianganj and Mohan in Hassanganj tahsil are remnants of the old refineries. Crude saltpetre is sold at Rs. 3 to Rs. 4 per maund.

*Season.*—February to June.

*Profits.*—He usually produces about 13 maunds.

	Rs.	a	p.
Price of 13 maunds at Rs. 4 per maund ...	52	0	0
<hr/>			
<i>Expenses—</i>			
1. Share to mahajan ...	17	5	0
2. Fuel and other expenses ...	4	0	0
3. Wages ...	15	0	0
<hr/>			
Total ...	36	5	0
<hr/>			

Balance of Rs. 15-11 is his profit. If he takes the lease himself, he has to pay only Rs. 8 to Rs. 10 to zamindars for that amount of nitrous earth. The mahajan thus saves Rs. 8 to Rs. 9.

### 3.—Food grains.

There are three small flour mills at Unao and three at Bhagwantnagar which do lime grinding as well as a side activity. None has its own stock; all are for job work only. Each mill has two to three men with a munshi or accountant. The engine driver looks to the engine as well as to the mill. Flat horizontal stone chakkis are used.

They charge 8 to 12 annas per maund for grinding wheat. About 15,000 maunds of wheat are consumed by these mills annually.

### 4.—Hardware.

#### (a) *Manufacture of metal utensils.*

The manufacture of metal utensils is an important industry of the district and at Bhagwantnagar alone (in Purwa tahsil) there are about 115 shops of manufacturers. At Newalganj,

Moradabad, Seetalganj and Badarkha Harbans they mould utensils of kaskut, while at Bhagwantnagar brass "thalis" and "parats" are manufactured by the beating process. They do not use brass sheets and brass bars are flattened out by hammering. The process has been described by Mr. Dampier in the Monograph on brass and copper ware.

Commonly brass slabs are prepared locally by melting old brass utensils, but imported brass bars are also used.

*Organisation.*—For moulded utensils the members of the family do most of the work—mould-making, melting of the metal and pouring it into moulds, turning and filing, and employ journeyman labourer for drawing the lathe.

At Bhagwantnagar there are skilled labourers for flattening the bars and for making the articles out of the flattened sheets. For flattening the slabs of brass the manufacturers have to engage one out of the six groups of 4 lodhs and one thather. The lodhs hammer the slab, while the thather beats it and holds it on the anvil. The party is paid wages per night (the work is done at night) and are expected to beat out about 3 maunds of brass. The four lodhs get Rs. 9 and the thather alone gets Rs. 9 for the night. The thather workmen who prepare "thalis," etc., out of the brass sheets are paid piece wages: Re. 1 for 6 to 16 thalis according to size. The average monthly income of these thathers is Rs. 30.

The small manufacturers, of whom there are about 109, do not usually engage thather workmen and do the work of preparing the articles themselves with the help of the family members.

The small manufacturers are practically wage earners as they prepare things for the dealers who supply them with the materials and advance them money. There is a keen rivalry between the independent manufacturers and the dealers, the latter trying to throw the former out of the field.

*Marketing and advertisement.*—There are about 30 dealers and 5 big manufacturers. They stock brass slabs or bars and do wholesale and retail business in metal utensils. "Parats," "thalis," etc., are sent to all Indian towns and shops are

opened in the big fairs like Takia and Bidyadhar fair of Unao district.

*Production.*—The 115 shops of Bhagwantnagar produce about 6,650 maunds of utensils, while Moradahat, Newalgauj, Badarkha Harbans and shops produce 1,685 maunds. The prices of the finished articles are fixed by weight, but higher rates are charged for lighter and better articles. Brass "pitai" (beating) work is sold at Rs. 1-7, Rs. 1-9 and Rs. 1-11 per seer, and "dhalai" work from Re. 1-3 to Rs. 1-12 per seer.

The account of manufacturing the utensils at Nagar is as follows:—

			Rs.
Price of 1 maund of brass	...	...	28
Wages of beating it	...	...	6
Expenses of furnace	...	...	1
Wages of garhaiya or maker	...	...	12
			—
	Total	...	47
			—

This will give him about 39 seers of utensils at Rs. 1-8 per seer, equals Rs. 58-8, leaving a profit of Rs. 11-8 per maund.

