

MONOGRAPH
ON
THE SILK FABRIC INDUSTRY
OF THE
Madras Presidency.

WITH THREE PLATES.

BY
EDGAR THURSTON,

Superintendent, Madras Government Museum.

Madras:
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS.

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The Silk Fabric Industry of the Madras Presidency.

AS it was impossible that I should make a special personal visit to all the important centres at which the silk-weaving industry is carried on; and, further, as the weavers are inclined to view me with suspicion as being one of the "Gentlemen from England, who have come to copy their designs by machinery," I have had recourse, in the preparation of the present monograph, to the following circular letter addressed to the Collector of each of the 22 districts of the Presidency. In this way, it seemed to me, I should best arrive at the present condition of the industry, and the views of the weavers thereon.

To

ALL COLLECTORS.

With reference to G.O., No. 4873, Mis., dated 10th December 1898, on the subject of a monograph on the silk-industry of the Presidency, which I have been asked to prepare, I shall be very grateful if you will assist me with information, so far as this industry is carried on in your district.

2. The main points, on which I am desirous to collect information, are as follows:—

- (a) The caste or castes to which the weaving community belongs.
- (b) Whether females, as well as males, are engaged in the industry.
- (c) The localities at which the industry is carried on.
- (d) The number of looms and weavers at different centres.
- (e) The condition of the industry, whether flourishing or declining; and, if the latter, the causes to which the artisans attribute the decline.
- (f) The nature of the fabrics made, and by what classes (Muhammadans, Hindus, etc.), they are purchased.
- (g) The market in which the fabrics are sold, *e.g.*, whether the trade is local within the district, or spreads beyond its limits.
- (h) From what place or places the silk is obtained.
- (i) The method of preparation for weaving in the loom.
- (j) The nature of the dyes used (vegetable, mineral, etc.), and method of preparation of the indigenous dyes.
- (k) The reason why aniline and alizarine dyes, if used, are preferred to vegetable colours.

3. It would help me very considerably if it could be arranged that typical samples of the woven fabrics (with price recorded) should be sent to me for inspection, and, if of good quality or design, purchase for the industrial section of the museum.

4. Though the matter is only indirectly an official one, I take advantage of the present opportunity to state that money prizes, or medals, and certificates of commendation, will be offered at the next Fine Arts Exhibition at the end of the present year or beginning of 1900, for fabrics woven in silk, or silk and cotton mixed. And, if the weavers are willing to advertise their wares, I shall be glad to receive for competition, and possible purchase by visitors to the exhibition, specimens of their best work.

The replies received in response to this letter are incorporated in the following notes. From six districts—Vizagapatam, Cuddapah, Tinnevely, Malabar, South Canara and Nilgiri—it is reported that no silk-industry is carried on therein. "In 1700," Sir George Birdwood writes,¹ "a law was passed, by which all wrought silks, mixed stuffs and figured calicoes, the manufacture of Persia, China, or the East Indies, were forbidden to be worn or otherwise used in Great Britain. It was particularly designed for the protection of the Spitalfields silk manufacture, but proved of little or no avail against the prodigious importation and tempting cheapness of Indian piece-goods at that time." Two centuries exactly have elapsed since the passing of this law, and the dawn of a new century finds the Indian weaver, without capital, and using a primitive hand-loom, being ousted from his hereditary craft by the "prodigious importation and tempting cheapness" of piece-goods² (many with debased Indian or Persian design) turned out in Europe under all the advantages of skilled knowledge of the manufacture and manipulation of mineral dyes, and quick outturn in power-looms in their favour.

In connection with the decline of the indigenous weaving industry, I may revert to the concluding paragraph (possibly Utopian) of my 'Monograph on the cotton fabric industry of the Madras Presidency,' 1897, when I wrote as follows: "Admitting the hopelessness of any attempt to entirely arrest the importation of these (piece-) goods, it nevertheless seems to me that the Madras Government School of Arts might, with a change of

¹ 'Industrial Arts of India.'

² The term "piece-goods," now familiar to us in connection with imported fabrics, was originally applied in trade to the Indian cotton fabrics exported to England.

policy, prove a great influence for good, and that it should take an active lead in a serious effort to bring about an improvement in the colour and design of imported fabrics, and an amelioration of the condition of the native weavers and dyers, who, as hereditary artisans, are worthy of our sympathy and support. State interference with existing trade concerns is, I am fully aware, not wholly unattended with difficulties, to overcome which would require careful steering by one gifted with tact, and able to win the confidence of the commercial community (Europeans and Natives) interested in the piece-goods trade. Ample material is available as a guide to the production of suitable design and colour in their relation to cotton fabrics for native wear; and a serious effort should, it seems to me, be made by the School of Arts and Industries to check at least the production of the most glaring barbarisms in colour-printed fabrics, by the preparation and wide-spread distribution of patterns, carefully selected as regards colour and design, with a view to guiding both the designers and manufacturers into a better path." In evidence of the difficulties against which the weaving community has to contend, I may quote the remarks of Mr. E. B. Havell, formerly Superintendent of the Madras School (now of the Calcutta School) of Arts (Report on Industrial Tour, 1885) who says: "The great objection among Hindus to European long-cloth, apart from its want of durability, is that the coloured and embroidered border of the native cloth is wanting; so, on occasions of ceremony, the native cloth is still used. But, within the last year or two, cloths have been introduced into the market exactly similar in outward appearance to the common country bordered white cloth, and selling at two-thirds the price or less. Even the finer cloths with silk-embroidered borders, which, on account of the combination of silk and cotton being difficult to work by machinery at a cheap rate, have hitherto escaped the competition of cheap and vulgar imitations, are now being reproduced with borders of coloured cotton exactly similar in design. Similarly the women's cloths have until recently only had to compete with glaring printed cottons, which, though injuring native trade in cloths for low-caste wear, cannot have affected the industry in the finer manufactures. But lately European cloths, woven instead of printed, in imitation of some of the Kuttalam and Kuranád patterns, have been brought into the market, selling at prices with which the native manufacture could not possibly compete. The effect of this new departure will no doubt tend to greatly hasten the decline in native weaving. In fact, it is obvious that, in no very short time, the whole of the native industry in the low-caste or purely cotton cloths must give way, and only a remnant of the finer manufacture, in which silk is partly or wholly used, will be able to hold its own to any extent against the cheaper, though vastly inferior in every way European goods."

The sericultural industry is at the present day threatened by a rival to the silk of the silk-worm in the form of artificial silk, the industrial significance of which may be gathered from the number of patents which have been taken out, during the last year or two, for improvements in, and appliances for mercerising and imparting a silky lustre to web-fabrics. As bearing on the subject of this artificial silk, the opening sentences of an address¹ by Mr. Adam Millar to the Society of Chemical Industry may be quoted: "Silk," Mr. Millar says, "possesses greater strength than any other textile filament, but its principal value is not its strength: it has a lustrous surface, and this is its most valuable characteristic, and all attempts to obtain a substitute for it aim at reproducing this lustre. Another character of silk is the long length and fineness of the individual filament. This is indirectly a very valuable quality, for it allows of very fine threads to be formed, and of such strength that no other fibre can approach; so that its exceptional strength is of great value indirectly in giving a thread of good working strength, ten times thinner than cotton or wool. Thus a pound of silk yarn can be used to cover such a large surface of warp that its high price per pound does not prevent its application to many purposes, when a mere surface covering is chiefly wanted, and strength or durability is of less moment. Another outstanding quality of silk is the wide range of brilliant colours which may be imparted to it, and this quality must be present in any successful substitute.

"Within the last few years a purely artificial filament has been produced from cellulose, and this product, in spite of its being rather dear, rather difficult to dye, and very deficient in tensile strength, has been found to be of great value for many textile purposes, where its splendid lustre has outweighed its serious defects." Mr. Millar then proceeds to describe a process for producing artificial silk from gelatin, which he claims to possess very considerable advantages over cellulose, especially in its more economical production.

As bearing on the general condition of the weaving community (both cotton and silk), the following extracts from the 'Report of the Famine in the Madras Presidency, 1896-97,' may be quoted: "Among the people who felt the distress at the beginning were the weavers. About a third of the total number of weavers in a taluk, according to the census returns, may be taken to belong to the Mala community. Leaving

¹ Vide 'Journ. Soc. Chem. Ind.,' January 1899, pp. 16-59.

² Letter from M.R.Ry. K. Vijayaraghavachariar, Special Deputy Collector in charge of Weavers' Relief Operations, Deccan Districts.



No 5165
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Photo-Print Survey Office, Madras
1900.

PREPARING THE WARP—CONJEEVERAM.

out the Mala weavers, the remaining professional weavers are made up of weavers, caste-men, and Mussalmans. The latter class weavers are found chiefly in the big centres of Mussalman population, such as Adóni, Kurnool, and Tadpatri. It is a well-known fact that the people of the weaver caste, as well as the Mussalmans, are generally improvident, and consequently poor. They are both accustomed to a better kind of food and drink than other classes of people of similar position in life. In favourable times the weavers generally earn fair wages. They, however, spend all they earn without caring to lay by anything, so that very few of their caste are in well-to-do circumstances. The same is the case with the Mussalman weavers. All these weavers are entirely in the hands of the sowcars¹, who make advances to them, and get cloths in return. The cloths thus obtained by the sowcars are exported to other parts of the country. It may be taken as a general fact that most of the professional weavers are indebted to the sowcars, and are bound to weave for them. So long as the seasons are favourable, and sowcars get indents for cloths from their customers, they continue their advances to their dependent weavers. But when, owing to any cause, the demand decreases, the sowcars curtail their advances proportionately, and the weavers are at once put to difficulty.

