
MONOGRAPH
ON
COTTON FABRICS AND THE COTTON
INDUSTRY IN BURMA,

BY
G. F. ARNOLD, C.S.

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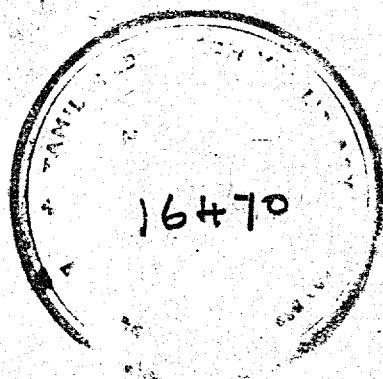
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WHO first brought the cotton seed to Burma, from what land it came, at what date it was sown, no one can now say. All that is told of its origin belongs to legend—to the dim era when the historian and the poet were one, and his fables had not yet been touched by the rudest criticism. At such a time each craft has some deity for its patron, and the Shans tell how eight Brahmas, four male and four female, came down long since from above and eating of the earth became human: denied a return to heaven, they took up their dwelling in Burma, and multiplying there introduced among its people the cultivation of cotton and the arts of spinning and weaving.

Or again, coming nearer to earth, they relate of a mythical Saw Mahaw, that he brought these arts into Burma from China, thereby pointing to the East rather than the West as their home. It is unlikely, however, that this is correct: the earliest notices that we have of cotton all connect it with India, and the statement of two Arabian travellers is quoted by Dr. Royle, that in the 9th century the Chinese did not dress in cotton, as the Arabians. But it was from India that the culture of cotton spread into Arabia; hence it is probable that the Burmans also derived their knowledge from the same country rather than from their eastern neighbours.

But, whether it was from East or West that they came, there can be little doubt that these industries were familiar to the Burmans at an early date. There is a story of Ma Shwe U, who was carried away from her loom by a tiger ridden by the Nat Shwe Byin, during the reign of Anawratha. The Pyus and

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Pyons, aboriginal races, are said to have used cotton before the influx of foreigners from Central India, and some believe it to be an indigenous plant—a sure sign of its antiquity when all efforts have failed to trace it back to its first source.

Long as cotton has been cultivated and spinning and weaving have flourished in Burma, no recorded modifications in their practice can be ascertained. Still evolution must have played some part in their past history. Simple as the present machinery is, it could not have been created in a day: it must have sprung from something simpler, but from what, we have no survivals to show.

Formerly, when every house had its loom and weaving was a profession of both sexes, the ingenuity of the craftsman cannot but have given birth to many inventions, and an examination of such varieties as now exist might disclose the nature of these. But the labour of the search would scarcely repay any one save the antiquarian. It is not now within the power of adaptations and improvements to enable the Burmese handloom to compete with foreign machinery, and to look in that direction for any hope of future success would be totally to misread the present facts. All that can be said is that, so far as we can trace, the same instruments have been used and the same methods employed as at the present time; but that the cotton industry has reached its zenith and is now on the decline, will be only too apparent in the description of its state today.

Reports have been submitted from nearly all the districts in Burma and also from the Shan States. On certain points their unanimity is so complete that it will suffice to state the conclusion merely; on others, where a few only disagree with the majority, the dissentient view will be quoted in each case.

Statistics have not been given, though in some districts a rough estimate of the number of looms has been made; but the returns of the last and the preceding census have been available, and some of the annual and triennial trade reports have also been consulted.

It would appear that cotton is cultivated in almost every district in Upper Burma, and in about half the Lower Burma districts. In most of these latter only very little is now grown, in out-of-the-way parts, for home consumption, and the area of cultivation is yearly contracting. Not that it is a case of resorting to the more productive sources and receding from the less, in obedience to the fall of prices or the variations in demand, but cotton, alike in fertile and unfertile regions, is

going out of cultivation because the demand for cotton goods is being wholly supplied from imported sources, except where lack of communication and length of way cut off the more distant villages from the march of civilisation. Indeed, in such parts as it is now grown, the conditions are of a kind that are wholly unaffected by trade and to which the principles of political economy do not apply.

A few people still continue to sow their own cotton and weave their own garments because they have done so from time immemorial, and have not yet come sufficiently in contact with the outer world to break the custom which they have always followed.

It is more a pastime than an industry, the weaving being done by the daughters and wives, who supply the household raiment, but seldom offer any articles for sale.

Any surplus over the wants of the family is not aimed at when sowing the cotton, but should there be any, it is disposed of in its raw condition to the nearest purchaser who will take it.

In Lower Burma, then, there is no manufacture of cotton fabrics that can be termed an industry: what does exist is a survival that becomes rarer and rarer as the years go on.

Much of this is true also of the Upper Province, but here the conditions are slightly different. In some districts, *e.g.*, in Meiktila and Myingyan, cotton is grown largely and exported raw to China and India; there are also more weavers, men and women alike pursuing the trade, though the imported yarn, ready dyed, is used largely in preference to the native home-spun.