*Season.*—Work at Bhagwantnagar is carried on throughout the year, but is very brisk from September to March on account of the fairs. Dhalai or moulded work is dull during the rains.

*Suggestions and remarks.*—A flattening machine should be set up in the flour mills to do away with the tedious process of hammering out brass bars. Babu Mahabeer Prasad—a big manufacturer and flour mill-owner—is thinking of setting up a machine.

Bhagwantnagar thalis and parats are heavier than Mirzapur sheetware, but the rate is cheaper and are preferred by the villagers to Mirzapur ware. Mirzapur ware sells at about Rs. 3 per seer, while the local articles are sold for about Rs. 1-10 a seer. (The difference in the price of individual articles are, however, not so great as Naga articles are heavier) Although

Mirzapur articles are competing, the demand for Nagar output is sufficient and more could be consumed if available.

During the War Bhagwantnagar manufacturers made large profits owing to restricted imports of sheet brass on which the Mirzapur workers mainly depend.

There is a future before the industry and the small manufacturers should be organized on a co-operative basis with a store and a flattening and a punching machine owned jointly. Lighter articles should also be made from machine flattened brass sheets so as to lower the price of individual articles.

In this connection must be repeated the difficulty in transport mentioned in the introduction under "Communication." The road connecting Bhagwantnagar with Takia railway station, or better still the road connecting it with Baiswara railway station, should be metalled to facilitate transport, specially in the rains.

#### (b) *Iron articles.*

The district imports iron articles of all kinds, e.g., utensils from Cawnpore and cutlery from abroad, but about 20 lohars of the villages manage to make some of the articles to meet a portion of the local demand. Their output is very small and they are all partly agriculturists, making doles, karhais, knives, razors, etc., in their leisure hours. They have hardly any ready-made articles in their shops and make things mostly to order. They get steel from Lalganj or Cawnpore. The blades of knives, etc., are all locally made and are quite serviceable, but cannot compare with the imported articles. These lohars are all scattered and cannot develop the industry in the district

#### 5.—Leather.

Nowhere is leather industry important in the district. The mochis prepare shoes, etc., for the villagers, but their number is not large in any village and the bigger markets and the fairs get supplies from Rae Bareli, Lucknow and Cawnpore.

There are about 200 chamars who tan leather for desi shoes, buckets and straps for ploughs, etc. They produce about 3,000 hides annually. They are all agriculturists and tan leather as

a subsidiary source of income. There are 15 tanners at Magrail, 18 at Jāmipur, 15 at Sagawan and 12 at Unchgaon in Purwa tahsil, but the condition of the industry even in these places does not warrant co-operative organization.

The tanners can get Rs. 3 to Rs. 5 per hide. They have to get Babul bark and lime on payment. Babul bark is enough if there were men to utilise it.

#### 6.—Miscellaneous.

##### *Tobacco.*

Smoking tobacco for hukkas is manufactured by small dealers in different parts of the district. Besides meeting local demands the product is taken to the village markets for sale. They take pounded leaf and mix shira, etc., there in the bazar. Water increases the weight and so it is added on the spot to prevent evaporation. Shira and saji are mixed with pounded leaf and one or two spices are also added. There are 164 shops and their output is estimated at 15,000 maunds. Of this leaf is 6,000 maunds, shira 8,000 maunds and saji and water, etc., 1,000 maunds.

*Profits.*—About 25 per cent. at least. The profits go up to 50 per cent. even in the cheaper varieties as they reduce the proportion of shira and increase the proportions of saji and water.

#### 7.—Oil.

The village teli working with his wooden bullock-driven kolhu is the chief supplier of oil in the district. There are 1,631 kolhua.

The teli seldom engages an outside labourer. He sets the kolhu in motion and his women and children look to its working. They sell their produce in the village to private customers or to banyas who sell it in the village markets and export the surplus in kerosine oil tins. Mustard oil is usually produced.

The income of the village teli is usually the cost of the oil-cake which would come to Re. 1 to Re. 1-2 a day. Out of this he has to support his family, the bullocks and meet the expenses of repairs, etc., of the kolhu. The cost of maintaining the bullock is not much. Very often he gets grass free of cost as he or the

member of his family cut it from the neighbouring waste land. When he sells the oil he tries to get more profit by adulterating it. A village teli is also an agriculturist and his profit from the kolhu is his subsidiary income.