“According to the fineness and kind of fabrics turned out by the weavers, they may be divided into fine cloth weavers and silk weavers, and weavers of coarse cloths. It is the coarse cloth weavers that would be affected with the first appearance of distress. The consumers of their manufactures are the poorer classes, and, with the appearance of scarcity and high prices, the demand for the coarser kinds of cloths would cease. Such was actually the case about the beginning of the recent distress.

“The weavers are, as a class, not accustomed to hard manual labour, nor are they able to work exposed to heat and sun. If such people are put on earth-work, they would certainly fail to turn out the prescribed task, and consequently earn insufficient wages. They would thus be, as it were, punished for no fault of theirs. This state of things would last at least for some time, until the weavers got accustomed to earth-work. Again, these people have, by constant work at their own craft, attained to a certain degree of skill and delicacy, and, if compelled to do earth-work during the temporary unfavourable season, they would certainly lose, to some extent, their skill and delicacy of hand, and would become unfit, in that degree, for their accustomed work when favourable season returns. They would thus be put to inconvenience doubly. During the first part of the distress their skill of hand and delicacy of constitution would stand in their way, and, after the return of good season, the loss of manual skill and delicacy would place them at a disadvantage. And what, after all, is the gain to Government? Practically nothing. On the other hand, it can be easily seen that giving relief to the weavers in their own calling is the most economical form of relief. In this form of special relief, Government advances materials to the weavers, to be woven by the latter into different kinds of cloths. Government has no doubt to incur a large initial expenditure in the shape of value of materials, and wages for weavers for making these materials into cloths. But all the materials are returned woven into cloths, so that, at the close of the operations, Government has a stock of cloths which can be disposed of without difficulty on the return of favourable times, and the cost incurred recovered. In this way Government not only administers relief to a pretty large section of its poor subjects, but keeps up, with little or no cost to itself, the industrial skill of this section of the people, and avoids the risk of adding to the already large agricultural and cooly portion of the population.”

I am informed that, during the famine, relief was offered to the weavers at their own trade at Jammalamadugu in Cuddapah, Tadpatri in Anantapur, Adóni in Bellary, and Kurnool, as well as in a number of villages in these four districts and parts of Vizagapatam and Ganjám. Weaving was restricted to the manufacture of the commonest cloths, except at Adóni and Kurnool, where the carpet-weavers were employed in weaving carpets of simple pattern. The total amount expended on this form of relief was Rs. 11,54,707, and, at the close of the operations, the stock on hand was, in round numbers, 878,500 cloths and 79,600 carpets. Of the former, nearly the whole stock has been sold, only 4,000 remaining on hand in Kurnool and Bellary. Sales were effected with difficulty, and at a considerable sacrifice on the estimated value of the cloths; the difficulty being in part due to the almost continuous fall in the price of cotton during 1898. Of the 79,600 carpets, only 16,740 have as yet been sold. There is practically no local demand for them in Kurnool, and only a feeble demand in Bellary. Small lots are, however, enquired for from time to time, for despatch to the Northern Circars. The total amount recovered by sales so far has been Rs. 6,11,898, and the stock in hand may be valued at Rs. 40,000, but it is deteriorating by storage.

Trade statistics.—The following tables are based on an analysis of the figures in the Annual Statements of the Imports and Exports for the Port of Madras :—

¹ Money-lenders.

1. IMPORTS—Raw and Waste Silk.

—	Calcutta.		Bombay.	Straits.	Japan.	France.	Brindisi.	Calcutta.	Japan.
	Raw.		Raw.	Raw.	Raw.	Raw.	Raw.	Waste.	Waste.
	LBS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1889	219,288	10,80,835	..	..	..	..	..	..	..
1890	234,710	11,75,998	..	..	..	..	..	3,200	..
1891	273,949	13,72,030	..	..	..	..	..	..	..
1892	242,377	12,22,828	..	..	2,250	180	2,256	..	9,0
1893	106,087	4,82,848	..	..	..	..	..	..	..
1894	105,309	5,21,785	7,944	..	..	..	..	..	..
1895	205,733	10,21,603	..	22,885	..	..	..	..	..
1896	278,728	13,92,140	..	..	..	..	..	..	..
1897	119,102	6,07,444	..	..	..	..	..	..	..
1898	65,825	3,33,634	..	..	..	..	..	..	..
Total ..	1,851,108	92,11,145	7,944	22,885	2,250	180	2,256	3,200	9,0

2. IMPORTS—Piece-Goods.

—	Great Britain.	Calcutta.	Bombay.	Rangoon.	France.	China.	Straits.	Trieste.	Hamburg.	Antwerp.	Genoa.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1889	27,212	14,852	1,664	..	3,594	2,530	80	..	..	..	5
1890	22,904	27,250	1,414	1,150	7,789	4,315	..	..	..	..	1,2
1891	27,515	4,973	473	450	3,948	..	..	..	2,097	554	..
1892	28,439	400	1,185	..	1,804	550	25	724	..	..	..
1893	28,423	11,960	2,400	1,080	5,066	..	..	..	..	..	..
1894	28,575	4,956	1,350	..	1,874	887	..	..	..	..	..
1895	42,045	2,400	1,900	..	713	..	..	..	..	..	..
1896	72,019	4,966	225	..	..	..	..	..	..	..	..
1897	57,717	5,700	1,200	..	..	..	5,446	..	..	..	..
1898	47,890	4,400	..	..	2,185	..	..	..	..	..	..
Total ..	3,82,739	81,857	11,811	2,680	26,973	8,282	5,551	724	2,097	554	1,70

3. EXPORTS—Raw Silk.

—	Great Britain.		France.		Marseilles.		Lyons.	Calcutta.	Straits.
	LBS.	RS.	LBS.	RS.	LBS.	RS.	RS.	RS.	RS.
1889	128	760	1,585	9,510	..	..	5,500	..	..
1890	4,688	15,772	4,706	28,246	..	..	..	..	..
1891	775	828	50	300	..	..	..	..	..
1892	80	640	200	1,400	..	..	..	..	..
1893 .. .. .	..	..	..	..	..	..	..	1,650	..
1894 .. .. .	..	..	..	..	..	..	128	1,500	..
1895 .. .. .	..	..	..	..	..	..	..	..	..
1896 .. .. .	..	..	..	..	31,275	20,187	..	192	..
1897 .. .. .	..	..	..	..	..	..	..	1,540	2,56
1898 .. .. .	..	..	..	..	..	..	..	1,250	..
Total ..	5,671	18,000	6,541	39,456	31,275	20,187	5,628	6,132	2,56

4. EXPORTS—Waste Silk.

—	Great Britain.		Marseilles.		France.		Lyons.		Ceylon.	Bombay.	Sues.
	LBS.	RS.	LBS.	RS.	LBS.	RS.	LBS.	RS.	RS.	RS.	RS.
1889	211,723	1,99,527	..	..	1,475	1,180	7,603	7,860	45	..	..
1890	223,247	2,06,167	..	..	..	..	..	..	..	..	..
1891	167,760	1,54,271	..	..	4,968	4,352	..	..	..	500	..
1892	196,735	1,71,239	..	..	25,465	18,355	..	..	..	..	3,276
1893	202,599	1,73,717	..	..	26,722	18,218	600	525	..	..	..
1894	191,262	1,56,853	..	..	..	..	..	..	..	..	..
1895	270,578	2,32,140	18,428	14,492	26,238	16,087	..	..	..	..	..
1896	7,019	4,493	217,815	1,22,549	..	..	..	..	..	..	..
1897	10,060	4,625	256,580	1,29,044	..	..	..	..	..	..	..
1898	10,250	5,125	270,118	1,50,002	..	..	..	..	..	..	..
Total ..	14,912,33	13,07,167	762,941	4,16,087	85,268	58,192	8,203	8,385	45	500	3,276

5. EXPORTS—Piece-Goods.

—	Rangoon.	Ceylon.	Calcutta.	Bombay.	Straits.	Natal.	Mauritius.	Great Britain.	France.	Malta.	Sues.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
1889	410	4,681	800	..	..	..	..	250	..	..	..
1890 .. ..	..	240	1,800	..	576	..	140	..	..	..	..
1891	307	75	..	..	613	..	..	..	224	..	..
1892 .. ..	..	..	..	3,126	..	..	..	100	100	..	..
1893	5,279	3,123	2,380	..	1,650	..	..	1,440	..	..	..
1894	2,310	3,432	1,070	..	1,480	279	..	..	..	..	..
1895	1,13,572	10,115	..	..	250	1,116	..	612	..	1,550	..
1896	73,650	8,162	2,500	..	90	872	..	15,220	..	1,000	..
1897 .. ..	..	4,860	..	..	6,450	6,039	..	..	..	..	34,203
1898	18,055	1,825	..	..	..	2,240	..	..	..	..	1,200
Total ..	2,13,583	36,513	9,050	3,126	11,109	10,546	140	17,622	324	2,550	35,403

