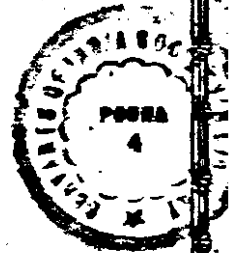


Department of Industries and Commerce A. P.

SURVEY
OF THE
HOSIERY INDUSTRY
IN THE
UNITED PROVINCES
(1939)

BY
ROMESH CHANDRA SRIVASTAVA, M.A.
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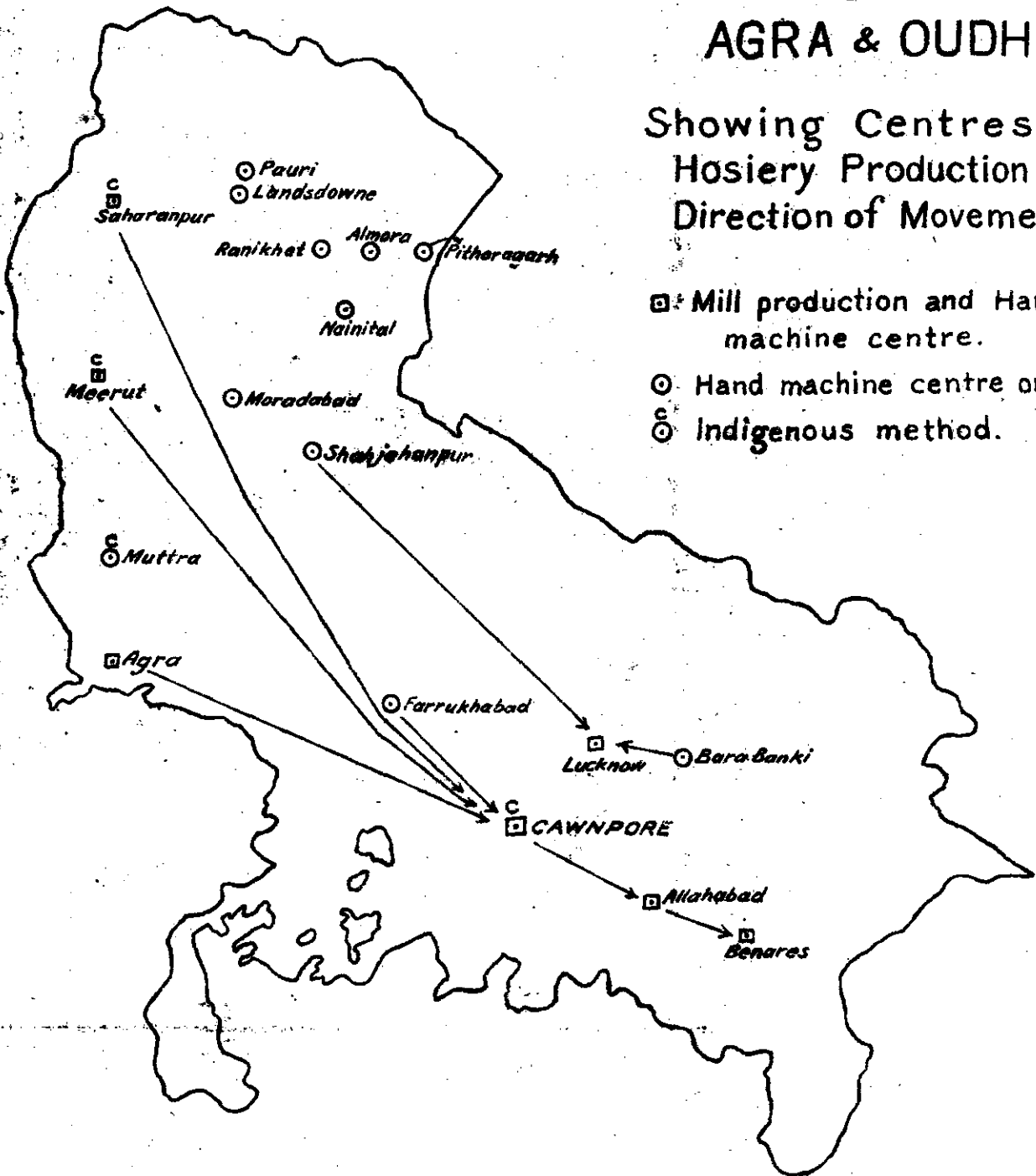
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ALLAHABAD:
PRINTING AND STATIONERY, UNITED PROVINCES, INDIA
1940

مالک متحدہ संयुक्त प्रान्त
 UNITED PROVINCES
 OF
 AGRA & OUDH

Showing Centres of
 Hosiery Production and
 Direction of Movement.

- ▣ Mill production and Hand machine centre.
- ⊙ Hand machine centre only.
- ⊙ Indigenous method.



* Cawnpore is the distribution centre for the whole U.P.

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Report on Hosiery Industry in the United Provinces

CHAPTER I

INTRODUCTION

THE term Hosiery had originally a reference only to the articles of foot-wear as it was in this connection that the utility of the knitted stitch was first realised. But, though stockings and socks and other footwear articles remain within hosiery products yet the term has outgrown its original significance. It has come to embrace within itself many other articles of underwear like *banyans*, *ganjees*, etc., sports' uniforms, articles used for intermediate garments like sweaters, pullovers, slip-overs and various other garments suited for outerweares. These articles whether made of wool, cotton, silk or any other yarn are included within hosiery. Cotton *banyans* and stockings, however, constitute the largest items among the various hosiery goods.

History and Developments—The articles are classed together more on account of their manner of fabrication than similarity of use and are knitted out of a special type of yarn known as hosiery yarn which is more elastic than yarn used in cloth weaving. In early periods the knitting was done with the help of two or more wooden or bone rods. In India this work was done in the past mostly by womenfolk of Kolis or Koris who used to produce handloom products also. Their tools were simple and cheap, but the process of manufacture being slow, it often took several days to finish a single article. Besides they could not produce so attractive articles. With the advent of knitting machine, this industry of the Kolis died out. In the United Provinces however, relics of the old art can still be seen at places like Agra, Muttra, Meerut and Farrukhabad where some families of Kolis, still manufacture socks, hoses, *topas*, rough *banyans*, etc. mostly out of used-up yarn taken out from old fabrics. The products are generally sold to the poor class of people.

Invention of Power machines—Up to the beginning of the nineteenth century these machines were worked by hand. Many attempts to produce a rotary drive had failed. At last in 1858 Luke Barton invented a frame which could be worked by rotary power. This led to the introduction of the modern power machine.

Developments—The Lalimli and the Elgin Mills of Cawnpore were the first to produce power knitted fabrics. production of hosiery goods, mostly socks and stockings, on hand-machines was probably introduced in this province by one Lala Peary Lal Nanak Shahi. He was a knitter in Dhariwal Mills. In 1904 he bought a Harrison Round socks machine and settled at Lucknow. It paid him so well that within a few years he had about a dozen machines of several gauges and sizes. He trained the workers himself. Large profits with a small capital investment which accrued to this gentleman

gave an impetus to small enterprising capitalists to take up this line. In a short time the industry grew to such an extent that by the time the Great War broke out, there were no less than 200 fine round knitting machines and about 30 flat machines working in Lucknow and Cawnpore alone.

Side by side with the United Provinces, the Punjab was also developing this industry and Ludhiana grew to be a promising centre. This has its influence in the western districts of Saharanpur and Meerut in the United Provinces where people began to set up their machines.

The Boom Period—The industry was started at an opportune moment as the Great War that followed, gave an impetus to it. The prevailing high prices of the finished goods, and a great demand for them during war time helped the industry to rise by leaps and bounds. Lucknow specialised in fine spun silk hosiery, Nanak Shahi spun silk lady stockings are even now proverbial and it is a matter of much gratification that in Wembley exhibition they were much appreciated and had a great sale.

Part played by United Provinces Government—In order to develop the cottage hosiery industry the Government of the United Provinces started in 1912, hosiery classes in the Government Central Weaving Institute, Benares, and the Hewett Weaving School, Bara Banki. These classes have recently been abolished but the students trained in these institutions have established themselves in trade.

The Crisis—Business was brisk during the Great War. New concerns came into existence. The profits reaped by the enterprisers were enormous. All the factories had their hands full. During the war time the manufacturers were mostly engaged in producing goods for requirements of the military and paid little attention to the needs of the local market. As a consequence of this, the Indian local market was being slowly captured by China and Japan. They were dumping cheap Hong Kong socks and hoses at Rs.5, Rs.6 and Rs.7-8 a dozen. At the close of the War the military requirements decreased considerably and the indigenous producer was faced with the problem of competing with China and Japan in the market. The hard competition with cheap Hong Kong products which remains yet fully to be solved, brought a crisis and many concerns had to close down within a short period.

The industry as a whole received a set-back. The bigger concerns changed their tactics and the Elgin Hosiery Factory developed its hosiery section into an inter-dependent concern as Cawnpore Textile is still raging war with cheap Japanese stuff.

Protection—The post-war slump, and the terrible Japanese competition hit the industry adversely. This made the producers raise a hue and cry. The Tariff Board in their (1926-27) report had not thought it proper to grant any protection to this industry for reasons best known to them. In 1932 report, they revised their opinion and a protective duty ranging from 25 per cent. *ad valorem* to 50 per cent.

ad valorem on hosiery goods of various description was levied in the subsequent year. The adequacy or otherwise of this protective tariff cannot, however, be discussed here. But it ameliorated to some extent, the lot of the producers and the Japanese goods which was at a time almost completely ousting the indigenous product, received a great set-back.

The industry of this province, besides being faced with the Japanese competition has other problems also. There is Ludhiana, a great rival in the market. The Punjab Government was the first to make adequate arrangements for the protection and development of this growing industry. The establishment of the Government Hosiery Institute, the formation of Hosiery Manufacturers and Mechanics Association at Ludhiana were some of the features which helped it a great deal.

Present position—The growth of the industry in the United Provinces, though rapid, was haphazard. There was no systematic planning or organization. The result was that even after the post-war period the industry never recovered thoroughly. The internal competition and price cutting has become too acute at present. There has been a marked tendency for easing the prices and this has been detrimental to the producers and to the quality as well. This has made the consumer prejudicial against the local products.

The producers have, therefore, to be taught that they had better put a united front to the outsider rather than indulge in a price cutting war among themselves.

At present there are three types of manufacturing concerns. (1) The big factory or mills, (2) the medium sized factories, and (3) the petty producers with two or three machines. The first class of producers are to be found mostly in Cawnpore, Lucknow, Agra, and Benares; Cawnpore deserves a special mention as most of the hosiery mills are situated here. Other centres have only one two such concerns. The second and third class of producers are to be found—besides the above-named towns—in the cities of Allahabad, Farrukhabad, Meerut, Saharanpur, Almora, Naini Tal, Garhwal, Moradabad and Bara Banki.

The second and third class factories mostly produce only cotton goods. At Garhwal, Naini Tal, and Almora, however, they make woollen goods due to cold climate as there is hardly any demand for cotton articles there. The producers of the first class concentrate on cotton goods though they produce articles from other fibres also. As it requires larger amount of investment to turn out wool or silk goods, the smaller and even the medium sized factories do not take to it. As there is a limited demand for costly stuffs, the manufacturers do not take to anything else other than cotton goods manufacture.

There is a distinct division among the manufacturers as regards the kind of goods produced. Only a few big manufacturers produce both socks and stockings, etc. and *banyans* and underwears, etc. Generally they manufacture *banyans* and underwears. The small factories produce socks and stockings only. They do not generally use power driven machines. Of the medium sized producer, there are only

a few who manufacture and make articles other than socks and stockings. The difference between the medium and the small producer is in the fact that the former possess more machines than the latter and, therefore, turns out goods of a varying range of sizes.

Scope of Development—Demand from the consumers is an essential factor for the success of an industry. The demand for the product of this industry, especially that for underwears and cotton sweaters, is increasing every day. The ready-made nature of the *banyans* and the easiness with which they fit the body due to the elasticity of texture, have gained a popularity for them and their imports from foreign countries, especially from Japan, have increased a great deal.

The cheapness of Japanese goods, rather than the quality, is the real cause of their popularity. The competition is, therefore, a formidable one and it will have to be fought if the local industry has to be made stable. The chief difficulty from which the industry suffers is attributable to the fluctuation of the demand from year to year. The country being an agricultural one the prosperity of almost all the industries is linked with the prospects of agricultural crops and the economic conditions of the *ryot*. When the crops are good and the agricultural community as a whole is in a prosperous condition, the demand for hosiery goods is brisk but in years of adversity the demand slackens down. Again cheapness is an essential factor to be kept in view as the country being poor the demand slackens as soon as the prices show any rise.

Under normal conditions the industry has a scope of development. It can be taken up with a small capital. The work being easy to learn, it can easily be taken up by educated unemployed youths. It is bound to provide them with a living wage and ensures adequate returns to capital investments.

CHAPTER II

RAW MATERIALS

Almost the only raw material for the knitting industry is doubled sized and polished thread. This yarn differs from that used in cloth. It has a better lustre, less twist, more strength and elasticity. Its necessary properties are softness, strength and pliability, so that it may be capable of covering the interstices of the knitted loop.

Many and diverse kinds of yarns, cotton, wool, silk, mercerised and art silk yarn are used in hosiery. But owing to the hygienic and weaving properties and due to its being cheaper than others, cotton yarn is largely employed. The cottage or small producer almost exclusively uses cotton yarn. No special machinery is required for spinning hosiery yarn. The Mills producing ordinary yarns produce hosiery yarns as well. As a matter of fact, the difference in producing the two types of yarns lies in selecting a better quality of raw material and in processing the same. Thus in order to produce soft cotton hosiery yarn of lesser twist, long staple cotton is necessary.