*Estimated production.*

24,195 maunds of oil,

48,390 maunds of oil-cake.

**8.—Textiles.**

**A.—COTTON.**

*(a) Cotton weaving.*

There are three big weaving centres in the district: Bangar-mau, Mianganj and Hyderabad.

Bangar-mau and Mohan were once famous for muslin, but now only coarse garha, doria, jora and tapti are usually made. At Mohan they make lungis and twill is made by some weavers at Bangar-mau. Mostly throw-shuttle looms are in use, only at Bangar-mau and Mohan some weavers have set up fly-shuttle looms. The use of the fly-shuttle loom has yet to get a footing. Mill yarn is mostly used, but the koris of Bangar-mau and the neighbouring villages use hand spun yarn both for warp and weft. The kurmi women of the villages around Bangar-mau spin yarn.

Dyed yarn is brought from Kanauj. There is a dyeing factory at Bangar-mau also. For cheap tapti the weavers dye their own yarn.

There are 1,800 throw shuttle looms producing about 2,250,000 yards annually and 15 fly-shuttle looms producing about 30,000 yards.

*Organisation.*—A factory has recently been started under the name of the Rashtriya Binta Karyalaya at Bangar-mau by a few enthusiasts of the Swadeshi movement. This factory maintains paid weavers, warp layers and bobbin winders. In the villages warp is laid out by boys and women. Similarly bobbin winding is done by women and children. Sizing is done by weavers for one another in a friendly way.

*Marketing.*—The village weaver disposes of his goods either in his own village or in the neighbouring village markets. If



he does not find a retail customer, he sells it to a wholesale dealer. This quest of a customer results in waste of much useful time.

Wholesale dealers visit the market places, of which the chief are Mianganj and Hyderabad in Hassanganj tahsil. They deal mostly through commission agents (arhatias) or brokers and when visiting the market places are entertained by the agents. They charge Re. 1 per Rs. 100 worth of transaction from the dealers and nothing from the weavers.

<i>Profits.</i> —		Rs.	a.	p.
Price of 3 lbs. of yarn for 10 yard piece	...	2	12	0
Cost of sizing, etc.	... ..	0	4	0
		<hr/>		
	Total	3	0	0
		<hr/>		

This will be ready in  $1\frac{1}{2}$  days and will fetch at least Rs. 4. A lungi costs a weaver Re. 0-12-0 for yarn, etc., and is sold for Re. 1-3. Two such lungis can be prepared in a day.

Three chhataks of oil and  $1\frac{1}{2}$  seers of flour are used for sizing a warp 90 yards in length.

*Suggestions.*—There is a prospect before the industry and the weavers should be organized. Their products ought to be standardized, and this can be done by having a central store with branches at the weaving centres. The store should advance yarn and collect the product for wholesale trade. The store should own a warping machine and popularize the use of fly-shuttle looms by demonstrations and sale on easy payment system.

Although the competition with large power mills is keen, but there are many factors in favour of handloom weaver also, and Mr. K. S. Rao, Textile Expert to the Bihar Government, has worked out interesting figures in the February number of the "Journal of Indian industries and labour" to show that there are other items of expenditure, many times more than the actual weaver's wages, which the mill-owner must meet before he can get cloth out of his power looms.

*(b) Dyeing.*

Dupattas for women of shir, gaddi and other castes are usually dyed blue in the villages by professional dyers. Vegetable indigo is used and indigo vats are prepared by the dyers themselves. The colour is fairly fast. Indigo is obtained locally either from Azamgarh or from local merchants. The Azamgarh merchants give indigo on credit also and collect their dues at the time of their next visit to the villages. The dyers do the work on wages for customers as well as dye their own pieces.

There are 85 dyers producing about 42 500 pieces per annum, taking 500 pieces per man per annum. They charge Re. 1 to Rs. 1-8 or Rs. 2 per piece of 10 to 12 yards for which they have to spend 10 to 12 annas.

There are 50 dyers in Bidhnu in Unao tahsil.

