

MONOGRAPH
UPON THE
SILK FABRICS
OF THE
BOMBAY PRESIDENCY.

BY
S. M. EDWARDES, I.C.S.,
ASSISTANT COLLECTOR, BOMBAY.

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A
MONOGRAPH
UPON THE
Silk Fabrics of the Bombay Presidency.

INTRODUCTION.

“ May Dawn and Night do their work
well for us ; they who, turned towards
each other, weave the outstretched warp.”
VEDIC HYMNS.

‘ Most writers on silk, remarks the author of an article in the Textile Journal, ‘ fix the home of the domesticated worm to be China, whereas a few have adduced arguments to prove an Indian origin for the worm. Among the latter is Mr. Mookerji, who in an extensive report upon the subject, claims that the ancient literature of the Hindus and the Sanskrit language afford valuable historical arguments in support of this thesis.’ A Sanskrit scholar of Bombay, however, informs us that silk is not mentioned at all in the oldest Vedic works, and that wherever mention is therein made of cloth, cotton and wool form the basis of the fabric. Further, that the word चीनशुक (Chin-ánshuka), which is once or twice used in later works to denote silken fabrics, points to the fact that China was the original home of both the silkworm and the fabric, which probably were unknown in India until the post-Buddhistic age. Any discussion or attempt to decide the merits of these rival claims must perforce lie beyond the limits of this treatise, which concerns itself rather with the condition of the silk industry in Bombay at the opening of this twentieth century. But one may remark, in passing, that references to silk become gradually more numerous in the post-Christian eras, and that the terms employed by writers of those times to denote silk or fabrics of silk show that they were conversant with the origin of the thread, that is to say, with its birth from the worm.

To weaving and dyeing, many a reference exists in Sanskrit literature, showing that the arts are of long-standing in this country. In Part I of Professor Max Müller’s edition of the Vedic Hymns will be found a passage, in which the Brahmin is counselled to wear dark-red (*kashaya*), the Kshatriya bright-red (*manjishta*), and the Vaishya yellow (*haridra*) apparel : while in the Law of Manu, ‘ the dyer ’ is classed with trainers of hounds and washermen as one from whom no Brahmin should receive food. Turning to the Mahabharata, one is face to face with a remarkable passage, describing how the Rishi Uttanka “ beheld two women over a loom, weaving cloth with a fine shuttle ; and in

the cloth were black and white threads. Likewise he saw a twelve-spoked wheel turned by six boys." The same poem contains many references to silk clothes, which are denoted by the word कौशिकम् (*koushikam*), that is to say, cloth produced from the cocoon. Kalidasa, again, to judge from his poems, knew much of silk and silk apparel; of embroidery upon silk, also; for in the fifth canto of 'Kumar Sambhava,' he speaks of 'the bridal garment of silk adorned with a device of swans' (वधूदुकूलं कलहंसलक्षणम्).

Interesting though the matter is, one must perforce turn from the historical evidence regarding silk, to the question of sericulture in the present day. In many parts of the world the industry thrives; but to the Bombay Presidency the silk worm is to-day a complete stranger. In no district is the cultivation of silk from the worm now practised; though attempts in this direction have been made in past years.

In 1827 a small mulberry-garden was opened at Dhulia, under the direction of Mr. Giberne, the Collector of Khándesh; and was visited ten years later by Signor Mutti, who reported that, considering the ignorance of those employed in tending the worms, and in looking generally after the garden, the silk produced was good and would fetch about Rs. 13 per pound. With this assurance and with the intention of as far as possible aiding Mr. Giberne's work, the Bombay Government indented upon Bengal for five convict families skilled in the management of silk-worms and the winding of silk. The convicts were despatched; but travelled no further than Poona, as the experiments then being conducted in that city augured of greater success. Time passed and witnessed the departure of Mr. Giberne, and the sale of the garden to a native trader, by whom it was allowed to run waste. Others who succeeded Mr. Giberne in the control of the district, had it in mind to re-commence the experiment, but found no opportunity to carry matters to a practical issue.

Of Signor Mutti and of his culture of silk-worms in the Kothrud and Dhamdere gardens at Poona, an account is given in the Bombay Gazetteer. Commencing the work in 1829, he was able eight years afterwards to report that his silk has been valued at from 23 to 29 shillings a pound in London, Glasgow, and Manchester. The five convict families aided him, and to such good purpose, that others, both European and native, were induced by the sight of his success to set up rival gardens. Thus matters remained until the year 1840, when the guiding-spirit of the enterprise fell ill, and abandoned his duties. Thereafter, doubts as to the permanent success of sericulture in the Deccan began to prevail, and culminated in 1847 in an order from the Government of Bombay to close all operations.

The mantle of Signor Mutti fell upon a Major Coussmaker, who from 1875 to 1882 strove, by every device in his power, to reconcile the silk-worm to a domesticated life, and to overcome the natural perils of damp and drought, so

fatal to his operations. His story—the record of much energy and perseverance—is related in the Poona volume of the Gazetteer of this Presidency.

Of other attempts at sericulture, that made in Kaira during the early years of the nineteenth century, and another during the seventies at the Dhárwár Jail, deserve brief notice. The Dhárwár experiments, under the guidance of Dr. Mackenzie, met with fair success and continued until 1876. In Kaira, however, the work languished, by reason of the lack of interest shown by the native, and was brought to a sudden close by the excessive heat of the year 1843, which killed all the worms.

Sericulture is now non-existent in Bombay, which is thus forced to depend upon China and Bengal for a supply of silk. Rumour relates that the idea of once more experimenting in this regard has suggested itself to a wealthy merchant resident in this city. Perchance he may go further than Signor Mutti and the convicts of Dhárwár, and be the originator of a new and profitable industry.

PART I.

A.—THE RAW SILK.

“Silk is produced from worms, gold from stones, and the red lotus from mud.”

SUBHASHITA—RATNABHANDAGAR.

Since, then, raw silk is produced in no part of this Presidency, whence does it come, and in what condition does it reach the hands of the weaver? Excluding the case of the Silk Mills, which will be noticed hereafter, there appear to be four places from which the raw material is distributed, usually via Bombay, to the various centres of the hand-weaving industry. They are China, Bengal, Persia, and Bangalore. But the variety, and the condition in which it is imported into up-country towns, differs according to locality.

(a) China Silk.

Of the real China silk, the following five varieties find their way into the Bombay market:

(i) Superior China	costing Rs. 20 per lb.
(ii) Lankin	” ” 18 ”
(iii) Kayyam	” ” 16 ”
(iv) Mayya	” ” 14 ”
(v) Panjam (very inferior)	” ” 8 or Rs. 12 per lb.

All these kinds are imported in the raw thread state direct from China by the Chinese and Khoja merchants of the city, and are unbleached and undyed

A very small quantity, ready bleached, is also annually brought to Bombay. Such of it as remains in Bombay is sold to Multanis and Bohoras residing in Thossa Moholla and Bhoiváda, and by them to the local loom-owners, who favour the best quality for the warp and other qualities for the woof. The rest, which finds its way to out-stations, is occasionally bleached and dyed in Bombay, but more often travels in the condition in which it arrived. Commencing with the Southern portion of the Presidency, one finds that the Marwaris of Gadag import the 'Lankin' variety, which they call 'pakka reshmi,' in unbleached and undyed hanks, termed in the Kánarese tongue 'Mute' (ಮುತೆ). This silk has, of course, been roughly spun already, but has to undergo a further process of 'throwing' or spinning, before it is ready for the loom. Hubli, Ránebennur, and Lakshmeshvar also import silk thread of this kind direct from Bombay. A very much cheaper species of raw material, known locally as 'ಉಂಡಿ ರೆಶ್ಮಿ' (*undi reshmi*), half of which is cotton, is also obtained by dealers in the Dhárwár District. Turning to Belgaum, one finds 'Lankin' again in request both in Gokák and Belgaum itself, where the local merchants sell it in hanks of undyed and unbleached thread, that require to be locally 'thrown' or re-spun, to render the fibre strong enough to withstand the tension of the loom. A very small quantity of silk, already dyed red and prepared for weaving, is reported to come to Gokák; but is not in great request, as the colour is not fast. The traders of the Bijápur District also import 'Lankin,' unbleached and undyed; but most of them leave the task of importing, bleaching, and dyeing the thread in the hands of the trading community of Bágalkot, preferring this course to the direct importation and preparation of the raw material by themselves.

Coming to the Central Division of the Presidency, it appears that Yeola obtains Chinese silk of various qualities from Bombay, commencing with the very best quality at Rs. 20 or more per lb., and passing on through many kinds known as Charám, Sot, Salbaphi, and Sim, which cost from Rs. 8 to Rs. 16 per lb., to the inferior Panjam priced at Rs. 2½ per ser. A small quantity of dyed silk thread also is imported into the town of Násik. The import into Poona consists of hanks of three varieties, of which 'Lankin' thread is the most noteworthy, and which, after arrival from Bombay, have to be locally prepared for the loom. The character of the imports vary in different tálukas of the Ahmednagar district. The Sali weaver of Akola, for example, buys all his silk ready spun, bleached, and dyed from the traders of Násik; Sangamner, which used to obtain bleached and dyed thread from Bombay, Yeola, and Ahmednagar City, now favours the import of thread bleached and 'thrown,' but undyed, preferring to have the dyeing performed within her own borders. Thakur and Gujáráti dealers supply the Ahmednagar Táluka with unbleached and undyed silk, brought from Bombay, and the outlying parts of the district with silk which has been bleached, or both bleached and dyed, in the city of Ahmednagar. Most of the silk thread used in the district is presumably of the 'Lankin' variety, though local report omits to mention the quality of the imports. In the Sholápur district an inferior quality of China silk is apparently in request, for 'Panjam'

is mentioned as the only variety brought to Sámola. Of the 10,000 rupees worth of silk annually imported thither from Bombay, some small portion is probably of a better quality. The process of throwing, bleaching, and dyeing is always locally performed. The amount of silk used in the district was about five times greater before the famine of 1876-77; since which date a decline in the general resources of the people has involved a decline in the demand for silk. In Sátára and the town of Islámpur the Marwarri community is the medium through which the silk of Bombay reaches the hands of the Patvegar. The silk is usually of the 'Lankin' variety and is locally thrown and dyed. In outlying parts of the district, however, a certain quantity of prepared thread is obtained direct from Poona merchants. The use of China silk is less general than that of the cheaper Bengal material.

Three places only in the Northern Division import Chinese silk, namely Thána, Surat, and Ahmedabad. Of these, Thána uses but a small quantity, though of the superior kinds. But Surat and Ahmedabad order very large quantities of every variety of silk thread from the merchants of Bombay. A few well-to-do persons obtain the material direct from China, and have no dealings with the trading community of Bombay. The silk is imported in hanks, which are subjected on arrival to the ordinary spinning and reeling, and is known by a variety of names, denoting its several qualities. Both places are also reported to import the material bleached, spun, and dyed.

Regarding Sind, most of the silk used in Hyderabad, Tatta, and other places, comes from Bombay, is of superior quality, and is locally reeled, spun, and dyed. Hyderabad, however, claims to occasionally obtain ready bleached and spun Chinese silk.

(b) Bengal Silk.

The raw material of Bengal holds the second place, in respect of the quantity used in this Presidency. Usually it reaches the local trader by rail from Calcutta, passing *en route* through Bombay. Like the silk of China, it consists of more than one variety, according to the class of worm from which it springs. *Four varieties of the silk-worm appear to be cultivated in Northern India, namely the Bombyx Cræsi, reared in Bengal and Assam and producing a succession of crops throughout the year; the Bombyx Fortunatus, the first domesticated silk-worm raised in India and largely met with in Bengal; the Bombyx Texton, a somewhat large-sized worm, reared usually in Bengal and Assam; and lastly the Bombyx Sinensis, a small multivoltine silk-worm, which is met with in Bengal. The cocoons of the latter are, however, inferior to other sorts, a fact which has led to the abandonment of its cultivation. All these varieties of worms, it may be noted, had their origin in the Bombyx Mori, the native silk-worm of China, and now domesticated in Afghanistan, Persia, Syria, France, Italy, Spain, Sweden, and European Russia; in a word, in all parts of the world where the production of silk is carried on.*

* From an article in the Textile Journal, Bombay.

Bengal silk is invariably of a deep yellow hue, and hence is known throughout the Southern Division of the Presidency as *Bhangar gundu* (ਝਾਂਗਰ ਗੁੰਦੂ) i.e. Golden Ball. Like the white silk from China, it arrives in hanks of thread, roughly spun, but not sufficiently strong to admit of being used at once in the loom. The Bijápur district is supplied with this class of silk by the trader of Bágalkot, who, after import, either has it locally bleached and thrown, or distributes it in its unfinished state to the small traders of the villages. It is similarly imported in considerable quantities via Bombay into Belgaum and Dhárwár. The former of these two districts also imports raw hanks direct from Murshidabad, and performs the bleaching and dyeing processes within its own limits; inasmuch as the procedure formerly followed of buying it dyed from Poona and Bombay was found to be unduly expensive.

In the Central Division, Sholápur and Sátára obtain it from Calcutta and other places in the North-West Provinces, and prefer it, by reason of its cheapness, to the silk of Hongkong; while Násik, Poona, and Ahmednagar are also partial to its use, importing it partly direct from Calcutta and partly through merchants in Bombay. No mention is made of it in the reports which come from the Northern Division; but it is hardly conceivable that the use of it should be unknown in such important consuming centres as Ahmedabad and Surat. Sind has it brought direct from Bombay, as a general rule; though, in the case of Tatta, a certain quantity is delivered by a more direct route from Mooltan.

(c) Bangalore and Persia Silk.

Silk, denoted by the name "Laddu" and imported from Bangalore, is used only by the weavers of the Southern Division of the Presidency. Being of inferior quality, the amount imported is, even in Belgaum and Dhárwár, not large; while more remote centres of the industry could hardly be expected to go to the expense of importing it from the Southern Presidency.

The only places which consume Persia silk appear to be Poona and Násik; they receive it in small quantities from Bombay, whither it is brought from Muscat. Its quality should be superior, as it is the product of the "Bombyx Mori," and is said to be capable of being easily reeled.

A good deal of the silk used in Sind is said to come from Bokhara and Kabul; and local report mentions a curious method of hatching the eggs of the silk-worm moth in Afghanistan, by tying them up for five or six days in the hollow of the arm-pit. As soon as the worm appears, it is transferred to mulberry trees, which are covered with thin gauze or muslin cloths to prevent its crawling away.

In Surat, a few years ago, an attempt was made to introduce artificial silk made in France; but was abandoned, as the material could not be properly dyed. Some accounts of the manufacture were included in the Textile Journal of

Bombay during the year 1898. The idea of utilising nitro-cellulose gun-cotton in this way and producing therefrom continuous filaments, resembling real silk, occurred first to M. le Comte de Chardonnet. The fundamental process is the dissolution of the gun-cotton in a mixture of alcohol and ether under pressure; a thick collodion is thus formed which is subsequently forced through small glass tubes, fashioned on the model of the spinneret of the silk-worm. The fibre thus procured is declared to closely resemble real silk, and to fully equal it in texture and brilliancy. Extensive works for its production have been built at Besançon, which undertake to supply unlimited quantities of the material at some fifty per cent below the cost of natural silk. It may, says the writer in the Textile Journal, have a very great effect upon the textile industries of the twentieth century.

The subjoined table shows the amount of Raw Silk imported from foreign countries and exported from Bombay during the last three years. Practically the whole of the imports are from Hongkong and the Treaty Ports, which together sent to Bombay 1,805,642 lbs., 1,523,292 lbs., and 1,731,735 lbs. of raw material during the years 1896-97, 1897-98, and 1898-99, respectively. The remaining amount consists of consignments from Japan, Persia, the Straits Settlements, and Turkey in Asia, destined presumably for parts of India other than the Bombay Presidency. The imports by sea from ports on the continent of India such as Burma, Karáchi, and Calcutta, do not total to any considerable figure.

	1896-97.	1897-98.	1898-99.
Imported	1,969,970 lbs.	1,657,501 lbs.	1,835,116 lbs.
Exported (i) to foreign countries	84,351 lbs.	63,554 lbs.	68,186 lbs.
(ii) to coast ports	203,388 lbs.	164,884 lbs.	127,456 lbs.
Total ...	287,739 lbs.	228,438 lbs.	195,462 lbs.

The total exports of silk have latterly declined; but there can nevertheless be no doubt that the greater care now taken in the reeling of Bengal silk is opening the way to its more general use. Unfortunately the industry has to contend with a dire disease, 'pebrine,' which well-nigh ruined sericulture in France. Certain Europeans interested in the trade have of late been trying to induce the native rearer to adopt Pasteur's system of seed-selection and rearing.

B.—SORTING, REELING, AND SPINNING.

PROCESS 1.

"A weaver (who has received) ten 'pals' (of thread) shall return (cloth weighing) one pala more: he who does otherwise shall be compelled to pay a fine of twelve (panas)."

MANU. Smṛiti. viii. 399.

The raw silk, as was mentioned above, arrives in hanks of thread, which is not sufficiently strong to bear the tension of the loom. The fundamental object, therefore, of the first process in the preparation of silk is the strengthening of the thread for the warp. The woof-threads, as a rule, undergo a less intricate process of preparation. In Surat it consists merely of winding the threads from two or more bamboo frames, according to the thickness required, on to a 'Parta' or Reel, and thence on to small bobbins. The silk used in the woof is coarse and of the quality from which tassels and strings are made. In the preparation of silk for the warp, the following five instruments or appliances are used:—

1. A large cage made of string and bamboo, called "Parta" in Gujarát, "Phalka" in the Deccan, and "Ratala" in the Southern Marátha Country. It costs about 4 annas.

2. A conical reel of split bamboo, called "Parti" in Gujarát, "Asari" in the Deccan, and "Hatti" in the Southern Division. Some four or five of these reels, costing four annas a piece, are used at the same time. Each reel is about 14 inches high and 16 inches in diameter, the central rod being 30 inches long.

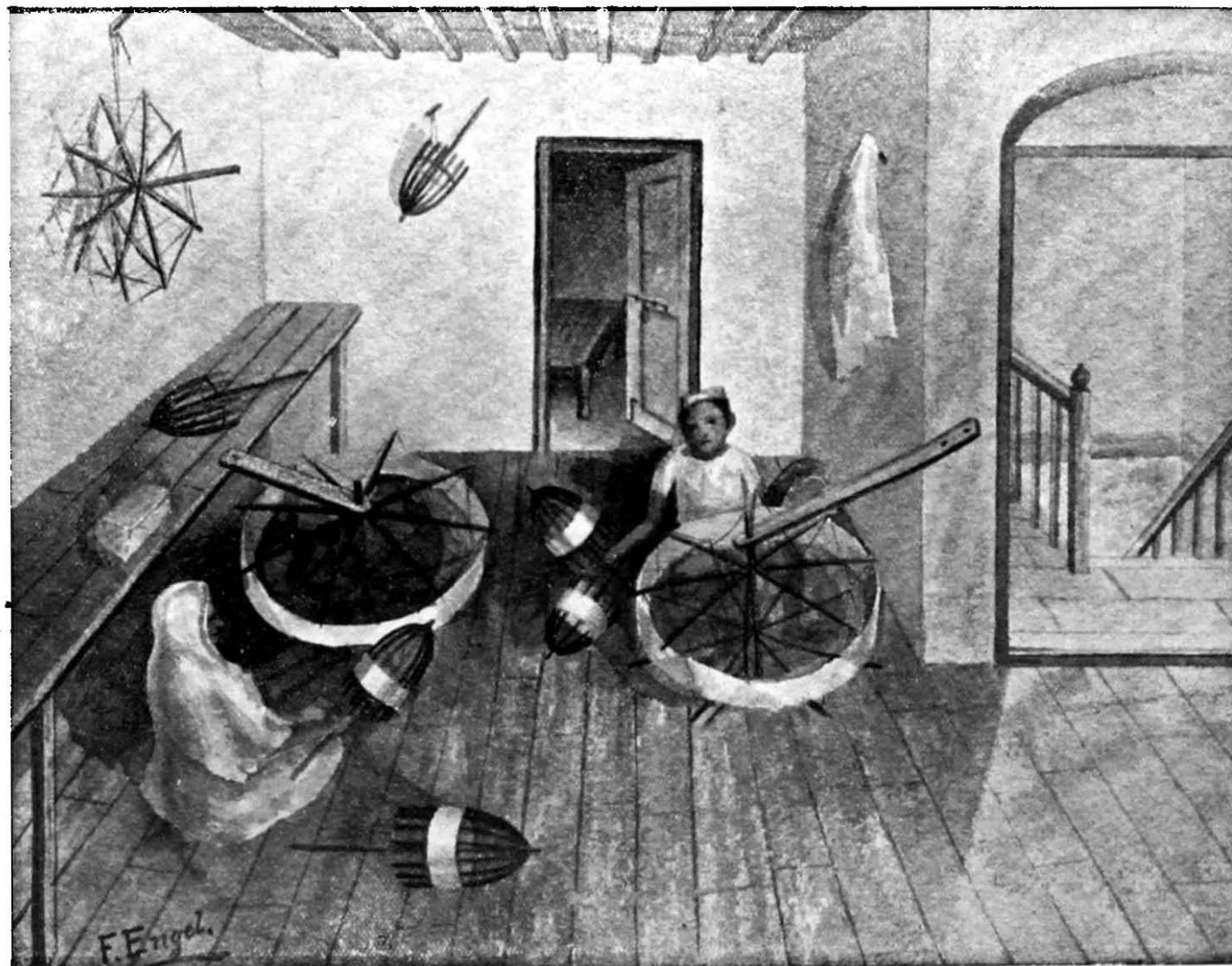
3. Reed bobbins, called "Garole" in Násik, "Thale" in Thána, and "Kandiki" in the Southern Marátha Country, and costing about four annas per hundred.

4. One small wheel called "Roda" in Thána and "Jantra" (a corruption of 'Yantra') in the Southern Marátha Country. The wheel is some $2\frac{1}{2}$ feet in diameter and costs from Rs. $2\frac{1}{2}$ to Rs. 3.

5. The Throwing-machine or Rahat, which includes a large wheel called "Charka," a bobbin-frame called "Sacha," "Chatphala," or "Chowtala," two sets of glass bangles, and a long drum or roller of wood, called "Dholi," "Doli," or "Sakumba." The whole machine costs from Rs. 30 to Rs. 35.