Most of the Indian mills produce only weaving yarn. Production of hosiery yarn is carried on as a side business and as such little attention is paid to its quality. These yarns are, therefore, uneven and non-elastic. The unevenness of the yarns causes excessive breakage in winding as well as in knitting. Thus the output both on bobbin winding machine as well as on the knitting machine itself is greatly decreased. This is the reason why the larger hosiery factories of the province use very little of the yarn produced in cotton mills of the provinces. This is specially so when higher count of yarn has to be made use of. Among the Indian yarn producers the Madura Mills have established a reputation in hosiery yarn and their product is a favourite of all the manufacturers. It is known for its fineness, softness, smoothness and evenness. Though slightly higher in price, it is superior to all other Indian brands available in the market. The Juggilal Kamlapat Mills of Cawnpore and the Prem Spinning and Weaving Mills, Ujhani, supply lower counts of knitting yarn.

There is an estimated yearly consumption of about 16·98 lakhs of pounds of yarn from different fibres of an estimated value of Rs.11·20 lakhs. Cotton yarn is consumed to the extent of about 14·87 lakhs of pounds or about 87·6 per cent. of the total yarn consumed by the industry. The rest 12·4 per cent. or about 2·11 lakhs of pounds, is woollen and other kinds of yarns. Consumption of wool yarn is about 1·5 lakhs of pounds or about 9 per cent. of the total consumption. All others are consumed to the extent of only 0·61 lakhs of pound or about 3·4 per cent. of the total.

Consumption of yarn—A detailed statement showing the estimated annual consumption of yarn from different fibres used in the manufacture of hosiery goods at different centres of production during the dull and brisk seasons is given in Appendix I.

The presence of large factories and hosiery mills at Cawnpore make her the largest consuming centre of raw material. Though the number of persons employed in knitting process in the number of various types of machines is far more at some of the centres like Saharanpur and Meerut, yet the yarn consumption is highest at Cawnpore.

It will be observed from the table that out of the thirteen main centres, woollen yarn is consumed in appreciable quantity only at two centres, namely, Cawnpore and Agra. The Lalimli Mills and Pucca Hosiery Factory of Cawnpore and the Dayal Bagh Hosiery Mills at Agra are mainly responsible for the large consumption at these places. Other big factories at Cawnpore use comparatively small quantities of woollen yarn. As mentioned before the small and most of the medium sized producers refrain from turning out woollen goods on account of the following reasons :

- (1) More capital is required to produce woollen goods as the yarn is dear ;
- (2) The turnover in the case of woollen goods is not quick ;
- (3) The demand is limited as the goods are costly ;
- (4) There is a demand for these goods only for about three to four months in winter and if the manufactured goods remain unsold at this time, they have to be kept, in stock for 8 to 9 months during which period the capital is locked up ;
- (5) It requires much care and attention to protect the goods from sustaining damage.

The consumption of silk, mercerised and art silk yarns, is the least of all. In matters of durability and comfort, the articles produced from these yarns are not superior to those of cotton. The consumption of silk is very little as it is costly. There are only a few concerns which manufacture fine silk goods. The use of art silk is, however, increasing as it is cheap, and has a lustre and brightness to attract the consumers.

At present, the yarn used by the cottage producers as well as by the mills is generally mill-spun but with the growth of the national movement and a propaganda for the use of articles made out of hand-spun yarn, there had grown up some demand for hosiery made out of hand-spun yarn. But as hand-spinning does not give the desirable quality of evenness to the yarn, its hosiery is not good. Some of the small producers who took to it in view of the increasing demand, gave it up due to low price that the hosiery goods manufactured from it fetched and also because this yarn damaged their machines and caused much breakage of needle in the process of manufacture thereby raising the cost of production. Gandhi Ashram at Meerut is the only institution which is supplying the needs and requirements of hosiery made from hand-spun yarn. Some experiments are being made at Bageshwar in Almora where hand-spun wool yarn is used for manufacturing hoses and stockings. The venture has only lately been undertaken and it has yet to be seen how they compete with the mill-spun yarn

goods. It is, however, certain that goods made out of hand-spun yarn cannot impart a good finish, smoothness and elasticity so essential for hosiery goods. The present consumption of hand-spun yarn is limited to only a few hundred pounds of both cotton and wool.

Foreign yarn—The use of foreign cotton yarn is very little. It is only the mills that use some foreign yarn of high counts but the quantity consumed is negligible. The cottage worker seldom uses yarns of very high counts and consequently his needs are satisfied with Indian product.

Woollen yarn—The woollen yarn is, however, mostly foreign. Though there are mills within the country and within the province which produce hosiery yarn, still they import yarn from England, Japan and other countries. Preference is given to the Japanese yarn due to its cheapness.

Of the Indian mills, the Raymond Mills of Bombay are the favourites for the woollen yarns. Although one of the biggest woollen mills of the country lies within the province; viz. the Lalimli Mills of Cawnpore, yet their yarn has never been popular with the hosiery manufacturers. The Lalimli Mills themselves being the producers of hosiery goods, do not supply to the market those brands and colours of yarns which they themselves use.

Co-operative societies of spinners and knitters have been started at Tarikhet and Bageshwar where attempts are being made by enthusiastic workers to produce hosiery goods from hand-spun yarn at competitive prices.

Silk, mercerised and art silk—The consumption of these yarns is not much. But whatever little quantities that are consumed, are all foreign, mostly Japanese. As a matter of fact there is no mill within the province which is producing these yarns. Kashmir, Bengal and Assam produce some silk yarn but the quality is not such as to make it serviceable to the hosiery industry. Besides it is dearer than the foreign yarn of the same counts and hence it is not much used.

The following table shows the percentage consumption of the different types of yarn both Indian and foreign in the province.

				Indian	Japanese	English	Others
				Per cent.	Per cent.	Per cent.	Per cent.
Cotton yarn	..	..	..	98	2	..	..
Wool yarn	..	..	..	5	80	10	5
Silk yarn	..	..	..	..	95	5	..
Art silk	..	..	..	..	95	..	5
Mercerised	..	..	..	..	95	..	5

From the statement given above it is clear that only cotton yarn is produced in India. For other yarns the industry depends on other countries. Japan has the largest share in the supply of other types. The fact that Japanese yarn though not superior to the Indian yarn or to the yarn of other countries, is cheap, induces the producer to go in for that.

Marketing of raw materials—Leaving the big hosiery mills, all other small and medium sized concerns obtain their supplies from the local dealers. The bigger concerns obtain their supplies of Indian yarn direct from the mills or from wholesale dealers and of foreign yarns from their manufacturers through their representatives in India. Since there are no definite standardized qualities for hosiery yarn the small producer uses even cloth yarn for hosiery goods specially when there is a rise in the price of the former. The quality is undoubtedly sacrificed in this way, yet it costs them less. The local dealers often keep a limited stock of the hosiery yarn as the demand for it is very unsteady. Except at Cawnpore which is a big distributing market for all types of yarns, the difficulty in getting requisite quality is felt everywhere by small producers. Even at places like Lucknow, the manufacturers are very much handicapped on account of this. The small producer with limited resources cannot afford to get the supplies of yarn in a lot and to keep a stock of it himself. His only source is the local dealer.

Generally he pays the price in cash. Even if he gets a part of his supplies on credit, it is for a very short term and he has to clear off the accounts within a week or so. He cannot get his next supply without paying off the previous account. Usually no interest as such, is charged by the yarn merchant for the credit allowed to the small manufacturers. But often it has been observed that there is a difference of 6 pies to 1 anna per bundle of yarn between cash and credit purchases. This difference may be regarded as a sort of interest. The manufacturer has to accept the rates dictated by the local dealers though he knows that they are higher than the usual rates.

If the yarn is purchased from the mills or from wholesale merchants at Amritsar in bales containing 200 bundles of 10 lb. each, the consigner pays all the transport charges up to the station at which the consignment is to be delivered, otherwise the cartage is charged from the place of origin to the destination. This is another advantage accruing to the large-scale manufacturers who always place their orders in a lot. The small producers are deprived of this benefit.

Only a co-operative organization of the producers at the main centres of production, which could place the orders on behalf of all the producers and distribute the yarn among them can remedy the evil.

At certain places like Meerut and Saharanpur there are some wealthy yarn merchants who act as middlemen. They give yarn on credit to the manufacturer and take the finished products which they themselves market. The price of the finished products are never settled beforehand. When the manufacturer fails to give them the price of the yarn within a specified time, which he is often unable to do, he has to be satisfied with selling the finished products at a price dictated

by the dealer, as the manufacturer knows that if he is unable to pay back the amount he will not get yarn on credit in future.

Counts of yarn—Yarn of different counts is used for manufacturing different articles. The most common count consumed by the cottage worker is $6\frac{1}{2}s$. to $16\frac{1}{2}s$. of cotton; $2\cdot 10s$ to $2\cdot 16s$ of wool; $2/42s$. of mercerised and $150s$. of art silk. It is seldom that a small producer consumes silk yarn.

The determination of the count of yarn is done in the following manner. Usually 80 yards of yarn is reeled off and weighed carefully to the grain. From this the number of yards per pound or 7,000 grains, is obtained by calculation. This number is divided by 840 in the case of cotton and by 560 in woollen to obtain the count of the yarn. The count of silk or artificial silk is found by obtaining the cotton by reeling and then dividing the constant by $528\cdot 2\cdot 5$.

The testing of yarns for counts is a very important factor in this industry. Variations in the count of yarn are apt to reflect on the weight of the finished garments. As the products of this industry are often sold by weight, the consideration of the count of yarn used is all the more important. With increased prices of yarns the tests of their count become more and more important and essential.

As a matter of fact the small producer has no means to test the genuineness of the count of yarn purchased from the retailer. He depends upon his own experience and skill and is often liable to be deceived. Generally there are no count marks on loose bundles. They have no machine for testing. The small producers are therefore often losers as even a little difference in the count is bound to make a considerable difference in the weight per dozen of the garments made. Their interests can easily be protected if the yarn producing mills could put in the marks of counts on each packet of yarn. Yarns of higher or lower counts are used according as the goods to be produced are fine or rough. The small producers, therefore, mostly consume yarns of lower counts. Fine counts of 40 and 60 of cotton are used mostly by the bigger manufacturers.

Yarn prices fluctuate very often, sometimes from week to week. There are different and innumerable brands whose prices differ from one another even for a similar count. Below are given the prices of some of the common yarns used by hosiery manufacturer :

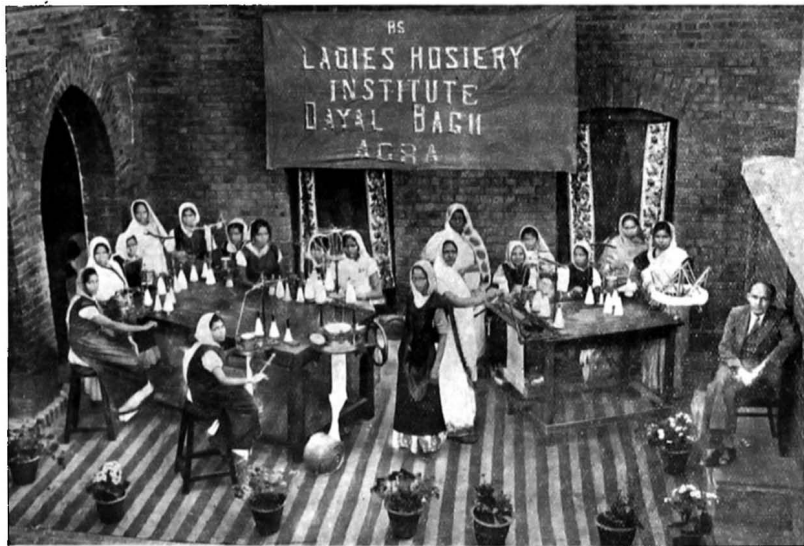
Cotton		Wool		Mercerised	
Counts	Range of prices per bale of 10 lb.	Counts	Prices per bale of 5 lb.	Counts	Range of prices per 5 lb.
$6\frac{1}{2}s$	Rs.3 to Rs.3-6 ..	$2/12s$	Rs. a. p. 10 0 0	$2/42s$	Rs.4-10 to Rs.5.
$10\frac{1}{2}s$..	Rs.3-4 to Rs.3-8 ..	$2/16s$	12 0 0	$2/84s$	Rs.3-4 to Rs.8-10.
$16\frac{1}{2}s$	Rs.3-12 to Rs.4-2 ..	$2/64s$	18 0 0		
$20s$	Rs.4-8 to Rs.5.				
$40s$	Rs.7-8 to Rs.8.				

Since all the centres of production are big towns served by railways, the most common method of transportation is railways. Motor lorries or road transport which of late has much developed has also a share. It is, however, difficult to estimate the proportion transported by railways and that by lorries. Railway tariff classification is different for yarns from different fibres. Generally they are treated in Class IV. Except for Cawnpore, no other centre enjoys a concessional rate in this respect.

Over and above these charges, there are the octroi or toll taxes levied by the municipalities and town areas. The rates of octroi or toll vary from place to place, ranging between 2 pies per rupee to 9 pies per rupee. Yarn is an important raw material for not only hosiery industry but also for textile and handloom industries and consequently such taxes should be as low as possible so that the cost to the producer may not be inflated.

Dyes and colours—Dyes and chemicals are the other raw materials used for the colouring of yarn. The cottage workers generally use fugitive colours as they are cheaper and require less skill in dyeing. While the prices of fast colours are between Rs.30 to Rs.35 a lb., that of fugitive colours are between Rs.3 to Rs.4 a lb. It costs about Re.1-4 to dye a pound of yarn with the former whereas the cost of dyeing with the latter is only about Re.0-2-0. Dyeing of yarn is an important factor. Goods dyed in a well-balanced way are apt to give more attractive looks to the products. An ill-dyed yarn produces odd looking articles and often creates bad impression on the consumer. The small producer often does not pay much attention to it and is put to loss on that account.

Fuel and power—Linseed oil is the only oil needed for lubrication for hand machine. If the machine works regularly oil worth about Re.0-1-6 is sufficient for a hand machine for about one month. In the case of big factories and mills a superior kind of lubricating oil is needed but the expenses per machine on this account do not exceed 4 annas a month. The consumption of power is not much as a circular machine working for about 8 hours consumes about 2 to 3 units of electricity.