*Dyeing of yarn.*—Messrs. Shahbuddin and Sadruddin dye yarn and sell dyed yarn at Bangarmau. They use fast dyes and have steaming vats. But they charge more than the Kanauj dyers. They charge Rs. 2-8 to Rs. 3 per bundle of 10 lbs. There is another grievance against them that their yarn is not quite fast.

The local dyeing factory is expensive and Kanauj yarn is preferred. Dr. Sir P. C. Roy has written a valuable book in Bengali for village weavers and his cheap processes are producing good results and may be profitably learnt by our weavers.

*(c) Cloth printing.*

Some time ago there used to be quite good printing done at Jamalnagar in Safipur tahsil, but now there is only one man whose work is of good quality and who works regularly. There are four other printers at Jamalnagar, five at Bigrahi garhi in Hassanganj tahsil and two at Bidhnu in Unao tahsil who produce cheap prints. They do fitful work.

German dyes are used and prints are on garha cloth. Yellow, green and red are the colours used, but are all fugitive. They are mixed with caustic soda, gum and some spices and printed by

means of wooden blocks obtained from Lucknow. The Jamalnagar man prints after the manner of Lucknow printers, using chemicals, etc., to make the colours fast and washes the cloth several times in the pond. But his output of this kind of pakka work is very small.

The twelve printers between them print about 1,200 pieces annually.

They charge Rs. 3 to Rs. 4 per fard or quilt piece, and the superior work of Jamalnagar sells for Rs. 5 to Rs. 6-8 per piece. Quilts measuring 1 yard to  $1\frac{1}{2}$  yard  $\times$  2 to  $2\frac{1}{2}$  yards are usually printed.

Dyes are purchased from Cawnpore and the design is similar to ordinary designs of Lucknow prints. The sale is in the village markets.

## B. — WOOL.

### *Blanket weaving.*

Blankets of Unao are not noted for quality and only "kamlis" or small coarse blankets are made by gadariyas for use in villages. The number of gadariyas is 250. These weave blankets in their spare time. They are all agriculturists. The women sort out wool, card it and spin it on the charkha. The gadariya weaves on a simple loom in pattis each 1 foot wide and 4 to 6 feet long. Four such pieces are sewn together to make a blanket.

About 2,500 blankets are produced which consume about 10,000 lbs. of wool. This wool is obtained locally by the gadariyas from their own or from their neighbour's sheep. The gadariya has to spend about 4 lbs. of wool per blanket which cost him about 14 annas to Re. 1.

### 9. — Wood-working.

Carts, doors, boxes and ploughs are made in villages throughout the district, important places being Hilauti, Gulbaria, Gajauti, Chaksirian, Mawail and Hardi in Purwa tahsil; Unao, Rawal, Raipur Buzurg, Kurari, Deeh and Gadankhera in Unao tahsil; Safipur, Ugu, Omar, Korait, Takia Nigohi, Bangarmau and Atrohni in Safipur tahsil.

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There is a big display of such goods in the important fairs like Takia and Bidyadhar fairs of the district.

There were 300 boxes, 250 carts and 500 doors at the Takia fair. About 100 boxes, 120 carts and 200 doors went to the fair and exhibition at Gauria in Safipur tahsil. The work is ordinary and is of no special importance outside the district.

## CHAPTER IV.

### THE INDUSTRIAL POSSIBILITIES OF THE DISTRICT.

The following is a résumé of the suggestions for the improvement of existing industries :—

#### 1. *Roads to be metalled.*

- (i) Road between Bhagwantnagar and Purwa, or between Bhagwantnagar and Baiswara or Takia railway station.
- (ii) The road from Bangarmau to Sultanpur to connect Bangarmau and other places with the Madhoganj market.
- (iii) Road from Newalganj to Lucknow.

#### 2. *Manufacture of metal utensils.*

The small manufacturers should be organized on co-operative lines and at Bhagwantnagar a machine for flattening brass bars into sheet should be set up.

#### 3. *Weaving.*

Co-operative stores and societies of weavers should be set up to enable them to produce standardized pieces, to sell their pieces to advantage and to get yarn at proper prices, of the best quality and on easy terms.