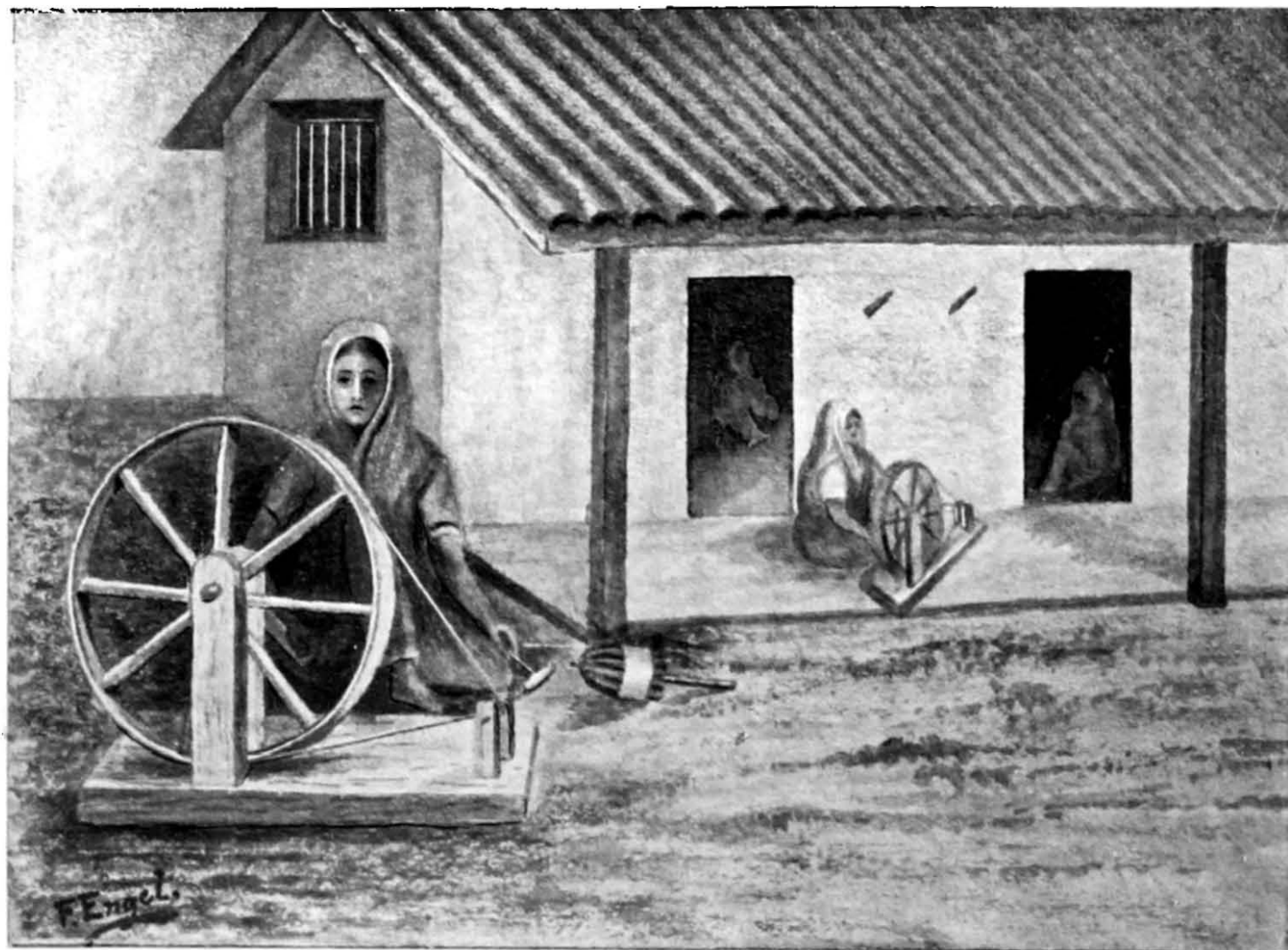
Sketches of all these implements are inserted in the text.

The Bamboo cage is first called into play. The sorter opens the hank of raw thread and places it round the cords of the cage, and then fixes the cage in such a way that it will, when impelled by the toes, revolve with its axis vertical. The sorter, who may be either a man or a woman, then sits down with five or six of the conical reels at his side. As the quality of the fibres in one



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Sorting or Winding Silk from Bamboo Cage on to Reels



To face page 9.

Spinning silk from reel on to bobbin by means of the
small wheel (Roda or Jantra)

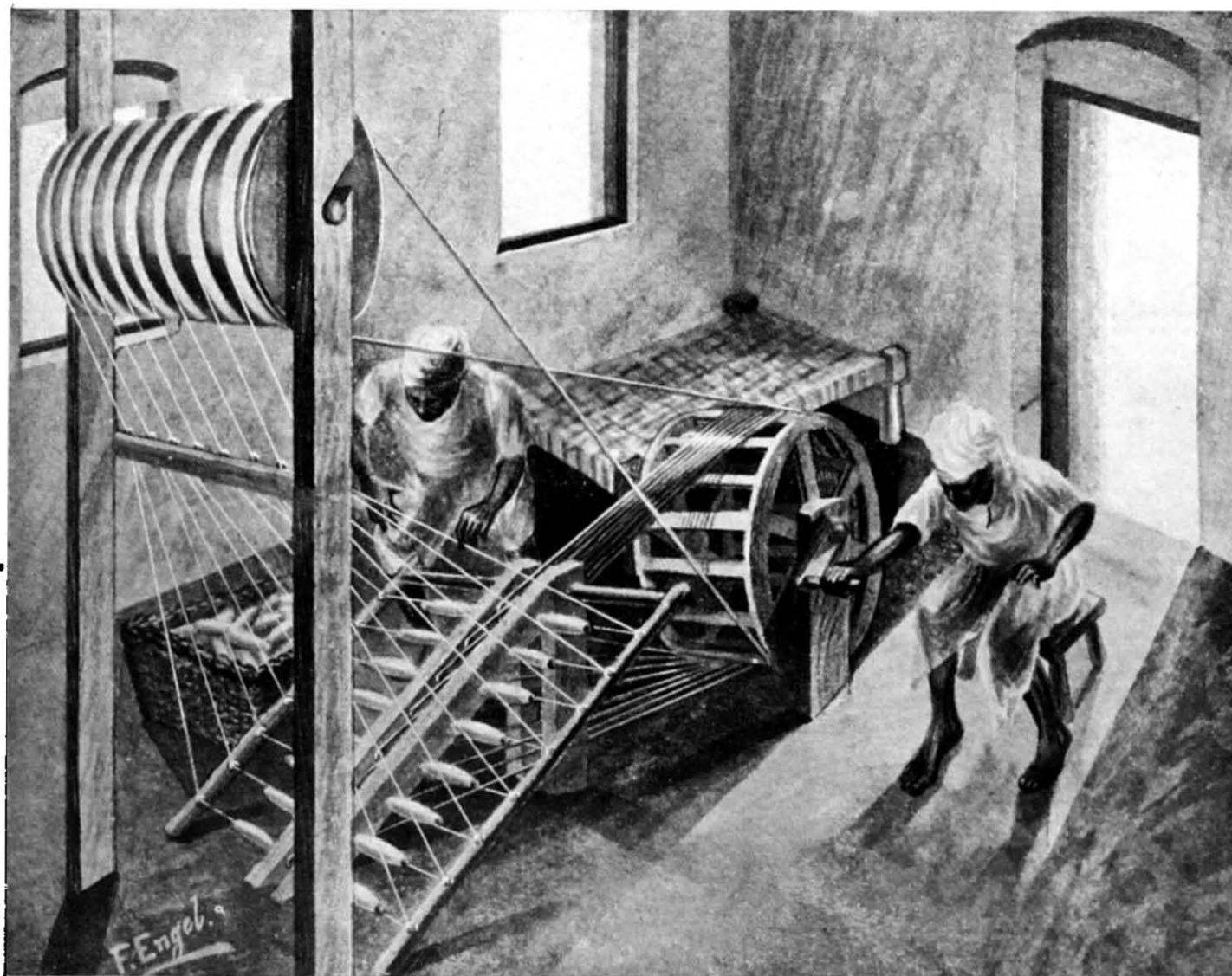
hank are numerous, the sorter's chief duty is to watch the gradations of the thread, as it leaves the cage, and wind all silk of each variety round a separate reel. He next finds the end of the raw hank, knots it to the spoke of one of the reels, and with his foot starts to turn the bamboo cage; at the same time he with one hand twists the reel. The fibre passes off the cage, through the fingers of his other hand, and on to the reel. As soon as he feels the quality of the silk change, he breaks the thread, picks up a second reel, knots the end of the thread to it, and again winds on, until the quality changes a second time, when a third reel or the first again, as the case may be, is taken up. If the new quality is similar to that on the first reel, the two ends of silk are put into the mouth and tied by the tongue in an extremely neat and speedy manner. The reason why this operation is performed by the tongue, and not by the fingers, is that the silk is liable to cut the skin of the fingers, whereas the moisture of the tongue softens and prevents it from causing an incision. In this way, even a youthful worker will, without hitch or mistake, sort the hank over five reels. The process is known in Kánarese as 'Todáki' (ತೋಡಕಿ) and in Maráthi as 'Ukalap' (उकलाप).

The silk is now ready for spinning; and the small wheel and bobbins are called into play. The wheel, as will be seen from the sketch, is supported on either side of the axle by uprights, fixed in a flat wooden stand, at the other end of which are two smaller uprights, supporting a steel spindle, which projects a few inches at the side. A cord passes round the wheel and spindle. The spinner first places one of the hollow reed bobbins upon the projecting part of the spindle, and ties to it the end of the silk which is upon the reel. Then, holding the reel in one hand, he turns the wheel with the other. The silk thread, which has already been connected with the bobbin, slowly winds off the reel and on to the bobbin. This process is continued until all the bobbins required have been loaded with thread. The process is known to the weaver of the Southern part of the Presidency as "Kandiki suttona" (ಕಂದಿಕಿ ಸುತ್ತುಣಾ), i.e. the inwrapping or winding of the bobbin.

The last process is the most intricate of all, and consists in transferring the thread from the bobbins on to the circular drum. The machine used is in three parts; firstly, a large wheel turned by hand, secondly the bobbin frame, and thirdly the drum. The bobbin-frame consists of an upright central bar or bars and two upright side pieces. The central bar is furnished on either side with a row of iron or wooden spindles, on to which the reed bobbins slide: and each of the side bars with a row of glass bangles, in number corresponding to the number of spindles. Each bangle is fixed directly opposite to its respective spindle. To impart a circular motion to the spindles, they are each connected by a cord with the big wheel, the cord in each case passing round the wheel and the inner end of the spindle. The whole frame is about 5 feet high, and rests during the process in a slanting position, as is shown in the sketch; the bottom part being on the ground, and the top part supported by upright posts fixed in the

ground in front of the wheel. In front of the bobbin-frame with its spindles and bangles are two upright posts, between which is supported a round roller or drum, about 6 or 8 feet long and 2 feet in diameter. It is made to revolve by a strap or cord passing over its centre and round the axle of the big wheel. Half-way down the posts, and likewise fixed horizontally between them, is a rod, set with a number of glass bangles. It should be specially noted that the number of bangles upon this rod are exactly half the aggregate number of bangles fixed upon both sides of the bobbin-frame. In other words, if each side of the frame contains 16 bangles, and the whole frame 32 bangles in all and 32 bobbins, then the bangles upon the horizontal rod number 16. To explain the process more clearly, we will concern ourselves with two spindles only, that is to say with the top spindles upon either side of the central bar of the frame. On to each of these the workman places a bobbin; these two bobbins contain thread of similar quality. The thread from each is passed through its respective bangle, the two threads remaining separate until they reach the horizontal rod. There they are *united*, and pass together through one bangle in the series upon the rod. The twofold single thread then passes upwards on to the drum, to which it is secured. The bangles upon the rod are so placed, that a twist is given to the threads as they pass through, and causes them to unite more closely into one double thread. Thus, when the workman starts the big wheel moving, the cords which pass round it put each set of two spindles in motion; each pair of bobbins revolve and send their threads separately through two bangles upon the frame; each pair of threads pass onward to the horizontal rod, where the divided pair become one, and are slowly rolled round the drum. In other words, supposing there are 16 bangles on either side of the frame, one sees 32 threads pass upward to the horizontal bar. These two threads are twisted into one, and 16 twofold threads pass upwards to the drum. At the end of the process, therefore, there are upon the drum 16 separate rolls of silk, at equal distances from one another; and the thread of which each roll consists is 'dontár' or double thread.

A slightly different process, productive of the same results, is followed in Surat. A flat slab of wood, set with a certain number of spindles, is placed in a slanting position upon the ground. In front of this, and about 4 feet from the ground, is placed a narrow trough of water, down the centre of which runs an iron bar: and in front of this again, is a horizontal bar set with glass bangles, numbering half the total number of spindles upon the slanting frame. Beyond this horizontal rod is a flat wooden stand, containing vertical revolving wooden frames, about 4 inches square and 8 inches long, in number equal to the number of bangles in the horizontal bar. Small bobbins of thread are placed upon the spindles; and the whole machine is set in motion by a large wheel, in a manner similar to that described above. The threads from two bobbins pass down through the water and under the iron bar, then upwards to the bangles in the horizontal bar. They pass through one of the bangles in the form of one double thread, and finally wind round one of the square wooden frames. The water in the trough helps the threads to unite more closely into one thread.



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Doubling, by transferring thread from bobbin-frame on to the Drum.

This 'dontár' or double thread is used in the weaving of some fabrics. If, after the general process described above, it is not sufficiently twisted, it is reeled once more on to the small bobbins and again passed on to the drum. The difference is that the bangles upon the horizontal bar below the drum, are not, as before, only half the total number of spindles or bobbins; but are exactly equal to them in number, the reason for this being that the thread would become 'chartár' or fourfold, if the bangles in the horizontal bar were only half the total number of bobbins or spindles.

As a general rule, the thread used in the warp is 'chartár' or fourfold; to obtain which, the dontár or twofold thread is all wound back upon the reels, from the reels to the bobbins, and from the bobbins on to the drum, in precisely the same manner as has been described in the case of the single thread.

Finally, each roll of thread upon the drum is transferred again to the reel (Parti, Asari, or Hatti), in order to keep it separate until it goes to the dyer. The processes through which it has passed have considerably modified the weight of the raw silk; to make up for which a lower standard of weight is employed between spinner and dealer or spinner and weaver. The actual loss in weight is declared by the weavers of Násik to approximate to 44 dhabbus or half-anna pieces, that is to say, to roughly 11½ per cent.

C.—BLEACHING AND DYEING.

PROCESS 2.

"My cloth is heavy with the yet moist dye."

MBICHHAKATIKA. Act viii. Dr. Wilson's translation.

The silk, now reeled and spun, is well-nigh ready for the dye-vat. But, that each step in the gradual evolution of the raw material may receive notice, it is desirable to subdivide the next process into four distinct stages, namely (i) Bleaching, (ii) Mordanting, (iii) Dyeing, (iv) Sizing.

The materials required for these several processes are a rough fireplace of bricks and mud, a few large copper pans, a large pot or vat, a stone slab, a grinding-stone, and some long iron-tipped pestles.

(i) Bleaching.

To whiten the silk and clear it of impurities, it is immersed in a solution, known as 'Ukhar; of impure carbonate of soda, or of this material and slaked lime. Impure carbonate of soda is of three kinds, known as Papadkhar, Keli-khar or Savalkhar, and Khúrimáti or Sajikhar, is found in Arabia, in Sind, and some other regions of the Presidency, and costs from one to two annas per pound. The variety used appears to differ in various centres of the dyeing-industry, Papadkhar, for example, being generally used in Belgaum, Savalkhar in Gokák, Dhárwár, and Sind, and Sajikhar in Bombay and Bijápur. Papad-

khar, however, is the variety most commonly used. Assuming the weight of silk to approximate to 80 tolas, a solution of 20 tolas of Papadkhar and 30 lbs. of water is made, some 15 or 20 tolas of native soap or soda being sometimes added thereto. The whole solution is set to boil in a large vat. As soon as the first effervescence appears, two men dip the silk, which is still damp from immersion in cold water, into the boiling solution. The dipping is effected by means of two wooden sticks, about the size of a pestle, upon which the skein or hank is suspended. The workers, one of whom stands on either side of the vat, grasp the ends of the sticks and lower the silk four times into the bleaching mixture. Then moving the sticks round to the immersed portion of the skein, they likewise dip the remaining portion four times. The whole circumference of the skein is in this way subjected to immersion, and the silk is rid of all dirt and gum. When drawn tight upon the sticks, it emits a grating sound, from which an experienced bleacher can always decide whether the silk has been sufficiently soaked. Once fully bleached, the silk is cooled by immersion in cold water, and finally dried, partly by wringing it in the hands, partly by striking it against a flat slab of stone.

In some places, notably Dharwár and Bijápur, slaked lime and savalkhar or sajikhar are used in the bleaching solution, which is kept boiling until a thick scum settles upon the surface. This is removed, and the solution still boiled until a sediment forms at the bottom of the vat. When this occurs, the silk, suspended from a stick, is rapidly dipped, removed at once and washed in cold water, lest the action of the lime prove detrimental to the silk fibre. The dyers of Bombay and Thána are in favour of this solution, but would appear to make use of a smaller quantity of slaked lime than the men of Dhárwár, inasmuch as the silk is kept in the vat for a full fifteen minutes. Lime is also used for bleaching purposes in Gujarát; but more often the solution contains impure carbonate of soda (kháro) and country soap. The latter article is sometimes used to wash the silk, after its removal from the solution of lime and savalkhar and previous to its final immersion in cold water.

A process of bleaching, followed in Sind, has been described by Mr. C. G. H. Fawcett at page 31 of his Monograph upon Dyes and Dyeing, and hardly needs repetition.

The proportions of Papadkhar, lime, and water are variously estimated. Yeola reports that to bleach one seer of silk, $\frac{1}{2}$ a seer of Papadkhar and $\frac{1}{4}$ of a seer quicklime must be boiled in 10 seers of water, while the dyers of Ahmedabad and Surat mix together 20 lbs. of lime, 10 lbs. of soda, and 80 lbs. of water for the bleaching of 40 lbs. of silk.

Such being the process in regard to silk that has to pass through the hands of the dyer, it only remains to note the procedure in the case of silk, which is to be used white or undyed. The boiling solution of Papadkhar is generally employed: but, occasionally, a simple washing with country soap is considered sufficient. Country soap is manufactured from the oil of the *Bassia latifolia*,

boiled in an alkaline ley of khar and lime, and costs about $1\frac{1}{2}$ annas per lb. After washing, the white silk is subjected to fumigation. A large bamboo basket is turned upside down, and underneath is placed a vessel containing burning sulphur. Upon the upturned bottom of the basket the silk is spread out and covered with cloths. The sides of the basket are likewise covered to prevent the entrance of air and the escape of the fumes. In this condition the silk remains for some fifteen minutes and is then ready for use in the loom.

(ii) Mordanting.

This is the second stage through which silk has to pass before being dyed, but is never followed if the silk is to remain white. The process, as followed in the Southern Division of the Presidency, is thus described. Some three to five tolas of alum are dissolved by gentle heat in 15 lbs. of water. The bleached thread is steeped in this solution for one night, and then washed four or five times in clear water.

The length of time during which the silk is steeped, as also the quantity of water employed, vary from place to place. In Dhárwár 12 to 18 hours is declared to be the period of immersion, in Bijápúr 3 days, in Násik 24 hours, in Poona 3 days; while as much as 50 lbs. of water is used in some places to 5 lbs. of alum. Generally, however, the proportion of water is less.

It may be here noted that in the case of silk dyed to certain shades of yellow, this alum solution is often mixed with the dye: and that in Poona, whenever aniline dyes are used, the silk, after immersion in the alum bath, is subjected to further immersion in a solution of turmeric.

(iii) Dyeing.

The subject of dyes and dyeing in all its branches has already been discussed by Mr. Fawcett, and may be briefly dismissed. He pointed out that the indigenous dye of India has been gradually displaced by the aniline or alizarine dye of Europe, and that a change has thus come over the spirit of the industry. For some colours, notably red, pink, and yellow, the country dye is still in request; but here too the European dye is like in time to prove victorious by reason of its cheapness, and of the fact that less labour and time are necessary for its manipulation. Whether the change is wholly worthy of approval, seems open to doubt. Cheap and handy though the aniline dye may be, it is oftentimes in danger of lending to the fabric a somewhat common character. Moreover, it possesses no durability. The silks of old time were simple, but they were good: neither sun nor rain could dull their colouring, yet they are yielding place to fabrics, the hues of which, though more brilliant, are ephemeral. The nature of the Indian craftsman has doubtless contributed to the change. Ignorant of the science of his industry and powerless thereby to initiate any new departure in his art, he is yet ready to associate

himself with any method that may ensure less expense and less personal labour. He has not the ingenuity to enlarge or improve upon the art of his forefathers. Europe spreads before him the fruits of her restless research, and he can but accept and imitate.

Red —

Cochineal or Kiramanji, the colouring matter obtained from the female of the insect *Coccus cacti*, is universally used to dye silk red. With it are pounded Pistachio nut (*Pistachia vera*) galls, in the proportion of $\frac{1}{4}$ or $\frac{3}{4}$ of pistachio nuts to 1 of cochineal. Occasionally a certain quantity of sodium bicarbonate and turmeric is added, the soda being supposed to aid the entrance of the dye into the inmost fibre of the silk. All these ingredients are boiled together in water, and as soon as the mixture reaches boiling point, the silk is dipped therein. It is allowed to remain in the solution for one night, cooling gradually, is then removed, washed in cold water, and dried. The dyers of Belgaum always dry the silk in shade, as the action of the sun causes the dye to fade.

‘ Like the stained web that whitens in the sun,
Grown pure by being purely shone upon.’

Turmeric is added to the solution to lighten the shade of the dye, while immersion in lime-juice and water is also in favour, if a brighter colour be required. The proportions of the various substances required to dye red eighty tolas' weight of silk, are given in the subjoined table :

30 tolas of Cochineal.
10 tolas of Pistachio galls.
$\frac{1}{8}$ tola of Soda.
$\frac{1}{8}$ tola of Turmeric.
30 lbs. of Water.