To face page 11.

CHAPTER III

LABOUR AND ORGANIZATION

The number of persons employed in all the centres of hosiery industry has been estimated about 700 in the process of knitting and about 1,525 in other processes. The total number of persons employed in the industry is about 2,225. There is no caste restriction in joining the knitting profession and consequently people of all castes and creed will be found engaged in knitting and other processes connected with hosiery manufacture. Some processes are done mostly by men, others by women and some by children. For instance, hand winding is generally done by women, stamping and packing often by children.

In certain periods the demand for hosiery goods is brisk while in others it is dull. The brisk period lasts generally from September to February. Then follows the dull period and a lull in the productive activities is visible. This depression is more clear and acute in the medium sized and small factories. In case of mills, however, the production is generally regular.

The cottage industry is thus in full swing for six months and dull for another six months. Production in the latter period is curtailed by more than 60 per cent. As a result of this almost an equal percentage of the labour force has either to go completely out of employment or else gets only a part-employment. The general practice with the employers is to dismiss the less efficient workers and to retain others who are given part-time work daily and full-time work for a few days in a month. The employers, however, retain as many workers as possible so that when the brisk period sets in they may not have to make a search for them. The workers are contended to get even a part-time job for often they have nothing else to fall back upon.

The productive activity in mills does not go down so much in the dull period, though it is affected to some extent. The workers engaged therein are not, therefore, much affected by dull periods.

The table given below shows the average number of persons engaged in knitting process in hosiery factories at different centres of production:

Centre	No. of workers employed		Percentage of reduction
	In season	Out of season	
Saharanpur	195	100	48.7
Meerut	160	90	43.7
Agra	55	35	36.4
Farrukhabad	50	30	40
Lucknow	65	30	53.8

Centre	No. of workers employed		Percent tage of reduction
	In season	Out of season	
Allahabad	20	10	50
Benares	25	15	40
Cawnpore	80	70	12.5
Bara Banki	25	20	20
Almora	15	5	66.6
Naini Tal	3	1	66
Garhwal	5	1	80
Moradabad	10	5	50
Total	708	412	58.1

It will be observed that the reduction in labour force is least at Cawnpore while it is highest in Garhwal. The reason for this is that Cawnpore possesses a large number of factories. At Garhwal the reduction in labour force is highest because the demand for goods is almost local and when it goes down the factories have to suspend their work. At Saharanpur, Meerut, Lucknow, Allahabad, Farrukhabad and Benares, there is a decrease of 40 to 50 per cent. as most of the manufacturing concerns there come under the medium and small sized groups where in the reduction in labour force is great in off-season. The reduction at Bara Banki is only 25 per cent as there is only one factory, which is owned by a person who possesses some capital and can afford to keep up a part of it locked up for some time in the form of finished goods. The production is, therefore, not decreased much during off-season.

The number of persons employed in knitting is largest in Saharanpur and Meerut which have a large number of small factories, but that production is highest at Cawnpore which has a large number of power worked machines. Besides knitting, there are certain other processes connected with hosiery manufacture in which workers find employment. Some of them are capable of giving part-time employment. Below is given an estimate of the number of workers employed wholly or partly in processes other than knitting during the season:

Persons	No. of persons employed		
	Whole-time	Part-time	Total
1. Winding	50	800	850
2. Sewing and cutting	250	150	400
3. Finishing	65	85	150
4. Dyeing	25	100	125
Total	390	1,135	1,525

All of the processes mentioned above require skilled workers. Besides these, there are many other minor processes, which absorb some labour force. The industry gives employment to those also who know the art of repairing the machines. The number of such workers is, however, small.

Mobility—The labour force is not very mobile. At the different centres of production, mostly local men from the neighbouring villages are found engaged in different processes. There is no scarcity of labour at any centre and consequently the need for the movement of labour does not arise. At places like Cawnpore, Agra, and Saharanpur some workers are drawn from Ludhiana as well. Since the use of power machines is limited to a few centres there is not much of labour force available within the province which can handle power machines. There was never a regular institution in the province which imparted training in the working of power machines. The hosiery institutes started by the United Provinces Government some time back trained student in working hand-driven machines only. This resulted in a dearth of such labour force which could handle power machines. This dearth is felt even now to some extent. The result is that workers from Ludhiana have to be called where power machines are used.

Efficiency—The existing labour is not very efficient as it has not received any regular and systematic training. Most of it consists of persons who having worked for some time in a manufacturing concern have learnt only a little of practical knitting. They do not know the technique of the art and are unable to execute either a new design or any fine work. If while working, the machine gets defective most of the workers are unable to mend it. This inefficiency of the labour has resulted in lower earnings.

Remuneration and earnings—The piece wage contract system prevails in the cottage industry. In mills where the machines are worked by power, the labour is engaged on a monthly pay basis. Piece wages are given not only for knitting but for other processes also. Of all the various processes, knitting commands the highest rates. The wages for knitting are paid according to the quality of the fabric which in its turn depends upon the quality of yarn used and the number of needles in the cylinder of the machine on which work is done. The higher the number of needles the finer will be the stuff produced by them and consequently the higher will be the rate of wages paid to the workers.

As most of the circular knitting machines producing underwears are worked by power, the wages are paid on monthly basis. The pay of an average knitter ranges between Rs.25 and Rs.30 a month. Where the machines are worked by hand, an average worker engaged in the production of cotton fabric for *banyans* gets his wages at the rate of one anna per lb. of cloth turned out. In the course of a day of 9 to 10 hours he is able to produce about 10 lb. of cloth which gives him an earning of 10 annas a day. It should not be assumed that there are same rates for all counts of yarn. The finer the yarn

used, the higher will be the rates per lb. and the lesser will be the output. The average earning, however, is about 10 annas a day.

As in the case of underwears so in the case of socks and hoses, etc. the rate of wages vary according to the quality of goods and the number of articles turned out per day. In the case of finer and designed stuff, the rates are higher and range from 12 annas to Re.1-4 per dozen but in the case of rough and plain stuff they vary from 4 anna to 8 annas per dozen. An average worker can produce about half a dozen of the former and about a dozen of the latter. The earnings per day ranges between 6 annas and 8 annas per day.

A detailed statement showing the average rate of wages for different processes and the capacity of a worker on hand-worked machines is given in Appendix II.

It will be clear from that statement that the highest wages are earned by knitters who get 6 annas to 10 annas per day and the least are earned by those engaged in winding process. The reason for low rate of wages in winding is that this work is done mostly by women and children of whom there is no dearth. Hardly any whole-time workers are engaged in cottage factories for winding process.

The rates of wages have considerably gone down since 1924. A detailed chart showing the rates of wages allowed to workers in 1923 and at the present time for making socks and hoses, etc., of various qualities, by a leading hosiery manufacturer of Lucknow is given in Appendix III. The comparative rates show a fall of more than 50 per cent.

Conditions of work—Conditions of work are far from satisfactory in small factories. In the case of factories which are under the Indian Factories Act certain minimum requirements as regards sanitation, etc. have to be fulfilled and hence the conditions there are not so bad. But in the case of other two classes of the factories specially in a medium sized factory the hygienic and sanitary conditions are very bad. Several machines are fixed up on a small table placed in a dark, dingy, small room, often in the interior of a dirty lane. The knitters sit close together on benches by the side of the table. Often these small rooms serve as store rooms as well. This economy of space is effected because the factory owner cannot afford to spend much on rent which is high in big towns. The small producer has, therefore, to plant his factory in small houses situated in small lanes and out of the way places where rents are low. This accounts for the ill-sanitation of the small and medium sized hosiery factories.

Training facilities—It was in 1912 that the United Provinces Government started hosiery institutes at Benares and Bara Banki. The institutions did good work and turned out a number of students, some of whom have established a name in the hosiery world. About a decade back these schools were closed, as they were not considered to be doing any more useful work. There is at present no Government Hosiery Institute. There is however, an aided institution at Meerut known as the Lalkurti Hosiery School but it is run on a very small

scale. Another institution is the hosiery factory of the Model Industries, Dayal Bagh, Agra. The institution gives training in the working of the hand driven and power driven machines. The Dayal Bagh Institution has also started a ladies hosiery institute, where special arrangements have been made for ladies to learn hosiery manufacture. The institution is doing quite well. Except in these institutions there are no facilities for training in the province.

The Misra Hosiery Factory, Cawnpore, which has power machines does undertake to train men in hosiery manufacture in his factory on certain terms and conditions.

As mentioned before the bulk of the labour force is made up of a class of workers who have received their training in a crude and unsystematic way in one or other of the manufacturing concerns. Young boys are admitted by small factories as apprentices to learn the work but no one takes the trouble of giving them any regular lessons. They pick up what they can and it is very often that it takes years to learn even the practical side of knitting. On the other hand the factory owners get a benefit from the apprentices' free labour. As the training is haphazard the boys do not turn into efficient workers. No improvement of the art can, therefore, be expected from such a labour force.

From all that has been said it is clear that the need for a regular training institution is imperative. Progress in the industry can only be made when a well-trained, skilled and efficient labour force is available. A close examination of the causes of the success of the hosiery industry at Ludhiana shows that the Hosiery Institute started there by the Punjab Government in 1926 is greatly responsible for it.

Need for an Institution—A first class hosiery institute, to impart a regular course of training in the different processes of hosiery manufacture, both by hand and power along with a course of commercial training, is greatly needed in the province. Commercial training is essential along with the technical training so that many of the difficulties now experienced by the producer in marketing the goods may be removed. The institution should also give free commercial and technical help and advice to all those, engaged in the industry. This step will help the producers not only in increasing their outturn but in the manufacture of fancy designs on a commercial scale.

Subsidiary occupation—It has already been mentioned that the industry is slack for about six months in a year. In this period about 55 per cent. of the labour force is thrown out of employment and some get only part-time employment. The earnings of the cottage workers are already so low that they cannot save anything during employment. As the industry is located generally in big towns where the expenses are comparatively high their small incomes are hardly enough for bare maintenance.

During dull periods, labour force drawn from villages goes back to their homes to lead a cheaper life and to look after their agriculture. Those who belong to cities generally take to hawking. The labour

force from villages does not sever all connections with the rural life and its main subsidiary occupation is agriculture. There are no other fixed subsidiary occupations.

Under the circumstances it is essential that some other outlets should be found to absorb the unemployed labour during the slack periods of hosiery industry. An industry akin to hosiery or any other industry which requires a small amount of capital and which could ensure a living remuneration to the workers will serve the purpose of these people. Handloom weaving, *tat patti* weaving, *niwar* weaving should be taken up as subsidiary occupations by the workers of hosiery factories during the dull period. A worker who knows the art of knitting will not have much difficulty in learning any one of them. Besides these, cardboard box making for packing hosiery goods is another suitable industry, which can be recommended to the workers. At big centres of hosiery production there is a demand for cardboard boxes. This demand will increase if the producers are made to realize the value of good packing. All the industries suggested above are such as do not require much capital investment nor are they difficult to learn and at the same time, any one of them is capable of providing the unemployed labourer with work which will fetch him a living wage.

CHAPTER IV

INDUSTRIAL FINANCE AND CAPITAL

Every industry, whether big or small, requires capital. There are always two forms of capital, i.e. the Fixed and the Circulating. The amount of fixed and circulating capital invested in a particular unit of the industry depends upon its size.

In hosiery industry, the province has three distinct categories of manufacturing concerns.

The first, i.e. the large-scale manufacturing concerns mostly use power machines. Some of them are joint stock limited concerns owned by a number of shareholders, others are owned exclusively by individuals. The amount of capital invested in such concerns is very great. There are factories with an investment of 2 lakhs and even more at Cawnpore. Their plants are modern and the management is efficient. They believe in the policy of mass production, employ the tactics of modern business and have consequently been successful in commanding markets for their goods even outside the province.

The second, i.e. the medium sized cottage factories are those who possess more than six machines and work regularly. The use of power machines is not common. Such concerns are found at almost all the centres of production. This organization is not much developed. The chief market for their produce is within the province though some of them do sell goods in markets outside the province as well. Their investments are not large nor the management costly. Most of these are owned by individuals who were formerly workers in some factory. Others are owned by hosiery dealers, who depend entirely upon hired labourers.

The third is the small producer. He owns a few hand machines and sells his products locally. Such concerns are common at Meerut, Saharanpur, and Lucknow. They are exclusively cottage factories where all the processes are done with hand and the use of power is unknown. The number of machines possessed by this class seldom exceeds six and even if it does, we do not find more than six machines working at a time. The capital invested is small and hence the earnings are low. Some of the workers take to hosiery manufacture only as a side business. They are employees in some mills or at other places and work on their own machines in spare time. The number of such workers, however, is not much. Producers of this class generally do not possess any hosiery shops of their own. They depend entirely on the local dealers for the marketing of their goods.

The amount of the capital invested in concerns of different sizes varies a great deal. Big factories have to invest a good deal on equipment. In the case of the medium sized and the small-sized factories the investment in the shape of fixed capital is confined to the

expenditure on machines and tools only. They require a much smaller amount of circulating capital as compared with the big factories.

Capital need for different units of production—(1) A medium sized vest-and shirt-making factory worked by power requires the following equipment to produce products of all the sizes commonly required, i.e. 22" to 38":

				Rs.
(1) Circular knitting machine	16"	..	..	2,500
(2) Ditto	14"	..	..	2,200
(3) Ditto	12"	..	..	2,000
(4) Rib top machine	3½"	..	..	800
(5) Overlock	..	..	..	300
(5) Chain stitching machine	..	..	..	125
(7) Winding machine	..	..	..	450
(8) Calendering machine	..	..	..	1,000
(9) Irons	..	..	..	20
(10) Frames	..	..	..	20
Total				<u>9,415</u>

This will turn out about 30 to 40 dozen of *banyans* or vests per day.

(2) A medium sized socks-producing concern run by power will require the following machines :

				Rs.
(1) Circular knitting machines	..	..	..	2,500
(2) One rib top	..	..	..	800
(3) Winder	..	..	..	450
(4) Irons	..	..	..	40
(5) Frames, etc.	..	..	..	40
Total				<u>3,830</u>

These are capable of producing about 10 dozen of socks and hoses per day.