6. EXPORTS—Cocoons, Cuttings and Tassar.

—	Cocoons.								Cuttings.	Tassar.
	Great Britain.		Marseilles.		France.		Lyons.	Beyrout.	Great Britain.	Lyons.
	LBS.	RS.	LBS.	RS.	LBS.	RS.	RS.	RS.	RS.	RS.
1889 .. ..	..	..	..	..	..	..	300	..	2,565	4,700
1890	2,816	3,872	..	..	..	..	..	..	..	..
1891 .. ..	..	..	..	..	391	489	..	..	13,920	..
1892	1,405	2,205	..	..	2,859	3,350	..	..	..	..
1893	6,650	8,075	..	..	13,757	16,207	..	..	..	..
1894	1,860	1,611	..	..	613	686	..	1,012	..	..
1895	1,846	1,789	..	..	..	..	..	..	..	..
1896	1,921	2,083	3,790	2,559	..	..	..	..	..	..
1897	675	459	2,050	1,148	..	..	..	..	..	..
1898 .. ..	..	..	7,667	4,957	..	..	..	..	..	..
Total ..	17,173	20,094	13,507	8,664	17,620	20,732	300	1,012	16,485	4,700

To sum up, in few words, the more salient features of the trade, as brought out by the above tables, which speak for themselves. The supply of raw silk is obtained almost entirely from Calcutta. In other words, Bengal silk is largely used by the weavers. The bulk of the import trade in silk piece-goods is with Great Britain, which is followed, at long distances, by Calcutta and France. The British imports have, it is worthy of note, increased to a marked extent in recent years, the value thereof during the last half of the decade under review being Rs. 2,48,246 against Rs. 1,34,493 during the first half. The exports of raw silk are on a very limited scale, whereas waste silk is exported, principally to Great Britain and France, to a considerable amount. The diminished exports thereof to Great Britain, and increased exports to Marseilles, must, I conclude, be attributed to the dislocation of steam-boat traffic by plague quarantine regulations, the consignments reaching England by an indirect route.

The greatest exports of piece-goods are shown by the returns to be to Rangoon, the trade with which place, so far as silk fabrics are concerned, is fitful and oscillating, though it has increased appreciably during the last six years. The trade in silk piece-goods with Burma, Ceylon, the Straits, Natal, and Mauritius, is to be explained by the emigration which takes place from Southern India to these countries or localities, as shown in the following table; and the exported fabrics are adapted to the fashion and requirements of the emigrants, who, in their voluntary exile, welcome familiar wearing apparel of cotton, or cotton and silk mixed.

	Regulated Emigration.		Non-regulated Emigration.	
	1897.	1898.	1897.	1898.
Mauritius	198	....	....	....
Natal	5,087	5,867	....	....
Straits	3,068	8,424	18,179	15,339
Burma .. .. .	....	....	71,190	70,874
Ceylon .. .. .	....	....	166,186	142,300

The trade names, by which the exported silk piece-goods are known in the market, are: comboyem, cuthney, dhootee, dhovetee, handkerchiefs, kylee, loongey (or luñgi), narmady, sari, soosy, syllass, thavany, and women's cloths.

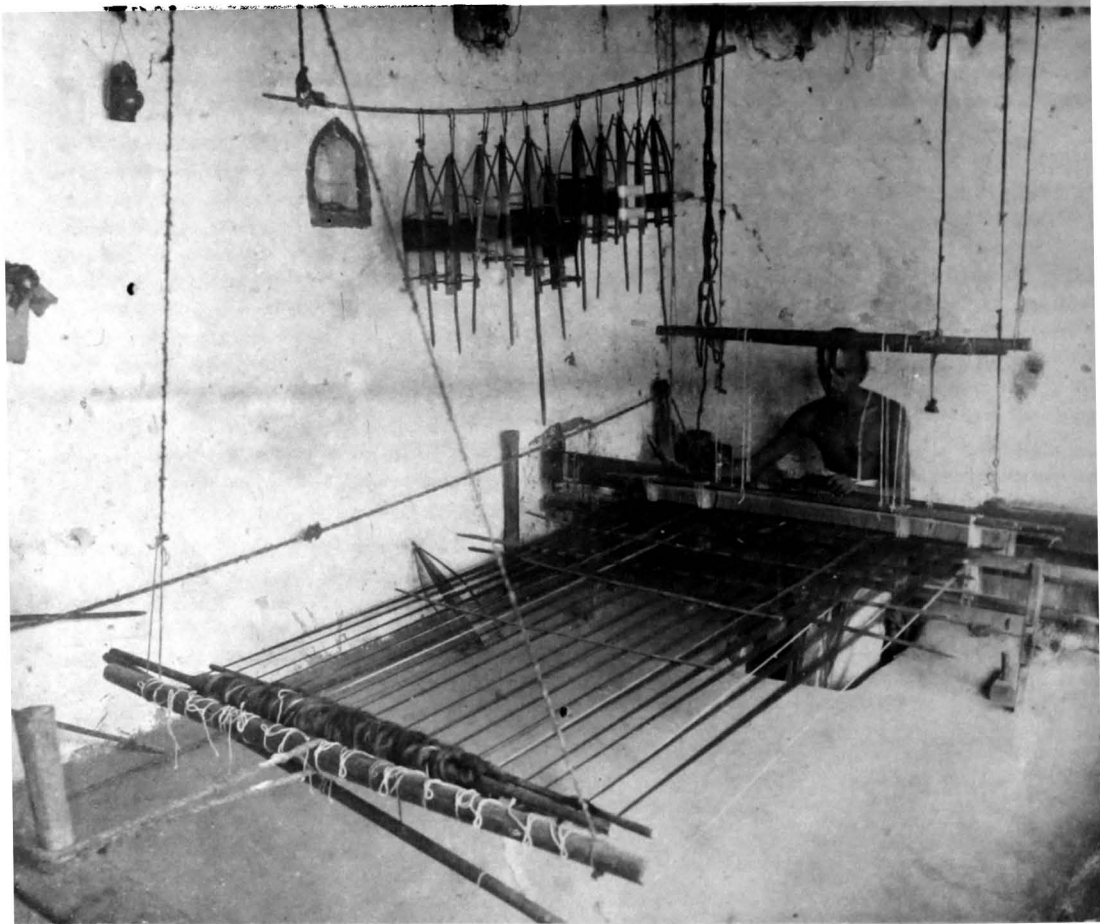
Ganjám district.—At Berhampur silk-weaving is carried on by males and females of the Dévángulu or Dévaravallu caste. The industry consists of weaving with both mulberry and tasar silk.

	Weavers.	Looms.
Mulberry	300	80
Tasar	30	8

There is a large demand for the woven fabrics locally, and a considerable export to places outside the district, principally Madras and Cuttack. All the manufactured cloths for males and females, Hindu and Muhamadan, find a ready sale, and the industry is said to be in a flourishing condition. Raw silk is obtained from Magara, and other places between Cuttack and Calcutta. In dyeing the silk, lac and kaméla, and "powders imported from Calcutta," are used. The favourite colours are purple and red. "The colour most used," Mr. Havell writes (Report on tour, 1886), "is the crimson produced from lac, and the cloths of Berhampur, unless specially ordered, are all of this colour." The fabrics consist of turbans, handkerchiefs, and body-cloths. Most of the weavers, especially in the case of the more valuable cloth, work for merchants on the piece-work system, being paid so much per cubit, and the cloths are sold by weight, at so much a tolah, according to quality. Children, about ten years old, are employed in the industry, and work the borders of the cloths with much intelligence. For Rajah's and wealthy native gentlemen, some gorgeous cloths are woven, with broad and elaborate borders of gold thread.

The following note on kaméla dye in Ganjám was published in the 'Indian Forester, 1892.'* "Among the many rich products of Ganjám, probably, the most esteemed in commerce is the red Kaméla dye, the valuable product of *Mallotus philippinensis* (monkey-face tree). This tree, with its lovely scarlet berries and vivid green emerald foliage, is a marked feature of forest scenery in Ganjám. The berries are coated with a beautiful red powder, which constitutes the dye. This powder is collected by being brushed off into baskets made for the purpose; but the method of collection is reckless and wasteful in the extreme, the trees being often felled to reach the berries more easily. The industry is a monopoly of the Hill Khonds, who, however, turn it to little advantage.

* *Vide also* 'Imperial Institute Hand-book—Kaméla.' Reprinted in the Appendix Series, 'Indian Forester, 1893.'



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WEAVING—CONJEEVERAM.

Photo-Print, Survey Office,
1900.

They are ignorant of the great commercial value of the dye, and part with the powder to the low-country dealers settled among them for a few measures of rice or a yard or two of cloth. The industry is capable of great development, and a large fortune awaits the firm or individual with sufficient enterprise to enter into rivalry with the low-country native dealers settled among the Khonds, who at present enjoy a monopoly of the trade. It is notorious that these men are accumulating vast profits in respect of this dye, as they obtain the powder in barter from the Khonds for the most trifling equivalent, and send ship loads of it from the district. The local name for the dye is *sundragundi*. The tree is largely cultivated by the Khonds in their forest villages." It may be noted that, in recent years, dyers in Europe obtain the same colour with an artificial product, and with much greater facility, *i.e.*, without alum, and more rapidly.

In the Ganjám Maliahs the jungles are searched by Pános for tasar cocoons, and, just across the border, in Boad, the collection of these cocoons is a regular industry among the Pános. Small portions of jungle are specially reserved, and divided up into small sub-divisions. Each of these is given to a Páno for rent, and here he cultivates the silk-worms, and collects the silk. The silk is sent partly to Berhampúr, and partly to Sambulpúr, for manufacture.