Aniline Magenta is also added to increase the lustre of the dye. In Belgaum it is called by the weaver ಮರಕುಟ್ಟಿ ಬಣ್ಣ (marakutti banna), i.e. the colour of pulverised wood. Before the magenta dye was heard of, a somewhat similar colour was obtained from the 'Patang' wood, the wood or bark of the *Cæsalpina sappan*. Small chips of this wood were soaked for nine or ten days in cold water, at the end of which period the solution was boiled down to half its original quantity. Eighty tolas of this solution were then added to the dye. The colour thus obtained was extremely durable; but the process being both costly and laborious, the magenta dye is now utilised instead.

Yellow —

To obtain this colour, a solution is usually made of Papadkhar or impure carbonate of soda and Kapila powder, the reddish-yellow powder which covers the fruit of the Kamila tree (*Rottleria tinctoria*). The powder is brought from Malabar, the Himalayas, and Arabia, and costs from 8 to 12 annas per lb. In

most places alum and oil are also added to the solution, the amount of alum used depending upon the depth of colour required. In Yeola a reddish-yellow is obtained by mixing the Kapila powder and alum in the proportion of 14 to 3. In Gokák aniline yellow is often used in place of the soda and oil.

The following are the details of the mixture, as used in Sholápur, for one seer of silk :

20 tolas of Kapila.
1 tola of Papadkhar.
3 tolas of Oil.
6 seers of Water.

The mixture is heated to boiling point, and the silk is then steeped in it for about 15 minutes, until it assumes the requisite tint. The mixture, with the silk in it, is then allowed to cool for 24 hours, after which the silk is washed in clean water and dried.

Different shades of yellow, notably one called "Sakkarbani," are obtained by varying the quantity of Kapila powder, and in Bijápur a very light shade is sometimes seen, for which a boiling solution of turmeric only is prepared.

The stalks and flowers of the *Delphinium zalil*, a species of grass imported from Persia and Kabul, and costing from six to eight annas a pound, also provide a light-yellow dye, which is known as 'Isparek,' and is employed in Surat, Poona, and other places. To extract the colouring matter, some two lbs. of Isparek are boiled in 2 gallons of water, and strained. Papadkhar and turmeric are then added, the silk being immersed in the solution of the three.

Green —

Usually yellow silk is dipped in an indigo-bath, or, as in Gokák, silk already dyed with indigo is subjected to immersion in a solution of turmeric. The process followed in Bijápur is somewhat different. Seventy tolas of silk are, *imprimis*, steeped in indigo and then washed in clear water. Twenty tolas of 'Kakadsinghi' (*Pistachia integerrima*) are then boiled in four seers (or 320 tolas) of water. To this mixture are added 20 tolas of turmeric, one tola of aniline green or 'kuppi' powder, and four more seers of water. This mixture being then heated to boiling point, the silk is immersed for 24 hours, being subsequently washed and dried.

In Sind silk is dyed green by immersion in successive solutions of pomegranate rind, indigo, turmeric, and alum, while in Dhárwár the aniline dye is used in direct conjunction with Kapila powder.

Purple —

A common method of obtaining this colour is to use black silk for the warp and red silk for the weft. If actual dyeing is resorted to, aniline dyes are used.

A more laborious process is to steep red silk in an infusion of myrobalans, and thereafter dye it with indigo or with sulphate of iron.

White——

Usually the silk is merely bleached and fumigated as described above. A process, known to the wearers and dyers of Thána, by which a purer white may be obtained, is described on page 33 of Mr. Fawcett's Monograph.

Black——

To secure this colour, the silk is first steeped in an infusion of myrobalans, and for one night in sulphate of iron, is then squeezed, steeped in cocoanut oil or milk, next boiled once again in a solution of sulphate of iron, and when cool washed in cold water. Reports from Yeola show that 80 tolas of myrobalans and 80 tolas of sulphate of iron are requisite to the dyeing of 1 seer of silk. The silks of Tatta in Sind are boiled in pomegranate peel, myrobalan water and iron filings. A similar solution is used in Hyderabad, but with a further admixture of flour and sand, which is said to foster the corruption of the silk. In Ahmedabad a purplish black is obtained by steeping red silk in a strong indigo bath.

Blue ——

The use of aniline dye is almost universal, and has largely superseded the dyeing of silk with indigo. An account of the latter process will be found in the Monograph upon Dyes and Dyeing.

Reddish-brown or Snuff-colour ——

This colour is said to be obtained in Násik by steeping the silk in a decoction of *Acacia arabica* (bábul), *Arabica catechu* (khair), and catechu powder.

Pink or Gulabi——

For this colour aniline dyes are usually employed; occasionally the dyer may resort to immersing the silk in a solution of pistachio galls.

Where aniline dyes are used, the proportion of the dye powder varies according to the colour. The following table gives the quantity of each dye used in Ahmedabad for 1 lb. of silk :

Blue	...	...	... $\frac{3}{4}$ of a tola.
Light Green	...	...	... $1\frac{1}{2}$ tolas.
Rose	...	...	... $1\frac{1}{2}$ tolas.
Black	...	...	... $1\frac{1}{2}$ tolas.
Red	...	...	... $\frac{3}{4}$ of a tola.
Yellow	...	...	... $1\frac{1}{4}$ tolas.
Crimson	...	...	... 1 tola.

The cost of bleaching and dyeing a fixed quantity of silk varies slightly in different districts. In Gokák, for example, Rs. 1-9-0 is declared to be the cost

of dyeing 71 tolas of silk red, while in Belgaum it approximates to one rupee. In general, the cost of the process may be estimated roughly at Re. 1 per séer of silk.

The following table shows the cost of bleaching and dyeing 71 tolas of silk in Yeola :

Colour.	Cost of bleaching and dyeing.	Weight of silk after the process.
	Rs. a. p.	
White	0 1 6	53½ Tolas.
Red	1 0 6	58 "
Yellow	0 12 0	56 "
Orange	0 12 0	56 "
Green	0 12 0	56 "
Purple	0 12 0	54 "
Rose	0 10 0	54 "
Black	0 14 0	106 "
Blue	0 10 0	54 "

(iv) Sizing.

Having concluded the dyeing operations, the dyer returns the silk to the weaver, considerably reduced in weight. The foregoing table shows the approximate reduction in 71 tolas of the raw material; and most local reports concur in the belief that the silk loses 25 per cent of its original weight during the processes of bleaching and dyeing. The case of silk dyed black is the one notable exception to the general rule. In order, therefore, to restore as far as possible the original weight, and also to render the thread more suitable for weaving operations, the silk is sized. Arrowroot paste, sugar, gum, and honey are all made use of in this regard; while the weighting of the thread, in Bijápur, is also accomplished by the use of linseed oil. The process as followed in Násik and Yeola is thus described in the Bombay Gazetteer. The thread is first placed upon the "Tansála," consisting of a pair of upright wooden bars about 8 feet high, furnished with a row of glass rings, through which the yarn is passed and drawn tight. It is then stiffened by being brushed over with a dressing of size. This process applies to the warp silk. The weft silk, on the other hand, is subjected to a somewhat longer preparation. It is first placed upon the 'Phalka' or reeling-cage, and thence wound on to the 'Asari' or reel. While on the reel, it is moistened with size. The sizer, who is usually a girl, then sits down with the reel on her left hand, and on her right a small wheel, to the axle of which is fitted a piece of reed called Likhádi. Picking out the end of the skein from the reel, she fixes it to the reed and then starts the wheel revolving. As the thread winds off the reel and round the reed, she wets the skein upon the

reel with size, and holds the winding thread between her fingers, so that the size is evenly spread over the surface of the fibre.

This concludes the second process in the evolution of the raw silk.

D.—WARPING AND WEAVING.

PROCESS 3.

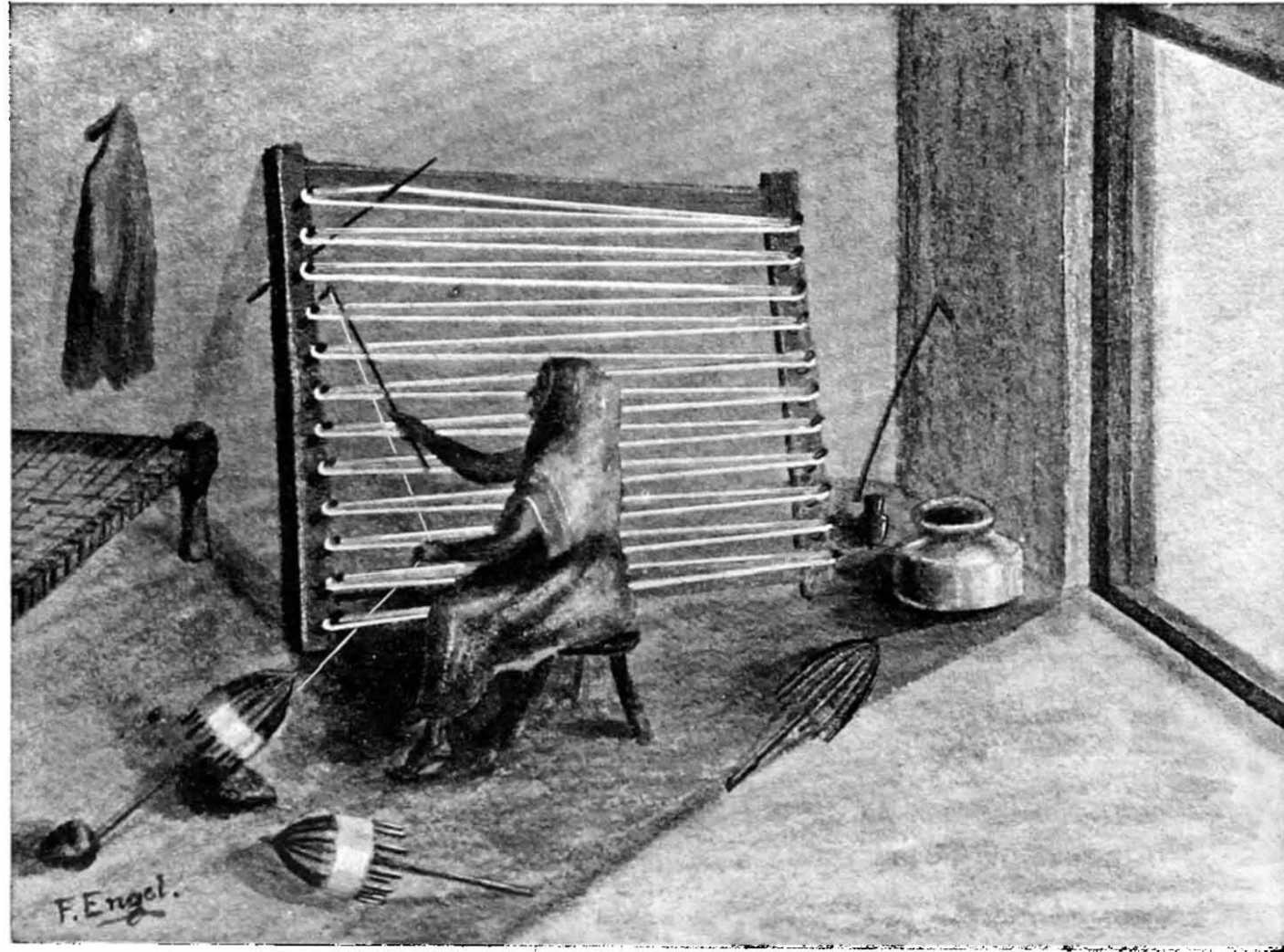
“ಸವ ಚಂದ್ರಿಕೆಯೆನಲ್ಲೊಲಿದಿನ ದುಕ್ಕೂಲಾ ಮರೆಯೊ.”

As the new moon's light gleamed the silken waft of her upper garment.

JAIMINI BHARATA, 11. 8.

The dyeing and sizing operations concluded, the silk is tied into a rough skein and returned to the weaver, who has to wind it on to the reel (Asari, Parta, or Hatti). Usually this is effected in the ordinary way by means of the bamboo-cage (Phalka, Parta, or Ratala); but in the Southern Division the hank is placed instead upon three smooth sticks standing vertically upon a horizontal wooden base, or, at times when wood is not procurable, fixed in a lump of clay. The process, which is known as 'reshmi todona' (ರೇಶ್ಮಿ ತೋಡೋನಾ), consists in the weaver taking the end of the thread, passing it through a bangle above his head, and thence winding it by hand upon a reel. The thread is then handed over to the warper, in many cases a woman, who stretches it upon the warping-frame.

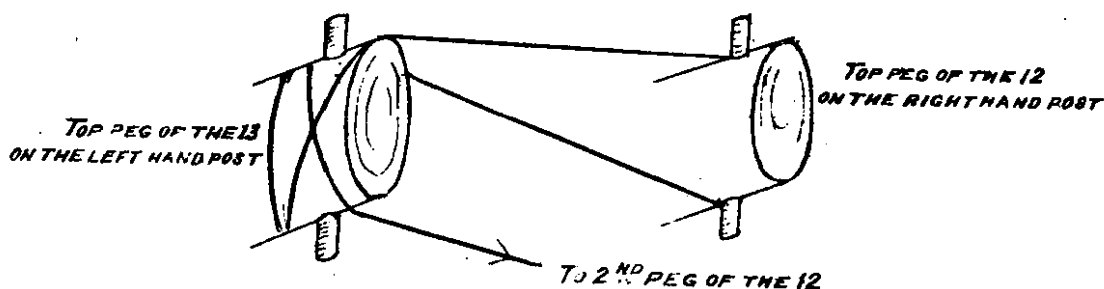
(a) The warping-frame consists of two upright boards or posts, in which are fixed a series of pegs, one below another. The left-hand post, as one looks towards the frame, contains 13 pegs, the right-hand post 12. About an inch from the end of each peg, a small cross-stick, usually a slip of bamboo, protrudes on either side of the peg. The whole frame is about 6 feet high by 8 feet long, while the pegs which protrude at right angles to the sides are some 6 inches in length. In front of this frame sits the warper upon a stool. On her left-hand side is placed a reel, with its hank of sized and dyed silk; its axis rests upon the ground and is prevented from slipping by a piece of wood or stone; the cage of the reel is slightly elevated by a support, usually a block of wood or stone, so that the silk can wind off the end without impediment. In her right hand the warper holds a piece of hollow bamboo in the form of a crutch. She first picks out the end of the hank and threads it through the upper arm of the crutch, and fastens it to the *top peg on the left-hand post*. She then fixes a thin piece of bamboo aslant across the left-hand corner of the frames and below the top left-hand peg: the object of this is to push the back row of threads out of the straight line, running between the two pegs, so that the whole warp will be sufficiently slack, after the slip is removed, to come easily off the pegs. Now it must be borne in mind that the whole object of warping is to make what are known technically as “leases,” that is to say to arrange the threads in such a way that they will cross one another and remain crossed when taken off



To face page 18.

Warping, showing warping-frame, crotch and reels.

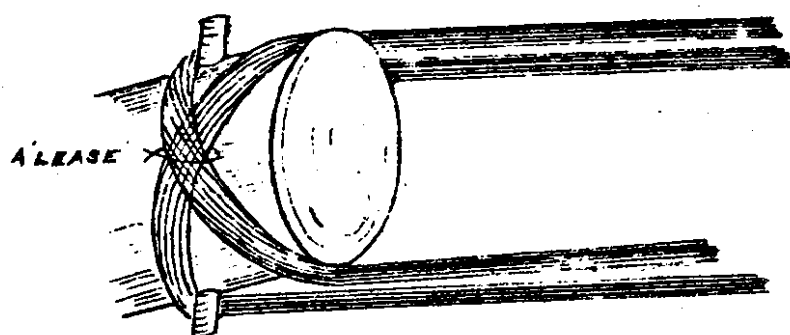
the frame and stretched upon the loom. The end of the thread, as mentioned above, is fastened round the top peg of the 13 upon the left-hand side: the warper moves the crutch, through which the thread is passed, towards the top peg of the 12 upon the right-hand post: as she does so, the silk unwinds from the reel. The crutch guides the thread round the outside of the bamboo slip in the left-hand corner, across to the right-hand corner, round the inside of the upper part of the cross-pin, which projects from the peg, round the body of the peg, round the outside of the lower part of the cross-pin, and finally carries it right across the frame to the original top-peg of the left-hand 13, from which it started. Here the thread passes round the inside of the upper arm of the cross-pin, round the body of the peg, then round the outside of the lower part of the cross-pin, and lastly straight across the frame to the second peg of the 12 upon the right-hand side. Here the same process is repeated, and the thread journeys across the frame once more to the second peg of the 13 upon the left-hand post. Thus it is carried backwards and forwards across the frame until it is finally brought to an end at the bottom peg of the 13 upon the left-hand side.



Having reached the bottom peg of the 13 on the left side, the warper makes no pause, but follows precisely the same course backwards, making an upward journey until she again reaches the top peg of the left-hand 13. The whole distance travelled by the thread from peg No. 1 and backwards and forwards across the frame to peg No. 13 is fifty-two yards, the ordinary length of the warp. The whole time that the thread is passing off the reel and being guided on to the pegs, it passes through the left-hand fingers of the warper, who in this way modulates the strain put upon the silk by the movement of the crutch in her right hand, and discovers any roughness or lumps in the thread.

Before reaching the end of the work, the warper uses up some five or six reels. These she employs one at a time; and as soon as the thread upon one reel is exhausted, she places another reel in position, threads the end of the silk through the bamboo crutch and knots it to the end of the thread upon the frame. By the time all the reels are exhausted, and the warper has finished

his return journey up the frame, the silk lies upon the pegs in the manner shown in the subjoined diagram.



The 'lease' formed in the warp is shown upon the hither side of the peg and is typical of the position of the threads upon every peg. Before taking the warp off the frame, the warper ties a piece of twine loosely round each lease, to keep them from shifting their position and getting entangled.

Now the process which we have described is that followed by the warpers in the city of Bombay. In Surat a somewhat different method, but productive of the same results, is in vogue. The difference lies in the fact that instead of laboriously winding on to the frame one thread from one reel at a time, the Surat warper uses all the threads from a number of reels or bobbins simultaneously. The warping-frame, known as 'Ada,' is similar in design to that described above, and carries nine pegs on each side. Opposite to the frame is erected a stand or platform containing 9 vertical axles. On to these axles are slipped 9 large bobbins, containing silk thread. Between this platform of bobbins and the peg-carrying frame sits or stands the warper, holding in her left hand a small bamboo-rod, from which depend 9 glass bangles, set close together. The warper passes the end of the thread from each of the 9 bobbins through one of the 9 bangles, the mutual proximity of which causes the threads to lie in a more or less compact mass. The 9 threads are then fastened together round the top-peg of the left-hand post, and are directed by the bamboo-rod over and under the pegs on either side, so as to form the leases essential to the process. As the warper guides the bamboo-rod now over, now under, now to this side, now to that, the tension upon the threads causes the nine bobbins to spin round, and give out their respective supplies, until such time as the required length of warp lies stretched upon the pegs. This process must be more speedy than that followed by the Bombay workman, as the multiplication of threads is effected at once, and not by the laborious process of using single threads from a succession of reels.

In Belgaum, again, the warping-frame—if frame it can be called—carries only two pegs, one on the right hand side, one on the left. Usually these two pegs are roughly fastened into the wall of the house. In this case the leases are formed in the hand of the warper, and not upon the pegs; he stands in front

of the pegs in the wall, with a reel on either side, and drawing a thread simultaneously from each reel, forms lease after lease between his thumb and fingers, which thus perform the function of a third peg. The rest of the warp lies stretched upon the two pegs. The process is known throughout Belgaum and Dhárwár as "Saráli Hóyyóna" (ಸರಾಲಿ ಹೊಯ್ಯಣಾ).

(b) The next process consists of heddle-filling, joining, and arranging. If the new warp-threads have to be placed in position and drawn one by one through the eyelets of the heddles and the teeth of the phani or comb, a professional heddle-filler has to be called in. But ordinarily there are still lying between the teeth of the comb and the eyelets of the heddles the threads left from an old warp. These are utilised in the following manner. The warper takes down the new warp from the pegs, with its leases still protected by the knots of string, and draws it out lengthwise, so as to form one long stretch of threads, each crossing the other at intervals, throughout the length and breadth of the warp. He then cuts through one end of the warp, and unites the ends of the divided threads, one by one, with the ends of the old warp, which protrude through the heddles and the teeth of the comb. This process of joining new ends to old, which weavers of the Southern Division call "Hanagi Kecchóna" (ಹನಗಿ ಕೆಚ್ಚಣಾ), consists merely in twisting the two ends between the fingers and applying thereto a little gum. The worker next draws the threads of the old warp through and out of the eyelets of the heddles and the teeth of the comb; and they in their turn draw the threads of the new warp, to which they are severally united, into their proper positions between comb-teeth and heddles. The ends of the new warp are then fastened round the square cloth beam, directly in front of the weaver's seat, round which the fabric is rolled, during the process of weaving.

One end of the warp is therefore secured round the cloth beam; and it only remains to fasten the other end to its respective beam, known as the A'ta or warping-beam. This end of the warp is left uncut, and sections of it are taken and fastened to the beam, the rest being rolled up into a bundle and suspended over the beam, which, as the process of weaving goes on, moves gradually forward towards the heddles and comb. When it has drawn near enough, a further quantity of warp thread is loosened from the bundle overhead, and is attached in sections, as before, to the beam, which, relieved of all strain, can be moved back to its original position, about six feet away from the weaver's end of the loom.

The whole warp now lies stretched upon the loom, and merely requires a little arrangement, before the weaver commences his labours. The process, which is called in the Kánarese tongue "Sandarki Madona" (ಸಂದರ್ಕಿ ಮಾದೋಣಾ), consists in moving the comb and heddles into their respective positions, taking care that the threads run through them properly, and in untying the knots round the leases. When these knots are untied, each lease is moved by hand into a straight line with its neighbour; and in order that the upper and lower threads of the lease may not get entangled, flat strips of bamboo are placed horizontally

between them. The strips are two in number, and lie close together on either side of the point, at which the upper and lower threads of the warp cross one another.

(c) The last process, that of weaving, has now been reached. Before entering into details, it will not be out of place to give a brief description of the loom.