In case the knitting of socks is combined with that of shirts and vests there will be a saving in some of the machines.

(3) Estimates of a medium sized factory and a cottage factory (not using power) are given below. The investments for erecting a power factory and a hand machine factory differ very much as the power machines are dearer. Then again power knitting machines require the setting up of some other machines as well and this is easily avoided in the case of hand knitting machines. Since the *banyan*-and shirt-making machines are costlier than the socks machines, the small producer generally goes in for socks machines. Apart from the capital investment, the recurring expenses, in the case of *banyan* and shirt manufacture are also greater and often the turnover is not so quick, consequently the small producer does not take to *banyan*

manufacture. The account of the cottage producer includes, therefore, only hand-driven socks machines of different sizes with rip top dial.

	Rs.
(1) Two sock-making machine R. D. attachment ..	200
(2) Two irons	10
(3) Wooden Patterns	10
	220

For two machines a capital investment of about Rs.220 has to be made.

Flat machines which cost about Rs.400 each are not included in the above estimate as in spite of their being very serviceable and capable of producing articles of different sizes, their products are now out of fashion and their working has proved uneconomical.

Circulating capital—Circulating capital is needed mostly in the form of raw material. It varies with the size of the concern. The socks machine consumes less of yarn in a given time than the round knitting machine turning out *banyans*, sweaters, etc. The power machines consume much more yarn than the hand machines. Thus to feed one machine the following quantities of cotton yarns of average quality will be required, when the machines are worked for 8 hours a day :

	lb. per day
(1) Round knitting machine (worked by power) ..	60
(2) Ditto (worked by hand) ..	12
(3) Round knitting socks machine (worked by power)	5
(4) Ditto (worked by hand)	1

The consumption of yarn, however, depends upon the quality of yarn used. The above estimates are for counts between 10½s. to 20s. which are in common use.

Taking into consideration that the turnover will take about 3 months or 90 days, provision will have to be made for 5,400 lb. 1,080 lb. 450 lb and 90 lb. of cotton yarn, respectively, for each of the machines mentioned above. Calculating at the rate of Rs.4 per bundle of 10 lb. each the amounts required will be Rs.2,160, Rs.432, Rs.180 and Rs.36, respectively. This is, therefore, the minimum amount of investment in raw materials which will be required for one machine of each kind. Something will be required for other recurring expenses like labour charges, expenses on needles, etc.

The large-scale manufacturer has little difficulty in getting adequate finances either for capital outlay or for recurring expenses. Banking organization allow him the desired facilities and he can borrow at reasonable terms. The real problem of finances arises with the medium and small sized concern which has no credit with banks. Except for the indigenous mahajan there is no other banker for him. Howsoever exorbitant rates of interest the mahajan may charge, he does a service to the manufacturer in times of need. The usual rates of interest

that the mahajan charges is 1 pice per rupee per month which comes to 18 $\frac{1}{2}$ per cent. per annum. If and when a new machine or tool is to be purchased by the small producer he has to approach the local money-lender as there is no other agency through which he can get the required amount. The main difficulty of financing arises in the purchase of raw materials. The difficulty is very keenly felt by the small producers who have only a very limited amount of capital at their disposal.

As already stated, the small producer has usually to purchase raw materials on cash payment. But on the other hand he has generally to sell his goods to the retailers on credit. These retailers pay the manufacturer often after as long a period as 3 months. The result of this is that the producer has perforce to seek the help of the mahajan who charges high rates of interest or else has to sell his goods to the middleman whereby he loses his profits.

Though the requirements of the industry in the province at present are not such as to justify a banking organization to finance it exclusively, yet a help from some industrial bank will be most welcome. The Industrial Financing Corporation started recently at Lucknow may be able to help this industry as well. The small producer of hosiery goods does not require huge sums of money and the turnover is comparatively quicker. Small amounts can, therefore, be repaid easily. The Corporation may not feel much difficulty in lending small amounts for short terms and it is expected that this little help will be much beneficial to the industry. The organization of co-operative stores for the supply of raw materials as suggested in the chapter on "Raw Materials" will also be helpful to the small producers.

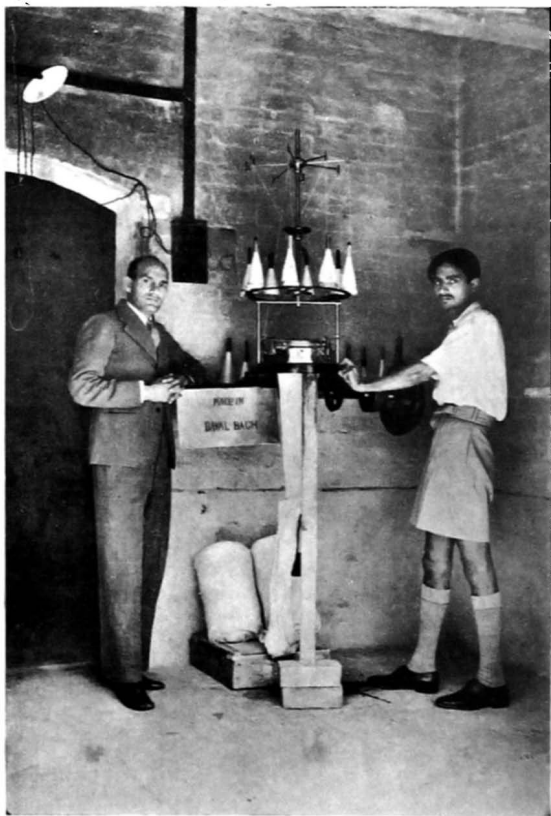


III

To face page 21.

Flat Knitting Machines.

II



Circular Knitting Hand Machine

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CHAPTER V

TOOLS AND PROCESS OF MANUFACTURE

It has already been mentioned that hosiery includes within itself a wide range of knitted garments. For various types of articles different types of knitting machines are required. Some machines and tools are needed for finishing of these articles.

For knitting purposes two types of machines are generally used :

- (1) Circular knitting machines.
- (2) Flat knitting machines.

Circular knitting machines are in common use. The size of the article is dependent upon the diameter of the machine's cylinder, whilst the fineness depends on the number of needles in the cylinder.

The machine itself is able to turn out a circular or tubular piece of knitted cloth. This circular fabric has many advantages over the plain width fabric produced by flat machine and consequently it is almost indispensable for various branches of the hosiery art. In order to produce ribbed work a dial is attached to the cylinder.

The difference between a machine for socks and that for undervests lies in its dimensions. That for the former is of a smaller size. Hand-driven socks machine can be had with or without rib dial and are made with or without design wheel. They are so constructed that they can be driven either by hand or by power with only a slight modification. The hand-knitting machine especially for socks is so simple that it can easily be handled by ladies and young boys. They are easily screwed on to a table and occupy very little space.

Undervests of sizes 34", 36", 38", are made on a 16" Round machine. Those of sizes 25", 30", and 32" are made on 14" machine and of 22", 24", 26" on a 12" machine. A 3/4" diameter machine is capable of producing socks of adult sizes of 9", 9½", 10" and 10½".

In order to make different sizes of socks, hoses, undervests and other hosiery goods, a number of circular machines of various sizes are needed in a factory. This requires a large amount of capital investment which may be beyond the means of a small capitalist. The drawback of the round machine that it produces only one size of garment, has been overcome in the flat knitting machines.

Flat Knitting machines—These machines had been very popular in the beginning, as a single machine could produce articles of various sizes that may be covered by its length. But there is one serious disadvantage—that the output is low and therefore products become costly. Besides this, the knitted fabric of this machine involves the joining of the two ends before the finished product is ready. This pattern, which leaves a seam on one side, is out of fashion and consequently does not command a good market. It was popular in the beginning, but is not common now.

Frame machine—The circular frame machine which is generally used in bigger factories for making bodies of underwears has a construction altogether different from the two types mentioned above. It is suspended from overhead beams.

Rib circular knitting machine—The rib circular machine is used to make the ribbed armpieces which are made separately and then added to the main body. In the case of hand socks machines, rib dials are fitted on the machine which produces a complete sock.

Processes other than knitting—Apart from knitting there are various other processes to be undergone, before the product is finally finished. A modern factory requires more than a score of machines for the various manufacturing process to produce a complete garment. For producing a complete shirt or *banyan* the following machines are essential besides the knitting machine:

- (1) Overlock sewing.
- (2) Chain stitching.
- (3) Button-hole making.
- (4) Rib Top.
- (5) Winding.
- (6) Calendering machines or Irons.
- (7) Wooden Patterns.

The uses of these machines are given below.

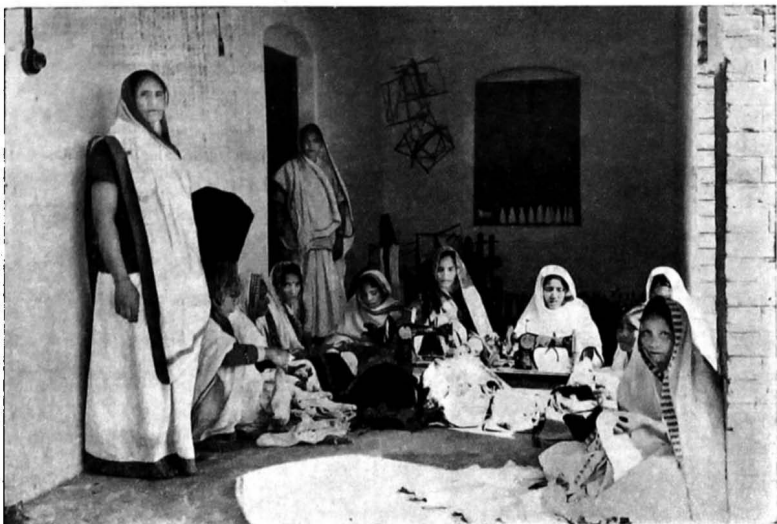
1. **Overlocks**—Elasticity in sewing and stitching is a very important factor. This special sewing machine imparts elasticity in sewing, which is not obtained on an ordinary sewing machine. Cottage workers, however, use only ordinary sewing machines as they are unable to purchase special machines. This is why the quality of their goods is not superior. There are many patterns of overlock machines. The one that makes seams closer and less visible, is considered as good.

2. **Chain stitching**—These are required for fixing chains on garments. This work could be done by other ordinary sewing machines but their services are required where the stitch elasticity is of vital importance.

Small concerns seldom produce goods of this description and consequently they do not require it. They are, however, required by bigger concerns.

3. **Button-hole making machine**—As the name suggests these machines make different types and sizes of button-holes. They are required in concerns which manufacture sport shirts, waists and other such garments where buttons are needed.

4. **Winding machine**—Winding can be done by hand as well as by power. If the former method has to be adopted a small wooden appliance like the *charkha* is all that is required. If the latter method is adhered to, a regular machine is required. There are various patterns of these machines but the vertical bobbin machines are very common. The power-driven machines are essential only in a large



AI

Muffer Fringing, Cutting and Sewing.

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A

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Hand Winding



IA

Calendering Machine—with Power Winding Machine in the background. (Made by the Dayal Bagh Engineering Works)

To face page 23.

factory. Bobbins wound by these machines are uniformly filled up, so that the yarn can be drawn off without friction. Besides, the machines can do more work in a given time than hand-driven ones.

5. **Calendering machine**—This machine too is needed in big factories. It gives a continuous pressing to the knitted cloth. The calendering operation is done only on cotton and mixed fabrics. Woolen articles are not generally calendered.

6. **Wooden Patterns**—These are required for shaping the articles. The finished article is fixed upon a wooden pattern on which it is ironed to give the article a finished shape. Various types and sizes of such patterns will have to be maintained by a producer.

Besides those described above there are certain other auxiliary machines and tools such as bleaching, trimming tools, etc. They are, however, not of great importance for small manufacturers.

Harrison knitting machines—These were of English make and became very popular during the boom period of the industry. For some time their demand had so much gone up that a certain firm at Lucknow had taken the sole agency for the province. With the coming in of the depression the demand slackened. Subsequently some other and cheaper brands and makes of similar machines from Japan and Germany were imported and practically ousted the Harrison machines. Mr. H. G. Misra of Cawnpore is the sole selling agent of hosiery machines of some English and American makes. He gives a free demonstration of the handling and working of the machines purchased through him.

Indian machines—It is gratifying to note that besides foreign machines, some Indian machines too are in use. It was only recently that these machines began to be produced in India. The Dayalbagh Engineering section have recently produced some hosiery machines such as round knitting machines, socks machines, calendering machines, etc. They are making attempts to produce other machines also. It is claimed that their machines are in no way inferior to other machines in the market, though their prices are cheaper. Besides the Dayalbagh, there are two other manufacturers in the province worth mentioning. Both of them have their workshops in Saharanpur. One of them Mistri Nazir Muhammad has his workshop in the city proper. The other is in Behat, a town about 20 miles from Saharanpur. They have been manufacturing hosiery machines for quite a long time and earned a name. Their machines are used not only within the province but also outside. Very recently a hosiery machine manufacturer from Ludhiana has come to Meerut and settled there. He gets cylinders from Ludhiana and prepares other parts to which the cylinder is fitted. All these machine makers undertake repair work as well.

At most of the centres of production there do not exist proper repairing facilities, nor are any spare parts available there. The result is that if a part is broken, the owner has to rush either to Saharanpur or better to Ludhiana where accessories and spare parts can always be

had. Thus if there is some trouble with the machine, the work has often to be stopped for days together. Even the spare needles have to be obtained from Ludhiana. This is a great drawback which has to be removed. The proposed co-operative stores for raw material at the manufacturing centres should also stock in small quantities other accessories of the machines.

The total number of machines existing in the province is about 947 out of which 170 are circular machines for *banyans*, sweaters, etc. and 737 or about 77·8 per cent. are socks machines and only 40 or less than 5 per cent. flat machines. The largest number of the machines are at Saharanpur. The largest number of circular machines for *banyans*, etc. are at Cawnpore. Of the total number of machines, the number of those worked by hand is far greater than those worked by power. A detailed statement of machines at different centres is given in Appendix IV.