## CHAPTER V.

## STATISTICS.

## I.—Building materials.

*(a) Brick kilns.*

*Materials used.*—Brick earth and coal.

*Import of coal.*—540 tons.

*Manufacture.*—Bricks "gumma" and flat curved bricks for wells.

There are both temporary and permanent kilns.

*Number of kilns.*—5.

*Number of men engaged.*—75.

*Wages.*—6 to 8 annas per day.

Moulders—Rs. 1-8 to Rs. 2 per 1,000 bricks.

Mistri.—Rs. 30 to Rs. 40 per month.

*Outturn.*—3,000,000 bricks.

*Prices.*—Rs. 16 1st class per 1,000, Rs. 14 and Rs. 13 2nd and 3rd class per 1,000.

*(b) Lime mills.*

*Materials used.*—Kankar 100,000 cubic feet and cinder.

*Manufacture.*—Kankar lime.

There are small power factories with disintegrators and bullock driven chakkis and man worked "dhenkis".

*Number of factories.*—5.

*Men engaged.*—15 permanent and 60 seasonal labourers.

*Wages.*—Engineer Rs. 40 to Rs. 50 per mensem. Assistant Rs. 20 to Rs. 30 per mensem. Accountant Rs. 15 per mensem.

*Outturn.*—100,000 cubic feet.

*Prices*—Rs. 30 per 100 c. ft.

## 2. — Chemicals.

*Manufacture of crude saltpetre.*

*Materials used.*—Nitrous earth and mango leaves for fuel.

*Manufacture.*—Crude saltpetre mixed with common salt.

It is a cottage industry.

*Number of men engaged.*—130.

*Wages.*—Usually the profits—when engaged a labourer gets about Rs. 15 for the season of 2½ to 3 months.

*Outturn.*—850 maunds at 13½ maunds per pan. (There were 63 pans in the district in the season.)

*Prices.*—Rs. 3 to Rs. 4 per maund.

*Royalty per village.*—Rs. 1-8 to Rs. 2.

## 3. — Food grains.

*Materials used.*—Wheat 15,000 maunds.

*Manufacture.*—Wheat flour.

There are power driven mills. Four are driven by oil-engines and two by steam engines.

*Number of men.*—30.

*Wages.*—Labourers 6 to 8 annas per day. Engineer Rs. 40 to Rs. 50 per month. Oilman assistant Rs. 20 to Rs. 30 per month. Accountant Rs. 15 per month.

*Outturn.*—15,000 maunds.

*Charges.*—8 to 12 annas per maund of wheat for grinding.

## 4. — Hardware.

(i) *Manufacture of brass utensils at Bhagwantinagar.*

*Materials used.*—Brass bars and old brass utensils and old kaskut utensils.

*Quantity.*—6,700 maunds.

*Manufacture.*—Thalis, parats, chimchas (ladoxes), lotas and batuas. It is a cottage industry.

*Number of workshops.*—115.

*Men engaged.*—300.

*Wages.*—A party of four lodh beaters Rs. 9 per night (they hammer out about 3 maunds of brass).

Thather foreman who holds the brass bar Rs. 9 per night.

Thather "garhia" or maker Re. 1 for 6 to 16 thalis, etc., according to size. His daily average income Rs 2 to Rs. 3.

Polisher on the lathe Re. 1 per day.

Latheman labourer 6 to 8 annas per day.

*Outturn.*—6,650 maunds.

*Prices.*—(1) Raw material : brass bars (wholesale) Rs. 28 to Rs. 30 per maund.

*Retail at Nagar.*—12 annas per seer.

*Kaskut, old utensils.*—10 to 12 annas per seer.

(2) Finished goods : brass pitai work Rs. 1-7, Rs. 1-9 and Rs. 1-11 (gagras) per seer. Dhalai work Rs. 1-10 to Rs. 1-12 per seer and Re. 1-3 to Re. 1-6 per seer (batuas).

(ii) *Manufacture of kaskut utensils at Moradabad, Newalganj, Nawabganj, Budarkha Harbans and Sestalganj.*

*Materials used.*—Kaskut bars and old kaskut utensils.

*Quantity.*—1,700 maunds.