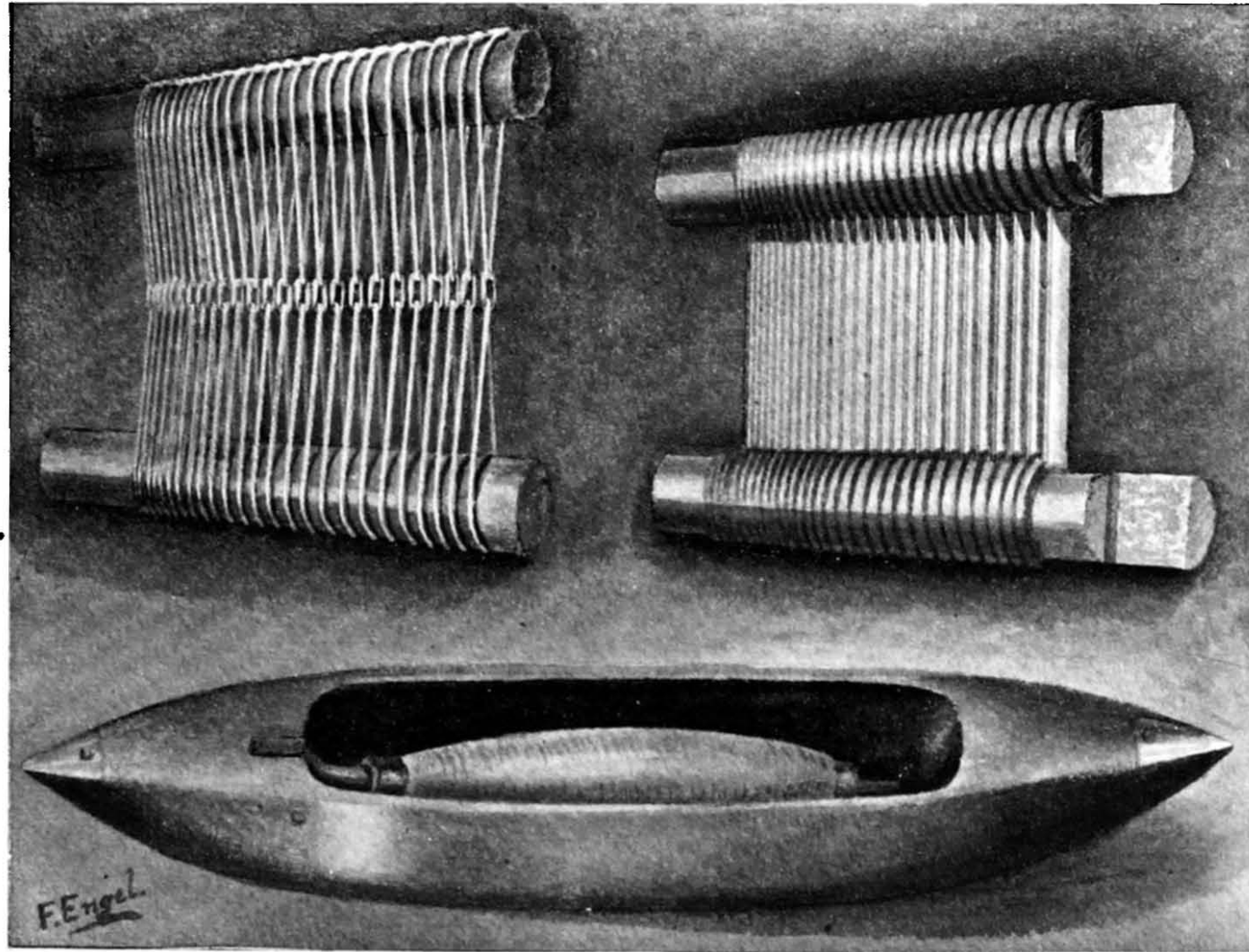
Weaver's Pit.—Commencing from the weaver's end, the first object of interest is the weaver's pit, some thirty inches long by fifteen or twenty inches deep, in which the weaver sits when at work.

Cloth Beam.—Immediately in front of the weaver is the Cloth Beam, called 'Turai' or 'Tur' in Maráthi and 'Kunti' in Kánarese, a solid square bar 4 feet long by 2 to 4 inches broad, and costing from Rs. $1\frac{1}{2}$ to Rs. 3. The ends of the beam rest in sockets; which enables the weaver, as the work progresses, to slowly turn the beam and roll the web round it. The beam is raised some 2 inches from the floor, and is kept in its place by two strong pegs, termed "Nalige guta" and "Hokkalu guta" in Kánarese.

Reed-frame.—Behind the beam, and supported from the roof by cords, lies the frame or batten, called 'Hatya' in Maráthi and 'Halagi' in Kánarese, and costing from Re. 1 to Rs. $2\frac{3}{4}$. Its upper and lower parts are each composed of two pieces of wood, fitting close together. Between them is imprisoned the comb or reed, called in Maráthi "Phani" and in Kánarese "Tattu," costing about one rupee, and composed of a series of very thin bamboo strips. Between each of these strips or teeth is passed a fine string, which serves the double purpose of keeping the teeth slightly apart and of fastening together tightly the two pieces of wood, of which the batten is composed and which imprison the ends of the teeth. The frame and reed together weigh heavily, and serve to force home the threads of the weft, after each journey made across the warp by the shuttle.

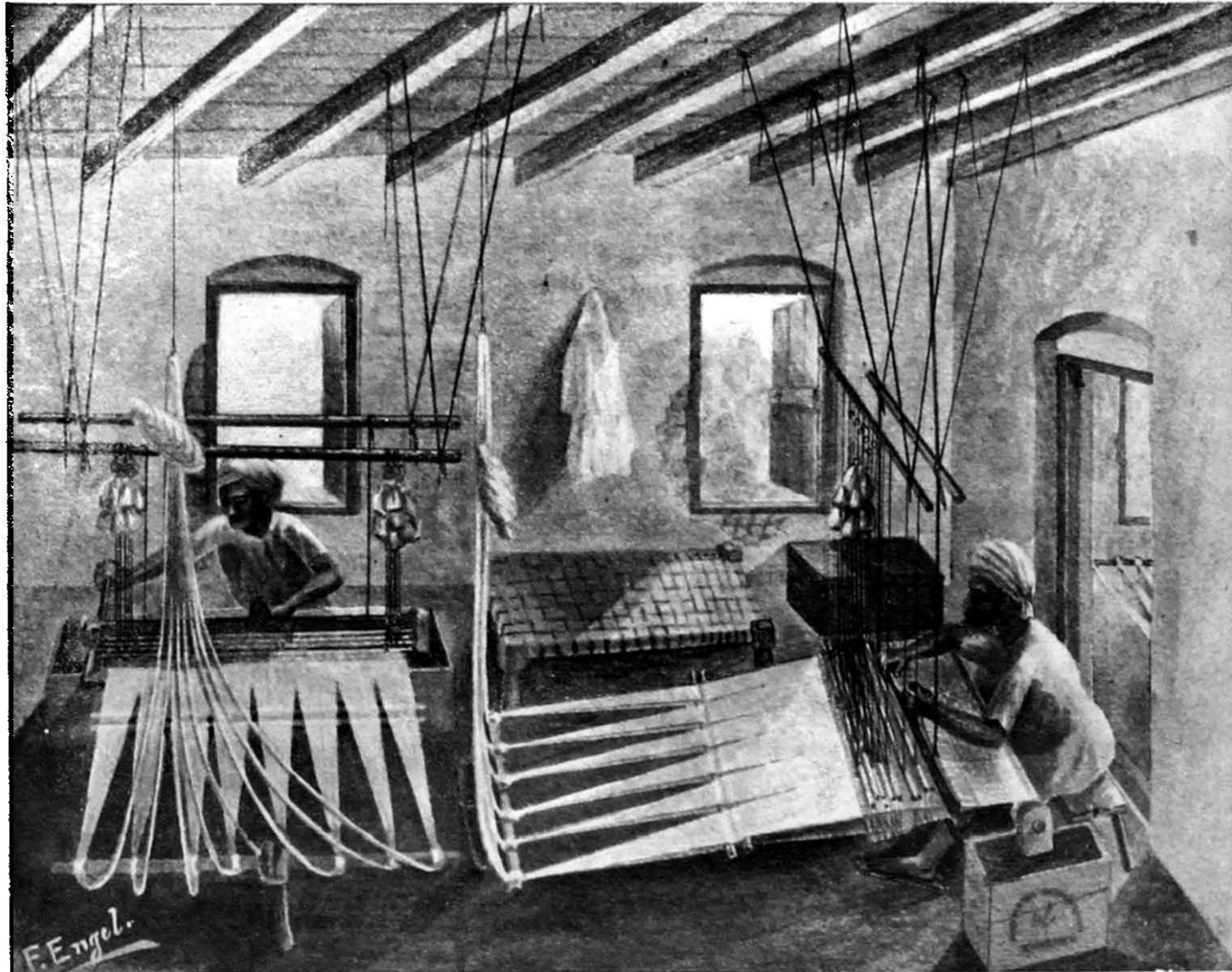
Treadles and Heddles.—Behind this, and situated in the pit are the treadles or foot-boards, by working which the weaver raises or lowers the threads of the warp. They usually number two and are connected by cords with the under-portion of the heddles. The heddles are two frames, hanging from the roof across the warp, and composed in each case of two rods, one above and one below, connected by loops of thread. Each loop forms a figure of 8, in the centre of which is a small eyelet, through which pass the threads of the warp. One heddle with its thread-loops guides the upper threads of the warp, and the other the lower threads of the warp. As the treadles are worked, the heddles move their respective warp-threads up and down, while between each movement the loaded shuttle flies across the warp.

Cross-bar.—Next comes the cross-bar, fixed to the ground on two pegs, and used for raising the warp. It costs from 12 annas to 1 rupee.



To face page 22.

Part of a heddle or heald, showing eyelets through which the threads pass.
Part of a phani or comb.
The Shuttle.



To face page 23.

Weaving in an upper-storey-Bombay.

(The supports of the cloth-beam are fixed in old kerosine oil cases, filled with sand. This is a common arrangement in the city.)

Lease-rods.—Behind the cross-bar the lease-rods, already described, lie across the warp, on either side of the cross-juncture of the threads.

Warping-beam.—Lastly one sees the Warp Beam, called in Maráthi 'Ata' and in Kánarese "Vottisuttu kunti," about 4 feet long by 2 inches round, and costing Rs. 1½. On to this beam the warp is fastened in sections; and to support both warp and beam, a stout cord is fastened to the middle of the beam, is then passed round a fixed pulley or a smooth post, and carried all the way back to a peg on the right hand of the weaver. As the weaving of the fabric progresses, the warp and warping-beam move slowly towards the heddles, reed-frame, and cloth beam; and the weaver from time to time loosens the rope of the warping-beam, to allow the warp full play, and a further portion of the finished fabric to roll round the cloth-beam.

Such is the simplest form of loom. The weaver, seated on the edge of the pit, presses his feet upon the treddles and works the two heddles up and down, and as the latter lift and lower the fibres of the warp, the weaver shoots the shuttle from right to left and back again through the warp. After each journey of the shuttle the weaver draws the reed-frame heavily against the edge of the web, thus forcing home the woof-threads. Occasionally, as in Bombay, the looms are arranged in an upper storey; and in such cases there is no weaver's pit. Instead the cloth-beam and warp-beam are raised off the floor by supports proportionate in height to the depth of the pit, found in ground-floor weaving-rooms; and the craftsman sits upon a low stool of wood or cane. In one upper room, visited by the writer, some three or four children were seated underneath the loom in a ring, laboriously spelling out Urdu sentences, while their father wove the fabric above their heads, pausing now and then in his task to explain to them some crucial point.

* The loom used for weaving gold-bordered fabrics differs from that above described, in that, instead of one set of heddles, it is furnished with three sets. The first or large set governs the motion of the whole warp; the second set, containing four separate heddles, controls the gold thread in the border; and the third set, consisting of two heddles, controls certain gold threads, which form a saw-shaped edging to the inner side of the border. The first and second sets are both connected with the treddles, and are worked by the feet of the weaver: but the third set of border-edging heddles are worked entirely by hand, and are kept in their place by small bags filled with sand and balanced overhead. In the process of weaving, the weaver presses the right treddle, and causes the first set to make two movements; then the left treddle, and thus puts the second set in motion: while, at every movement of the first or main set, one of the rods supporting the third set of border-edging heddles is lowered; the two remaining rods of this set are each lowered in turn; and then all three are again raised by the weaver's hand, and are once more pressed downwards in succession.

In some looms the second set of heddles which control the border threads

* This account is taken from the Bombay Gazetteer.

are not connected with the treddles ; but are supported by small bags of sand, and worked by hand, in the same way as the third set of border-edging heddles. This arrangement is commonly in force among the Kámáthi Koshti weavers of Poona.

The loom employed for brocade-weaving has four sets of heddles. Of these the 1st or main set controls the threads in the body of the fabric, the 2nd set controls the threads in the border, the 3rd set the threads which form the edging of the border, and the 4th set the threads which form the ornament in the body of the web. They are situated in succession behind the reed-frame, in the order in which they have been described. Only the 1st or main set are connected with the treddles, the remainder being moved up and down by hand.

The 4th set of brocade heddles consists of a fringe of loops of white thread, which pass round the fibres of the warp and rise some six inches above it. The upper ends of the loops are fastened to a belt of white cords, which vary in number from twenty to forty, according to the intricacy of the pattern. On either side of the warp are two upright holes supporting two horizontal rods about $1\frac{1}{2}$ feet long, lying on a level with the web. To these rods are fastened the ends of the white cords, which form the belt above mentioned. From the middle of the belt of cords a bunch of white strings rises above the centre of the web ; one string is attached to each heddle of white thread ; and each string is held upright by being fastened to a cane-rod, which hangs from a cross-bar overhead. A few inches above the belt of cords, another cord passes from side to side of the loom, and this cord is connected with a third cord which slants upwards to the upright threads. On this slanting cord are strung a number of loose knotted loops, called *pagiás*, which are fastened to the upright threads. The proper arrangement of these knotted loops is declared to be a matter of great difficulty, and only known to some few of the most skilled weavers.

When a brocaded figure is about to be woven, the weaver draws certain of the loose-loops or *pagiás* down the slanting string, and, by drawing them down, draws up some of the upright threads. These, in their turn, raise the cords in the cord-belt, to which they are fastened ; while the latter similarly raise the loops which depend from them, and with the loops certain of the fibres in the warp. To keep the cords of the belt raised, the weaver inserts between them and the remaining cords of the belt two wooden wedge-shaped hooks, which hang from the roof about eighteen inches to the right and left of the central threads. After the required number of fibres in the warp has been raised, the weaver, aided by one or two boys, arranges across the breadth of the warp a number of bobbins full of gold thread. The number of bobbins employed depends upon the number of flowers in the breadth of the web. Under the raised threads of the warp the weaver and his assistants pass the bobbins of gold thread, next draw out the wooden hooks, and allow the brocade heddles to fall to the general level. The weaver then works the main heddles and the border heddles, passes the shuttle across the warp, and adds one more fibre of weft to the fabric. Then,

again, certain of the brocade-pattern loops are drawn down, and certain cords in the brocade-heddle are drawn up and kept in place by the wedge-shaped hooks. Gold thread is again passed under each of the raised fibres in the warp, the wooden hooks are withdrawn, the main and border heddles are set in motion by the weaver, and a second fibre is added to the weft. While the brocade-heddles are being worked, the first set of heddles is unfastened from the iron hook, which supports it when in motion, and is allowed to lie slack.

The whole process is extremely slow; for, according to the Gazetteer, in one working-day of nine hours a man and two boys can together weave only nine inches of web; that is to say, about one-third of the amount of plain silk which a single man can weave within the same period. It is in the weaving of such flowered and brocaded fabrics that one may best gauge the enormous advantage which the power-loom holds over the hand-loom.

The cost of a loom varies in accordance with its size, finish, and the number of sets of heddles. The cheapest are bought for some Rs. 7 or Rs. 10, while the more expensive range from Rs. 25 or 30 to Rs. 45. The wages for construction approximate to annas eight or twelve.

Before quitting the subject of looms, we may call attention to the quaint midget loom employed in the weaving of silk tape. The fingers of the weaver's left hand perform the function of warping-beam; while instead of heddles, the fibres of the warp are threaded with great neatness through the corners of ordinary playing-cards. Arrangements of this kind were seen by the writer in one or two shops in the Mahommedan weaving-quarter of Bombay.

The technical aspect of the silk-weaving industry ends at this point; and nought remains now but to notice the various descriptions of fabrics which form the monuments of the spinner's, dyer's, and weaver's labour.

PART II.

THE FINISHED FABRIC.

"He spoke, and one among his gentlewomen
Displayed a splendid silk of foreign loom,
Where like a shoaling sea the lovely blue
Play'd into green." GERAINT AND ENID.

The finished fabrics may be divided into the following classes:

(a) Pure silk fabrics, either plain or mixed with gold thread, and woven chiefly at Poona, Yeola, Surat and Ahmedabad, Belgaum, Revdanda in Kolába, and other places.

(b) Mixed fabrics, such as 'garbhasuti,' in which the warp is cotton and the weft silk; 'garbhasuti jari kinar,' in which gold borders or ends

are added to a mixed silk and cotton web; 'reshmi jari kinar,' in which gold borders are added to pure silk fabrics, such as pitámbars and paithanis; cotton fabrics with silk borders, such as dhotis, saris, and bodices; and lastly, silk and gold fabrics, or gold brocade, such as kinkháb and borders or bands, known as 'kor,' 'kinar,' 'tás,' 'lappo,' 'phit,' 'pallav,' and 'gota.'

With the exception of such towns as Poona, Yeola, Surat, and Ahmedabad, most of the places in this Presidency, which contain hand-looms, turn out but a small quantity of silk apparel. Whatever quantity is woven during the year is invariably locally consumed, never voyages further than the markets of the immediate vicinity, and varies therefore in accordance with the personal wealth of the local residents. Surat, Ahmedabad, Poona, and Yeola, however, are differently circumstanced, in that their productions are known and desired by the people of Persia and Araby, and are not the slaves of local demand. Further, there is a certain intrinsic merit in them, which can set the fabrics of the power-loom at defiance. The Bombay mills can undersell the weaver of Belgaum or Revdanda, can provide a cheap silk sari with greater power to attract the wife of the husbandman, than the mixed fabric woven by the latter; but they cannot and dare not attempt to divert the public taste from the pitámbar of Yeola and Poona, and the 'kinkháb' of Surat and Ahmedabad. Hitherto it is to the supply of cheap fabrics only, of such apparel as may be conveniently purchased by persons of the middle and lower classes, that the mills of Bombay have paid attention. The orthodox and rich Hindu must buy his sacred loin-cloth from the workers of antiquity, the wealthy Mahomedan must purchase a waist-coast of gold brocade from the hand-loom of Gujarát; for the mill cannot provide anything equivalent. But with the wives and daughters of the lower classes the case is different; and they are gradually learning to discard the sari and bodice which the local weaver provides, in favour of cheap and multi-coloured power-woven fabrics.

We pass on to a brief survey of the output of each district in the Presidency. Such districts as are not mentioned hereunder contain no silk-weaving industry.

Belgaum.

In these days the weaver of Belgaum utilises silk mainly in ornamenting and bordering Cotton Saris or Dhotis. Pure silk fabrics and piece-goods he also weaves, but in smaller quantities than heretofore, as the market for such goods has of late years declined. Saris and Bodices wholly made of silk must necessarily be costly and within the means of but a limited number; while the mills of Bombay and other places have taught them, whose social position or religious tenets demand the use of such apparel, to look for an article which however staring and gaudy its colouring, is at any rate less expensive. Nevertheless, although the demand for her silken apparel may have declined and disposed her to greater dependence upon the "fabric rough," Belgaum can yet lay claim to

rank among those districts of the Presidency in which silk-weaving is something more than a name.

PRODUCTS OF THE HAND-LOOM.

(a) Cotton Saris with silk-borders.

Of these little need be said, as Mr. Enthoven has already described them in his Monograph upon the Cotton Fabrics of this Presidency. Usually and unless the intending purchaser gives a special order that the woof threads also be silk, only the warp threads in the border are silk. When both warp and woof threads are silk, a separate shuttle is used for each border, the cotton web intervening between the two borders being woven with another shuttle. The upper end (ಮೇಲಿನ ತುದಿ) of the more expensive of these fabrics, that is to say the portion which passes over the head is made of silk in both warp and woof. The ends of cotton thread are joined to the ends of the silk by twisting them between the fingers and applying a little gum. At the time of removing the finished fabric from the loom, the line of junction of the silk and cotton threads is smoothed, and the knots are removed with pincers.

A detailed description of one of these saris is given at page 9 of the Cotton Fabrics Monograph, and hardly needs repetition. The price of such goods varies from Rs. 3 to Rs. 40 or 50, being determined by the number of "Hunjas" (ಹುಂಜ) contained in the border. One "Hunja," which adds approximately one rupee to the price of the sari, consists of sixty double threads of silk; and one, two, three, or four Hunjas may be contained in a single sari of this class.

For a cheap silk-bordered sari costing some seven rupees, the following estimate of the cost of production is given :

			Rs.	a.	p.
Cotton Yarn	1	8 0
Silk Thread	2	8 0
Wages of Weaver for 3 or 4 days	1	12 0
Miscellaneous expenses	0	4 0
					<hr/>
					6 0 0

(b) Cotton Dhotis with silk borders

are made in the same way as the saris and vary in price from Rs. 1 to Rs. 20. A great many of them are made with a lace, and not a silk, border.

(c) Mundasas (ಮುಂಡಾಸ) or Scarves.

These are bordered with silk and occasionally ornamented with gold and silver thread as well. They are bought only by the well-to-do, and cost from Rs. 2 to Rs. 25 a piece.

(d) Saris entirely woven of Silk.

As a rule these are provided with ornamented borders, the particular pattern

of which gives its name to the fabric. The following are the names of the best known patterns :

Kamalpethi from Kamala (lotus).
 Karavatpethi „ Karavat (saw).
 Rudrakshapethi „ Rudraksha (a small red berry used in the rosaries worn by Yogis and Sanyasis).

These saris are mostly made in Belgaum itself, and in Gokák ; but not in Chikodi and other towns of the district. Two, which were exhibited at Calcutta in 1883, cost respectively Rs. 55 and 65.

(e) Bodices entirely woven of Silk.