Process of manufacture—In its most elementary form the knitted texture is composed of a series of loops. These are made from a single thread running continuously through the fabric. The loops are hung in rows. A particular stitch is dependent for its support on the neighbouring stitches around it: This inter-dependence of loops gives the fabric elasticity and stretch.

Besides knitting there are over forty different processes to be undergone before the raw material is turned into finished goods. Only the most necessary and important ones are described here. These are :

- (1) Winding.
- (2) Knitting.
- (3) Cutting and sewing.
- (4) Finishing which includes putting the finished goods into suitable wooden frames so that they may be shaped.
- (5) Stamping and sizing.
- (6) Packing.

If coloured goods are to be manufactured the process of dyeing usually precedes the winding of yarn.

Manufacture of shirts, undershirts, sweaters—It has already been explained that a knitting machine alone can not produce finished hosiery goods. It can produce parts which are afterwards cut and made into required shapes. The processes enumerated above are those that are very elementary and essential. In larger manufacturing concerns knitted goods are treated to other processes as well before passing them on to the Tailoring Department for producing undershirts, etc. These processes are scoring, milling or fulling, brushing, pressing and calendering, mordanting, dyeing, unshrinking and singeing, etc. All these processes are meant for giving the articles a more attractive, smart and charming appearance. As the appearance of the articles often decides the choice of the consumers, these processes are very important. These operations mainly depend upon the class of yarn, quality of garment and the type of fabric. In the case of rough

materials it does not pay to give much attention to all these factors. Some processes are suitable only for woollen and others only for cotton and mixed goods.

In the case of cotton *banyans* no processes between knitting, cutting and sewing are needed. Calendering is of course an important process but that too is done only in large-scale concerns. The small factories are contented with the work of pressing by means of an ordinary iron.

Making of socks and stockings—This is the easiest of all garments and do not require many operations.

Different processes—A brief account of the different processes by both the means is given below :

The processes mentioned above in items nos. 1 to 3 can be done either by means of elaborate power-driven machines or else by simple hand-driven machines and tools. Power-driven machines are costly and require more capital and recurring investment. The hand-driven machines are simple and require lesser amount of capital investment. Their producing capacity is also low.

1. **Winding**—The knitting machines are fed by yarns wound on bobbins or cones. Winding is the key of knitting. The value of good winding should never be under-estimated by a hosiery manufacturer. It is not possible to obtain good knitting without good winding. Bad winding may cause loss of time, damage to machine and defects in the finished goods. Hence due attention should be paid to it.

Yarn as purchased from the market may be in the form of hanks or spools. In any case it will have to be wound on the bobbins or cones before use.

To perform this operation several types of machines are in use which can be run by power. For hand winding ordinary wooden *charkha* like appliance as mentioned before is sufficient.

In power winding machines the bobbins are placed on vertical spindles each of which carries a disc at its lower end. This disc is driven by a wheel. The yarn traverses up and down the bobbin uniformly. Then the bobbin whose base is conical is filled up from the bottom to the top. The yarn can thereby be easily drawn off without any friction.

2. **Knitting**—The nature of the knitted fabric has been described in the very beginning under processes of manufacture. It has already been said that generally one knitting machine can produce one type of article. Machines for socks are different in size from *banyan* and shirt-knitting machines. Then again, there are different types of knitting machines, i.e. circular, circular frame, flat, etc. These machines could be worked by hand and power both. Of these the circular knitting machine is very common. This, when drawn by power, automatically draws the yarn from bobbins and knits a tubular fabric which is meant for the body. Sweaters and woollen *banyans* may be produced by the same machine by changing coloured yarns for the ordinary white ones. If ribbed sleeves are to be attached they are made on rib top machine separately and then attached to it. In the case of socks and stockings, automatic circular socks machines are worked by power. Only one size of socks

can be produced on one machine. This machine produces a complete sock except the rib. This has to be made on rib top machine and transferred to sock machine. One rib top can feed about 4 socks machines.

Hand knitting is very common for socks and stockings. In order to produce *banyans*, sweaters, etc., the principle of working with these machines is the same except that they are not automatic.

Undoubtedly the producing capacity of the power machine is much more than that of the hand machine. A power-driven socks machine can turn out about 5 dozen pairs of complete socks in a day of 8 hours whilst a hand machine will hardly produce about 8 to 10 pairs.

The output is very much affected by the quantity of yarn that is used and the manner the yarn on the bobbin has been wound.

3. **Cutting and sewing**—Without entering into the details of the intermediate processes between knitting and cutting we pass on to cutting and sewing. Cutting is essential only in the case of *banyans*, sweaters, undershirts, etc. This is done by tailors. In the case of socks and stockings produced by small manufacturers the work of sewing is done by the ladies who are paid piece wages.

4. **Finishing, making and packing**—Then these articles are put on wooden frames meant for the purpose of giving them shape and finally ironed. Sizes and stamps are marked when they are put in cardboard boxes. The last two processes are not done by petty producers as they cannot afford to do this.



VIA

Finishing Process

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CHAPTER VI

CLASSIFICATION, OUTTURN AND COST OF PRODUCTION

There is not a single type of garment which cannot be knitted. A classification of knitted articles has been made on the following lines.

- (1) Footwear—Socks, hoses and stockings.
- (2) Underwear—*Banyans, ganzees*, etc.
- (3) Outerwear—Sweaters, jerseys, pullovers, vests, etc.

This classification is by no means an exclusive one, as there are certain articles like ties, *topas*, mufflers, etc. which do not come within it. Their production is however, very little. Hosiery goods vary in sizes and are produced out of different fibres.

Footwear—Sizes of stockings vary widely as they are meant for ladies, children or gents. As a general rule children's stockings are $2\frac{1}{2}$ to $3\frac{1}{2}$ inches in diameter, those of ladies $3\frac{1}{2}$ to 4 inches and gentlemen's 4 to $4\frac{1}{2}$ inches. The length of the stockings varies according as they are to reach half of the leg, three-fourths of the leg or above the knees.

In the case of outer- and underwears there are not many sizes. Diameter and length vary according to size. 28" to 40" sizes which indicate the measurement of chest are generally meant for gentlemen. Sizes below these are for ladies and children.

Different sizes require different amounts of raw material per dozen of articles made. Again, the rougher the yarn the more the quantity of yarn required per dozen of goods. In other words yarn of low count produces a less number of articles per lb. than with finer yarn.

With the yarn of an average quality the following quantities will be required for one dozen articles.

				Cotton and mercerised	Wool
				lb.	lb.
(1) Footwear	..	..	..	1	3
(2) Underwear	..	..	..	3	—
(3) Outerwear	..	..	..	3	8

Taking the working day of 8 to 9 hours it is estimated that the following machines will consume average type of cotton yarn in quantities noted against each :

		Circular knitting	Round sock	Flat
		lb.	lb.	lb.
Power-driven	..	40	5	—
Hand-driven	..	10	1	$1\frac{1}{2}$

Thus the capacity of a machine worked with power is about 4 times that of the machine worked by hand. While a power-driven machine

will turn out about 15 dozens of *banyans* or outer-wears and about 6 dozens of socks, a flat machine which is generally worked by hand is capable of using up about $1\frac{1}{2}$ lb. of rough cotton or wool producing about 9 outerwears in 4 days.

It is also quite clear that in the case of power machines one operator can look to two, three or even a more number of machines. Machines are always labour-saving devices and more so the power machines. Thus the power machines have two great advantages over the hand machines. They produce more within the same time and save labour. On the other hand the hand machines have the advantage of being cheaper so as to be within the reach of small capitalists and give employment to a larger number of persons for an equal quantity of production.

Comparative costs for socks, etc., on hand and power-driven machines—Below is given the comparative cost of production of 1 dozen socks on power and hand-driven machines :

	Charges on hand machines		Charges on Power machine	
	Rs.	a. p.	Rs.	a. p.
1. Raw material—1 lb. at Rs.4 per bundle ..	0	6 6	0	6 6
2. Fuel and power ditto ..	..		0	1 0
3. Interest	0	0 6	0	1 6
4. Depreciation	0	0 6	0	1 6
5. Wages (knitting)	0	8 0	0	1 6
6. Rent	0	1 0	0	1 0
7. Winding	0	0 6	0	0 6
8. Sewing	0	1 0	0	1 0
9. Finishing	0	1 0	0	1 0
10. Sundries	0	1 0	0	1 0
.. .. . Total ..	1	4 0	1	0 6

It will be observed that the cost in the case of hand-operated machines is more by about 4 annas per dozen mainly on account of higher labour charge. Though in the case of power machine an extra expenditure of about 3 annas per dozen is incurred on account of power, interest, and depreciation charges still the cost per dozen is lower by about 4 annas a dozen on account of very low labour charges. The daily production of a plant equipped with three knitting machines and all accessories, as mentioned in Chapter IV with a capital investment of Rs.9,415, will be as below :

Cost of manufacturing under and outerwears on power-driven machines—Each machine consumes about 40 lb. of yarn and at 4 *banyans* per pound the number will be $13\frac{1}{2}$ dozen per machine. The production of three machines will therefore be 40 dozens a day. The cost will be as below :

	Rs. a. p.
(1) Raw material 120 lb. at Rs.4 per 10 lb.	48 0 0
(2) Fuel and power, 8 units of electric power at 3 annas per unit	1 8 0
(3) Interest on Rs.9,415 for 1 day at 8 per cent.	2 2 0
(4) Depreciation at 10 per cent. per annum for 1 day	2 10 0 (approx- imately).
(5) Wages	2 0 0 (approx- imately).
(6) Rent at Rs.30 per mensem	1 0 0
(7) Miscellaneous :	
(1) Winding at Re.0-6 per 10 lb.	4 8 0
(2) Sewing and cutting at Rs.0-3 a dozen	7 8 0
(3) Calendering at Re.0-1 per lb. of cloth	7 8 0
(4) Finishing at Re.0-1-6 a dozen	3 12 0
(8) Sundries	2 8 0
Total	<u>83 0 0</u>

Cost of manufacturing under and outerwears on hand-driven machines—The total cost incurred comes to Rs.83 which will produce about 40 dozen *banyans* of sizes ranging between 24 and 36 inches. The cost per dozen comes to about Rs.2-1. The cost incurred on producing *banyans* on hand machines in the course of a day will be as under. One machine can consume about 10 lb. of yarn which will give about 40 *banyans* or $3\frac{1}{2}$ dozens. The cost for this will be as below :

	Rs. a. p.
(1) Raw material	4 0 0
(2) Fuel and power .. ..	..
(3) Interest	0 3 0
(4) Depreciation	0 4 0
(5) Wages	0 10 0
(6) Rent	0 4 0
(7) Miscellaneous—	
(a) Winding at Re.0-6 per 10 lb.	0 6 0
(b) Sewing and cutting at Re.0-3 a dozen.	0 10 0
(c) Calendering at Re.0-1 per lb.	0 10 0
(d) Finishing at Re.0-1-6 a dozen	0 5 0
(8) Sundries	0 11 0
Total	<u>7 15 0</u>

The cost per dozen of *banyans* is thus about Rs.2-6 as against Rs.2-1 on power machine. The interest and depreciation charges have been calculated on a lesser amount of capital outlay as the machine will be cheaper and a number of other appliances are not required. The capital outlay for one machine, frames, overlocks and iron has been taken at Rs.800. Thus in this case too there is a difference of 5 annas per dozen in the cost of production by the hand-worked and power-worked machines. If the cost were to be calculated from the point of view of large-scale factories there will be a much greater difference in the comparative costs of production.

Cost of woollen mercerised socks and stockings—The above calculations refer only to cotton fabrics. The costs of woollen and mercerised goods will be more as woollen yarn is costlier. Thus in the case of 1 dozen socks there would be a consumption of 2 lb. of wool and about $\frac{3}{4}$ lb. of mercerised yarn. The price of 2 lb. of wool will be about Rs.5 and that of $\frac{3}{4}$ lb. mercerised yarn about Re.1-2. Thus the cost of woollen socks would be about Rs.5-14 per dozen on hand machine and about Rs.5-10 per dozen on power machines. The cost of mercerised socks would be about Rs.2-4 a dozen on hand machines and about Re.1-12 a dozen on power machine. The costs in the case of mercerised goods have been increased more than proportionate to the price of raw material in the case of the products of hand machines as the wages for mercerised goods are about 12 annas a dozen.

Woollen outwears—In the case of sweaters, pullovers, etc., made of wool yarn a plant with machines worked by power would consume about 120 lb. of wool yarn and produce about 15 dozens of articles, i.e. at the rate of about 1 dozen to 8 lb. The cost of raw materials will be about Rs.300. Interest on capital, depreciation, wages, and rent, etc. will remain the same, i.e. Rs.2-2, Rs.2-10, Rs.2, Re.1, respectively. The cost of fuel will be about Re.1-7. The total will, therefore, be Rs.9-3. The charges on winding will also be the same, i.e. about Rs.4-8. There will be some difference in sewing, cutting and finishing charges which will be as below :

		Rs. a. p.
Sewing and cutting at Re.0-8 a dozen ..	..	7 8 0
Finishing at Re.0-3 a dozen ..	..	2 13 0

Total ..		10 5 0

Calendering in the case of woollen goods is not required. But instead of this there are other operations as brushing and shrinking which are necessary for them and this will cost almost about 12 annas. Sundries remain at the same figure, i.e. Rs.2-8. Thus at a total cost of about Rs.327-4, 15 dozen sweater, pullovers and slipovers will be made. The cost per dozen comes to about Rs.21-13.

In the case of a hand-knitting machine a little more than 8 lb., say $8\frac{1}{2}$ lb., of wool is required to produce about a dozen of sweaters and pullovers, etc. The other costs remain the same except that of the raw material which goes up by about 14 annas. The cost price of a dozen of woollen outwears is therefore about Rs.22-11.

These costs have been calculated for white plain articles only. In the case of coloured goods, dyeing charges at the rate of 2 annas per pound of yarn for fugitive colours and Re.1-4 a lb. for fast colours will have to be included.