*Manufacture.*—Batuas, lotas, etc. (all moulded). It is a cottage industry.

*Number of workshops.*—35.

*Number of men.*—100.

*Wages.*—6 to 10 annas per seer, 6 annas in dull season and 10 annas in winter and marriage season.

Latheman 6 annas per day.

Mould makers 8 annas per day.

*Outturn.*—1,685 maunds (26 small shops at 3 maunds per month for nine months and 9 big shops at 12 maunds per month for nine months).

*Prices.*—Old utensils 10 to 12 annas per seer.

Finished goods :

*Batuas.*—Re. 1-4 per seer.

*Lotas.*—Rs. 1-8 per seer.



## 5.—Leather.

*Tanning.*

*Materials used.*—Hides 3,000, Babul bark and lime.

*Manufacture.*—" Charsas " tanned hides for buckets and desi shoes. It is a cottage industry subsidiary to agriculture.

*Number of men.*—200.

*Wages.*—Their profits which come to 4 annas a day.

*Outturn.*—3,000 hides.

*Prices.*—Raw hides : Rs. 2-4 to Rs. 6-8 according to size and quality.

Tanned hides : Rs. 7 to Rs. 12 according to size and quality.

## 6.—Miscellaneous.

*Smoking tobacco.*

*Raw materials used.*—Tobacco 6,000 maunds.

Shira 8,000 maunds.	} From Unao
Sajji, etc. ...	

*Manufacture.*—Smoking tobacco. It is a cottage industry.

*Number of shops.*—164.

*Number of men.*—250.

*Wages.*—Their profits.

*Pounding of leaf.*—Rs. 1 to Rs. 1-4 per maund.

*Outturn.*—15,000 maunds.

*Prices.*—Two annas 6 pies to 4 annas per seer of smoking tobacco.

*Leaf.*—Rs. 10 to Rs. 12 per maund.

## 7.—Oil

*Oil crushing by wooden country kolhus.*

*Raw materials.*—Mustard oil-seed.

*Quantity.*—72,585 maunds.

*Manufacture.*—Oil and oil-cakes.

*Export.*—Oil 5,000 maunds. It is a cottage industry subsidiary to agriculture.

*Number of kolhus.*—1,613.

*Number of men.*—3,000.

*Wages.*—Their profits.

*Outturn.*—24,195 maunds of oil.

48,390 maunds of oil-cake.

*Prices.*—Fluctuate with the rate of oil-seeds.

*Mustard seed.*—5 to 5½ seers per rupee.

### 8.—Textiles.

#### (a) Cotton weaving.

##### (i) General.

*Raw materials.*—Yarn 20<sup>s</sup>, 16½<sup>s</sup>, 13½<sup>s</sup>, 12<sup>s</sup>, 22½<sup>s</sup>.

Quantity, 570,000 lbs.

*Flour.*—About 1,108½ maunds.

*Oil.*—118 maunds 30 seers.

*Imports.*—568,000 lbs. of yarn.

*Manufacture.*—Garha, jora, doria, tapti, lungi and twill.

It is a cottage industry.

*Number of looms.*—1,800 throw-shuttle.

15 fly-shuttle.

*Number of men.*—3,800.

*Wages.*—Four annas per day for warp laying and bobbin winding.

*Weaving.*—One anna and 3 pies to 1 anna and 9 pies per yard. Usually the weaver is the worker and pays no wages.

*Outturn.*—2,280,000 yards of cloth.

*Prices.*—Yarn 20<sup>s</sup>, Rs. 11 to Rs. 12 per bundle.

.. 16½<sup>s</sup>, Rs. 8-4 to Rs. 9 per bundle.

.. 12½<sup>s</sup>, Rs. 7-12 to Rs. 8-4 per bundle.

Woven pieces, 7½ yards to 8½ yards Rs. 2-8 to Rs. 4  
(light and sparsely woven).

Garha, Rs. 4 to Rs. 6 and Rs. 8 per piece of 12 yards.

Lungi, Re. 1-3 per lungi, 3 yards × 17 girhas

(ii) *Tripathi Rashtriya Binta Karyalaya, Bangarmau.*

*Number of looms.*—14; of these 6 work regularly.