These, which are termed 'Cholis' or 'Khans' are usually made from silk piece-goods by cutting off certain lengths and stitching them together ; and differ in this respect from Saris, which are always woven as a complete fabric. In many cases they have ornamental borders like the saris. Two pieces of bodice-cloth, made in Belgaum itself and Kaladgi, were exhibited at Calcutta in 1883, and cost Rs. $3\frac{1}{2}$ and Rs. $2\frac{1}{2}$ respectively.

(f) Silk piece-goods.

These are usually kept and cut up into children's coats, saddle-cloths, covers for cushions or pillows, and the sacred scarves in which the Lingayat suspends the symbol of his cult.

(g) Garbhasuti or mixed cotton and silk Dhotis, Saris, and Bodices.

In these the warp is of cotton and the weft of silk. Gokák is the chief centre of their production ; the 'garbhasuti' pitámbars and paithanis there woven generally have a pure silk border. Saris of this kind cost from Rs. 19 to Rs. 30 a piece. A set of seven bodices exhibited at Calcutta were priced at Rs. 18-11, while a set of six from Kaladgi cost Rs. $6\frac{3}{4}$.

Fabrics wholly woven of sick are sold mainly by weight, at the rate of Rs. 10 to Rs. 16 per ser. The raw silk is imported in boxes by rail from Bombay, each box costing about Rs. 800. Taking into consideration the railway charges, brokerage and commission, and the cost of winding, spinning, bleaching, and dyeing the contents, each box costs roughly Rs. 986. The capitalist sells the dyed silk at the rate of 4 or 5 annas per tola, and makes on the whole a profit of roughly Rs. 24 upon each box. The fabrics are partly exported by road or rail to Goa and by rail to Kurundvad, Sângli, Kolhápúr, Miráj, Sátára, Bijápúr, and Dhárwár, and are partly sold in the local markets of the district.

Dharwar.

As in Belgaum, so in this district, silk is used rather as an auxiliary, whereby the value of cotton fabrics may be enhanced to suit the taste of the well-to-do. Pure silk apparel is woven in one or two places, notably Hubli and Gadag; but the extent of the industry cannot be said to be great, and depends mainly upon the number of marriages celebrated during a fixed portion of the year. Twenty years ago the weaving of silk would appear to have been more widespread than at present.

PRODUCTS OF THE HAND-LOOM.

(a) Cotton Saris with silk borders.

These are about $7\frac{1}{2}$ yards long by 1 yard broad, and cost from Rs. 4 to Rs. 25 a piece, according to the quality of the yarn and the quantity of silk inwoven.

(b) Cotton Dhotars with silk borders.

The demand for these goods has declined, as the purchasing public of to-day seems to prefer a lace border. They are about 5 yards long by one yard broad and are sold at prices varying from Rs. 1 to 10.

(c) Cotton Bodices, Khans or Kubsas with silk border.

These vary in price from Rs. 1 to 2, are about $\frac{3}{4}$ of a yard long and $\frac{1}{2}$ yard and broad.

(d) Kirgis or Saris for girls.

are occasionally ornamented with a silk border and fetch from Rs. 5 to 20.

(e) Saris wholly made of silk.

These as above remarked are very rarely used; the bulk of the people being too poor to afford such costly articles. A certain number are woven during the marriage-season, but are hardly ever asked for during the remainder of the year. They are sold at from Rs. 30 to Rs. 50 or 60 a piece, the price being regulated by the weight of the fabric.

(f) Bodices or Khans, wholly made of silk.

These articles of apparel are, like the silk saris, rarely made, and are only demanded during seasons of festivity. The bodice cloths are sold at rates varying from about Re. 1 to Rs. 3 or 4, while men's garments of the same quality and cut from the same piece fetch from Rs. 10 to Rs. 30.

The cost of preparing a silk-bordered Sari is approximately the same as in Belgaum. From eight to ten tolas of silk is used in the border of the cheaper kinds and costs, when prepared for the loom and dyed, Rs. $2\frac{1}{2}$ or 3. The raw

silk, which is imported from Bombay by rail, costs about four annas per tola. Ninety tolas of raw silk can be prepared for the loom and dyed for Rs. $4\frac{1}{2}$ or 5; but the process of 'throwing' and bleaching &c. through which it has to pass lessens its weight considerably. Local opinion avers that 90 tolas weight of raw material weighs for this reason some seventy tolas only when spun, bleached, and dyed.

The major portion of the output of the Dhárwár silk-loom is locally consumed, the rest being exported by rail to various parts of the Deccan and occasionally to the Madras Presidency.

Bijapur.

The towns of Ilkul and Guledgud in this district have long had a name for the excellence of the saris and male apparel which they put upon the market. But steam competition has wrought the industry much harm, and at the present time the outturn is not as large as it used to be.

PRODUCTS OF THE LOOM.

(a) Saris of Silk or mixed Silk and Cotton or Cotton with a silk border.

A great variety of these fabrics are made, and are worn by the richer members of the Brahman and Parbhu classes. Those that are made partly of silk and partly of cotton generally have a silk border, and according to the pattern woven, are distinguished by various names; as for example,

- "Chadurang Chiki" in which 9 black threads, 2 red and 2 white threads follow in succession.
- "Ragavali" in which 8 black threads are followed by one white.
- "Bhangar Kadi" in which one yellow thread succeeds 8 black.
- "Ani Dafla" in which 12 black threads are followed by 2 red and 2 white.
- "Kristna Gujar" in which 2 black threads are succeeded by 1 white thread, lengthwise and in breadth.

The borders of such saris are sometimes lace and sometimes ornamented silk, the dimensions of the whole fabric being about 22 feet long by $4\frac{1}{2}$ feet broad. Their price is variously stated as from Rs. 15 to 45 or 50.

(b) Male Pitambars or Dhotis wholly of silk.

These measure about fifteen feet in length and $2\frac{1}{2}$ feet in breadth, and vary in price from Rs. 20 to 25. As only the richest members of the Hindu com-

munity wear them, they are generally made only to order, and are not produced to any very great extent.

The price both of the Sari and Dhoti depends upon the weight of the fabric. But in fabrics which are partly of cotton and partly of silk, or are purely cotton with a silk border, the unit of valuation is, as in Belgaum and Dhárwár, the "Hunja." Intricacy of pattern in the body of the fabric also adds to its market value.

(c) Khans or Bodices.

These are nearly always made of cotton, with a silk border; and find ready sale both in the local market and in Bombay, Ahmednagar, and the Southern Division of the Presidency. A few, made entirely of silk thread, are annually produced. The dimensions of these goods are 20 inches in length by 30 inches in breadth, their price being regulated by the amount of silk utilised.

(d) Handkerchiefs.

A few of these are made in various colours, of which red seems the most favoured. They measure 1 foot square and are used largely by members of the Lingayat community to suspend the *ling* which they carry round their necks.

The following estimate of the cost of production of one sari of mixed silk and cotton or of cotton with a silk border and ends has been submitted by a resident in the district :

	Rs.	a.	p.
Silk	4	8 0
Cotton	3	0 0
Weaving charges	2	0 0
Miscellaneous expenses	1	0 0
		<u>10</u>	<u>8 0</u>

The sale price of such a sari would be roughly 12 rupees. The raw silk which is imported by the traders of Guledgud, Bágalkot, Gudur, and other places is locally 'thrown' and dyed, at a cost of about Rs. 4 for every seventy tolas. The main route of import of raw material and export of finished fabric is viâ Bágalkot, whence the saris, bodices, and other articles manufactured in the district are sent to Poona, Ahmednagar, Sholápur, Sátára, Kolhápur, Bársi, and Miráj.

Kolaba.

As is perhaps natural, considering the proximity of this district to Bombay, the weaving of silk fabrics, or even cotton fabrics with a silk border, has never developed into an industry of importance. On the contrary, recent information shows that the weavers have been gradually weaned from their hereditary industry, until only two families remain, resident in Revdanda, who between them provide for a very small annual demand.

PRODUCTS OF THE HAND-LOOM.

(a) Pitambars of mixed silk and cotton.

These are really better-class dhotis and saris, and are made in very small numbers. They usually weigh from 15 to 20 ounces, and are sold at the rate of Re. 1 per ounce. A few are made entirely of silk; but their quality is inferior.

(b) Silk borders for Bodices.

These weigh about half an ounce, and are sold at Re. 1 per ounce. About twenty rupees' worth are annually woven. A set of four silk borders exhibited at Calcutta in 1883 cost Rs. 2-13-4.

Ratnagiri.

Silk-weaving in this district is practically extinct. A few cotton saris or lugadis with a small silk border, are occasionally made; but in general all apparel, in which silk is interwoven, is imported from places where the industry is more thriving.

Poona.

For many generations Poona city and district have been the centre of a large silk-weaving industry, which has declined but little during the last twenty or thirty years. The Momin weaver still finds purchasers for his handiwork among the Musalman population, while the Hindu Koshti has no reason to complain of any great decline in the demand for either the costly or the cheap fabrics woven upon his loom. Perhaps the output of cotton goods with silk borders is larger here, as in many other districts, than that of purely silk-woven fabrics: but the excellence of the latter has in nowise deteriorated since the days when the craftsmen first journeyed hither from Narayan Peth, Hyderabad, and Yeola.

PRODUCTS OF THE HAND-LOOM.

(a) Saris wholly woven of silk.

These are made in Poona itself, Bhimthadi, and occasionally in Purandhar. They vary in price from Rs. 25 to Rs. 50 or 60, and are often ornamented with gold thread locally manufactured. The gold thread is usually used in the woof and is not added after the fabric has left the loom. Gold thread, if used only in the borders, is inwoven by the extra sets of heddles described above. The amount of gold thread introduced governs the price of the fabrics, in conjunction with the quantity and quality of silk used and the amount of labour expended. One sari exhibited at Calcutta in 1883 cost Rs. 50.

(b) Paithanis.

These are a more costly species of Sari, woven of the best quality of silk, and



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having both ends and borders ornamented with gold thread. They cost from Rs. 75 upwards.

(c) Mukte.

A silk cloth used as dining apparel by richer members of the Brahman community. Purchasers are reported to be in the habit of dipping the cloth, when first bought, in a solution of unrefined sugar mixed with the crushed leaves of the Jaswand tree. The process is supposed to preserve the consistency of the threads.

(d) Julias or Gowns woven wholly of silk.

These are made in limited numbers for rich Mahomedan ladies, and fetch a high price.

(e) Piece-goods of silk

are made in Poona city and in Purandhar, and are cut up into Bodices, Pyjamas, Coats, and Jackets. The bodices are the least expensive of any of these garments, and vary in price according to the quality of silk, of which the main fabric is composed.

(f) Saris and Dhotis of cotton with a silk border

are made at most places in the district. They vary in price from Rs. 4 to Rs. 30 or Rs. 40. The more expensive belong to the 'garbhasuti' class of fabrics. One particular kind of sari, which is white with a red silk border, is known as 'Patala,' and is worn by married women and widows upon special occasions. The price of Patalas ranges from Rs. 10 to Rs. 20; but, in cases where the ends and borders are of lace, is as much as Rs. 50.

(g) Uparnas of cotton with silk borders.

These are the upper garments worn over the shoulder by well-to-do Hindus. They vary in price from Rs. 2 to Rs. 16.

(h) Bodices or Khans of cotton with a silk border

Vary in price from annas eight to Rs. 2, and are produced in tolerably large quantities.

(i) Bodices of silk and cotton mixed, i.e. 'Garbhasuti.'

These are made in fairly large numbers for the better classes. A set of six costs about Rs. 26.

(j) Knotted and plaited fringes of silk.

All the silk used by the hand-weaver of Poona is imported from Bombay by rich traders, and, when ready for the loom, is sold at the rate of Rs. 16 per pound. The finished fabrics are sold partly in the local market, and partly in Bombay, Pandharpur, Sátára, Sholápur, and other places. The dyers of Poona

are generally Hindus; and the dyes used are generally aniline. This, coupled with the fact that inferior qualities of silk are often used, gives the Poona silk trader a slight advantage over the trader of Yeola in the local markets. The weavers say they earn from Rs. 15 to Rs. 25 a month, a somewhat higher wage than that earned by weavers in most of the Deccan districts.

Nasik.

A footnote in the Gazetteer remarks that possibly the style of silk stuffs and brocade, which Marco Polo found being woven at Bagdad, and called 'nasich' and 'nach,' originally came from Násik; and that these silks were known in Europe in the fourteenth century as nac, nacques, nachiz, and nasis. However this may be, Násik and Yeola have always been remarkable for their silk-weaving industry, ever since the time when Raghoji Naik induced the Gujarát Vani, on promise of a monopoly, to bring weavers to Yeola.

PRODUCTS OF THE HAND-LOOM.

(a) Pitambars, wholly silk.

These are costly dining-robcs for the use of high-class Hindus, both male and female. They are usually red, purple, or yellow, but sometimes also green, blue, and white. An embroidered border is usually added to the male pitambar, which measures 5 or 6 yards in length by 4 in breadth, and is sold at prices varying from Rs. 15 to Rs. 40. The female pitambar or paithani, which is more rarely woven, has an embroidered border and end, is 8 or 9 yards long by 4 yards broad, and fetches from Rs. 30 to Rs. 70. Several designs may be included in one border: for example, a paithani may contain in the border:

- (i) four stripes, called 'gomi,' from its resemblance to the underside of a worm,
- (ii) katari pattern, from katar (a dagger),
- (iii) muthede pattern,

while the groundwork may be of the pattern known as 'chaukdi,' i.e. containing squares. The borders and ends of these garments are also ornamented with gold and silver thread sometimes, in which case the fabric belongs to the class of 'reshmi jari kinar.' The gold thread is purchased from the Gujarát Vanis and Shimpis and is used in the warp. Two paithanis of this kind exhibited at Calcutta in 1883 cost respectively Rs. 40 and Rs. 65.

(b) Saris or Lugadis, wholly silk.

These are in great demand among the higher classes, and have, as a rule, a pattern inwoven. One of the best known patterns is called 'bugdi' or ear-ornament pattern. One very fine sari which was shown at Calcutta was 9 yards long, of most intricate pattern, and was priced at Rs. 200.

(c) Kad, wholly silk.

This is also a dining-robe, of white, blue, or yellow silk; but has no-border. Both men and women wear the kad. Those intended for men's use are 5 to 6 yards long by $3\frac{1}{4}$ to $4\frac{1}{4}$ yards broad; and cost from Rs. 13 to Rs. 25; while those for women are 8 or 9 yards long, of similar breadth to the former, and cost from Rs. 20 to Rs. 30.

(d) Mukta, wholly silk,

is similar to the Kad, but of rougher texture and less costly.

(e) Bodices or Khans, wholly silk.

The ordinary kinds cost about Rs. $4\frac{1}{2}$ a piece. One kind is denominated 'Ruiphuli khan,' as the flowers in the border resemble the Rui flower (*Calotropis gigantea*). A set of six shown at Calcutta in 1883 cost Rs. 91-12-0.

(f) Saris of mixed silk and cotton, i.e. 'Garbhasuti.'

In regard to their dimensions, these approximate to the saris or lugadis of other districts, and cost from Rs. 8 to Rs. 22 a piece. They contain various designs, known as 'chaukati' (squares), 'chanchani' and 'chandrakala' (black ground). Another kind, in which the warp is of red yarn and the woof of green, is known as 'anjiri,' i.e. like a fig. A gold border and ends are also added sometimes to this class of sari.

(g) Saris of cotton with silk borders.

These cost from Rs. 4 to Rs. 14, and resemble the same class of goods produced in other districts.

(h) Dhotis and Uparnas of cotton with silk borders.

The price of these is said to range from annas seven to Rs. $1\frac{3}{4}$.

(i) Garbhasuti Turban cloths.

These, which are of cotton and silk mixed, vary in length from 40 to 75 yards, and cost from Rs. 15 to Rs. 50.

Embroidery is occasionally added to the silk fabric by women after it has left the loom. The most usual form of ornamentation, however, is the silver or gold border, or a fringe. The latter are common in apparel intended for children's use. Silk fabrics are sold by weight and priced in accordance with the quantity of silk which they contain and are sold mostly to local traders, who export them to Khándesh and Berar, and some places in the Central Division of the Presidency. As a rule, the Násik wares are not sent further than Barhampur. The quality of raw silk used has already been mentioned. It varies in price from Rs. 10 to Rs. 16 per seer, while the spinning and reeling charges are approximately Rs. 2 per seer. Local opinion fixes the profit upon the sale of the fabric at two annas in the rupee.

Satara.

Except in the town of Islámpur, no wholly silk fabrics are made in this district. Silk-bordered cotton saris and dhotis are woven in most places, and approximate in price and quality to those made in other districts. The silk fabrics of Islámpur are the 'Mukta' and the 'Kad,' a general description of which has been given above. Usually they are of one colour, preference being given to red and yellow, and are quite plain. A narrow stripe is sometimes woven along the ends. They vary in price from Rs. 8 to Rs. 25.

The Gazetteer of Bombay mentions that at a fair held annually at Islámpur from the 10th to the 15th Kartik, a fine mandap is erected, the covering of which is a gorgeous cloth woven and decorated by the weavers of that place. Recent reports from the locality make no mention of the fair. The presumption, however, is that it still takes place: and probably a certain amount of silk is used in decorating the festal cloth for the mandap.

The raw silk used costs Rs. 3-9-0 for every 80 tolas, while about nine annas are spent in preparing that amount for the loom. It is then sold ready for weaving at a profit of annas four upon every 80 tolás.

Sholapur.

Although spinning and weaving form one of the staple industries of this district, the use of silk thread is limited to the borders of various articles made of cotton yarn. Apparently the district cannot boast of the production of any purely silk fabric.

PRODUCTS OF THE LOOM.

(a) Saris of cotton with a silk border

are woven at Bársi, Karmala, Sangola, and Sholápur. The prices of these goods vary to a slight extent in different places: for example, the Sholápur fabric is sold for Rs. 5, while the Bársi sari is sold for Rs. 4½. A table showing the cost of making these saris in Bársi and Sholápur is subjoined:

	SHOLÁPUR.	BÁRSI.
Raw Silk	1 4 0	1 10 8
Cotton Yarn	2 0 0	1 5 4
Wages of Weavers for 4 days, &c. ...	1 8 0	1 0 0
Total ...	4 12 0	4 0 0

In both cases the cloth merchant buys the sari for about two annas more than it actually costs to make and sells it in his turn at a profit of two annas.

The saris made at Karmala cost Rs. 4 in the market, the cost of production being roughly Rs. 3½. The profit of annas twelve represents the wage of the weaver for four or five days, together with a small profit of two annas to the

salesman. Of the three towns mentioned, Bársi makes the smallest quantity of such apparel, its annual output being estimated at 50 saris.

(b) Dhotis and Uparnas of cotton with a silk border
are made in Karmala and Sholápur; and cost from Rs. 3 to Rs. 6.

(c) Bodices or Khans with a silk border.

These vary in price from annas eight to Rs. 2.

The Gazetter speaks of Silk Turbans being woven in the district, and Mr. Enthoven in his Monograph has included 'Mundils' or fine Turbans in the list of articles produced. Recent report is silent concerning this class of goods; but in all probability they are still manufactured, and belong to the Garbhasuti, or mixed silk and cotton, division.

The amount of dyed silk annually used by the weavers of this district is said to amount to 50,000 lbs., while the net profit according to the craftsman, after deducting the cost of raw material and of preparing and weaving the silk, is estimated at about annas four per lb. The cost price of the raw material and the expense of its preparation for the loom are shown in the subjoined table:

			Rs.	a.	p.	
One seer raw silk costs	...	...	12	0	0	roughly.
Cleaning one seer "	...	...	1	0	0	
Spinning "	...	...	2	0	0	
Dyeing "	...	...	1	0	0	
Total			16	0	0	

One seer of dyed and prepared silk costs Rs. 16½, giving a profit to the merchant of annas four per seer. The wages of weavers are about three annas and five pies per diem, while spinners and others earn some three annas a day. The merchants when they provide raw material to the weaver on credit charge interest on the sum due at 2 per cent per mensem. Five per cent of the total output of the looms is locally consumed. The remainder is exported to Sátára, Ahmednagar, Kolhápúr, Bágalkot, Hubli, and the territories of His Highness the Nizám.

Ahmednagar.

Here again the weaving of silk can only be looked upon as an auxiliary of the cotton-spinning industry. From Akola, Ahmednagar, Ráhuri, Sangamner, Nevása, and Kopergaon comes the tale of silk-bordered cotton goods; but nowhere seemingly is pure silken apparel manufactured. At Bhingar near Ahmednagar a few robes, part silk, part cotton, are woven. But the demand for them is small, the price asked being beyond the means of the generality of inhabitants.

PRODUCTS OF THE LOOM.

(a) Saris of cotton with pure silk borders

are made in Ahmednagar and Nevása. They cost about Rs. 5 a piece, and contain 5 or 6 tolas of silk in the border. A family of six weavers could weave about ten such saris in a month, the net profit upon each amounting to some 2 rupees. The monthly gain to the family would therefore be Rs. 20, which, divided among six persons, gives each member a monthly wage of Rs. 3-5-4 or annas 1 pies 9 per diem. The demand for these saris is however intermittent; and the weaver therefore has to be content very often with even smaller earnings.

(b) Saris of cotton with mixed cotton and silk borders.

These fabrics are made throughout the district, and vary in price according to the locality from which they issue. The sari of Akola costs Rs. 7 in the market, of Ráhuri Rs. 6, of Sangamner Rs. 5, of Nevása Rs. 3. Ráhuri and Nevása weave the largest annual number, the total cost of the output being estimated at about 7,000 rupees in Ráhuri and 6,000 in Nevása. Akola only manufactures some six hundred rupees' worth of these goods. The silk used in the borders costs Rs. 3, Rs. 2, or less according to the quality inwoven. Reports from Nevása intimate that a family of weavers can weave ten of these saris in a month. The profit upon each at the time of sale is twelve annas, giving a monthly wage to the family of Rs. 7½. As a general rule, the earnings of the family approximate to five annas a day. In Sangamner a weaver and his wife are supposed to finish one of these saris in three days, at a profit of Rs. 1-5-9. This represents a daily wage of annas six and pies three; of which sum the male weaver would receive 4½ annas, the woman the balance. The length and breadth of these saris approximate to the dimensions of those woven in other places.

(c) Bodices or Khans of cotton with 'Garbhasuti' borders.

These are made in Ráhuri and Sangamner. Occasionally not only the border, but the whole fabric is made of mixed cotton and silk. They vary in price from annas eight to Re. 1 and over.