The costs of the above articles are summed up as below :

Cost per dozen of articles

Name of articles	Cotton		Wool		Mercerised	
	Hand machine	Power machine	Hand machine	Power machine	Hand machine	Power machine
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Footwear ..	1 4 0	1 0 6	5 14 0	5 10 0	2 0 0	1 12 0
Underwear ..	2 6 0	2 1 0	..	..	..	..
Outerwear ..	..	..	22 14 0	21 13 0	..	..

The price of articles varies with the quality of yarn and the size. The wholesale average prices of goods of average quality and size are given below:

	Cotton	Wool	Mercerised
	Per dozen	Per dozen	Per dozen
	Rs. a. p.	Rs. a. p.	Rs. a. p.
Footwear	1 12 0	9 0 0	3 0 0
Underwear (<i>banyans</i>)	2 8 0	..	..
Outerwear (<i>sweaters, etc.</i>)	2 8 0	25 0 0	..

The table placed below gives an idea of the profits on different articles that accrue to the manufacturers on hand- and powermachines.

Profits to the producers of socks and stockings working on—

	Hand machines	Power driven machines
	Per dozen	Per dozen
	Rs. a. p.	Rs. a. p.
Cotton	0 8 0	0 11 6
Woollen	3 2 0	3 6 0
Mercerised and art silk, etc.	1 0 0	1 4 0

Profits to the producers of under- and outerwears working on—

					Hand machines	Power driven machines
					Per dozen	Per dozen
					Rs. a. p.	Rs. a. p.
Cotton	..	..	..	..	2 0 0	0 7 0
Woollen	..	..	..	..	2 5 0	3 3 0

The table placed below shows the percentages of profits on goods of various kinds produced on hand and power machines.

					Socks and stockings		Under- and outerwears		
					Cotton	Wool	Mercerised	Cotton	Wool
					Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Hand machines	..	..	..	..	40	53·1	50	5·2	10·2
Power machines	..	..	..	..	69·7	60	71·4	21·6	14·6

It will be observed from the table above that the percentage of profits is usually higher on woollen goods than on goods from other fibres and that there is a marked difference in the percentages of profits on goods prepared on hand and power machines. The percentage of profits on similar articles made on power-driven machines being always larger than on the articles made on hand-driven machines. The lower cost of production to the manufacturer from power machines accounts for this.

On a rough estimate the total annual outturn in the province is 192,150 dozen pairs of socks and stockings and 469,200 dozens of under- and outerwears.

A detailed statement giving estimates of total production of socks and stockings and under- and outerwears at different centres of production is given in Appendix V.

CHAPTER VII

EXPORTS, IMPORTS AND MARKETING

Chief distributing centres—The chief exporting and distributing centre is Cawnpore which is the main centre of the textile industry in Northern India. Besides distributing materials to provincial markets it exports a good deal to the Punjab, Delhi and Calcutta.

It imports hosiery goods from almost all the big producing centres of the province as well as from other provinces. Foreign goods are also imported to a great extent for being distributed within the province. Next in importance are Lucknow, Benares and Agra.

The province imports hosiery goods to a very large extent. Besides the Japanese goods we get our supplies from the Punjab also specially from Ludhiana, Bengal, Madras, and Karachi. It is worth noticing that some of the neighbouring states, taking advantage of cheap labour there, have started hosiery manufacture and are dumping their goods in our markets. Some protection has been given to the industry by means of customs duty but it is difficult to solve the question of competition with the native states as well as with other provinces. Octroi and toll taxes may give some relief.

Exports and imports—Though the province produces about 4.7 lakhs dozens of under- and outerwears and 1.92 lakhs dozens of socks and hoses, etc. still we need a lot more and there is thus a good scope for expansion and development of knitting industry as is evident from the following statement of exports and imports of hosiery goods in India and in the province :

	Cotton (in lb.)	Wool (in lb.)	Silk and art silk (in lb.)
1935-36	2,538,875	609,444	229,627
1936-37	2,157,498	466,135	169,113
1937-38	1,569,222	376,562	423,332

The above figures in the case of silk and art silk goods are for socks, and stockings only, and those for cotton goods include socks, stockings, underwears and knitted fabric leaving out certain other goods the value of which in different years was as below :

	Rs.
1935-36	18,38,571
1936-37	6,48,801
1937-38	5,55,554

The value of total imports for the last three years has been :

1935-36	1936-37	1937-38
Lakhs 72.8	Lakhs 51.3	Lakhs 52.3

A detailed statement of the total imports of hosiery goods in India along with its value is given in Appendix VIII.

It is not possible to give an accurate figure for the imports of hosiery goods in the United Provinces. There is, however, an estimated import of Rs.5½ to 6 lakhs per year in our province. This includes the import of foreign goods as well as goods from other provinces.

All big towns and specially the cities of Cawnpore, Lucknow, Agra Benares, Bareilly, Meerut and Saharanpur are good markets for hosiery goods. The cottage industry has been struggling hard for its existence for some time past. The proportion of cottage industry products available in the market is comparatively very small. Whatever small quantities are seen in the market are mostly cotton goods. The following table gives the rough estimates of percentage of the total supply for different sources :

	Cottage supply	Indian mill supply	Foreign supply
	per cent.	per cent.	per cent.
Cotton hosiery goods	10	75	15
Wool hosiery goods	5	50	45
Silk hosiery goods .. .. .	..	30	70
Mercerised hosiery goods	8	52	40
Art silk hosiery goods	5	20	75

The production of silk goods on cottage lines is negligible.

The main competitor of the cottage products are the Indian mills and the foreign supplies. In regard to cotton goods Indian mills are the main competitors. In regard to woollen goods the Indian mills and the foreign goods compete on an equal footing. In silk and art silk goods, foreign supplies hold the monopoly.

Among the Indian manufacturers, Ludhiana is the chief competitor both in mill and cottage products. Foreign supplies are mostly from Japan. Next to Japan, England and the U. S. A. are the important suppliers of hosiery goods.

The methods of marketing of cottage produce are many. It has already been mentioned that a producer who possesses only one or two machines and works himself on it, without engaging any hired labour, has a very limited market, almost confined to his own town. He sells most of his produce to local dealers. Some of his goods are also sold at his own workshop. Often he himself goes out hawking. The cottage producers who manufacture on a somewhat larger scale, sell their goods through wholesale merchants or big retail dealers who are found in

almost all hosiery centres. They are often dealers of yarn as well, they finance the manufacturers, and thereby have much control over them. The manufacturers are almost entirely dependent upon them for the sale of their finished products. At times when the demand is great they place orders in advance with the manufacturers. The middlemen dealers reap huge profits and are like parasites. In spite of all this, their existence is very necessary as in the absence of any other suitable arrangement for finance and marketing it is through their agency that the stocks of the cottage workers are cleared off. But often the price paid for these services are very high and reduces the profits of the manufacturer considerably. The middlemen act as a distributing agency, and export goods to other consuming centres within and outside the province. They send their agents with samples to other places or else the *beoparies* themselves come to them to purchase hosiery goods. It is through these retailers that the goods finally reach the consumers. Through the following chain the hosiery goods pass to consumers :

I	II
Small manufacturer.	Big manufacturer.
Yarn dealers or middlemen.	Wholesale stockists.
Hawkers or petty shop-keepers.	Retailers.
Consumers.	Consumers.

Some of these middlemen purchase unmarked goods from producers, put in their own stamp and sell the same. Some purchase the underwear cloth, get it cut, sewed and finished by their own men and put in their stamp. The usual rates at which such goods are purchased and sold by the middlemen are given below :

At Meerut and Saharanpur the common practice with the middlemen is to purchase knitted cloth by paying knitting wages at the rate of Re.1 per bundle of 10 lb. of yarn consumed. He then pays Re.1-9 for cutting, etc. Taking the price of 10 lb. of yarn at Rs.4 the dealer invests Rs.6-9 and gets $3\frac{1}{2}$ dozens of *banyans*. Selling these at Rs.2-8 a dozen he gets Rs.8-5-3 thereby making a profit of Re.1-12-3 or about 30 per cent. on capital. A statement of purchase price, sale price, and profits is given below :

No.	Articles	Purchase price per dozen	Sale price per dozen	Profit per dozen of middlemen	Percentage of profits to middlemen
1	Cotton ;				
	Underwears—18, 20, 22 sizes	Rs. a. p.	Rs. a. p.	Rs. a. p.	Per cent.
	" 24, 26, 28	1 8 0	1 12 0	0 4 0	16.6
	" 30, 32, 34	2 0 0	2 6 0	0 6 0	18.7
	" 30, 32, 34	2 8 0	2 14 0	0 6 0	15
2	Outerwears—18, 20, 22	1 8 0	2 0 0	0 8 0	33.3
	" 24, 26, 28	2 4 0	2 12 0	0 8 0	22.2
	" 30, 32, 34	3 0 0	3 8 0	0 8 0	16.5
3	Socks	1 2 0	1 8 0	0 6 0	33.3
4	Hoses	1 8 0	1 14 0	0 6 0	25
5	Underwear cloth-knitted	Re.1 per 10 lb. bundle. The yarn being supplied by the middlemen.			

The profits reaped by the middleman range from 10 per cent. to 33 per cent. It is a pity that due to the absence of financial resources and of organization the actual producer is deprived of these profits.

The middleman has been a source of deterioration of the quality in cottage products as he plays one producer against the other by telling each that a particular type of goods was purchased by him from another producer at a cheaper rate.

The poor worker is asked, rather compelled, to give his goods at a cheaper rate. This price-cutting results in the deterioration of quality. The middleman often himself advises the producer to produce a cheaper quality for ready sale. Instances have been found where they reduce a few threads in the standard size to effect a little economy. The ultimate result had been that consumers have become prejudiced against the purchase of cottage industry products.

At present there is no systematic grading of hosiery goods except some standardising of sizes in various commodities. In this also, there exist the malpractice of over-sizing the finished goods. Even some manufacturers of repute have been found to indulge in these malpractices. The stamps showing numbers are supposed to indicate the size of the commodity but on actual measurement they were found to be much below the marked sizes. This is clear cheating and should be stopped. The average consumer has no facilities to measure the articles while purchasing. He mentions only the size which fits him. There is no way at present to check such malpractices which are injurious not only to consumer but also bring disrepute to the indigenous industry as a whole. Legislative measures should be undertaken to penalise these practices.

Advertisement—Advertising is resorted to only by big factory owners. Advertisement by small manufacturers is very rare as, beside the question of investment of sufficient capital it is a regular science whose value is not fully realised by small capitalists. Bigger concerns issue printed price lists, send samples and display goods in exhibitions. Their agents regularly move in the markets and secure orders.

The cottage workers know nothing of advertisement at all. Even where advertisement is resorted to, it is for individual units. "Every one for himself," is the rule and there is no systematic and connected action. It is clear that small units cannot take to advertising as the charges would be too much for them. Stray advertising at some places and complete negation at others has almost no effect. It is obvious that in these days of enlightenment and cut-throat competition, an industry has to depend much for its existence on continuous and systematic advertisement. It would much improve things if the various manufacturers could join hands in a propaganda for sale. The factory owners have to be taught that they should avoid competition among themselves.

Some system of standardising and marking is necessary to ensure the quality. This can be done by forming a syndicate of manufacturers under the Companies Act.

The factory owners, big and small, besides doing wholesale business do retail business as well. This is a clear proof of the fact that there is not much of wholesale business. The practice has two consequences :

(1) The petty producer's chances of retailing their goods become meagre ;

(2) The local retail merchants are not tempted to stock indigenous products and hence they popularise other foreign brands to the detriment of the local industry.

The sales of indigenous products have been adversely effected during the last decade on account of the following reasons :

(1) Lowering the standard of quality to an extent when it becomes uneconomical to purchase cheap goods.

(2) Malpractices of false marking and stamping which puts the purchaser to a great inconvenience.

(3) Lack of good and attractive designs in finished products.

The small manufacturer if left to himself cannot conveniently take up both producing and marketing at the same time. It has been seen that the producers who have started their own retail shops are better off than those who depend entirely on other dealers. The producers generally do not get cash prices for the goods sold to the retailers. Sometimes it takes them 3 to 4 months or even more to recover their money while they have to pay in cash for the purchase of raw material and the wages of labourers. Often their money is entirely lost if they happen to sell goods to ordinary hawkers who run away with the money. All this puts them to much inconvenience.

Marketing is consequently a great problem. A successful and effective organisation for the marketing of the products of this industry is bound to ameliorate the condition of the producer and to enhance production.

Co-operative marketing societies at the main centres of production is one of the remedies. Besides this, the Handloom Emporium of the United Provinces Government can conveniently stock hosiery goods side by side with handloom products or else a similar organisation exclusively for hosiery goods is advisable. This will result in better sales of cottage products.

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APPENDIX I

Statement showing the Consumption in lb. of different types of yarn in different centres of production during brisk and dull season

Name of centre	Consumption in lb. of yarn in season (September to February)			Consumption in lb. of yarn (off-season)			Total of different yarns			Total for all yarns in lb
	Cotton	Wool	Silk— art, silk— mercerised	Cotton	Wool	Silk— art, silk— mercerised	Cotton	Wool	Mercerised	
1. Cawnpore ..	825,000	100,000	20,000	300,000	15,000	10,000	1,125,000	115,000	30,000	1,270,000
2. Lucknow ..	60,000	2,500	2,000	12,000	500	1,000	72,000	3,000	3,000	78,000
3. Agra ..	48,000	30,000	6,000	10,000	2,500	2,000	58,000	32,500	8,000	98,500
4. Saharanpur ..	56,000	..	2,000	13,000	..	500	69,000	..	2,500	71,500
5. Meerut ..	50,000	..	2,000	12,000	..	500	62,000	..	2,500	64,500
6. Benares ..	32,000	..	1,000	8,000	..	500	40,000	..	1,500	41,500
7. Allahabad ..	26,000	100	1,000	6,000	..	400	32,000	100	1,400	33,500
8. Moradabad ..	12,000	..	500	2,500	..	200	14,500	..	700	15,200
9. Farrukhabad ..	7,800	..	700	2,500	..	200	10,300	..	900	11,200
10. Bara Banki ..	2,000	1,300	850	1,800	..	400	3,800	1,300	1,250	6,350
11. Almora ..	..	6,000	..	..	500	..	..	6,500	..	6,500
12. Naini Tal ..	..	600	..	..	50	..	..	650	..	650
13. Garhwal ..	..	800	..	..	125	..	..	925	..	925
Total ..	1,118,800	141,300	36,050	367,800	18,675	15,700	1,486,000	159,975	51,750	1,698,325

Percentages :

Cotton .. .. .	..	..	..	..	87.6
Wool .. .. .	..	..	..	..	9.0
Silk, etc. .. .	..	..	..	..	3.4

Per cent.