Góddvári District.—The weaving community belongs, for the most part, to the Dévanga caste. The industry is carried on, by both males and females, in Totaramudi, Jaganadhapuram, and Bodesakurru villages in the Amalápur taluk, and Peddápúr in the Peddápúr taluk. The number of weavers in the Amalápur taluk is 20, and at Peddápúr 5. The industry is in a declining condition, as there is no great demand for silk fabrics, which are made to order. These fabrics consist of turbans, handkerchiefs, and body-cloths for Hindus and Muhammadans. The trade is mainly local, but sometimes extends to neighbouring places in the Northern Circars. The Peddápúr weavers receive orders on a small scale from all parts of the Presidency. Wholesale dealers at Peddápúr obtain silk from Bombay for retail sale to the weavers. No indigenous vegetable dyes are used. "Dyeing powders" are obtained from Bombay, and made into a solution with admixture of alum. The powders are used as they are cheap, as well as easy of manipulation. The weavers have no idea of prize-winning, and do not care to secure certificates of commendation at the Exhibition.

Mr. Havell, writing in 1890 (*Journ. Ind. Art*), says that "at Peddápúr one weaver prepares cloths of a fine silk gauze, or muslin brocaded at the ends. They are worn by Zamindars or wealthy people as a kind of ceremonial costume, but are so fine that they are not suitable for ordinary wear.

Bellary District.—Both Hindus and Muhammadans are engaged in the weaving of silk cloths. Cloths of pure silk, *i.e.*, in which both warp and woof are of silk, are now rarely manufactured, the principal cloths being those with silk borders, or in which silk is used for the warp alone, the woof being of cotton. Sometimes silk is also used in the body of the cloths.

The principal castes engaged in the industry are Dévanga, Kuruvani, Padma Salai and Pathu Salai. The subsidiary processes, such as reeling and twisting the silk, are performed by the women of many other castes, *e.g.*, Kapus, Kurubas, barbers, and dancing girls.

The principal centres of the industry are—

(a) *Adóni taluk*—

	Looms.
Adóni	2,462
Yemmiganúr	3,000
Gudikal	700
Kosigi	800

(b) *Hospet taluk*—

Hospet	100
Chittavádigi	20
Kampli	200

(c) *Hadagalli taluk*—

Hampaságara	400
Bachigondanahalli	170
Tambrahalli	200
Kottár	405

The industry is declining. The women's cloths prepared locally are not now worn by the better classes, who prefer to buy cloths made at Tanjore, Kumbakónam, Madura, and other places in the Southern districts of the Presidency. Formerly the cloths of Kampli, Bellary, and Adóni were extensively used. For about a year the weavers have been trying to weave cloths like those manufactured in the south. So far the experiment has

proved successful, and the cloths thus woven are finding a ready sale. If fast dyes are used, and the cloths do not lose colour with wear, the trade in them will become established, and the weaving industry may resume its former importance. Cloths of pure silk, with chequered pattern, gold brocade, or ornamental designs, and pitambar (Benares cloth) are only made to order for Hindus and Muhammadans on the occasion of weddings or other festive occasions. Cloths of mixed cotton and silk, such as female cloths, bodices, &c., are in more general use, and purchased by all classes in the Mysore Province, Belgaum, Dharwar and Bijapur.

Raw or dyed silk is obtained from Calcutta, Bombay, Sholápúr, Gokak, Belgaum, Bagalkot, Mysore, Bangalore, Chennapatna, and Kollegal.

Aniline and alizarine dyes are said to be seldom used, as they do not yield a fast colour.

Kistna District.—The silk industry is carried on by the Patakari caste at Jaggayyapéta, where there are 28 looms, each loom employing two males and three females. The industry is said to have declined since the construction of railways, which bring into competition the products of other places. The town is far away from the Nizam's Railway, which has affected the trade of the town generally. The fabrics turned out are male and female cloths, coats, bodices, and kamarbunds or sashes, which are purchased by all classes. The trade therein extends to the Gódávári and Vizagapatam districts, Hyderabad, Madras, and, less frequently, Calcutta. Raw silk is said to be at the present day obtained exclusively from Bangalore, as the supplies thereof from Bombay were found to be of indifferent quality. Both vegetable and mineral dyes are used. Among the former is kaméla obtained from the Gódávári and Vizagapatam districts. In the preparation of the red dyes the resinous exudation of the sál tree (*Shorea robusta*) is used.

Mr. Havell ('Report on Industrial Tour, 1886') refers to seven families of the Dasiri caste, who weave cloths of tasar silk obtained from Hyderabad at Jaggayyapéta.

Kurnool district.—The weavers are returned as belonging to the Khatri, Patlagadi and Atakara castes, and as Muhammadans.

	Weavers.	Looms.
Kodumúr	1,000	500
Peapali	100	50
Gudúr	380	192
Kurnool	10	5

The industry is declining, and, among the reasons for this decline, is the existing deterioration of the material condition of the classes among whom the fabrics are in demand, owing to a succession of bad seasons, these classes not being able to afford to "take silk." The opening out of railways has facilitated the import into the district of cheap cloths, of cotton and silk mixed, from Kornád, Poona, Bombay, and other places in the north. The result has been a falling off in the demand for cloths of local manufacture. Further, real silk is being gradually replaced by cheaper imitation silk. The fabrics manufactured at the weaving centres are female cloths, bodices, male cloths, and prayer cloths. Ordinarily, silk is only used for the borders of the warp; cloths of pure silk being only made to order. Prior to the recent famine there was a considerable export to Mysore, and the Southern districts of the Bombay Presidency. Since the famine this export trade has ceased, partly because the people are not as yet prosperous, and partly because of plague restrictions. Raw silk is obtained from Bangalore, Maddúr, and Chennapatna in Mysore; and to some extent from Madras and Bombay. Both indigenous and mineral dyes are used.

Anantapur district—(a) Gooty taluk.—The weavers belong to the Dévanga, Padma Sále, Pattu Sále, and Togata castes. Females are engaged in preparing the yarn, and males in weaving the fabrics. The industry is carried on at Uravakonda and Krishtapád. At the former place there are about 30, and at the latter 100 looms. Ordinarily female cloths, of cotton and silk mixed, are manufactured, pure silk cloths only being made to order. The industry has been declining in recent years owing to famine and plague. There is a demand for the fabrics both within, and beyond the limits of the district to Udipi, Hubli, Dharwar, and other places. Raw silk is obtained from Bangalore, Bellary, Mysore, and Hubli.

(b) Talipatri taluk.—The weavers belong to the Pattakar or "Padasála" caste. Togatas and Muhammadans also weave cotton cloths with silk borders in the villages of Yádiki, Athiralladinna, Krishtapád, Narásapúr, and Yekkalúr—

	Looms.
Tadpatri	40
Athiralladinna	40
Yádiki	100
Krishtapád	75
Narasapúr	30
Yekkalúr	35

The condition of the industry is not flourishing. Most of the weavers receive advances from merchants, weave the fabrics, and sell them to their creditors. But sales have been dull owing to famine and plague, and the merchants will not make advances. The fabrics made are generally coarse, and of the quality worn by the lower orders. They are sold in the local bazárs, and exported to Bangalore and Bellary. Vegetable dyes only are said to be used. Thirty years ago Tadpatri was famous for its pure silk cloths, but the industry therein has died out.

(c) *Dharmavaram taluk*.—The same castes as in the Gooty taluk are engaged in the silk industry at Dharmavaram, where there are 100 looms and 200 weavers. The industry is in a declining state owing to want of capital and encouragement. Raw silk was formerly brought by Muhammadans from Bangalore, and sold to the weavers on credit. But the Muhammadans have ceased coming, partly on account of the plague, and also because the weavers, in many instances, failed to pay them for the raw silk. The fabrics turned out are male and female cloths, jackets, turbans, and handkerchiefs, which are sent for sale to Gooty, Anantapúr, Hindupúr, Penukonda, and even as far as Bangalore. Raw silk is obtained from the Mysore province and Kollegal. Vegetable dyes only are said to be used.

In his report on an industrial tour in the districts of Bellary, Anantapur, etc., 1807, Mr. Havell writes that "Dharmavaram and Kampli in Bellary, are the chief places where fine cloths for female wear are made. The most effective and characteristic cloth is one with a white ground of a wide check pattern, crimson borders and brocaded ends, sometimes with figures of flowers, birds, etc. The best of this kind are made at Dharmavaram." And of the dyes he says further: "For silk the common dyes in use are: crimson, lac or cochineal; yellow, turmeric; various shades of orange, arnotto (seeds of *Bixa Orellana*) used alone or together with turmeric; black from iron; more rarely a rich green, indigo and turmeric; when ordered, a blue from indigo. Three very crude European dyes are also commonly used everywhere—a yellow, green, and purple. The contrast of these with the low-toned native crimson or orange is most painful."

(d) *Kalyandrúg taluk*.—The industry is carried on at Kalyandrúg by three families of the Kurivina caste, and is in its infancy. They weave coarse cotton cloths with yellow and red silk borders, which are made to order for female Komatis. The silk is obtained from Bellary and Hindupúr.

Nellore district.—Silk weaving is carried out, on a very small scale, at Venkatagiri. One man alone, in fact, who formerly lived at Conjeeveram, understands the process, and the last time he was engaged in this work was a few months ago, when he made a pair of handkerchiefs for a Muhammadan. The silk is obtained from Madras or Conjeeveram. There are a number of hereditary silk-weavers (Pattu Sáliyans) at Bangarupett, but they are at present employed in weaving cotton handkerchiefs and lungis for Muhammadans.