(d) Saris of 'Garbhasuti,' i.e. of mixed cotton and silk,

are only occasionally made in Ahmednagar, as they are too expensive to suit the general public.

(e) Dhotis of cotton with silk borders

are made in Ahmednagar and Sangamner, and possibly in other parts of the district as well, though reports from those localities do not mention them by name. They vary in price according to the quality of silk used in the border; but the demand is all for the cheapest quality, woven with the smallest admixture of the more costly article.

More than half the output of the district finds its way through the trader to Khándesh, Sholápur, and Bombay, the rest being locally consumed. With the poorer classes the fabrics are in much favour. There is absolutely no demand for finer and costlier forms of apparel. A few years ago Bhingar near Ahmednagar was credited with the production of fine robes, made of cotton and silk combined, costing Rs. 8 apiece. But even in those days the demand, and in consequence the supply, was declared to be on the wane, as the people could not afford to disburse even that sum. Latter-day enquiries go to show that the industry in these goods is well-nigh extinct. There are in Ahmednagar several silk-twisting and dyeing establishments, to which local importers send the raw hanks imported from China, and which appear to be employed throughout the year; and it is not at first sight understood why the weaving of silk fabrics has not found a firmer foothold in the district. The general poverty of the mass of the people, the distaste for new departures, and the comparatively thriving condition of the silk industry in neighbouring districts, appear to be the chief reasons why the weaver of Ahmednagar clings to the cotton yarn.

Thana.

A shadow only of former greatness now clings to the silk-weaving of Thána. The chronicles of the Bombay Presidency speak of the Thána silks, with their checked patterns and graceful geometric designs: but even at the time the Gazetteer was written, the industry was declared to be on the wane, and powerless to resist the inroad of cheap machine-made fabrics. The decline has become yet more accentuated. Only four looms, which work intermittently, now remain—the last surviving symbols of departed glory.

PRODUCTS OF THE HAND-LOOM.

(a) Silk Saris or dress-lengths.

These are only made to order; and orders come but rarely. Each fabric measures 15 yards in length by 24 yards in breadth, and costs about Rs. 44.

(b) Saris of cotton with silk borders.

These are manufactured at Bhiwandi, and are of two kinds. Both kinds measure $8\frac{1}{2}$ yards long by $1\frac{1}{4}$ yards broad; but in the more expensive, which cost Rs. 5 in the market, 8 tolas of silk are used, while 6 tolas only are inwoven in a sari of the second class, which fetches Rs. 4. The silk used costs Rs. 9 per lb.; and the actual value of the amount woven in the borders of one sari varies from Rs. 1-6-0 to Rs. 1-13-0.

(c) Bodices or Khans of cotton with silk borders

are also made at Bhiwandi, and are sold in sets of eight; that is to say, they are cut from one piece, measuring 6 yards long by $\frac{3}{4}$ yard broad. The value

of a set varies from Rs. 3-2-0 to Rs. 7, the latter price being paid for the best quality, in which three rupees' worth of silk, valued at Rs. 9 per lb., is utilised. In the cheaper quality some twelve annas' worth only of silk is inwoven.

Bombay.

The hand-weaving of silk fabrics in the Town and Island of Bombay is not a prosperous industry. From France, from China, from Japan machine-made fabrics pour into the market and force the hand-woven fabric from its place. What industry there is, is not one in which the weaver himself plays the prominent part. He is merely a hired labourer, working for the owner of the loom. All he may look forward to is his daily or monthly wage, which varies according to the quantity of work he can do for the master. He is poor, and can never hope to earn more than Rs. 15 a month for the support of himself and family. The number of looms now in existence is small—in all some 30 or 35 in the whole of the city. No single instance exists of a Bombay weaver having become a capitalist.

PRODUCTS OF THE HAND-LOOM.

(a) White silk piece-goods, called 'Atlas.'

These are largely used by Gujaráti brides as wedding-garments, and by Mahomedans for 'saijas' or long coats. The piece is usually 12 feet long by 4 feet broad, and costs Rs. 15. A weaver is reported to be capable of weaving two such pieces in a month, and to earn from six to eight annas a day. The subjoined list shows the number and situation of the looms upon which this class of fabric is woven :

- (i) 6 looms in Darga Mohalla, of which 4 are owned by Mahommedans and 2 by Hindus from Gujarát.
- (ii) 1 loom in Teli Moholla, 2nd Nágpáda, owned by a Mahommedan.
- (iii) 2 looms in Dongri, behind the Jail Road.
- (iv) 8 looms in Gulalwádi and the Bhuleshvar quarter.

(b) Dashmals or Patkas, i.e. head-coverings,

are used by the Arabs. They vary in length from 5 to 10 feet, and in breadth from $1\frac{1}{2}$ to 3 feet. The price varies from Rs. 15 to Rs. 20. They are woven upon 2 looms, situated in Pirkhan Lane, Bellásis Road.

(c) Silk Saris

are used on special occasions only by well-to-do Hindu and Bene-Israel women. They measure about 24 feet long by 12 feet broad, and are woven upon four looms situated in the Julaha quarter of Madanpura, known familiarly as "Safrabadi."

- (d) { Lungis or waistcloths worn by Mahommedans.
 Dupettas and Malayya, the head-dress of Memon ladies.
 Odanis or scarves.

All these are woven upon six looms in Madanpura. The 'odanis' are generally of a shot-purple and yellow hue; while the 'Malayya' are adorned with gold borders, the gold thread being used in the warp.

(e) Silk Tassels, Necklace-strings, Silk Tape and ornamental Fastenings for waistcoats.

These are made in considerable quantities. The writer has watched the process of manufacturing a piece of white tape, in which the heddles—or that which corresponded to the heddles—were ordinary playing-cards, the separate threads of the warp being neatly fastened through the faces of the cards.

(f) Cotton bodices with silk borders.

These are also made for the use of the lower classes; and are usually of poor quality. Occasionally saris of the same kind are also woven, with silk borders and ends.

In addition to the weaving of the above fabrics, embroidery upon silk in silk and gold thread is also carried on. Some of the ornamental edgings for coats and bodices are magnificent. All the gold thread used is produced locally, and constitutes an industry of considerable importance. The work of cutting up silk piece-goods, and forming them into bodices, caps, coats, pyjamas, waistcoats, and other apparel is carried on also within the limits of the city; but most of the piece-goods thus used are not of local manufacture, but are imported from Surat, Ahmedabad, Japan, and China. Another separate industry is the printing in colours of designs upon silk fabrics, imported from the abovementioned places. This and the process of 'knot-dyeing' is carried on in several large establishments.

The import of raw silk and silk fabrics is in the hands of wealthy Khoja and Memon merchants. Of the goods locally produced, the greater portion are consumed in Bombay; but 'Dashmals' are said to be in demand in the markets of Arabia. The price of silk fabrics depends upon their weight. The warp is usually made of the best silk at Rs. 20 per lb., while the woof is of inferior quality. The loom-owners, who have their looms working all the year round, except in the wettest days of the monsoon, always keep a large stock of white silk piece-goods and saris on hand for sale. The warps are usually arranged by poor women of the Khoja community, who are paid Re. 1 per warp; and the arrangement of one warp is said to take five or six days. Spinners and sorters in Bombay earn from 5 to 6 annas a day, weavers from 6 to 8 annas a day; while the loom-owner, after paying his workmen and all expenses, earns from Rs. 20 to Rs. 30 per mensem, and in the marriage season from Rs. 30 to Rs. 40 per mensem.

Kaira.

There is practically no weaving industry in this district. Four or five weavers are reported to reside in Borsad, and to manufacture every year about 1,000 cotton saris with silk borders for the local markets.

Ahmedabad.

The two chief cities of Gujarát share with Poona and Násik the honour of being the real home of the silk industry. European competition, it is true, has left its mark upon the output of plain silk goods in this city; but the industry which flourished under Gujarát kings and Mogul viceroys is still prosperous, and gives employment to a large number of inhabitants.

The products of the Ahmedabad looms may be divided into the following classes:

- (a) Kinkháb or Brocade, made entirely of silk and gold or silver thread.
- (b) Silk piece-goods, which are used as Saris or cut up into smaller garments, ornamented at times with gold and silver thread.
- (c) Pitámbars, wholly of silk.
- (d) 'Garbhasuti' piece-goods, half silk, half cotton; used as saris, or cut up into smaller garments.
- (e) Silk, Gold, and Silver Borders.
- (f) Cotton Saris and Dhotis with a silk border.

(a) Kinkhab or Brocade.

The silk used in these fabrics is China silk of various qualities. The best kind only is used in the warp, inferior qualities being used in the woof. The silver and gold thread used is locally produced, and costs from 14 annas per tola in the case of silver, to Rs. 1 or 1-12-0 per tola in the case of gold thread. The following is a brief description of the method of manufacturing silver wire:

"A silver bar is beaten out to a certain thickness and is then fastened by a hook clamp to a chain winding upon a windlass. The bar is then heated and drawn through a hole in an iron plate by means of the chain and windlass. In the same way it is drawn through a succession of iron plates, each pierced with holes smaller than the last. The windlass is sunk in the ground, so that the two men, who work it, can use both feet and hands. The bar is in this way converted into wire; but has to be drawn yet finer upon the 'Tania.' This machine consists of two wheels, 9 inches in diameter and 2 inches deep, placed horizontally upon a small stool. Between them is supported a brass disc pierced by a small hole. The wire is reeled rapidly off one wheel, through the brass disc, and on to the other wheel. When this is finished, another disc with a still smaller hole is

placed upon the support ; and the same process is repeated. The wire is thus drawn extremely fine ; and, in this condition, is twisted round a silk thread by means of a machine called 'Sunji,' which works a large number of bobbins at a time."

Kinkháb varies greatly in pattern and weight. In weaving the best kind of kinkháb, six layers of fibres are necessary, while in a cheaper quality called 'khand' only two layers of silk fibre are utilised. Each pattern is denoted by a different name, such as 'Chasamphul,' 'Chanphul no velo,' 'Keri' (mango), 'Sitaphali kotho,' 'Borjali' (from its resemblance to the ber fruit, *Zizyphus jujuba*), 'Kaju phalio' (from its resemblance to the kaju, *Anacardium occidentale*), 'Mogris' (from its resemblance to the jasmin), 'Chundadi' (squares), 'Leher' (zigzag lines), 'Badam velo' (almond and creeper), 'Mohr,' and 'Katari.' Kinkháb of the 'Mohr' pattern can be bought ready made at Rs. 20 per square yard. A square yard of the most inferior kind realises about 8 annas.

In 1833 there were from 500 to 600 looms engaged in weaving kinkháb ; but this number has now decreased to about 300, the annual outturn of which is estimated at roughly one lách of rupees. Of the whole amount, some 10,000 rupees' worth are absorbed by the local market ; while the balance is sold by Vánia and Kanbi dealers in the markets of Káthiáwár, Márwár, Mahikántha, and Bombay. Each weaver of brocade is said to earn from Rs. 5 to Rs. 7 per month ; and the manufacturers of gold and silver wire are paid from Rs. 2 to Rs. 4 for every 100 tolas of wire supplied.

(b) Piece-goods wholly of Silk

are used as saris or cut up into bodices and other apparel.

The following are the best known kinds :

'*Magia*' is woven of three different kinds of silk upon 200 looms. Is used chiefly for saris, each of which costs Rs. 18 in the market. The annual output is valued at half a lách of rupees, of which two thousand rupees' worth is sold in the Ahmedabad market, and the rest is exported to Khándesh, the Deccan, and Central India. A weaver of this class of sari earns Rs. 5 a month.

'*Kashi*,' a most expensive fabric, used chiefly for saris, and made both of silk and gold or silver thread. The price of one sari varies from Rs. 60 to Rs. 250, the weight of the gold or silver thread inwoven being roughly a quarter of the weight of the whole fabric. The annual outturn of the 125 looms which weave this class of goods is valued at 20,000 rupees ; two or three thousand rupees' worth being sold in Ahmedabad, and the rest in other parts of Gujarát and in Bombay. The monthly wage of a weaver of 'Kashi' saris approximates to Rs. 10.

'*Kor-Palav*' is somewhat similar to the Kashi fabric, but very much cheaper ; the most inferior kind is sold for Rs. 10 per piece, and the best for

Rs. 40. It finds buyers chiefly in the marts of Baroda and Káthiáwár, which absorb the major portion of the annual production, valued at between sixty and seventy thousand rupees. Four hundred looms are engaged in its production, and each weaver is reported to earn about Rs. 10 per mensem.

'*Gajiani*' contains different qualities of silk in woof and warp. Those known locally as 'Chinai' and 'Puchchadin' are used in the woof, and another quality known as 'Suterfein' in the warp. The fabric, which is used mainly for saris, is sold both dyed and undyed. The undyed fabric is sold by weight and costs Rs. 9 per lb. The annual production is valued at one and a half lakhs of rupees; and the individual weaver earns some four rupees a month.

Bodices cut from these fabrics are often ornamented with gold and silver thread, worked into patterns known as 'Phul velo,' 'Gulab velo' (creeping rose), 'Chandi,' 'Hathi,' 'Baznikor,' 'Vágh phulno.' These designs may be spread over the whole fabric, or appear only in the border. Each bodice costs from Rs. 2-14 to Rs. 9.

(c) *Pitambars* or *Solas*.

These are the ordinary ceremonial dress of rich Hindus, are made of two qualities of silk, and are sold in nearly all the markets of Gujarát.

Before leaving the subject of purely silk fabrics, one may call attention to the 'knot-printing' of silk. "Whenever a silk fabric is to be printed in colours by this process, it is sent in its undyed condition to a draughtsman, *chitárnár*, who divides the whole surface of the fabric into one-inch squares; and hands it over to the knoter, '*bandhári*,' generally a girl, who picks up a small portion of the fabric at the corners of the squares, and ties or sews it into a knot. The number and position of these knots or rosettes form the character of the pattern. Thus knotted, the fabric goes to the dyer, who dips the whole in the colour required for the ground of the pattern. The knots are then unfastened, when the small portions of the fabric included in the knots show up in small white circles. The centres of these circles are sometimes painted yellow. One of the most varied patterns is the '*Phulvadi*' or flower garden, to produce which the parts that are to remain white are knotted, and the fabric dyed yellow. A few more knots are then made of the yellow silk, and the whole is dyed scarlet. The process is carried out by both Hindu and Mahomedan women." (Bombay Gazetteer.)

(d) *Garbhasuti* piece-goods.

The two best known kinds are named '*Mashru*' and '*Magia*.' In both the woof is entirely cotton yarn, different varieties of silk being utilised in the warp. '*Mashru*,' which is woven upon 200 looms, varies in price from Rs. 2 to Rs. 9 a square yard, and is sold largely both in the local market and in Málwa and Khándesh. A weaver of *mashru* earns from Rs. 4 to Rs. 5 a month. '*Magia*' is similar to the pure silk fabric of the same name mentioned above; but being made partly of cotton, realises only Rs. 1½ per piece. Bodices are made from

garbhasuti piece-goods, and cost about Rs. 11-9-6 per set of 13. Dhotis are also met with, made half of cotton and half of silk. A set of 19 plain, exhibited at Calcutta in 1883, cost Rs. 12-8-6, while a single figured dhoti containing a design called 'Kashi Keri' (mango of Benares) cost Rs. 26. A pure cotton sari with a gold design in the body of the fabric cost Rs. 130.

(e) Silk, gold, and silver borders.

A very large number of these are made annually in the city. They are known under the names of 'kor,' 'kinar,' 'tas,' 'lappo,' 'phit,' and 'gota.' The ground of each border is made of silk, designs in silver and gold thread being imposed thereupon. The annual output is estimated as worth nearly a lakh of rupees, and is woven upon several hundred looms. Each border costs, according to the pattern, from annas eight to Rs. 3 or 4. The designs are various, known as the 'Vatána ne kerí' (pea and mango), 'Kotha' (fortress), 'Kakni' (zigzag lines), 'Bádláni chodániani' or diamonds woven in flattened wire, etc.: the last named design is in demand among Native Chiefs for the borders of the Princesses' saris.

Weavers of 'kor' receive about Rs. 3 for a piece 120 feet long, of 'tás' Re. 1 per foot, of 'phit' annas four per 100 feet; and the average monthly income of a weaver ranges from Rs. 10 to Rs. 15. Women and children of 10 years and over assist the men in this work.

(f) Cotton Saris and Dhotis with silk borders

are made in Ahmedabad and Dholka. The saris are usually worn by women of the middle classes, and are sold locally and in Kaira at prices ranging from Rs. 5 to Rs. 12. The Dhotis which are of fine texture, and bear a good name in the market, are sold in Khándesh, Baroda, Poona, Bombay, Surat, and Indore at prices varying from Rs. 7 to Rs. 16, according to the width of their borders and the quality of the yarn. A smaller class of cotton dhoti with silk borders, known as 'Chalotta,' is also woven and fetches from Rs. 5 to Rs. 10. The price of all these fabrics is regulated by the width of the border and the quality of cotton yarn used in their manufacture: whereas the market value of silk fabrics depends upon their weight, the quality of silk used, and their finish and design. The raw silk used in the borders of cotton fabrics costs from annas three to annas three and a half per tola: one tola of dye costs from half an anna to annas one and a half, while the babul gum or ghee used to weight the silk is sold at $2\frac{1}{2}$ to 5 annas per pound.

Surat.

As in Ahmedabad, so here also silk plays a prominent part in the weaving industry. A variety of fabrics, known by different names, some entirely silk, others belonging to the 'Garbhasuti' (cotton and silk) class are woven. They fall naturally into the following three divisions :

- (a) Kinkháb or Brocade.
- (b) Silk and Garbhasuti fabrics locally consumed.
- (c) Silk and Garbhasuti fabrics exported.

(a) Kinkhab.

The brocade of Surat is generally accounted inferior to that of Ahmedabad, but nevertheless finds ready sale in Rangoon, Peshawur, and Bombay. Its manufacture is in the hands of Kanbi capitalists, who employ Gola and Ghanchi workmen to the number of six hundred. The silk used is bought from the merchants of Surat ready for use in the loom. The price of the finished fabric depends upon the quality of silk used and the intricacy of the pattern. A piece measuring 30 inches by 54 inches can vary in price on these considerations from Rs. 15 to 40.

(b) Fabrics locally consumed.

These comprise piece-goods entirely made of silk, which are used as Saris or cut up into Bodices, Coats, and other garments. Those commonly used for saris are known under the names of "Ghat" and "Patala," while fine polished fabrics called "Gaji" and "Sáti" are usually cut up into bodices. There are also fabrics, half cotton and half silk, known as "Mashru" and "Elaicho," the former being used for bodices, pillow-coverings, &c., the latter for coats and other male attire. Knotted and plaited fringes, and borders similar to those already described in the Ahmedabad section are also made.

(c) Fabrics exported.

Every variety of fabric is found in this class, from the silk-bordered cotton Lungi or Dhotar and Sari, to the pure flowered silk cloth known as "Battedar." The names of many kinds are given, of which "Garbhasut," "Chatari," "Kankhi," "Daryamoja" (waves of the sea), and "Khari Khatta" seem to be the best known. The export trade is mainly in the hands of Surat Khatri and Voras, who send the pure silk fabrics to Rangoon, Mandalay, Aden, and Siam, and the mixed cotton and silk productions to the markets of Arabia and Persia.

The charges for preparing 1 lb. of raw silk for the loom amount to Rs. 6 or 8. The weaver earns from 3 to 6 annas per diem, and the feelers and sorters 2 to 4 annas per diem.

Sind.

In the district of Hyderabad, and the town of Tatta in the Karáchi Collectorate, the weaving of silk fabrics is chiefly carried on. Tatta silks were once famous for their beauty and fine texture; but of late years the industry has declined; and the looms, which now number only 200, supply wearing apparel of but mediocre quality. The work of embroidery upon silk is widely distributed. Omitting one or two regular schools of silk embroidery recently started at Moro, Kandiaro, and Jacobabad, the art of ornamenting silk fabrics with gold and silver thread is known to a large portion of the female population of the province. The elements of the art are learnt in the stage of girlhood, are quickly mastered, and form the basis of a sufficient livelihood in maturer years.

PRODUCTS OF THE LOOM.

(a) Pyjamas of silk or garbasuti.

These are worn by Mahomedan men and women, and are made largely in Tatta and Jacobabad. They are more usually woven entirely of silk, and are sometimes ornamented with gold thread, after leaving the loom. The fabrics from which they are cut are variously named 'Garbi,' 'Gulbadan,' 'Atlash,' and 'Ailacho.' The 'Garbi' and 'Ailacho' of Tatta are of various colours, the latter kind being somewhat thinner and lighter than the former. They are usually woven with silk or silk and cotton in the warp, and cotton in the woof.

(b) Caps, Gowns, Shirts, Coats, Jackets,

are made from the same fabrics as the former. Some are wholly silk, others are mixed cotton and silk.

(c) Turbans or Scarves

are made at Tatta, the pattern being usually stripes of various colours. Cotton is used in the woof and silk in the warp.

(d) Cushion-coverings, quilts, &c.,

are made principally at Tatta from 'Mashru,' the chief colours being red and black.

(e) White cotton bed-covers with silk borders

are only occasionally made. Four of them, costing Rs. 112, were shown at the Calcutta Exhibition of 1883.

(f) Table-covers.

These are embroidered in silver, gold, and silk thread, are made in Hyderabad and Tatta, and vary in price from Rs. 45 to Rs. 78.

(g) Silk-embroidered Bodices

are cut from the fabrics noted above. A set of five, shown at Calcutta in 1893, cost Rs. 47.

(h) Tassels, strings, ribbons, fringes, trouser-cords,

are made by Patolis in various parts of the province. Knotted and plaited fringes are much in vogue upon the upper frontier of Sind.

The quality of the silk imported into Sind has been noticed in the earlier pages of this monograph. Apparently there is no considerable export of silk fabrics from the province, a sufficient number only being woven to supply the wants of the residents of those parts.

 PART III.
THE PRODUCERS.

"Tempora mutantur, nos et mutamur in illis."