APPENDIX 1.-A

Statement showing the Value of the Raw Material consumed at different centres

	Cotton at Rs.4 per 10 lb.	Wool at Rs.2-8 a lb.	Mercerised art silk, etc. at Rs.0-8 a lb.	Total
	Rs.	Rs.	Rs.	Rs.
1. Cawnpore	4,50,000	2,87,500	45,000	7,97,500
2. Lucknow	28,000	7,500	4,500	41,500
3. Agra	23,200	1,30,750	12,000	1,69,950
4. Saharanpur	27,600	..	3,750	32,600
5. Meerut	24,800	..	3,750	29,800
6. Benares	16,000	..	2,250	19,000
7. Farrukhabad	4,120	..	1,350	5,920
8. Moradabad	5,800	..	1,050	7,200
9. Allahabad	12,800	250	2,100	15,850
10. Bara Banki	1,520	3,250	1,875	7,270
11. Almora .. ..	..	16,250	..	16,250
12. Naini Tal .. ..	..	1,625	..	1,625
13. Garhwal .. ..	..	2,312	..	2,312
Total	5,98,840	4,49,437	77,625	11,20,902

APPENDIX II

Wages and Earning Schedule of Cottage Workers

Name of process	Rough counts of cotton (up to 12s.)			Fine cotton and mercerised				
	Average rate of wages	Capacity (per day) of worker	Earnings of labour	Average rate of wages	Capacity (per day) of worker	Daily earning of worker		
	Rs. a. p.		Rs. a. p.	Rs. a. p.		Rs. a. p.		
I. Winding	0 4 0	per bundle of 10 lb.	6 lb. a day	0 2 5	0 6 0	bundle of 10 lb.	4 lb. ..	0 2 5
II. Knitting :								
(a) Socks, etc.	0 6 0	per dozen	1 dozen ..	0 6 0	0 10 0	per dozen	3/4 dozen ..	0 7 6
(b) Banyans	0 1 0	per lb. of cloth.	10 lb. ..	0 10 0	0 1 6	per lb. of cloth.	7 lb. ..	0 10 6
III. Sewing and cuttings :								
(a) Socks	0 0 9	a dozen	3 dozen ..	0 2 3	0 1 0	per dozen	3 dozen ..	0 3 0
(b) Banyans	0 2 6	..	2	0 5 0	0 3 0	" "	2	0 6 0
IV. Finishing :								
(a) Socks, etc.	0 0 9	per dozen	4	0 3 0	0 1 0	per dozen	4	0 4 0
(b) Banyans	0 1 0	..	3	0 3 0	0 1 6	" "	3	0 4 6

APPENDIX III

Comparative Rates of Wages in 1923 and 1939

Number of needles in the cylinder	Diameter	Wages in 1923	Wages in 1939	Net reduction in wages per dozen
		Per dozen Rs. a. p.	Per dozen Rs. a. p.	Rs. a. p.
72	2½"	0 10 0	0 3 6	0 6 6
88	2½"	0 11 0	0 4 6	0 6 6
96	3"	0 13 0	0 5 0	0 8 0
108	3"	0 15 0	0 6 0	0 9 0
120	3"	1 0 0	0 8 0	0 8 0
132	3"	1 1 0	0 10 0	0 7 0
144	3"	1 2 0	0 12 0	0 6 0
176	3"	1 6 0	1 0 0	0 6 0

APPENDIX IV

Statement showing the Number of different types of Machines at various Centres of Production

Name of centre	Circular knitting machines	Round socks machines	Flat machines	Total
Saharanpur	30	200	..	230
Meerut	25	160	..	185
Agra	25	70	10	105
Farrukhabad .. ..	..	55	..	55
Lucknow	10	70	20	108
Allahabad	5	20	2	27
Benares	10	25	2	37
Cawnpore	60	75	4	139
Bara Banki .. ..	..	25	..	25
Almora	2	20	2	24
Naini Tal .. ..	..	3	..	3
Garhwal .. ..	..	6	..	6
Moradabad	3	8	..	11
Total	170	737	40	947

APPENDIX V

Statement Showing Annual Outturn of Socks, Stockings, under- and outer wear

	Socks and hoses, etc.	Under- and outer- wear
Saharanpur	35,500 dozens	12,000 dozens
Meerut	30,000 "	11,000 "
Agra	10,500 "	375,000 "
Cawnpore	75,000 "	37,000 "
Lucknow	15,000 "	20,000 "
Bara Banki	4,800 "	10,000 "
Allahabad	3,100 "	10,000 "
Benares	4,000 "	12,500 "
Moradabad	1,500 "	4,500 "
Farrukhabad	10,500 "	..
Almor.. .. .	1,500 "	200
Garhwal	450 "	..
Naini Tal	300 "	..
Total	192,150	469,200 dozens

APPENDIX VI

Statement showing value of the different articles of hosiery goods manufactured out of different yarns at various centres of production

Name of centres	Kind of yarn used	Socks and stockings		Under and outerwears		Other goods			
		Quantity produced	Value	Quantity	Value	Cotton at 8 annas a lb.	Mercerised Re.1 lb.	Wool at Rs. 3 a lb.	Value
Cawnpore ..		Dozens	Rs.	Dozens	Rs.				
	Cotton	40,000	70,000	3,62,000	9,05,000	..	1,000	..	..
	Mercerised	25,500	76,500	3,000	24,000	..	500	..	..
	Wool	9,500	85,500	10,000	2,50,000	..	1,62,500	..	..
	Total ..	75,000	2,32,000	3,75,000	11,79,000	..	17,750	..	..
Agra	Cotton	7,000	12,250	17,000	42,500	..	..	..	..
	Mercerised	2,000	6,000	2,000	16,000	..	..	..	..
	Wool	1,500	13,500	4,500	1,12,500	..	3,000	..	..
	Total ..	10,500	31,750	23,500	1,71,000	..	3,000	..	..
Lucknow.. ..	Cotton	10,600	18,500	19,800	49,500	..	..	..	..
	Mercerised	4,000	12,000	..	..	..	..	..	..
	Wool	400	4,500	200	5,000	..	600	..	..
	Total ..	15,000	35,000	20,000	54,500	..	600	..	..

Name of centres	Kind of yarn used	Socks and stockings		Under- and outerwears		Other goods			
		Quantity produced	Value	Quantity	Value	Cotton at 8 annas a lb.	Mercerised at Re.1 a lb.	Wool at Rs. 3 a lb.	Value
		Dozens	Rs.	Dozens	Rs.				
Benares	Cotton	2,000	3,500	12,500	31,250	..	..	..	..
	Mercerised	2,000	6,000	..	..	..	..	..	..
	Wool .. ..	..	..	..	..	..	..	..	..
	Total	4,000	9,500	12,500	31,250	..	..	..	..
Saharanpur	Cotton	32,200	56,350	12,000	30,000	..	..	..	..
	Mercerised	3,300	9,900	..	..	..	..	..	..
	Wool .. ..	..	..	..	..	..	..	..	..
	Total	35,500	66,250	12,000	30,000	..	..	..	..
Meerut	Cotton	26,700	40,725	11,500	28,750	..	..	..	..
	Mercerised	3,300	9,900	..	..	..	..	..	..
	Wool .. ..	..	..	..	..	..	..	..	..
	Total	30,000	50,625	11,500	28,750	..	..	..	..

Allahabad	..	Cotton	1,270	2,222	10,000	25,000	..	..	..	..
		Mercerised	1,800	5,400	..	..	..	..	..	..
		Wool	80	270	..	..	..	..	..	..
		Total	3,100	7,892	10,000	25,000	..	..	..	..
Moradabad	..	Cotton	700	1,222	4,500	11,250	..	..	..	..
		Mercerised	800	2,400	..	..	..	..	..	..
		Wool .. ..	..	..	..	..	..	..	..	..
		Total	1,500	3,622	4,500	11,250	..	..	..	..
Bara Banki	..	Cotton	2,850	4,987	..	..	..	..	..	..
		Mercerised	1,500	4,500	..	..	..	..	..	..
		Wool	450	4,050	..	..	..	..	..	..
		Total	4,800	13,537	..	..	..	..	..	..
Farrukhabad	..	Cotton	9,600	16,800	..	..	..	700	..	..
		Mercerised	900	2,700	..	..	..	..	..	..
		Wool .. ..	..	..	..	..	..	..	..	..
		Total	10,500	19,500	..	..	..	700	..	..

Name of centres	Kind of yarn used	Socks and stockings		Under- and outerwears		Other goods			
		Quantity produced Dozens	Value	Quantity Dozens	Value	Cotton at 8 annas a lb.	Mercerised at Re.1 a lb.	Wool at Rs.8 a lb.	Value
			Rs.		Rs.		Rs.		
Almora	Wool	1,500	18,500	200	5,000	..	400	..	..
	Total	1,500	18,500	200	4,000	..	400	..	..
Naini Tal	Wool	300	2,700	..	..	..	..	..	..
	Total	300	2,700	..	..	..	..	..	..
Garhwal	Wool	450	4,050	..	..	..	..	..	..
	Total	450	4,050	..	..	..	..	..	..

APPENDIX VII

Statement showing the Total Value of the Hosiery Goods produced at different Centres

	Rs.
Cawnpore	14,28,750
Agra	2,05,750
Benares	31,250
Saharanpur	96,250
Meerut	65,375
Allahabad	32,892
Moradabad	14,872
Farrukhabad	19,500
Lucknow	90,100
Bara Banki	13,537
Almora	18,500
Garhwal	4,050
Naini Tal	2,700
Total	20,43,526

APPENDIX VIII

Statement showing Imports of Hosiery goods in India

	Cotton in lb.			Wool in lb.		Silk in lb.	Art silk in lb.
	In the piece (knitted fabric)	Socks and stockings	Under-wears	Knitted apparel	Other sorts	Socks and stockings	Socks and stockings
1935-36 ..	8,775	548,128	1,981,972	435,504	173,940	7,782	221,845
1936-37 ..	13,708	416,339	1,727,451	356,256	109,879	9,460	159,653
1937-38 ..	40,150	637,125	891,947	259,666	116,896	8,599	414,733

Import of cotton socks and stockings in dozen pairs—1935-36—708,606 dozen pairs.
 1936-37—581,306 "
 1937-38—933,576 "
 Import of cotton underwears in dozens — 1935-36—1,292,457 dozens.
 1936-37—917,324 "
 1937-38—553,330 "

Note—The figures for other silk and Art silk goods are not available.

Cotton goods classified under "Others" is also imported (the figures for the weight, of which are not available) their value is as below :

1935-36—Rs.18,38,571.
 1936-37—Rs.6,48,801.
 1937-38—Rs.5,55,554.

APPENDIX IX

Statement showing the Value of Imports of Hosiery goods

	1935-36	1936-37	1937-38
	Rs.	Rs.	Rs.
Cotton hosiery goods	50,06,876	32,71,171	29,04,442
Silk hosiery goods (socks and stockings) ..	1,02,767	1,07,105	1,24,945
Art silk hosiery goods (socks and stockings) ..	4 23,801	3,06,260	8,12,752
Woollen hosiery goods	17,47,651	14,48,964	13,97,553
Total ..	72,81,095	51,33,499	52,39,661

APPENDIX X

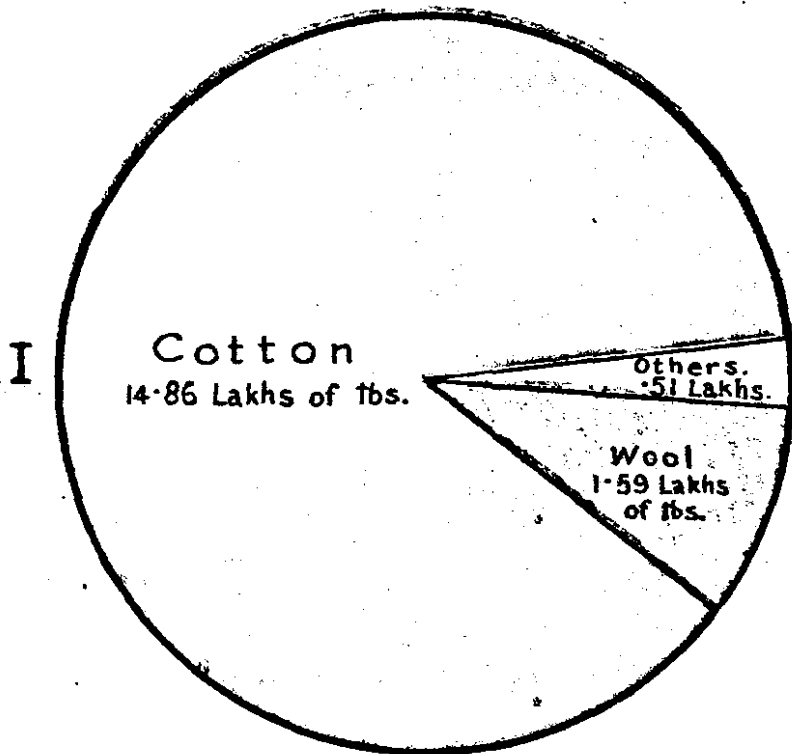
Statement showing the Value of Import of Cotton and Woollen Hosiery goods in India from different Countries

Cotton hosiery	1935-36	1936-37	1937-38
	Rs.	Rs.	Rs.
United Kingdom	1,45,505	1,20,780	1,09,659
Japan	46,11,280	28,90,899	25,08,514
Other countries	2,49,551	2,59,492	2,86,269
Total for Cotton hosiery ..	50,06,876	32,71,171	29,04,442
Woollen Hosiery	1935-36	1936-37	1937-38
United Kingdom	5,80,726	5,27,686	5,69,437
Japan	11,38,576	8,92,056	7,51,243
Other countries	19,349	29,222	76,842
Total for Woollen hosiery ..	17,47,651	14,48,964	13,97,522

Showing quantity of different kinds of yarn consumed.