Madras City.—The silk industry is carried on by Patnúlkrans, Kaikola Mudalis, and Shaniyars in Mylapore, Puddunaickpet and Purasawákam—

	Weavers.	Looms.
Patnúlkrans	300	170
Kaikola Mudalis	300	400
Shaniyars	500	150

The industry is reported as being in a flourishing condition. The fabrics, which are of cotton and silk mixed, consist of body-cloths for Hindus and Muhammadans; and are sold locally, or sent to Rangoon, Natal, Ceylon, Calicut, and Colombo. The raw silk is obtained from Bangalore, Calcutta and Bombay. No vegetable dyes are made in Madras, the weavers preferring "English powders, which appear to be mineral."

Chingleput District.—The silk industry is confined to the town of Coujeeveram and its suburbs—

	Weavers.	Looms.
Conjeeveram	15,000	5,000
Ayyampet	1,000	200
Muthialpet	300	50
Ayyankulan	200	20

The weavers were returned as Kshatriyas, Saliyars, Nanayas, Kaikalavars, Kunthiliyans, and Seniars, with a few Vellálas, Chettis, Kavarais, and Pallis. Those, however, whom I interviewed, wearing the sacred thread, called themselves Patnúls. Men and boys, as well as women and girls, are engaged in the industry. The decline thereof in recent times is attributed to famine, plague, and the imports of cheap rival piece-goods, which look as good as silk when new. Moreover, the Seniars, who used to work under the Patnúls, now carry on weaving operations on their own account. At the present day only four or five looms are employed for the manufacture of plain coloured cloths for Muhammadans, whereas formerly 200 looms were at work for this purpose. The

weavers are superstitious, and objected at first to being photographed, on the ground that the operation would bring death among them. They, like the weavers in nearly every district, were unwilling to advertise their wares, and send them to the Exhibition, on the ground that, owing to the depression in their trade, they are unable to prepare fabrics worthy to be exhibited.

Raw silk is obtained from Bangalore, Chennapatan in Mysore, Calcutta, and Bombay. The manufactured fabrics include red silk handkerchiefs, which are tied round the waist of the god at temple festivals; silk cloths worn by Bráhmans when they perform puja; women's cloths of pure silk, of white cotton with bands of gold and red silk, with chequered pattern, flowered border, etc. One cloth, with chequered pattern, is fancifully called High Court papli, as the squares of alternating colours resemble the flooring tiles in the corridors of the Madras High Court. The fabrics are sold locally, and exported to various important centres in the Madras Presidency. The weavers carry out orders for business houses in the city of Madras. One weaver volunteered the information that he makes bundles of cotton dyed with aniline dyes, which are suspended over the cradles of babies, to keep them cheerful and in good spirits by reason of their bright colours.

North Arcot district.—Silk weaving is carried on by the Sáliah, Patnúláran, and Kathisa castes. Both males and females are engaged in the industry, the latter preparing the silk for the loom.

The numbers of weavers and looms are as follows :—

	Weavers.	Looms.
Gudiyatam	1,500	400
Wálájanagar	500	300
Nemali	100	50
Ramapuram	50	30
Panapakam	30	20
Arni	?	348
Narayanavanam	1,280	320
Thumbur	200	50
Palamangalam	200	50
Mangudu	100	25
Gollapalli	120	30

The industry has been declining during the last two years owing chiefly to the competition of cheap power-loom foreign goods, to unfavourable seasons of scarcity, and to plague scare. The fabrics include cloths for wear by Hindus and Muhammadans. The trade is not confined within the district, as the cloths are sent to Madras, Mysore, and the Cuddapah, Anantapur, Bellary and Madura districts. The raw silk is obtained from Madras, Bangalore and other places in Mysore, Conjeeveram, and Bombay.

The raw silk is prepared by cleaning and steeping in an aqueous solution of country soda and lime-water, which brightens its colour.

The dyes used are—

Red—lac.

Yellow—Kapila-pindi (*Mallotus philippensis*—kamela).

Black—prepared from indigo.

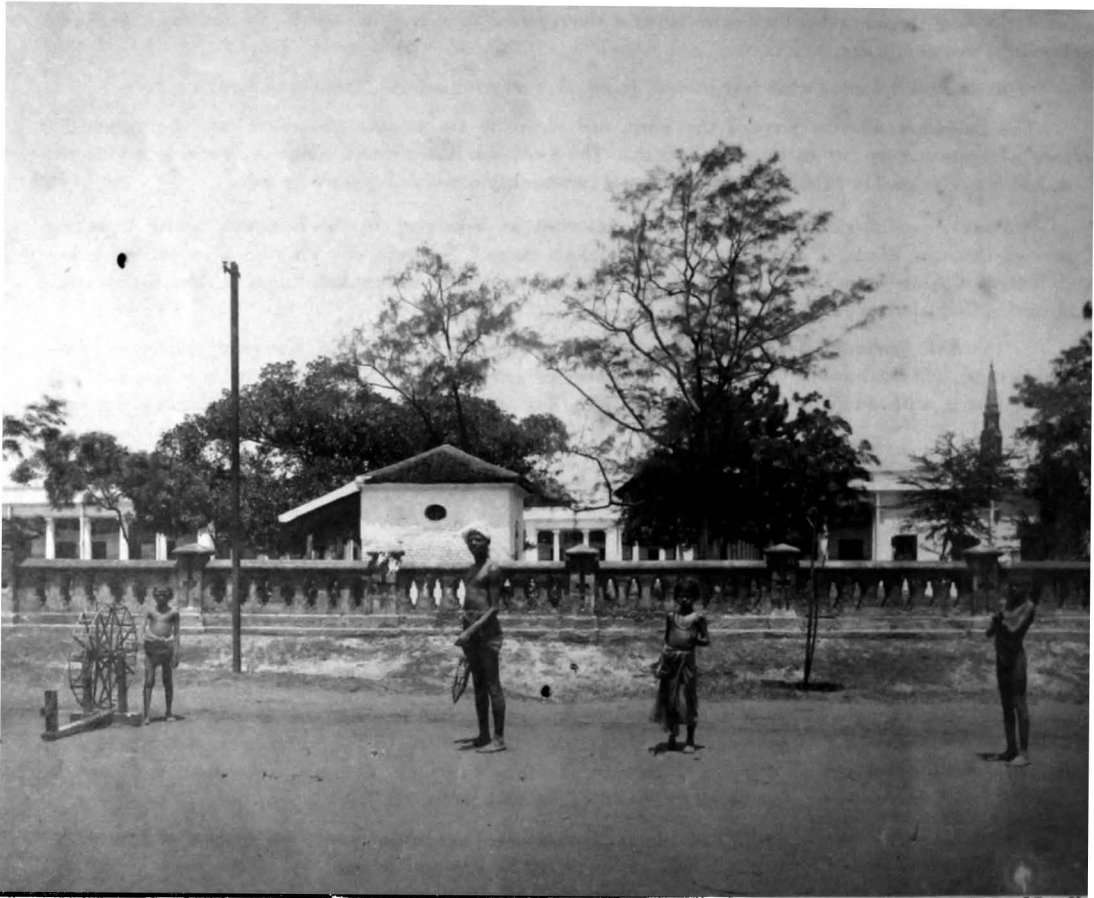
Pink—red dye boiled with Fuller's earth.

Violet—red dye boiled with indigo.

The weavers do not, it is said, know what aniline and alizarine dyes are.

Writing in 1890 ('Journ. Ind. Art') Mr. Havell remarks that, at Wálájanagar, an old seat of the silk carpet industry, "there are now only two workmen employed in it. Probably the proximity of Vellore Jail, which must have once competed strongly with local manufacture, has been the chief cause of the commercial ruin of the Wálájanagar carpet trade. The restrictions recently placed on jail manufactures, in this case, came too late."

The weaving operations are described as follows in the 'Manual of the North Arcot' (2nd edition, 1894): "The process of weaving is very simple. The thread is first turned off upon a hand-spindle (rátnam), and then the warp is formed. Bamboo sticks, 120 in number, are fixed upright in the ground, generally in the shade of a tope or grove, at a distance of a cubit from one another, and ten women or children, carrying rátnams in their hands, walk up and down this line, one behind the other, intertwining the thread between the bamboos, until 1,920 threads of various colours, according to the pattern desired, are thus arranged. For this work each gets half an anna—a small remuneration for walking four miles. To form a warp sufficient for eight women's cloths, 40 miles have thus to be traversed. In weaving silk cloths or the finer fabrics, the length of the warp is less than 60 yards. As soon as the threads have been arranged, the bamboos are plucked up, and rolled together



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WINDING GOLD THREAD—MADRAS.

Photo-Print Survey Office, Madras
1900

with the threads upon them. Trestles are then set out in the tops, and upon them the warp with the bamboos is stretched horizontally, and sized by means of large long brushes soaked with rági starch, and carried along by two men. This having dried, the whole is rolled up, and placed in the loom in the weaver's house. The weaving-room is a long, narrow, dark chamber, lighted by one small window close to where the workman sits. The loom is constructed on the simplest principles, and can be taken to pieces in a few minutes, forming a light load for a man. The alternate threads of the warp are raised and depressed, to receive the woof in the following manner. Two pairs of bamboos are joined together by thin twine loops, and, being suspended from the roof, are also joined to two pedals near the floor. Through the joining loops of one pair of bamboos run half the threads, and through those of the other run the other half. Thus, by depressing one pedal with the foot and raising the other, one set of threads is depressed, and the other raised so as to admit of the woof thread being shot across. This thread is forced home by a light beam suspended from the roof, and then, the position of the pedals being reversed, the woof thread is shot back again between the reversed threads of the warp. In this way about three yards can be woven in a day."