Before proceeding to enumerate the various classes or castes engaged in the industry, it were well to take a brief survey of the status and condition of the weaver of to-day. Formerly the weaver was more independent, could look for sufficient support to the loom set in his humble home, and would have deemed it unbecoming that his son should seek another trade or profession. The fabrics which he wove with steady persistence found ready sale, and provided the wherewithal to purchase raw material and to support the family. Nay more, he could employ at least one or two men of poorer class to aid him; for he stood alone, and the shadow of the capitalist, who should be at once his support and his master, lay not across the threshold. But times change; and the weaver, as little by little a new order forced itself into its comprehension, could do nought else than accept what he felt to be the will of the Gods. Throughout most of the reports which the districts of this Presidency have submitted runs the same tale of decadence. External competition and, alas, internal calamity have confronted the weaver of every town and cast him from the pedestal of independence at the feet of the capitalist trader. "The dealers in finished fabrics are generally capitalists, who stand to the weaver in the relation of creditor to debtor. The majority of the weavers are poor, and live from hand to mouth. The merchant advances small sums of money, provides the silk and buys the fabric from the weaver at a large margin of profit to himself." Such is the story Belgaum tells, typical of the general state of things. The grandson of him that paid others to assist him, is but the labourer hired by the merchant to toil from morn till eve. Even in Surat, Yeola, and Poona, where the industry still holds a leading place, the decline in the craftsman's position is noticeable.

The wages which the Deccan weaver can obtain compare unfavourably with the earnings of ten years ago; the work of his hands belongs to an age that is past, suits not the present generation; he must needs 'sit with idle hands at home' or bind himself to other labour foreign to his traditions. Whatever of pity, however, we may feel for his changed lot, let us not regard the weaver as the victim of oppression. Rarely does it appear that he is ill-treated by his capitalist master. True, as was remarked above, the trader cannot pay him high wages, does not give him as many orders as he once did: but the fault lies not with the capitalist; rather is it a virtue in him, that he is wise enough not to fill his premises with goods that may never find a purchaser. Had the weaver, perhaps, been endowed somewhat more highly with the faculty of thought, he had not to-day been indebted for life to the *savkár*. "The weavers of this *táluka*," writes the *Mámlatdár* of Bhimthádi, "complain of capitalist oppression: but this is brought about by their tardiness and laziness." At first sight a somewhat severe judgment. One has not been taught to regard the weaver as lazy; read the accounts of him in the chronicles of the Bombay Presidency, where he is usually spoken of as thrifty and hard-working, an honest man that sends his children to school. He must be nimble-fingered also; for how else could he ply his trade? But apply the words to the mental condition of the man, and perhaps one is nearer the true meaning. His mind works but slowly, cannot grasp the full significance of changes, can but dimly see that his trade has declined, to make room for cheaper goods from over seas.

There are, however, laudable exceptions to this mental apathy. Certain prudent craftsmen in the district of Ahmednagar have noted the waning character of their industry, and how the villager, to whom they look to purchase the product of their looms, is oftentimes beset with dearth or sickness, and cannot indulge his tastes. They have brought themselves, perhaps with difficulty, to save money that their sons might be trained as carpenters or masons, or that they might become village schoolmasters! Honour to him whose efforts have met with success, who sees his son freed from the shackles of old-world tradition, instructor of the village youth! In Bijápur, Belgaum, Násik, Poona, and Gujarát, some few families have risen to be capitalists and help their poorer brethren. Their numbers are not large, comprise only the sons or grandsons of the few keen-witted craftsmen, who, disdaining to relinquish an art sanctified by age, yet forced themselves by thrift and prudence to a position of comparative security.

Of those that have taken to other professions and trades, the tale is small. Caste, custom, and prescription militate against the voluntary prosecution of new crafts. Only in places like Thána and Kolába, situate near the capital of the Presidency, is the action noticeable. The silks of Thána were once famous, and highly prized for their elegant design and goodly texture. The demand for them kept many families employed. But few looms remain in this year of our Lord, 1900; and the weavers are away in the city, as messengers, as porters, and some more fortunate as clerks. Those few looms are the property of a Portuguese

gentleman, who sorrowfully admits that the sari of Thána has yielded place to the sea-borne silks of China. Since the weaver himself finds the industry of his forefathers insufficient, it is not a matter of surprise that men of other castes or trades have not taken to hand-weaving. In Belgaum is said to exist one, born in the weaver caste, but numbered now among the Mhárs, who still plies his art: but no example is forthcoming of labourers, carpenters, masons, or others voluntarily putting their hand to the shuttle, reel, and loom.

Of the dyers and others who play a subordinate part in the industry, one may say that they too have suffered with the weaver. The dyes of Europe have filched his birthright from the dyer, even as the power-loom has beaten down the weaver. The monopoly of his craft has departed from him. So handy is the insidious aniline dye, that one needs not long experience to handle it; one may oneself colour the silk, and save the wage of the hereditary dyer. Many weavers, again, are dyers as well, have plied both trades from time immemorial, and find that the decline of the one industry necessarily involves the wane of the other; while the dyer of Surat complains of a gradual growth in the import of silk dyed ready for the loom. One has much sympathy with these men, taught to depend upon antiquated crafts, to which a modern generation, ever seeking new things, pays but scant respect.

Of the household traditions of weavers, of those customs which are connected with their art or the implements of their art, not much information can be gathered. Most of them look upon the days of new or full moon as auspicious for the commencement of a new fabric; while those in the Southern Division of the Presidency are said to worship the loom upon the first day of Kartik. The day is a holiday, upon which the implements of their craft must be cleaned, then smeared with ashes and adorned with flowers or Bela leaves. In many cases they offer sweetmeats to the loom, trusting that it will help them to good fortune throughout the coming year. In other districts the weaver breaks a cocoanut, burns incense, and renders homage to his loom once a year during the Dasara or Divali festivals. A quaint custom is ascribed to the Hatgars and Khatris of Belgaum and Dhárwár, of setting apart one day, known as 'Ilivar' (ಇಲಿವಾರ) for the worship of the rat. The weaver knows by experience the ravages which the rat can cause; and therefore, during the festival of Ganesh Chaturthi, he fashions out of mud rude images of the god of rats and tenders them respectful adoration. Most Hindu weavers, again, have a tradition regarding their ancestry and the birth of their craft, which will be found in detail in the Devang Puran, an old Kánarese poem written at Hampi or Pampa on the banks of the Tungabhadra. The story therein set forth is briefly as follows:

It came to pass on a certain day that the people of the earth went unto Shiv, who sat in Keilasa, and besought him, saying:—"Give unto us clothes, for we are naked." So astounded was the deity at their request, that he fell into a swoon, and, while he thus lay, he saw proceed from his body the form of a man. This was the Rishi Devanga (i.e. Born of the body of

God); whom Shiv then commanded to go forth and teach the children of men how they might cover their nakedness. So Devanga walked upon earth: and he made him thread from the stalks of the lotus that blossomed in the navel of Adinarayan; and to fashion the implements of weaving, he fought with and slew the demons Halidasur, Kapilasur, Dhaylasur, and Karpasur, and made of their bodies the various parts of the loom, such as 'Nalige-gut' (the tongue-peg), 'Kivi-gut' (the ear-peg), 'Hokkalu-gut' (the navel-peg), 'Kei-gut' (the hand-peg), and 'Himbad-gut' (the heel-peg).

A variant of the story relates that he sowed the teeth of the demon Karpasur (from a Sanskrit word 'karpas,' signifying 'the cotton tree'), and grew cotton therefrom. In due time Devanga took unto him two wives, Devadatti and Agnidatti, whose sons were the ancestors of the weaver of our day.

This story with local variations is adhered to by most castes of Hindu weavers in the Deccan; save only the Patwegars, who claim descent from Bharadvaja, Jamadagni, Kashyapa, Kattiyana, Valmika, Vasishtha, and Vishvamitra, the seven great Rishis of the Hindu pantheon.

A brief description of the various castes engaged in the industry is subjoined.

Patwegars.

These people, whose name is derived from 'Pata' (a silk band), are found in Dhárwar, Belgaum, Bijápur, and Sátára, and are both weavers and dyers. Although they rank in these days with other castes, they claim to be Kshatriyas, and are said to have migrated to their present home from Gujarát about a century ago. The belief gains weight from the fact that their home tongue contains a large admixture of Gujaráti. Their household gods are Tuljabhavani and Yellamma, Mahadev and Khandoba. The Gazetteer speaks of them as an honest and thrifty people, whose work continues steadily all the year round. It is to be feared that late years have falsified this opinion to some extent; for many are in debt; and the whole community must have suffered from a decline in the demand for hand-woven fabrics. Nevertheless, when work is given to them, they carry it through earnestly, spending, as a rule, but little and toiling from early morn till sunset. Their sons, many of whom attend school in their early years, commence to learn the details of weaving and dyeing when they are 12 years old, and are experts at the age of twenty. Their women also lend a helping hand. Those of Bijápur differ from their castefellows of Belgaum, in that the latter confine their attention mainly to dyeing, while the former both weave and dye. The Sátára Patwegar again only prepares silk for the loom, and leaves the weaver of other castes to convert it into apparel. On the whole they are a worthy people, in their own small way religious, but unduly tolerant of soothsayers, witch-finders, and astrologers.

Hatgars.

Philologists give three different derivations of the name of this caste. It comes from 'hatt,' meaning 'obstinacy,' say some; others again, that these people once made sails, and took their title from two Kánarese words ಹಡಗ (hadaga) and ಕಾರ (kar), signifying 'makers of ships.' More credible than either of these statements is that which, based upon the ordinary phonetic changes in modern Kánarese, declares their old name to have been 'Patgar' (makers of silk bands) and to have changed in the modern tongue to Hatgar. They are divided into two main sects, the Kulacharis or Brahminical Hatgars, who wear the sacred thread, and the Shivacharis or Lingayats, who are said to have been converted to the Shivaitic cult by the great reformer, Basava, minister of king Bijjala, who reigned at Kalyán in the territory of His Highness the Nizam about the year A.D. 1157 (*vide* page 60 of the *Dynasties of the Kánarese Districts of the Bombay Presidency* by Mr. J. F. Fleet, C.S.I.). The caste is rarely found north of the Krishna, but exists in Belgaum, Bijápur, and Dhárwár, and follows the profession of weaving and dyeing. Their home-tongue is Kánarese; and the chief shrine which they respect is at Hampi, where lives the direct descendant of their divine ancestor, the rishi Devanga. Their children have but little education, and commence at an early age to assist their fathers. Their earnings never have been large; totalling to some eight or ten rupees a month, when they last came under notice. Perchance in the present day they are working for a still scantier wage. Like the Patwegar, they have not been educated above a childish trust in the occult powers of the individual. In conclusion, it should be noted that people of this name abode a few years ago in Sholápur, who stated that they originally came from the Bijápur district. All memory of the art of weaving, however, had departed from them; and they earned their living as messengers, house-servants, and shepherds.

Belejaders.

These people weave only, and form one of the two subdivisions of the Koshtis or Nilkanth Lingayats, with whom they were enrolled in the census returns. The other subdivision bears the name of Padsalgijadar. Living as they do in the Bijápur and Dhárwár districts, and, in small numbers, in Belgaum, their home-tongue is in the main Kánarese with a slight admixture of Maráthi. Their chief shrine of pilgrimage is situate at Hampi; and their patron deities are Shiva, Malikarjuna, and Basava, the deified reformer of whom mention has been made.

Salis.

They are a widely-distributed class, being found throughout the Central and Southern Divisions. Those in Belgaum, Dhárwár, and Bijápur speak mainly Kánarese, while others in Sátára, Poona, and Yeola speak Maráthi. The

local divisions of the tribe are united by a common bond of worship; for their chief deities are invariably Tuljabbavani and Khandoba. The Salis of the south, also, believe in the Devanga legend; which belief is found again, in somewhat altered form, amongst the Salis of Ahmednagar, who say they are descended from one Vastradhari, robesman of the gods, whom the immortals accompanied to earth in the form of weaving implements. In Poona they are subdivided into two classes, known as Marátha Salis and Padma Salis, of whom the former weave both cotton and silk, aided therein by their womenkind. The characteristics of the class generally vary in different localities. Those of Ahmednagar, for example, are praised for their thrift, hospitality, and devotion to work, while those of Bijápur incur the charge of being careless of money and too fond of liquor. Of late years a tendency has been apparent among them to discard a trade, which, time-honoured though it be, binds them down from sunrise to sunset and gives them in return but seven or eight rupees a month. In Alibág, Sholápur, Násik, Sátára, and Ahmednagar the stress has been so acute, that great numbers of them have bidden farewell to their looms and become field-labourers. At times, in the pauses of their work, they may practise a little weaving, or, as in Alibág, fashion the poor paper ornaments with which the low-caste Hindu loves to embellish a marriage festival. In regard to his hereditary craft, the condition of the Sali must be said to have declined. How could it be otherwise? An art, which in its palmiest season gives a family of five the narrow sum of eight rupees a month, is not likely to raise its followers high. The children, to whom their father was once eager to teach the weaving art, are gradually learning to look for other forms of employment. Possibly, when another fifty years have passed away, the Sali will exist no longer as weaver, but only as agriculturist, carpenter, or shepherd.

Khatris.

These men are hereditary dyers and weavers, and are found in Dhárwár, where they appear to differ little from Patwegars, in Násik, Sholápur, Ahmednagar, Kolába, Poona, Surat, and the city of Bombay. They claim in most cases to be of Kshatriya descent, saying that they journeyed of old from Malwa, settled in various quarters of the Deccan and Konkan, and took the name of Khatri to avoid being slain by their enemy, Parashurama. In Surat they are so proud of their hereditary craft that they will not take up other trades, and are therefore men of small means, dependent too often upon the rich trader, who pays them a monthly wage of eight or nine rupees. One of their own community, who has risen to the position of capitalist, estimates their present numerical strength in Surat at 3,500 or 4,000. A few at Revdanda in Kolába are said to have come from Cheul, whence a pestilence drove them forth some years ago. With these weaving is merely an adjunct of other labours; and a fair number are said to have undertaken the business of pawnbroking for the necessitous villager. Their speech varies according to locality, those of Dhárwár speaking a good deal of Kánarese, those of the Central Division Maráthi. Their original tongue might well have been Gujaráti, judging from the fact that words and phrases

belonging to that language still form a large part of their vocabulary. Surat is their stronghold at the present day : and there the whole family, women and children included, help in the sorting, reeling, spinning, and weaving. Usually the work is done at home : only in rare cases do they go to the house of the master, who supplies them with comb and heddles. The patron deities of the caste are Khandoba, Narsoba, and Tuljabhavani. Some sixty members of the caste are found in the city of Bombay, who, aided by their wives and children, weave a small quantity of fabrics to the order of the merchant. The latter owns the loom and other appliances, and pays the sorter and spinner from five to six annas, and the weaver from six to eight annas per diem. The monthly wage of the family can never exceed fifteen rupees, as the demand for fabrics has so greatly diminished. Most of the Bombay Khatri speak a bastard Gujaráti and claim to have migrated from Cutch, Porbandar, and Jámnnagar.

Koshtis.

This class is mostly found in Ahmednagar and Násik, Sholápur and Poona. In 1883 there were a few resident in Ratnágiri, who must by this date have discarded weaving for other forms of employment. Those of Sholápur are distinguished by division into two classes, Lingayat and Khatavans, of whom the former are mainly dyers, and the latter weavers of both cotton and silk. In Ahmednagar the Koshti is far from prosperous. The highest weekly wage he can earn amounts to one rupee eight annas or two rupees ; and, in addition to a manifest decline in his trade, he has had to face both famine and plague during the last few years. His customs are similar to those of the Sali, above whom however he ranks in the social scale. He never works by night, writes the chronicler, without first bowing before the lamp in his house. It may be doubted whether in these decadent days he ever finds it necessary to weave at all after sundown. There are exceptional cases in which he has shown himself to be careful and thrifty, and has, in the face of external and internal troubles, educated his children to a higher standard than usual. In Poona a special branch of the family is found, known as Kamathi Koshti, and hailing from the territory of His Highness the Nizam. They are a trifle more prosperous and hardworking than their brethren of other Deccan districts. Of their religion little may be gathered. Those of Ahmednagar adore the goddess Devi of Kolhápur and Badámi, while Khandoba, Mahadev, Vithoba, and Ambabai guard the fortunes of the caste in Sholápur.

Kunbis.

These men, who are rightly agriculturists, appear as weavers and dyers in Surat and Ahmedabad, and are divided into three classes, known as Leva, Kadva, and Anjna. Of these, the last-named only touch animal food. A hard-working and thrifty people, many of whom have become capitalists and drive a fair trade in silk and brocade (kinkháb). Some ten or more are now resident in Surat, who are comparatively wealthy and employ between them six hundred

workmen of the Gola and Ghanchi classes. The poorer members will be found engaged in every process of the weaving industry, from reeling and sorting to dyeing, heddle-filling, and weaving. In no other district do they appear as other than agriculturists and labourers.

Native Christians.

These people form the bulk of the weaving population of Thána, and incline to the belief that their ancestors were Mahomedans. Diligent research, however, has classed them as Hindus of the Khatri caste, who migrated in times past from Gujarát and were subsequently converted by the Portuguese. Their craft has waned for many years, well-nigh unto extinction. In the present day but few remain who depend upon weaving for a livelihood. Most have found employment in Bombay as clerks, messengers, or menials, and have cause to speak well of the city which has helped them to a prosperity independent of silk and shuttle.

Momins or Mahomedans.

The greater number of these are converts from the Hindu castes of Koshti and Sali, and are found in Belgaum, Bijápur, Dhárwár, Poona, Sholápur, and Surat. The remainder, who live in Sind, the Sangamner taluka of Ahmednagar, and the city of Bombay, claim to have come from Benares and Allahabad, or from Hyderabad in the Deccan. The authors of the Deccan Momins' conversion were an Arab missionary, one Syed Maikdum Gaisudaraz, and Hasan Pir Gujaráti the religious teacher of Ibrahim Adilshah II. the king of Bijápur. They are, as a rule, both dyers and weavers, and incline far more to silk and silk embroidery than to cotton. The Gazetteer speaks of them as honest and hardworking, but untidy and little desirous of educating themselves above their present low level. Their women help largely in the weaving and embroidery of wearing apparel, and add as much as the husband to the monthly income of the family. Their home-tongue is Hindustáni; and, generally speaking, their customs and habits conform to those of true Mahomedans. Some few in the Poona district practise Hindu customs, and have left the trades of weaving and embroidery to become constables and peons. Others in Belgaum augment their earnings by the manufacture and sale of weavers' combs, for which they obtain about five annas a piece.

Rangaris.

These men are the hereditary dyers of the Deccan and count among their numbers both Hindu and Mahomedan, the ancestors of the latter having embraced the faith of Islam in the reign of Aurangzebe. The Hindu portion are scarcely distinguishable in appearance and customs from Mahrattas, and worship Bahiroba, Khandoba, and Vithoba. A further subdivision of the Rangari class, known as Bhavsar, is found in Gujarát and Ahmednagar. Its members are mostly Hindus, who claim a Kshatriya or Rajput origin, though a few have

become converts to Mahommedanism. As has been remarked above, the native dyer has suffered from the introduction of cheap European dyes and from European competition, and has in many cases taken to other occupations. The art of dyeing, once his monopoly, is performed now by Shimpis, Bohoras, Atars or perfumers, and in Sind by Khatkas or washermen. Of other castes engaged in the industry we may mention the Patolis, who make silk tassels and necklaces and the Khumbatis or safflower dyers of Sind, an account of whom will be found in Mr. Fawcett's monograph upon dyes and dyeing in this presidency.

In addition to those already mentioned, there are various classes who are here and there employed in the subsidiary branches of the silk-weaving industry. Golas and Ghanchis are inseparably connected with the brocade-weaving of Gujarát, at which they earn three or four annas a day. A few obtain a somewhat larger wage by dyeing. Add to these the Koli, who sorts and spins silk in Surat; the Raval or tape-maker, who is said to weave in Yeola and manufacture shuttles in Sholápur; the Burud or bamboo-worker who in many places fashions the implements for spinning and reeling silk; the Blacksmith who is called upon to supply spindles; and lastly the strolling-player of the Deccan and Karnátak, the Dombár or Kolhati, who supplies the weaver with the horn-shuttle and comb. A curious people these, who may be literally said to tumble along life's road, whose women combine the duties of pedlar and prostitute. An unfortunate people, sunk in squalid ignorance, whose only claim to recognition herein is that they hawk the weaver's shuttle.

Other classes, notably Manbhavs, Sungars, Berads, and Thakurs, are mentioned in district reports as occasionally engaged in weaving: but the information, in our opinion, must refer to the weaving of cotton-yarn, and not the more costly article in which our interest is centred.

PART IV.

THE CONSUMERS.

वासः प्रधानं खलु योग्यतायाः ।
 वासो विहतिं विजहाति लक्ष्मीः ॥
 पीतांबरं वीक्ष्य ददौ तनूनां ।
 दिगंबरं वीक्ष्य विषं समुद्रः ॥

Clothes are the chief cause of respect and adoration. For instance, at the time of his churning, the Ocean gave his daughter unto Him that wears the yellow robe, but poison to Him whose garment is the four quarters of the world (i.e. who has no robe).
 SUBHASHITA.

Consumers of silk fabrics in the Bombay Presidency appear to fall into two main divisions; one of which comprises those who wear silk in pursuance of their religious tenets, the other those who wear it as a necessary adjunct of

wealth or social position. Among the Hindus of past ages the existence of a close connection between their religion and costly silken apparel is evidenced firstly by the fact that such fabrics are the invariable dress of their gods and demi-gods. In the Ramayana one reads of Rama "beautiful as the god of love, wearing a yellow silk robe" (पीत कौशेय वस्त्रं); and in the Mahabharata of Krishna, 'attired in red silk' (क्षौम संवाता), while in the tenth canto of the "Raghuvansha" Kalidas speaks of Lakshmi with 'her tendril-like hands outspread upon her silk robe.' Passages of this kind, culled from the epics of early years, might be multiplied without stint; but must perforce be passed by to allow of our noticing other cases in which religion and the wearing of silk go hand in hand. From time immemorial it has been the custom to wear silk at ceremonies of a religious or quasi-religious character, such as worship of the gods and marriage. In the fourth act of the Shakuntala, the trees are spoken of as putting forth "moon-white garments of silk," well suited to the occasion of Shakuntala's marriage; while in the fifth canto of the 'Raghuvansha,' the bridegroom is described as wearing silk garments when about to visit the bride; and in another place, as dressed in a garment of silk, inwoven with figures of birds.