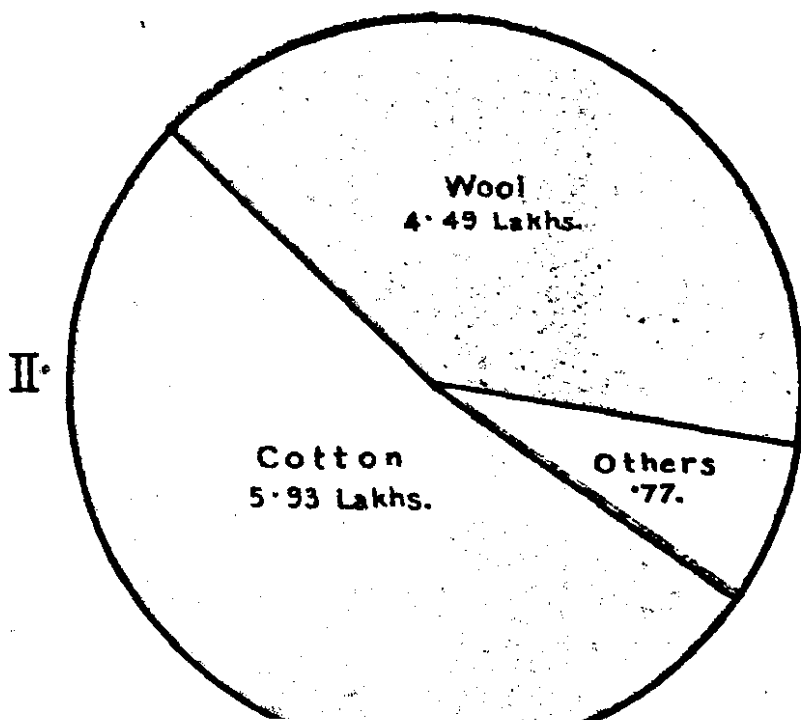
Total consumption of all yarns

16.96 Lakhs of lbs.



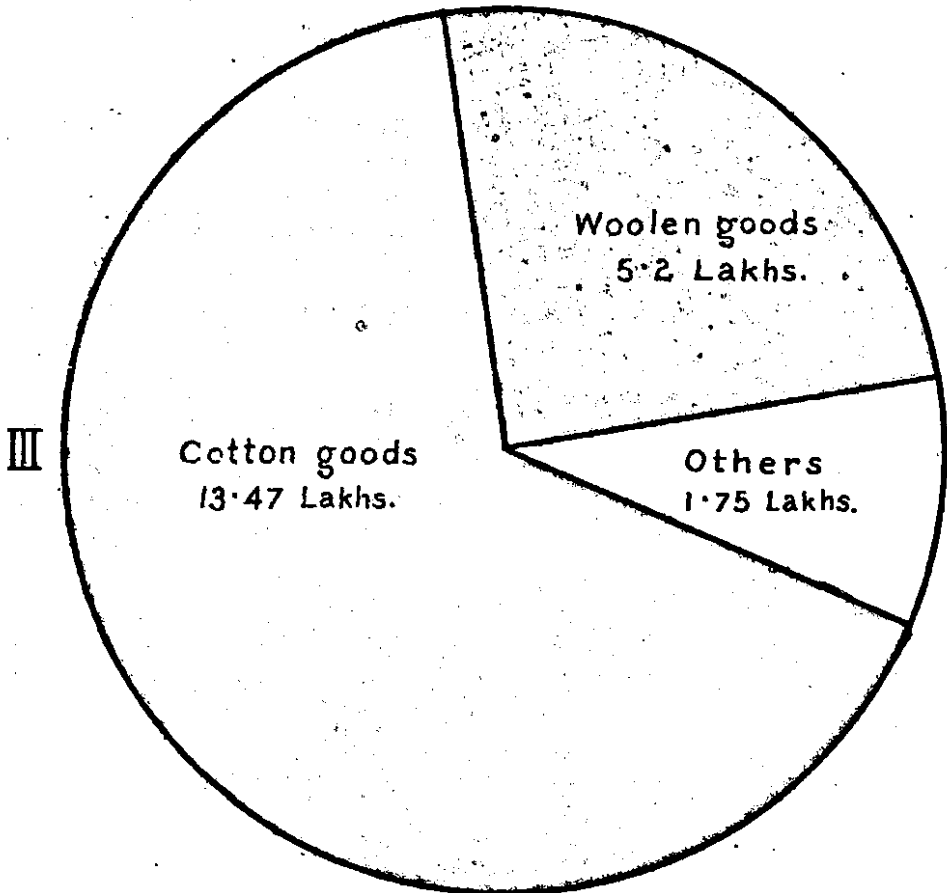
Showing the value of different kinds of yarns consumed.

Total value = Rs. 11.19.



Showing the value of Hosiery goods from different fibres produced in the province.

Total value = 20.42.



DIRECTORY

List of Hosiery Mills working with power

1. Dayalbagh Hosiery Mills, Dayalbagh, Agra.
2. Agra Hosiery Mills, Agra.
3. Kamla Hosiery Mills & Messrs. Juggilal Kamlapat, Cawnpore.
4. Cawnpore Textiles, Cawnpore.
5. Misra Hosiery Factory, Cawnpore.
6. Gauri Hosiery Factory, Rail Bazar, Cawnpore.
7. Kaseera Hosiery Factory, Nachghar, Cawnpore.
- *8. Cawnpore Dyeing, Cawnpore.
9. Pukka Hosiery Factory, Soutergunj, Cawnpore.
10. U. P. Co-operative Knitting & Weaving Society, Ltd., Gotaiya, Cawnpore.
- *11. Cawnpore Woollen Mills (Hosiery Department), Cawnpore.
- *12. Elgin Mills (Hosiery Department), Cawnpore.
- *13. Muir Mills (Hosiery Department), Cawnpore.
- *14. New Victoria Mills, Cawnpore.
- *15. R. G. Cotton Mills Hosiery Section, Talkatora, Lucknow.

*Those marked with asterisk do Hosiery manufacture as a side business.

List of Hosiery Machine Manufacturers and details

1. Dayalbagh Engineering Works, Agra.
2. Nek Mohammad, Behat, district Saharanpur.
3. Nazir Ahmad & Sons, Engineers Bomanji Road, Saharanpur.
4. Ali Bux *alias* Rulia, Sarai Behlin, Meerut.
5. M. G. Misra, Representative of Messrs. Wildt. & Co., Ltd., Leicester, Misra Hosiery, Cawnpore.

List of Hosiery Factories worked by power.

1. Jubilee Hosiery Factory, Misribagh, Allahabad.
2. Benares Hosiery Factory, Chowkhamba, Benares.
3. Paddy Hosiery Factory, Gaighat, Benares.
4. Sheopur Hosiery Factory, Benares.
5. Amroha Hosiery Factory, Amroha.
6. Singh Hosiery Factory, Meerut.
7. Chaman Hosiery Factory, Meerut.
8. Abdul Kareem Abdul Hakim, Saharanpur.
9. Haji Jan and Noor Bux, Saharanpur.
10. Woollen Hosiery Factory, Makhania Bazar, Cawnpore.
11. Chemoli Hosiery Factory, Cawnpore.
12. Krishna Knitting Factory, Dafawan, Lucknow.

**List of medium and small sized manufacturers of Hosiery goods
working generally with hand machines**

1. Dayalbagh Cottage Industry, Hosiery Section, Agra.
2. Lala Bugga Mal, Hosiery Manufacturer, Agra.
3. Gulab Chand Lachmi Chand, Hosiery Manufacturer, Agra.
4. Prayag Hosiery, Meerapur, Allahabad.
5. M. D. Lyall & Co. Katghar, Allahabad.
6. Tirbeni Hosiery Works, Club Road, Allahabad.
7. Farid Hosiery, tahsil Karchana, Allahabad.
8. Ashfaque Hosiery, tahsil Karchana, Allahabad.
9. Kumaon Knitting Factory, Almora.
10. Hira Knitting Factory, Almora.
11. Almora Knitting & Weaving Factory, Almora.
12. Hindustan Knitting Factory, Ranikhet, Almora.
13. Prem Vidyalaya Knitting Section, Tarkhet, Almora.
14. Nathu, Pithoragarh, Almora.
15. Tandon Hosiery Works, Bara Banki.
16. Neem Chand, Cawnpore.
17. P. L. Nanakshahi, Aminabad, Lucknow.
18. Rama Knitting, 2055 Canning Street, Lucknow.
19. National Hosiery Factory, Lucknow.
20. Onkar Hosiery, Nala Fatehganj, Lucknow.
21. Ram Lal, Ganna Gali, Lucknow.
22. Bhukhan Lal, Ganeshganj, Taia, Lucknow.
23. Ganesh Prasad, Fatehgunj, Lucknow.
24. Farooque Mirza, Katra Abu Tarab, Chowk, Lucknow.
25. Phool Chand, Choore Wale Gali, Lucknow.
26. Gambhie Mal Johi, Chowk, Lucknow.
27. Banwari Lal, Raja ki Bazar, Lucknow.
28. Habibul Hasan, Aminabad Park, Lucknow.
29. Ramesh Knitting Works, Garhwal.
30. Shiam Bihari, Gaighat, Benares.
31. Paddy Hosiery, Gaighat, Benares.
32. Good Luck Hosiery, Benares.
33. Jagan Hosiery Works Bhatwara, Meerut.
34. Chaman Hosiery Works, Bhatwara, Meerut.
35. Radha Hosiery Works, Bhatwara, Meerut.
36. Ibrahim Hosiery Works, Bhatwara, Meerut.
37. Illahi Bux Hosiery Works, Bhatwara, Meerut.

38. Hafiz Abdul Razzaque, Sarai Behlin, Meerut.
39. Nanua, Sarai Behlin, Meerut.
40. Chowdhry Kallan, Sarai Behlin, Meerut.
41. Hafiz Allim Ullah, Belai Jori, Meerut.
42. Haji Abdul Rahman, Belai Jori, Meerut.
43. Prema Hosiery, Shahpier Gate, Meerut.
44. Cheap Hosiery, Shahpier Gate, Meerut.
45. Fakir Chand, Nisari Darwaza, Meerut.
46. Lalkurti Hosiery Works, Cantonment, Meerut.
47. Sharma Hosiery, Nisari Gate, Meerut.
48. Kailash Hosiery, Pera Mal ka Bazar, Meerut.
49. Ghaffoor Hosiery, Pera Mal ka Bazar, Meerut.
50. Alla Bux, Zafta Khan ka Purwa, Meerut.
51. Mohammad Ishaq Ali, Haranbara, Saharanpur.
52. Fazal Mohammad, Haranbara, Saharanpur.
53. Mohammad Din, Haranbara, Saharanpur.
54. Chottan Khan, Haranbara, Saharanpur.
55. Imam Uddin Kadri Bux, Haranbara, Saharanpur.
56. Mukhtar & Umar Khan, Haranbara, Saharanpur.
57. Abdul Majeed Azimuddin, Haranbara, Saharanpur.
58. Nisar Ahmad Mohammad Siddique, Haranbara, Saharanpur.
59. Shebrati, Chakrata Road, Saharanpur.
60. Abdul Waheed Alla Bux, Chakrata Road, Saharanpur.
61. Abdul Hameed Ali Ahmad, Haranbara, Saharanpur.
62. Chota Kale Khan, Haranbara, Saharanpur.
63. Mohammad Shah Bhore Shah, Jogian, Saharanpur.
64. Abdul Majeed Mohammad Rizwan, Misran, Saharanpur.
65. Mushtaque Mukhtar Ahmad, Misran, Saharanpur.
66. Dost Mohammad Rashid Ahmad, Jogian, Saharanpur.
67. Haji Jan Mohammad Noor Bux, Jogian, Saharanpur.
68. Rashid Ahmad Duresh, Jogian, Saharanpur.
69. Din Mohammad, Haranbara, Saharanpur.
70. Abdul Aziz, Haranbara, Saharanpur.
71. Mohammad Ahmad, Ghulam Mohammad, Haranbara, Saharanpur.
72. Shareef & Zareef, Jogian, Saharanpur.
73. Mithan Lal & Sons Hosiery Manufacturers & Dealers, Bara Bazar, Naini Tal.
74. Amjad Khan Jargae, Belai Jori, Meerut.
75. Hamied, Belai Jori, Meerut.

76. Bundoo, Belai Jori, Meerut.
77. Lalman Bharatji, Sadhwara, Farrukhabad.
78. Gajraj Narain, Sadhwara, Farrukhabad.
79. Suraj, Sadhwara, Farrukhabad.
80. Munno Lal Japan Lal, Sadhwara, Farrukhabad.
81. Mohan Lal, Sadhwara, Farrukhabad.
82. Sua Lal, Sadhwara, Farrukhabad.
83. Someshwar, Sadhwara, Farrukhabad.
84. Hafiz Anayat, Bibi Shahih ki Masjid, Farrukhabad.
85. Shabbir, Bibi Shahih ki Masjid, Farrukhabad.
86. Hajee Rahmat & Aggu Mian, Shahigunj, Farrukhabad.
87. Raja, Bibi Shahih ki Masjid, Farrukhabad.
88. German, Sadhwara, Farrukhabad.
89. Sukhbasi, Sadhwara, Farrukhabad.
90. Shabbir, Sadhwara, Farrukhabad.
91. Afsar Khan, Sadhwara, Farrukhabad.