[This account describes what may be seen going on in weaving centres throughout Southern India.]

The Patnúlkar weavers prepare the warp, and weave in the manner described, but they generally prepare a separate warp for each woman's cloth. The waste silk is sometimes cunningly worked up with the good, and is always used in twisting the waist threads (*arainákayir*, *molatédu*) worn by men.

South Arcot district.—The weavers are returned as belonging to the Kannadia Saniar (speaking Kanarese), Dévanga, Sheda, Patnúlkarán and Thánákula castes. No pure silk weaving is carried on in any taluk except Chidambaram; but fabrics of silk and cotton mixed are manufactured in the Kallakurchi, Tindivanam, Cuddalore and Villupuram taluks.

(a) *Kallakurchi taluk.*—Weaving is carried out at only two villages, viz., Kongaraiyapálaiyam (three or four houses), and Odaiyanachi (one house). The weavers generally manufacture pure cotton cloths, and only turn out fabrics with admixture of silk to order. The silk is obtained, ready dyed, from Kumbakónam and Conjeeveram.

(b) *Chidambaram taluk.*—The industry is carried on at a series of villages comprising the following centres:—

	Weavers.	Looms.
Bhuvanagiri	{ 4,000 to 5,000 }	1,000
Chidambaram	3,000	600
Mannárgudi	2,000	400

The industry is declining owing to the cheapness of imported foreign cloths. But there is still a considerable demand for the kailies of Bhuvanagiri, which are exported to Singapore, and the trade therein is still in a fairly flourishing condition. The cloths manufactured at Chidambaram are sent to Mysore, Chingleput, North Arcot, etc. The cloths of Mannárgudi are sold locally. Raw silk is obtained from Calcutta, Bangalore, and Kumbakónam. The use of mineral dyes is now established.

(c) *Cuddalore taluk.*—Fabrics of silk and cotton mixed are turned out in the villages of Panruti and Vadakailásam, where kailies, for local sale and export to the Straits Settlements, and cloths worn by Hindus, "especially by religious classes," are manufactured. Raw silk is obtained from Madras, Kumbakónam, and Conjeeveram.

(d) *Villupuram taluk.*—A small, and declining industry in fabrics of silk and cotton mixed is carried on in the villages of Siruvandádu and Moktchakulam.

(e) *Tindivanam taluk.*—A declining industry in cloths of silk and cotton mixed is carried on at the village of Avalúr, where there are only five looms. The trade is local, and silk is obtained, ready dyed, from Conjeeveram.

Trichinopoly district.—The silk weavers belong to the Patnúlkarán caste. Females are usually employed in the preliminary stages, dressing, twisting, reeling, etc. The industry is carried on at Trichinopoly, Turaiyúr, Manamédu, Mavilipatti, Aiyampalayam, Kottatúr, Ariyalúr, Jeyamkondasholapuram, Udayanattam, Karuppúr, Thatampettai, Palúr, Sendurai, Anandavadi, Vanatirayanpatnam and Manjamédu. At Trichinopoly there are 2,500 weavers and 1,500 looms.

The industry is gradually declining. The artisans attribute this to the competition of cheaper machine-woven goods from Europe, and of the "less genuine and cheaper fabrics dyed in gaudy and fugitive colours with chemical dyes."

In the town of Trichinopoly fabrics suitable for Muhammadan males and females are chiefly manufactured. Fabrics for Hindus are also made, but to a limited extent. Ariyalúr is famous for the manufacture of female bodices, known as thatturavikki, worn by all classes. The Trichinopoly town fabrics are sent to Bombay, Hyderabad, Bangalore, Madras, Tirupattúr and Vaniambádi in the Salem district, Amúr and Vellore in the North Arcot district, Madura, and Tinnevely. The towels and handkerchiefs manufactured at Ariyalúr are purchased locally within the district, while the bodice trade extends to the Tanjore and Madura districts. The raw silk is obtained from Calcutta and Mysore.

Red and yellow dyes are prepared locally, while black, green, purple, etc., are obtained from the Tanjore district. Aniline and alizarine dyes are sometimes used instead of vegetable dyes, as they are cheaper and require less time and labour, while producing more gaudy colours than the vegetable dyes. These "chemical dyes," it is reported, "are employed only for fabrics not intended to last long, wear long, or be exposed to sun and water. The colours obtained from these mineral dyes are very fugitive, and the fabrics do not retain the colour permanently, but impart the colouring matter to any substance that may come in contact with them. The indigenous vegetable dye-stuffs are, therefore, naturally preferred, as they produce faster colours, and more refined and artistic tones than the chemical dyes." [The truth of the last remark can be readily verified by inspection of the beautiful cotton, silk and satin fabrics from Adoni, Kampli, Arni, Walajanagar, Conjeeveram, Ayyampét, and Madura, in the industrial section of the Madras Museum.]

Writing concerning the satin industry of the Madras Presidency, Mr. Havell says ('Journ. Ind. Art.' 1890): "Satin is manufactured at Ayyampét (Tanjore), Arcot and Wálájahnagar (North Arcot), and Ariyalúr (Trichinopoly). It is a beautiful industry, which has hitherto attracted little notice. The material produced at the three first places is worn by Muhammadans for trousers, the principal trade being with Hyderabad. The arrangement of colour is very bold and brilliant, but always in good taste. The Ariyalúr satin is distinct in style, and of remarkable beauty in colour, as well as tasteful in the simple patterns woven generally in stripes across it. The *ravikkai* (Hindi, *choli*) worn by native ladies is made of it. Only two men are engaged in this industry, which, as far as I know, has never been noticed before. A kind similar in style, but inferior in colour and execution, is produced in the town of Trichinopoly, embroidered with patterns in silver lace."

Tanjore district.—Those engaged in the silk industry are returned as Patnúlkáran, Kaikolán, Sedan, Sáliyah, Seniyah, Sauráshtra, Kavarai, Vellála, Vaduga, Agambadian, and Muhammadan. The industry, in which both males and females are employed, is said to be declining owing to the rise in price of silk, the imports of European piece-goods, and decreasing demand for fabrics for Ceylon, Penang, Singapore, etc. In some places indigenous dyes, in others both indigenous and mineral dyes are used.

(a) *Tanjore range.*—Fabrics are made at Ayyampét, Manambuchávady, and Kandyur (to a very limited extent)—

	Weavers.	Looms.
Ayyampét	900	600
Manambuchávady	900	600

The fabrics manufactured consist of weaving apparel for Hindus and Muhammadans, of silk or silk and cotton mixed; silk carpets; and material for making pillows and cushions. The Tanjore district was formerly well known for the manufacture of silk carpets of great beauty, but the industry has almost entirely disappeared. A silk carpet, which was made to order at Ayyampét three years ago for the Madras Museum, possesses no special merit, either as regards design or colour. The weavers now-a-days complain that fabrics, made in mimicry of their own, but with a more delicate texture and cheaper, in Europe, as well as fabrics imported from Poona and Bombay, have interfered with their business. Their own fabrics are sold throughout the Madras Presidency, and also find a market in Bombay, Kampti, Nagpúr, Jubbulpúr, Saugor, Hoshungábad and other places in Northern India; and in Penang, Singapore and Rangoon. The raw silk is obtained from Malda; Calcutta; Maddur, Chennapatnam, and Closepet in Mysore; and Kollegál.

(b) *Mannárgudi.*—The industry is carried on in the town of Mannárgudi, where there are about 35 weavers and 30 looms. No pure silk fabrics are now made, but only Hindu clothing of silk and cotton mixed. The trade is local within the district. Raw silk is obtained from Patnúl merchants at Kumbakónam.

(c) *Negapatam division—*

	Weavers.	Looms.
Ammaiyappan }	1,000	300
Elangudi }		
Thenkal }		
Sangamangalam	86	83
Manjakollai }	5	5
Puthúr }		
Poravaoheri	200	140
Semangalam	16	8
Madapuram	2	2
Vijayapuram	14	14
Alivalamend	37	37
Tappalámpuliyúr	10	10

Raw silk is obtained from Calcutta, Bombay, Mysore, Kumbakónam and Europe. Cotton cloths, interwoven with silk, are sold to Hindus; and 'kailies' are purchased by Muhammadans, and exported to Colombo, Rangoon, Singapore, and Penang.

(d) *Kumbakónam taluk—*

	Weavers.	Looms.
Kumbakónam	2,500	2,000
Swamimalai	300	300
Tiruluvanam	600	100
Govindapuram	200	100
Adutorai	200	100
Narasingampet	200	100
Elumichangapolayam	75	50
Pattisvaram	200	150
Davasaram	400	200
Sholamaligai	100	50
Kodivamangalam	150	100
Thuyili	150	100
Kanjanúr	75	50
Kottúr	175	150
Tirunayeswaram	150	100
Kepperumanallúr	200	200
Aiyavadi	100	50
Ammachuttram	100	100
Valangiman	200	100
Sundraperumalkovil	75	50
Papanásam	50	25
Tiruochirai	100	50

The cloths manufactured are mainly female cloth, bodices, petticoats, etc., of pure silk or silk and cotton mixed. The raw silk is said to be obtained from Madras, Madura, Calcutta, Bombay, China, Italy, and other places.