*Number of men.*—Three paid weavers and 3 wage earners, 3 boys for bobbins.

*Wages.*—Rs. 25, Rs. 20 and Rs. 15 for weavers per month.

Re. 1 to Rs. 1-8 or Rs. 2 per piece.

Boys Rs. 4 to Rs. 6 per month.

*Outturn.*—12,000 yards.

*Prices.*—Same as under "Cotton weaving".

(b) *Dyeing of cloth.*

*Material.*—Indigo 53 maunds and lime.

*Imports.*—53 maunds of indigo.

*Manufacture.*—Dupattas.

*Number of dyers.*—85.

*Wages.*—The profits, about Re. 1 per day.

*Outturn.*—42,500 pieces of garha dupattas and thans.

*Prices.*—Indigo Rs. 12 per seer.

*Coloured cloth.*—Rs. 6-8 to Rs. 7-4 per piece of 8 to 12 yards.

(c) *Blanket weaving.*

*Raw materials.*—Wool.

*Consumption of wool.*—10,000 lbs.

*Manufacture.*—Small blankets.

*Number of men.*—250 gadariyas.

*Wages.*—Their profits.

*Outturn.*—2,500 blankets.

*Prices.*—Rs. 3 to Rs. 5 each.

## CHAPTER VI.

## DIRECTORY.

## 1.—List of banks.

Unao Town Bank, Limited (Co-operative).

Unao Commercial Bank, Limited.

Safipur Central Banking Union (Co-operative).

Ram-Garhawan Central Banking Union (Co-operative).

Purwa Central Bank, Limited (Co-operative).

## 2.—List of power factories.

The Pioneer Sugar Mills, Limited.

The Cawnpore Bone Mills, Magarwara, of Messrs. Allen Brothers, Limited, Cawnpore.

*Flour and Lime Mills.**At Unao.*

1. Ganga Prashad Pyarelal Flour and Lime Mills. Marshall's Loco. Stationary Boiler 20 H. P., 90 lbs. pressure.

2. Atal Behari Flour and Lime Mills, oil-engine 12 H. P.

*At Bhagwantnagar.*

3. Chhedi Shah's Flour Mills.

4. Mahabir Prashad's Lime and Flour Mills, 3 engines (oil)—one 8 H. P. and two 16 H. P.

5. Santan Shah Sangam Lal, one engine 16 H. P. (oil).

6. Raju Lochan's Mills (under construction one oil-engine 12 H. P.

Maurawan Lime Mills of Lala Shayam Sundar Lal, Maurawan.

The Lime Factory of Ajgain (under erection).

## 3.—List of brick kilns.

Paragji Lal Muuni Lal's kiln, Unao.

Sohan Lal's kiln, Unao.

Behari Singh's kiln, Unao.

Ganga Prashad Khajanchi's kiln, Unao.

Ram Ratan's kiln, Unao.

## 4.—List of lime mills.

Atal Behari's Lime Mill, Sudder lazaar, Unao.  
 Ram Prashad's Lime Mill, Unao  
 (Ganga Prashad Pyarelal's Mill.)  
 Chhedi Shah's Lime Mills, Unao.  
 Mahabir Prashad's Lime Mill, Bhagwantnagar.  
 Santan Shah and Sangamlal's Mill, Bhagwantnagar.

## 5.—List of flour mills.

Atal Behari's Flour Mill, Unao.  
 Chhedi Shah's Flour Mill, Unao.  
 Ganga Prashad Pyarelal's Mill, Unao (leased to Ram Prashad).  
 Mahabir Prashad's Flour Mill, Bhagwantnagar.  
 Santan Shah Sangam Lal's Flour Mill, Bhagwantnagar.  
 Raju Lochan's Flour Mill, Bhagwantnagar.

## 6.—List of principal manufacturers of utensils.

*Bhagwantnagar, tahsil Purwa.*

Mani and Bhukhan.\*  
 Mahabeer Prashad.\*  
 Sheo Deen and Narain.  
 Kunj Behari.\*  
 Lachhman.  
 Mania and Ram Prashad.  
 Gobrey.  
 Jagannath.  
 Sheo Ratan and Ram Ratan.  
 Chhedi.  
 Jwala.  
 Radhey Krishna.  
 Meri Lal.