The feeling which led the people of former ages to imagine their divinities clothed in the purest and costliest of known fabrics, and to regard the use of silk as necessary for those taking part in any solemn ceremony, exists to this day. In every district of this Presidency, the Hindu, provided he can afford to do so, dons silk when worshipping his household gods, when taking his food, or at the season of marriage or of investiture with the sacred thread. Even the daughter of the necessitous rayat has one silk-bordered bodice or sari, which she keeps for marriage-ceremonies and holy-days. The 'mukta' or loin-cloth of silk plays no small part in the inner life of the orthodox Hindu; without it he may not eat, he may not pray: while the silk sari is held essential for the bride from the confines of Sind to the southern limit of the Presidency. In ceremonies less well-known, silk is largely used; as, for example, in the ceremony of ಹುಮುಡಿಸೋಣ (humudisōṇa) in the Southern Division, occurring during the fifth or seventh month of a woman's first pregnancy, when her relations or friends present her with a green silk bodice or sari. Silk, again, is the fabric in which the Lingayat ties the symbol of his cult, and with which the Brahmin covers his sacred books. Charm-strings of silk that may drive away the powers of evil, are preferred to those composed of cotton thread. The extent to which silk fabrics are worn must, however, depend upon the depth of purse of the individual. Hence in general the richer members of the community only are reported to purchase fabrics entirely of silk; while the agriculturist and artisan in most districts of the Presidency are forced to content themselves with the mixed cotton and silk goods or cotton goods bordered with silk. The ability of these latter classes to purchase silk appears to vary in different localities. Reports from Poona and Dhárwār maintain that many women of the working classes have bodices of silk, while those from Ahmednagar and Sātára

speak of the people as being too poor to wear anything better than cotton apparel. In Bijápur, Belgaum, Sholápur, and other places the poorer classes affect cotton goods with silk borders or ends.

Regarding the colours preferred, there is a general consensus of opinion in favour of red and yellow as those most suited to ceremonial occasions. The bride should, if possible, wear yellow silk, when she is made over to the bridegroom; and the Hindu boy must wear yellow at the time of his investiture with the sacred thread. Green and blue, also, are not deemed out of place upon festal occasions; but to the use of black, at such times, there seems to be a widely-rooted objection. White clothes are highly spoken of in many places, but are not in such general demand as those of red or yellow hue.

Turning to the subject of silk clothes as a mark of social position, one notices that the early writers speak of them as an adjunct of wealth or high status. Passages in the poems of Kalidas, in the *Mricchakatika*, and other works, tell of the silken apparel worn by or presented to monarchs and ladies of high birth; while the following Kánarese proverbs clearly imply a belief in the costliness of silk and in its use by the well-to-do:

ಪಟ್ಟಂಗ ಪಟ್ಟಿ ಇಟ್ಟುಕೊಂಡರೆ, ಪಟ್ಟಕ್ಕೆ ಸಂದಾನೆ

If he don a silk dress, is he fit for the throne.

ಪಟ್ಟಿಗೆ ನೈಲಿಗೆ ಸಲ್ಲಾ ಮುಕ್ಕೈದೆಗೆ ಹಾದರ ಸಲ್ಲಾ.

Dirt befits not a silk garment, any more than ,
faithlessness a married woman.

The ordinary use of silk is not, in these days, common among members of the Hindu community. Many of them are well-to-do, and could doubtless afford to frequently wear silk apparel. Possibly their creed forbids this course, possibly they by nature pay less regard than other communities to personal adornment. But the fact remains that Hindus make less use of silk as an article of every-day attire than Mahommedans. In Belgaum the Maráthas and Lingayats are reported to wear silk, but only on rare occasions; and in most districts it is rather a religious motive than a desire to emphasise their position that leads them to don silk apparel. But with the rich Mahommedan the case is different. Silk saris are the ordinary attire of women of the Khoja, Bohra, and Memon communities, while the costume of women of the Amil and Bania classes in Sind is frequently made of silk. The Parsi community, also, buys large quantities of silk goods; but they require a more costly article than even the Mahommedan. The superb fabrics worn by Parsi ladies are, as a rule, imported from China and Japan, the product of the Indian hand-loom or power-loom not being deemed of sufficient excellence. Thus it happens that reports from the Deccan and Southern Marátha Country, where traders are less rich and numerous, speak but little of silk as an every-day article of apparel; while those from the cities of Surat and Bombay lay emphasis upon its constant use by rich Mahommedan ladies.

The fabrics woven up-country rarely find their way to big consuming centres like Bombay. They are made simply to satisfy a small local demand. The silks of Belgaum may find their way down the gháts to Ratnágiri, the saris of Yeola and Sholápur may be purchased in Sátára, Hubli, and the territory of His Highness the Nizam; but the quantity sent is inconsiderable owing to the feebleness of the demand. In most districts the local demand is for cotton fabrics or mixed cotton and silk fabrics; the people are not rich enough to keep the local weaver regularly employed upon the weaving of silk apparel; and further, whenever they do indulge in something more costly than a cotton *lugadi* or sari, they are inclined to seek the cheaper and more gaudy productions of the mills. It is upon the orthodoxy of the Hindus of better class, living in the locality, that the weaver must depend for keeping his hand practised in silk-weaving; for it is understood that the sacred robe or 'Pitambar' is invariably the product of the hand-loom. The monopoly of production in this class of fabrics, however, cannot be a source of great profit; while in regard to such articles as saris, which are in daily use, the hand-weaver is in a somewhat unfortunate position. The rich do not consider the work of his hands sufficiently costly or elegant, while the poor find machine-made apparel cheaper, more attractive, and of greater variety than anything he can offer to them.

PART V.

THE SILK-WEAVING MILLS.

There are in the Bombay Presidency three mills which weave fabrics of silk, two of which, the Sassoon and Alliance Silk Mill and the Chhoi Silk Mill, are situated in the city of Bombay, and the third in the city of Poona. The Sassoon and Alliance Mill is the largest of the three.

(a) Raw material.

Excluding a small quantity of silk from Italy used by the Poona Mill, all the raw material employed comes from China and Bengal; and is of two kinds, raw neat silk and raw waste silk.

Raw neat silk arrives in the form of hanks and is precisely the same kind as is used by the hand-weaver of the Presidency. China silk is white, and of various qualities, each of which is denoted by a separate name; while Bengal silk is yellow-hued, and varies also in quality according to the season of the year in which it is obtained. For example, of the three main 'crops' annually gathered in Bengal, silk of the March crop is said to be preferable to that of the November and July crops.

Raw waste silk, which is largely used in the Sassoon and Alliance Mill, comes mainly from Shanghai, Kobi in Japan, and Bengal. The raw waste silk of Italy, imported by the Poona mill, being of inferior quality and comparatively

dear, is in little demand. The fibre is, however, tougher than the fibre of China or Bengal silk.

All the raw material, both neat and waste, is ordered direct from China and Bengal by the owners of the mills, and is not, except in rare cases, purchased from the traders of Bombay.

(b) Process of preparing raw waste silk.

The steps in the evolution of the fabrics from waste silk are briefly the following :

(i) If the silk is to be used in its 'ungummed' condition, denuded, that is to say, of the natural protection formed round the fibre, it is boiled in hot water. This renders the colour whiter, but the silk is still matted together in a lump.

(ii) It is therefore passed over a revolving drum, set with small pins or points of wire, which catch and lay it out flat upon the surface of the drum, in pieces of a certain fixed length. The length of the piece is always the same ; as the pins are in sets, bounded by the quadrants of the revolving drum's circumference.

(iii) Each flat piece of silk is then taken off its respective quadrant by means of two boards, fitting close together and imprisoning the end of the silk between them.

(iv) Several pairs of such boards are then placed side by side in a flat frame, the ends in which the silk is imprisoned being uppermost. The boards being tightly packed, form one continuous block, along which the lengths of silk lie, partly overlapping one another. Above them stretches a broad leather band, set at intervals with sharp combs, and drawn tight between two axles, which revolve in the same direction. As soon as motion is imparted to the axles, the leather band moves slowly round over the surface of the boards, and its successive combs pass through the silk and drag out all knots and roughnesses.

(v) This operation concluded, the combed silk is passed through a machine which delivers it again in the form of one long skein. An upright tin canister is placed below the passage through which the silk makes its appearance, and catches the skein as it winds downwards.

(vi) The next step is akin to that described in the last paragraph. Four or five canisters, each containing one long skein of silk, are placed opposite to a machine, which receives the ends of the five skeins, and winds them all together into one single skein, which in its turn passes into a canister placed on the far side of the frame.

(vii) The next machine employed corresponds to the 'slubbing-frame' of cotton-spinning mills. The five-fold skein is transformed into a thickish thread wound upon a large reel or bobbin.

(viii) From the large reels the thread is then wound on to smaller reels, and is at the same time formed into a thinner thread by a machine corresponding to the 'roving-frame' of a cotton-spinning mill.

(ix) The thread is then transferred, in a still finer condition, from these reels to the bobbins of the spinning-frame.

(x) The next process is known as "gassing." Along a flat frame, with a row of small bobbins on either side of it, are set a number of small gas-jets. The bobbins on one side carry the silk transferred to them by the last-named process; the bobbins on the other side are empty. When the machinery is set in motion the silk thread is rapidly reeled off the one set and passes through the flame of the gas-jet on to the empty bobbins. The speed, with which the thread passes through the flame, ensure its not being scorched or burnt, but is at the same time so regulated that any roughness or excrescence upon the thread is charred away.

(xi) The bobbins of thread are then taken to the reeling department of the mill, where the thread is wound off the bobbins on to the large reeling-frames, and is finally tied up into separate hanks.

(xii) At this stage the silk is ready for the dyer, who stands in a room apart beside the vat and dyebaths, above which the coloured hanks hang drying. Aniline dyes only are used. The most noteworthy object in this department is the Hydro-extractor, by means of which all moisture remaining in the silk after successive immersions is finally removed. The principle underlying the machine is that of 'centrifugal force.' The silk is carefully packed in a round receptacle with perforated sides. When ready, this receptacle whirls round at a high rate of speed; and the moisture is forced outwards through the perforations, strikes an outer wall of metal, and falls to the ground. The machine will extract a considerable amount of moisture from a hank which has been thoroughly wrung out by the hand, and is to all appearances quite dry.

(xiii) The dried and dyed hanks are then spun again on to small reels, which are subsequently fixed in the warping frame. The number of reels on the frame is determined by the length and size of the warp required. The threads from every reel upon the frame pass simultaneously on to big wooden cages, which revolve upon a crank and handle turned by the warper.

(xiv) Yet one process remains before the silk is ready for the power-loom, viz., stretching and sizing. The threads are taken off the large revolving cages, are stretched upon two rollers, and are moistened with size, applied by a handbrush. The threads, after sizing, are arranged for the warp: and the silk is then ready for the loom.

(c) Process of preparing raw neat silk.

Raw neat silk, being already in the thread condition, does not require to pass through the preliminary processes enumerated above. A great portion is reeled and woven in the 'gummed' state, and does not make the acquaintance of the dyer until it has become a finished fabric. It may be seen by the visitor in the first room which he enters, gleaming in piles of gold and silver. At the far end of the room are the revolving frames, surmounted by rows of red or white reels, on to which the thread from the hanks is cast. Hard by, those same reels are casting their store upon rows of tiny spools, which ere long will be flying to and fro through the warp-threads of the power-driven loom.

The remainder of the raw neat silk is boiled, denuded of gum and dyed, before being reeled and woven. The same process is followed after dyeing, as in the case of the raw waste silk.

(d) The weaving-room.

Passing on into the weaving department, one is at once struck by the sombre hue of the surroundings, the dark wheels overhead, the black belting of the shafts, the black-bearded faces of the weavers; in the midst of which stand out in strong relief, like sheets of multi-coloured flame, the fabrics upon the loom. Light-blue, dark-blue, crimson, orange, green, red, the fabrics, some figured, some gold-bordered, wind slowly round the rollers amid the whirr of the great wheels and the clank of the arm that marks the flight of the shuttle. It is a splendid exhibition of colours.

The "kinkháb" loom in the Chhoi silk mill is most interesting, with its array of shuttles, containing silk of different colours, of which two, three, or more may, by a special contrivance, be thrown, before any one of them returns to the common starting point. The designs worked in the body of the fabrics are first punched out in strips of card-board by a specialist in the art, the card-board being subsequently inserted in the upper part of the loom and revolving up and down by machinery.

(e) The Fabrics.

The fabrics woven are of numerous kinds, to suit the markets of Bombay, Bengal, the Punjab, and Burma; and may be roughly classed as (i) Saris for Hindu women, figured or unfigured; (ii) Skirts and Head-gear for Mahomedan women; (iii) Satin piece-goods, which are subsequently cut up into bodices, coats, jackets &c.; (iv) Handkerchiefs or Scarves for the Burmese, and (v) Dress-lengths for the women of the Punjab.

Of these various fabrics, the Scarves intended for sale in Burma are of somewhat curious design. They are worn upon the head by the Burmese, who set so much store by a certain peculiarity of the pattern, that four Burmese

have been engaged by the Poona mill to superintend the printing of this class of goods. The Saris intended for the Bombay markets differ from those sold in Bengal and the Punjab, in that the former have only the borders of different colours, while the latter are provided both with borders and with a line of different hue running up the centre of the fabric.

Generally speaking, the mill-fabrics find no market among the Parsi community, as their quality is not sufficiently good to warrant purchase. The superb saris worn by the well-to-do Parsi lady are usually imported by the silk-mercers of Bombay from China, and are far more costly than the gay fabrics of the Bombay mills. A few saris, specially made by the Poona mill, are bought by members of this community; but they are generally used for in-door wear. In a few years' time the monopoly which China now holds may have been overthrown; for the owners of both the Chhoi and the Sassoon silk mills are believed to favour the idea of weaving costlier articles of dress, comparable to the superb fabrics now imported from China.

The Saris at present produced are light and of thin texture, and cost from Rs. 5 to 10 a piece. Those, however, which are intended for export to Northern India fetch a higher price. The Hindu woman of the Deccan and Southern Marátha Country cannot afford to spend large sums upon her dress, and seeks the cheaper fabric. Its brilliant colouring also attracts her, and renders it more acceptable than the silk sari of the hand-loom.

There is only one variety of fabric in respect of which the hand-loom weaver can in any degree hold his own against the mill; and that is the 'Pitámbar,' or silk dress, worn by men and women of the Hindu community upon special occasions, and manufactured on demand at Gokák, Bijápur, Yeola, and other places. Being an extraordinary rather than an ordinary form of apparel, it would not profit the mill to set apart looms for its production. But in the case of Saris, Head-dresses, Bodices, and other garments the hand-loom weaver has to yield place to the mill, which sends its productions to the uttermost parts of India and Burma. The mill does not, as a rule, sell its production upon the premises; but enters into forward contracts for the supply of this or that class of goods with large trading firms, who in turn distribute the goods among their agents or branch firms in India and Burma.

Locally produced gold thread was formerly used by the Sassoon Mill for the embroidered borders of saris. But the output of such goods has of late years declined; and instead, are manufactured saris with borders of imitation gold thread, which are found to sell more readily.

Different seasons of the year find the looms working upon different classes of fabrics. Saris intended for the Deccan or other parts of the Presidency, and Handkerchiefs affected by the Burmese, are mostly woven in the cold weather; that being the season in which the lower classes find their purses heavier: while

the dress-lengths for the Punjabi and other fabrics are mostly woven during the monsoon months. Such a year as the present one, in which famine, or at any rate scarcity, has attacked most districts, is marked by a dwindling of the Deccan demand, and inclines the mill to greater dependence upon the Burma markets.

A most interesting feature in the preparation of a great many of the mills' fabrics is the block-printing in colours. The blocks, with which this hand-printing is performed, are manufactured on the premises, the design being sometimes cut in relief upon solid 'Kael' wood, and at other times made of ribbons of brass projecting from the block. The fabric, usually white and figured, is spread upon a long table or board. At intervals along the edge of the table stand the printers, each with his block and a tray, containing a pad wet with blue, red, or yellow dye. The first man in the line stamps the outline, of flowers or leaves, upon the fabric, which then passes on to the second, who stamps the petals of the flowers yellow; then to the third, who stamps the centre of the flowers red; and so on, until the whole variegated pattern has been depicted upon the fabric.

The packing, calendering, or store-room of any one of the three mills is worth a visit. There may be seen the fabrics piled one upon another; silk scarves of red and green hue peeping from under piles of rose-coloured satin, gold-bordered saris tossed carelessly over crimson coverings for the head. Around are piles of card-board or tin boxes, their covers adorned with somewhat crude Austrian prints, into which the handkerchiefs and smaller fabrics are packed for despatch through the trading community to the various marts in India.

(f) The Employe's.

The men employed in the three mills belong to both the Hindu and Mahommedan communities; the former generally providing spinners, reelers, and dyers, the latter weavers and warp-dressers. The Mahommedans employed in the Poona mill are reported to be natives of Ratnágiri, Ahmednagar, and other up-country towns. The wages of the men vary according to the intricacy of the work allotted to them. Both spinners and weavers are paid by the piece, the former earning on an average from Rs. 10 to Rs. 15 per mensem, and the latter from Rs. 15 to Rs. 25 per month. Some are said to earn at times as much as Rs. 30 in a month. Notwithstanding that rent of rooms and cost of living in the city are higher than in their native town, the workmen would appear to be tolerably well-off and contented; while the airiness and cleanliness of the rooms, in which their daily work is accomplished, offer a marked and agreeable contrast to the unspeakable heat and unpleasantness of the spinning departments of the city's cotton mills.

CONCLUSION.

"And Madhav sent also unto them costly robes manufactured in many lands."

MÁHÁBHARATA: *Adi Parva.*

We have traced the history of the silk thread throughout the purificatory stages of sorting, reeling, spinning, bleaching, dyeing, and warping, unto its final absorption into the body of the finished fabric. We have glanced lightly at the weaver, at his joys and troubles, so far as they might be learnt, and at the circumstances of them that buy the work of his hands. The fabrics lie in the shops of the trader awaiting purchase. Most of them that have been prepared in places other than the city of Bombay will, after a struggle for superiority with the output of the power-loom, find buyers among the bridegrooms and brides-elect of the Deccan, Konkan, and Karnáta. A few, for whose excellence the place of their production gives a warranty, may voyage afar in company with fabrics from other parts of India, and discover their owners in the markets of Arabia, Persia, and Egypt. Of the final destination of the mill's fabrics somewhat has already been said. A goodly number will be sold within the limits of the Presidency, others will travel by land and sea to the marts of the Punjab and British Burma; and some, again, will be purchased by the people of Aden and Muscat.

In regard to the condition of the allied industries, what verdict may one pass? From the Konkan and from many places in the Deccan comes a tale of decadence, of how the old industry of men's hands seems, like the flame of a beacon lighted long ago, to be dying down into ashes and extinction. If Thána, Kolába, Ahmednagar, and other places were the only strongholds of the hand-weaver, the industry would truly be in sorry plight. But Gujarát, Poona, and Násik are the true home of the industry, in which there is yet much vitality and power to attract the sons and daughters of toil. Perhaps a coming generation may witness, even in these parts, a certain decline, a straitening of the territorial limits within which the industry has influence: but we hope, moreover we have confidence, that the craft will not be wholly extinguishable. The brocade of Surat and Ahmedabad, the pitámbar and sari of Yeola, have gained a reputation which cannot lightly pass into oblivion, and which will ever ensure the presence of purchasers from among the people of this Presidency. In other parts of the Deccan, in the Konkan and, to a certain extent, in the Southern Division the further decline of the industry will, we venture to believe, be more noticeable. The silks of these regions can lay claim to no special virtue, and must gradually yield place to the cheaper fabrics of the power-loom. But the change will be slow; for the nature of the people leads them to cling to an industry to which generations of their forefathers extended patronage.

In regard to the power-loom industry, one is inclined to a belief that it will not expand to any appreciable extent, so long as it continues to weave cheap fabrics from waste silk. Of the demand in Burma and the Punjab, one is not

able to give an authoritative opinion : but so far as the Bombay Presidency is concerned, the mills would not seem likely to attain a degree of great eminence, so long as the nature of their output remains unchanged. They may make and sell an annually increasing number of cheap bodices and saris, to the discomfiture of the hand-weaver : but such a course will not crown the industry with distinction. One hopes that at some future date the mills will find it worth their while to cast aside their competition with the old craft, and strive to wrest from China and Japan the monopoly of supply of the costly flowered silks donned by ladies of the Parsi, Bania, and Memon communities. Neither wit nor money would be lacking should the owner of the power-loom decide to join issue with the Far East : and we would readily wish him god-speed in the enterprise.

Bombay,
February 1900.

S. M. EDWARDES, I.C.S.

APPENDIX I.

Showing export of Silk piece-goods to Arabia, Persia, Egypt, and Aden during last three years.

					1896-97.	1897-98.	1898-99.
					Yards.	Yards.	Yards.
Arabia—Muscat	...	...	...	...	32,544	18,151	21,028
" Other Ports	...	...	...	...	20,095	360	840
Persia	...	...	...	...	25,208	24,488	32,708
Egypt	...	...	...	...	2,872	23,698	25,943
Aden	...	...	...	...	13,524	2,250	660

APPENDIX II.

Showing export of mixed Silk and Cotton piece-goods to Arabia, Persia, Egypt, and Aden during last three years.

					1896-97.	1897-98.	1898-99.
					Yards.	Yards.	Yards.
Arabia—Muscat	...	...	...	...	2,000	8,412	3,949
" Other Ports	...	...	...	...	93,059	26,543	10,804
Persia	...	...	...	...	1,793	880	5,978
Egypt	...	...	...	...	932	1,280	5,284
Aden	...	...	...	...	21,965	18,005	10,922

APPENDIX III.

Showing the numerical strength of the principal castes engaged in Silk industry at the Census of 1891.

					Males.	Females.	Total.
Hatgar	...	...	...	...	29,717	28,517	58,234
Patvegar	...	...	...	...	1,297	1,269	2,566
Khatri	...	...	...	...	24,390	22,786	47,176
Koshti	...	...	...	...	46,299	43,627	89,926
Sali	...	...	...	...	53,161	48,555	101,716
Momin	...	...	...	...	15,411	14,652	30,063
Bhavsar	...	...	...	...	11,323	11,442	22,765
Rangari	...	...	...	...	6,367	6,110	12,477