(e) *Máyavaram taluk—*

	Weavers.	Looms.
Máyavaram	2,800	1,040
Kuttálam	800	343
M. Manamódu	105	35
Áthúr	40	20
Keelayúr	23	14
Sombanarkovil	150	65
Kidarankondan	20	2
Talachangadu	9	3
Erukattanseri	50	16
Porayar	18	9

Silk dyeing is carried on at Mávavaram and Kuttálam. But silk cloths, mixed with cotton, are made at all the above places, and purchased by Hindus, Muhammadans, and Christians. Raw silk is obtained from Kumbakónam.

Madura district.—The weavers belong to the Sauráshtra caste, concerning which Mr. H. A. Stuart, Census Commissioner, 1881, writes as follows: "The Patnúlkárans or Pattu-núl-kárans (lit-silk-thread men) are a caste of silk weavers. They are found chiefly in the districts of Madura, Salem, Trichinopoly, and Tinnevely. They are immigrants from Guzarat, and speak a dialect of Guzaráti. It is said that their forefathers were induced to settle in Madura by Tirumala Naik in the seventeenth century. They have returned 54 sub-divisions, but many of these are not real sub-divisions at all. For example, 7,487 have returned Bráhmans, 4,341 Chetti, 17,290 Sauráshtra. They claim to be Bráhmans, and in Madura, where this pretention is asserted with obstinate vehemence, they style themselves 'Iyer.' They wear the sacred thread."

(a) *Madura town.*—Females are employed in the "throwing operations," males in dyeing and weaving. Pure silk fabrics, and fabrics of cotton and silk mixed, are made in the shape of turbans and body-cloths. The number of looms is said to be about 2,000, and of weavers 1,500. The industry is not flourishing owing to the extensive imports of machine-made goods from England, and of gold lace in large quantities from France. [The imports of gold lace into the port of Madras, in 1898, were valued at Rs. 11,30,398.]

Raw silk is obtained from Calcutta, Bombay, Kollegál, Bangalore, and Mathúr in the Mysore province. In dyeing, kaméla and lac are used for the production of yellow and red dyes. Aniline dyes are said to be rarely resorted to, as, though they give lustre and brilliancy, they are not so permanent as the indigenous dyes.

(b) *Dindigul.*—In the town of Dindigul there are about 300 looms and 600 weavers; but on only one loom are pure silk fabrics (*i.e.*, without admixture of cotton) woven. The industry is declining owing to the imports of fabrics from Bangalore and other places. Dyed silk thread is obtained from Madura.

(c) *Paramakudi division.*—The industry is carried on at Paramakudi and Emunéswaram.

	Weavers.	Looms.
Paramakudi	1,500	500
Emunéswaram	600	200

The fabrics manufactured consist of red and white silk cloths, cloths of silk and cotton, or silk and 'lace' combined, and pure silk handkerchiefs. They are sold locally, and exported to various places in Southern India, and Ceylon, Rangoon, Penang, and Delhi. Raw silk is obtained from Calcutta, Kollegál, and Kumbakónam. Mineral dyes are used. The industry is declining owing to the imports of cheap foreign piece-goods. Some of the weavers have left their native place, to earn a living by other manual labour, as the demand for their woven goods has fallen off.

(d) *Ramnád taluk.*—Cloths of cotton and silk mixed are manufactured at Ramnád, where there are about 20 looms. Dye-powders (called *kabú*) from Europe are now used in lieu of the more expensive indigenous dyes. The industry is in a languishing condition owing to paucity of demand, and the trade in the fabrics turned out is local within the district.

In an address presented to the Governor of Madras, in 1897, the Sauráshtra community stated that "the masses who eke out their livelihood by weaving and dyeing have not a scientific knowledge of the industries which they practise. We, therefore, deem it necessary to suggest that the establishment of textile schools and technical dye-houses for imparting instruction in the said industries will be an effective mode of encouraging them, and the means of ameliorating the condition of the industrial classes." In connection with this practical suggestion on the part of artisans, who see their hereditary craft failing them as a lucrative source of income, I may quote the opinion expressed by the Committee, appointed by Government to enquire into the re-organisation of the Madras School of Arts and Industries (1895). "The Committee," the report states, "believe from the evidence (of weavers and dyers) before them that there is a distinct field for the establishment, in connection with the School of Arts and Industries, of a school of dyeing, printing, and weaving, according to the most advanced knowledge of the time, and adapted for both employers and operatives. They believe further that the establishment of such a school might, by attracting the attention of capitalists, help to check the importation of cheap and vulgar European manufactures with debased Indian design. There appears to be every reason to believe that the classes would be largely attended from the commencement both by native dyers and their sons, and by Europeans; and it is within the knowledge of the Committee that one firm would send at least ten Europeans to receive instruction at the school. It would be necessary that the school should be completely equipped with dye-houses, chemical laboratory, &c., and that the staff should include a European dyeing expert to teach the theory and practice of dyeing During the five years 1890 to 1895, 3,192,304 lbs. of aniline and alizarine dyes were imported into the Madras Presidency. These dyes are, in fact, so firmly established in the Indian market that no measure short of a prohibitive import duty can arrest their employment. It seems to the Committee that, even allowing that these dyes are to be utterly condemned from an asthetic point of view, distinct practical good would result from educating the hitherto self-taught native dyers in the proper way of selecting and manipulating them,

neither of which points they at present, from want of special training, understand. Quite apart, however, from the teaching of improved methods of dyeing with artificial dyes, one object of the school should be to try and improve that present laborious process of manufacture of the indigenous vegetable dyes, for it is universally admitted by the native dyers that they only use the artificial dyes because they are cheap and quick in operation.

Quite recently the Sauráshtra community submitted a memorial to His Excellency the Governor, to the effect that "as the backward Sauráshtra community have not the requisite capital of half a lakh of rupees for imparting to their members both general and technical education, the Sauráshtra Sabha, Madura, suggests that a lottery office may be kept for collecting shares at one rupee each from such of the public at large as may be willing to give the same on the understanding that, every time the collections aggregate to Rs. 6,250, Rs. 250 should be set apart for the expenses of working the said office, and two-thirds of the remainder for educational purposes as aforesaid, and one-third should be awarded by drawing lots among the subscribers in the shape of five prizes—the first being for Rs. 1,000, the second for Rs. 500, the third for Rs. 250, and the fourth and the fifth for Rs. 125 each." In passing orders on this sporting scheme, the Government stated that it is not prepared to authorise the lottery.

The Madras School of Arts and Industries has, during the last year or two, done much to promote an exotic (the aluminium) industry; and the question arises whether it might not, in like manner, attempt to re-vivify an indigenous industry, which is softly and silently fading away.

Salem district.—The various castes, to which the weaving community belongs, are as follows—

- (a) Jedar—Salem, Dharmapuri and Trichengodu taluks.
- (b) Patnúl—Salem and Átur taluks.
- (c) Kaikalan—Salem, Trichengodu and Átur taluks.
- (d) Saliyan—Dharmapuri and Átur taluks.
- (e) Pathar (Sombedar)—Trichengodu taluk.
- (f) Padmasalai Chettis (Hindus)—Hosur taluk.
- (g) Muhammadans and Native Christians—to a slight extent in Salem taluk.

Females, and children above eight years of age, are employed in cleaning and spinning the silk, and preparing the twist. Weaving on the looms is carried out only by men.

In the Salem taluk the silk industry is carried on only in the Salem and Shevapet divisions of Salem town; in the Hosúr taluk only at Berikai. In the Átur taluk weaving of cotton cloths with silk borders is carried on in nine villages, of which Átur, Ariyalúr, E. Rajapoliem, and Veppampoondy are the chief centres. In these villages there are 2,324 weavers and 389 hand-looms. In fifty-six other villages in this taluk, there are 975 weavers and 130 looms. In Dharmapuri taluk the industry is carried on at Dharmapuri, Adamankotta, Kadagathúr, and Ramana Chinnamahalli.

In the Trichengodu taluk weaving is carried on in seventeen villages.

In Salem and Shevapet there are about 10 looms, and 30 weavers, who make pure silk cloths only to order. In Hosúr taluk there are 460 looms, of which 22 are set apart for "superior cloths." In Dharmapuri taluk there are 145 weavers, employed at 84 looms; and in Trichengodu taluk 250 weavers at 200 looms. The Salem Tahsildar has not given the number of looms, and weavers employed in the manufacture of other than pure silk cloths. In 1872 there were 2,600 families of weavers, and 7,000 looms.

At Salem the demand for pure silk cloths is not great, such cloths being only made to order for the richer classes. The demand for white cotton cloths with silk borders is good; and such cloths are manufactured on a wide scale, sold locally, and exported. In the Hosúr taluk the silk industry had, until the recent outbreak of plague, remained stationary for some years. The weavers, however, frequently complain that the use of machine-made cloth is prejudicial to their trade. In Berikai the village munsif owns a loom fitted for the manufacture of silk cloths of superior fineness and design worth Rs. 200 to Rs. 700. He has not sold any of these cloths for the last five years, but formerly supplied them to the Mysore palace and the Poligars of Berikai, Shulagiri, and Bangalore. In the Dharmapuri taluk the industry is very much on the decline, the demand being diminished owing to the importation of English goods. The same decline appears in the Trichengodu and Átur taluks, and is attributed to the same cause—competition of English machine-made goods, which has lowered the price of country-made cloths.

At Salem the chief fabrics turned out by the weavers are (1) cloths (pattumadi) of three or four colours worn by males and females; (2) silk female cloths, generally worn by Muhammadan women. In the Hosúr taluk cloths of inferior quality are mainly woven for sale locally to Hindus. Turbans and cloths of special design, woven at Berikai, are supplied to distant places. In the Dharmapuri taluk cotton cloths with silk borders are made for Hindus. In the Átur and Trichengodu taluks, coarse male and female cloths, with silk front and borders, are made for the lower classes of Hindus.