*Newalganj, tahsil Hossanganj.*

Shiva Prashad.\*  
 Bramha Deen.  
 Durga Prashad.\*

\*These are also dealers in utensils.

Bhagwan Deen.  
 Hazari Lal.  
 Bhawani Prashad.  
 Ram Narain.  
 Nanhey.\*

*Moradabad.*

Baiju.  
 Mukka.  
 Chunni.

**7.—Dealers in hardware.***Bhagwantnagar, tahsil Purwa.*

Manni and Bhukan.  
 Mahabir Prashad.  
 Kunj Behari.  
 Ram Dutta.  
 Makkan Lal and Lala Ram.  
 Gurdeen Lal and Mahabeer Prashad.

*Newalganj.*

Hussaini Lal and Gajadhar Prasad.  
 Jagannath and Mulchand.  
 Shiva Prashad.  
 Bramba Deen.  
 Durga Prashad.  
 Misri Lal.  
 Nanhey.

**8. Yarn dealers.***Bungarman in Sakpur tahsil.*

Lala Sidh Gopal.  
 Shahabuddin (weaver).  
 Ghulam Muhammad.  
 Shahabuddin and Sadruddin.

\*These are also dealers in utensils.

*Moradabad in Safipur tahsil.*

Laltu Shah.  
 Ram Charan.  
 Lallu.

*Hyderabad, tahsil Hassanganj.*

Rikhi Kalwar.  
 Gaya Deen.  
 Hazari (weaver).  
 Jag Lal.  
 Kallu Manihar.

*Mianganj, tahsil Hassanganj.*

Hafiz Ismail.  
 Sheo Ram.  
 Chhedi Lal.

*Mohan, tahsil Hassanganj.*

Maulvi Allah Bux.  
 Ram Charan.  
 Batullah.  
 Nanhey Shah.

## 9.—List of weaving centres.

Unao.  
 Bangarmau.  
 Moradabad in Safipur tahsil.  
 Mianganj.  
 Hyderabad.  
 Mohan in Hassanganj.

## 10 List of Arhatias or Brokers.

Hazari of Hyderabad, tahsil Hassanganj.  
 Ewaz Ali Kazi, Mianganj.

CHAPTER VII.

MISCELLANEOUS.

*District fairs.*

The biggest fair of the district is held at Patan (Takiya railway station) in December. The district authorities take a keen interest in the fair. An industrial exhibition is held during the fair, but it is on a very small scale and, if well organized, should prove a source of great impetus to the manufacturers. The processes of manufacture of the various articles in the district should be demonstrated side by side with the improved methods employed elsewhere to convince the local manufacturers of the advantages of the new methods and appliances.

The fair attracts dealers of all kinds of merchandise. The following will give an idea of the business transacted during the last fair :—

Names of articles.	Number of shops.	Value of stock.	Amount sold
		Rs.	Rs.
Tatpatti ... ..	25	10,000	7,500
Printed cloth ... ..	15	6,000	3,700
Durrie and carpet ... ..	5	2,500	1,000
Ready made clothings ... ..	5	3,000	1,800
Carts, leherus, etc. ... ..	25	10,000	6,000
Boxes ... ..	5	1,200	800
Doors ... ..	15	12,000	8,500
Iron works ... ..	5	4,800	2,500
Woollen blankets ... ..	3	800	400
Bangles ... ..	25	3,000	1,700
Bhagwantnagar utensils ... ..	40	25,000	15,000



Tatpatti comes from Partabgarh district, printed cloth from Lucknow, Bara Banki and Partabgarh, durrie and carpet from Cawnpore and Agra, ready-made clothing from Cawnpore, carts, boxes and doors from the various places of the district. Iron articles from Cawnpore and Lalganj in Rae Bareilly, woollen blankets from Muzaffarnagar and bangles from Cawnpore, utensils from Nagar and Mirzapur.

Immediately after the Takia fair another fair is held at Bihar (Baiswara railway station) called the Bidyadhar fair. It is a continuation of the Takia fair and presents a similar spectacle.

The zamindar of Gauria is trying to revive the old fair. An agricultural exhibition is also held, but it is not patronised by the district authorities.

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