At Salem silk fabrics are not generally sold in the bazárs, but made to order on advances paid beforehand. In four looms, which Mr. R. A. Jenkins, Assistant Collector, personally inspected during the preparation of this report, rich silk cloths were being woven for some wealthy natives at Calicut, who had given orders for the work, and advanced money in part-payment. In the Hosúr taluk the silk-bordered cloths generally manufactured are sold locally within a radius of ten miles from Berikai.

Special orders have, however, been received from Mysore for pure silk cloths of superior design. In the other three taluks the trade, such as it is, is purely local.

At Salem raw silk is obtained by capitalists from Mathúr, Madras, Bangalore, and Kollégál. In Hosúr it is purchased at Berikai only, being brought there from Bangalore. In Dharmapuri the raw silk is obtained from Salem and Conjeeveram; and in Átur and Trichengodu from Salem.

As regards the preparation of the raw silk for the loom, the Tahsildar of Salem reports as follows: The silk is cleaned, washed, and soaked in a caustic solution made from the ashes of nayuruvi (*Achyranthes aspera*) and pachan-pazhuppu (turmeric), which removes the gum, and adds gloss to the silk. After this, a red powder, called kapili (*Mallotus philippensis*—kaméla) is treated with oil, and dissolved in water, to which some alum has been added. In this solution the silk is allowed to soak for a day or two according to its strength.

The weavers are unacquainted with mineral dyes, and either dye the silk with indigenous vegetable dyes, or purchase it ready-dyed from Conjeeveram and Salem. They were not willing to send samples of their work to the Exhibition.

In a note on the subject of the weavers during the famine-year 1892, by Mr. G. Kothandaramayya Garu, Special Deputy Collector, the weavers are divided into three sections:—

(1) Cooly weavers, who, owning no looms or suitable houses, work at the looms of the richer weavers, depending on daily wages.

(2) Poorer weaving families, who, being natives of, or domiciled in Salem, work at their own looms and in their own houses, on orders and advances from merchants and others, but possessing little capital of their own, and depending more or less upon the prospect of a ready sale for their goods.

(3) Richer weavers, who own a considerable number of looms, and work them on a large scale, by means of hired coolies, to meet their extensive demands.

Coimbatore district.—The silk-weavers belong to the Dévanga caste. Weaving is carried on, on a large scale, only in the Kollegál taluk, where there are about 1,000 looms and the same number of weavers. The industry is said to have suffered of late owing to the plague in Bombay and Mysore. Cloths for males and females, and turbans are made. The fabrics are sold locally, and sent to Madras, Mysore, Bangalore, and other places. Both vegetable and mineral dyes are used in dyeing the silk, which is obtained from various villages in the Kollegál taluk, and from Mysore.

Yellow dye—turmeric.

Orange dye—Kaméla (*Mallotus philippensis*) and arnatto (*Bixa Orellana*).

Crimson dye—cochineal.

Black dye—indigo.

In the revised edition of the 'Manual of the Coimbatore district' (1898), it is stated that "silk culture and weaving are only carried on in Kollegál, where the climate is favourable both for the "worm" (*Bombyx mori*) and the mulberry. The dyes are very good, and the finished cloths very effective and handsome. The value of a silk cloth ranges from Rs. 30 to Rs. 500 according to quality, finish, and ornamentation. In some cases the cloths are ornamented by the introduction of silver and other embroidery woven into the cloth while still in the loom. Such cloths are particularly effective, but somewhat costly."

The following interesting account of the silk-culture (sericulture) in Kollegál is given in a report on the arts and industries of the Coimbatore district submitted to Government in 1888 by Mr. Havell:—

"*Mode of cultivating the mulberry plants.*—In the rainy season, immediately after the fall of rain, fields containing black soil or clay are ploughed four or five times into furrows, and the soil loosened. On another fall of rain, mulberry cuttings, each one foot length, are planted in small pits a yard apart in the same manner as sugarcane are planted. Within two days these cuttings begin to take root and to sprout. At this time the plantation is weeded and the soil around the plants broken up and fresh earth mixed therewith. At the end of four months the plants grow to perfection.

"*Rearing of silk-worms.*—One seer of cocoons is usually bought for one rupee. They are laid in large bamboo trays (resembling sieves) which are suspended by ropes for eight days out of the reach of rats and ants. On the ninth day the moths begin to come out of the cocoons. They are at once removed to another bamboo tray, in which they are kept for one day. Next day the male moths are taken out and thrown away. Before the evening of that day female moths lay their eggs and the next day they are also removed from the trays and thrown away. The trays are then hung about the roof, and covered with thin cloth to protect the eggs from flies, ants and lizards. On the seventh day after the eggs are laid, the silk-worms begin to come out. At this stage the worms are fed with small cuttings of tender leaves of mulberry plants five times in the day and five times in the night. Thus they

are fed for seven days. On the eighth day they discontinue feeding, and lie down without moving. In this state they are said to be attacked with fever. On the morning of the next day they recover, and are fed as before with small cuttings of mulberry leaves. In this way they are fed for four days. Then they are attacked with fever a second time, and discontinue feeding. Next day they are again fed as usual. After the lapse of four more days they are attacked with fever a third time. Next day they recover as usual, and are fed with full-grown mulberry leaves for four days longer, when they are attacked a fourth time. At the time of the first fever the worms in one tray are transferred to two trays. On the second attack the worms in two trays are removed to eight trays; for the third fever they are removed to sixteen trays, and for the fourth to thirty-two trays. In four days after the fourth attack the worms grow large, and change colour from white to purple. At this stage they discontinue feeding altogether, and are removed to bamboo tatties called *ohendrigai*. Three days afterwards they begin to spin cocoons. During the process the tatties are exposed to the morning sun at sunrise for about half an hour, and then hung up to the roof inside the house. In two days more the cocoons are collected in bamboo baskets; a sufficient number are laid aside for a fresh propagation, and the rest are subjected to a steaming process to kill the chrysalides. The silk is unwound from the cocoons by putting them in a chatty with boiling water and a few cleaning nuts (*ponnālangái*), and attaching the ends of two or more cocoons to a light wheel turned by hand. The cleaning nuts probably serve as a solvent for the natural gum secreted by the silk-worm for building the walls of his cocoon together. There does not appear to be any specific disease prevalent in the taluk among the silk-worms. They are said to be affected in abnormal seasons of heat or rain, but not to such an extent as to produce a marked loss in the quantity of silk."

Tasar silk (*Antheræa mylitta*). Though the experiments ended in failure, this monograph would be incomplete, were a reference to attempts, made in recent years, to rear *tasar* silk-worms omitted.

In 1886, as the result of an exhibit of *tasar* cocoons at the Indo-Colonial Exhibition in the previous year, a supply of cocoons, from the Vizagapatam and Chingleput districts, was forwarded to the expert Mr. Cleghorn, who pronounced them to be very good, especially those from the Kambákam jungles of Chingleput. He reported that the silk reeled from these cocoons was superior to any *tasar* that he had seen in Bengal, and advised that Messrs. R. Watson & Co. would be glad to purchase all that district could supply at Rs. 7 or 8 a kahon (=1,280 cocoons), and that they would, even if a minimum supply of 15,000 kahons could be ensured, be prepared to build a factory on the spot, if the requisite labour could be secured. The Collector of Chingleput, who was consulted, reported that he doubted the possibility of his being able to supply cocoons in sufficient quantities to be of practical utility, as the headmen of the jungle tribes assured him that they could not collect more than 2,000 cocoons a year. The Conservator of Forests thought it impossible to guarantee anything like a minimum supply of two million cocoons, though that number might probably be worked up in two or three years, if the matter received the attention it deserved. Samples of cocoons as examined by Mr. Cleghorn, and of the larger kind met with in villages along the coast, were furnished to the Mylitta Silk Mills Company, then doing business in Madras, who offered to take the cocoons, if offered in lots of 250 or 300 kahons, at Rs. 4 per kahon for the inland cocoons and Rs. 5 for the coast ones. Government then decided to appoint a special officer (on Rs. 80 per mensem) to collect reliable information, and make arrangements with the hillmen or jungle tribes for breeding the "worms," and collecting the cocoons.

Details of the scheme adopted for establishing a *tasar* silk industry in the Presidency will be found, by any one who may be tempted to embark in this industry hereafter, in Proceedings of the Board of Revenue (Revenue Settlement, Land Records and Agriculture), No. 92, dated 1st March 1889, and No. 388, dated 4th September 1891; and in G.O., Revenue, No. 943, dated 25th November 1889. Suffice it here to state that the main cause of failure of the experiment was due to disappearance of the "worms" at one of the experimental stations owing to carelessness on the part of those charged with the custody and care thereof. The result of the experiment is said to have been, in 1891, "an expenditure of Rs. 1,505-9-5 without any corresponding revenue. The cocoons spun are said to be quite unfit for breeding purposes." More recently, in 1893, in connection with a scheme proposed by Mr. Tytler, the Board of Revenue observed that "silk-worm rearing has already been attempted in this Presidency on behalf of Government, and proved an expensive failure. The matter is one which, the Board thinks, must be left to private enterprise."

It remains, in conclusion, to thank collectively the various district officers, who found time, amid the pressure of other duties, to furnish me with the information, of which I have freely availed myself in the district notes.

GOVERNMENT MUSEUM, MADRAS,
October 18, 1899.

EDGAR THURSTON.