This, however, is not everywhere the case. It is recognized in some parts, *e.g.*, in the Mogôk district and the Shan States, that the coarser native yarn makes a cheaper and more durable material: in others, especially among the Kachins and Shans of Hsenwi and Kengtung, there exists a national costume woven from home-grown sources, and the people wear no other, since either such is their will, or foreign manufacturers have not yet produced the patterns of their choice. In Upper Burma also while the physical features of the land are more favourable to cotton cultivation, there are more regions as yet only partially opened to trade and to which the journeyman clothes-seller does not penetrate with his wares. Here cotton is much grown and weaving flourishes, protected from competition, temporarily at least, by nature's barriers. In yet a few districts, even where there is no difficulty of ac-

cess, the home industry appears to hold its own against foreign manufactures: thus it is reported from Mandalay, Mònywa, and Tagaung that the local trade has been scarcely, if at all, affected by importations of yarn and ready-made goods.

The cases, however, are few in number in which this is stated without qualification, and they may be taken merely as particular instances: as a general principle, wherever the imported fabric, whether in the form of yarn or goods, meets the home production, it rapidly ousts its rival from the field. Its greater brilliancy of colour attracts the people, who are glad moreover to avoid the labour involved in weaving and dyeing clothes by the long and tedious native process.

The above conclusions may be established in two ways—by quotations from the various district reports, and by deductions from the census and trade returns.

Every District Officer in Lower Burma records either that
 (a) Quotations from the weaving industry does not exist now,
 district reports. or that, where it still lingers, it is rapidly
 (i) Lower Burma. dying out on account of the influx of
 foreign goods. A few of these statements have been selected
 as examples.

From Kyaukpyu it is reported that "there is no manufacture of cotton fabrics as an industry. The ordinary process of weaving used is so very slow that the work is hardly paying. In the Cheduba township there is only one woman engaged in it."

In Hanthawaddy "out of 80,000 houses about 8,500 have looms. Imported yarn is now rapidly displacing the native product, and very little yarn-spinning is carried on. Women of the family devote much less time to weaving than they used to do, as imported fabrics are brought to their doors by clothes-sellers from Rangoon. It takes, on an average, a single person five days to make fabrics which realize Rs. 2."

In Northern Arakan "the villagers do not weave any clothes, but buy them from the bazaar locally. In former years the people used to weave and make their clothes in their own houses."

In Tharrawaddy "hand-made yarns are made only near the hills and at a distance from the railway line. There are no professional weavers, and the importation of Manchester goods is fast crushing the local industry."

The Deputy Commissioner of Henzada remarks: "The art of weaving is fast dying out in the Henzada district, and the yarn used is generally imported and not locally spun. The

same influences which ensured the destruction of the home spinning and weaving in England are now operating in Burma. The industry is moribund, the wages earned by a weaver are not sufficient ordinarily to support a family, and the weavers rarely, if ever, live entirely on their earnings. Weaving is a useful employment for the unmarried girls only of the family. In the hills and remoter parts of the jungle the Karens and hillmen still spin and weave their own clothing for home consumption only."

In the Pyapôn subdivision of the Ma-ubin district "before the annexation of Pegu every Burmese house had a loom, and a girl of that time was not considered accomplished unless she knew how to weave. Since then foreign goods came in by floods, and their cheapness and superior quality secured for them a better sale in the market and more popularity than the local production; consequently the number of looms has dwindled down: there are now about 923 looms, and the workers are, without exception, females."

In the Yandoon subdivision "the manufacture of cotton cloths is being superseded by the silk industry, which pays better and is less troublesome. Now a man feels ashamed to go to a festival with cotton clothes unless he is very poverty-stricken."

In the Shwegyin subdivision of the Toungoo district "there are about 800 looms, but most of them are not used. The Burmans only use them when they have nothing more profitable to do."

In Upper Burma more cotton is grown and the manufacture of cotton goods still flourishes in some parts.
 (ii) In Upper Burma. As a whole, however, the conclusion to be drawn is to the same effect.

In the Kyauksè district no cotton fabric industry exists.

At Taungdwingyi "more than three-fourths of the cotton now manufactured is made from imported yarn. There is about one loom to three houses, but before imported yarn and cloth became so cheap, there was a large proportion of the population devoted entirely to weaving."

From Pyinmana in the Yamèthin district it is reported that "the industry is said to have been greater here in Burmese times, the restrictions of the Forest Department being assigned as the cause of the decline." What these restrictions are is not explained, but they appear to have reference to dyeing materials, which are mostly obtained from the bark of trees.

In Pakòkku at only one village of the Yesagyo township is weaving carried on, imported cotton fabrics being preferred, and in Yawdwin it exists for domestic use only and not for trade.

In Katha "the Kachin and Kadus still very generally make their own clothing. Weaving is carried on for home use only, the instruments being very rude and the method laborious. The threads made from home-grown cotton are being rapidly ousted by the common threads of European manufacture. Threads equally cheap and dyed more brilliantly can be had in nearly all the bazaars."

In the Upper Chindwin "there can be no question that the local industry, which was never on a large scale, is being rapidly supplanted by the importation of fabrics from abroad. The fact of the industry surviving in any shape must be largely attributed to the difficulty of communication which prevails in this district."

The Deputy Commissioner of Bhamo writes: "The cotton-manufacturing industry is now passing out of that primitive phase where every household manufactured its own garments and cloths from the crop grown on its own piece of ground. This state of affairs was general in the Bhamo district only fifteen years ago, and, in the hills, the Kachins, and, to a lesser extent, the Shans are still in the same stage of development. In Bhamo itself there are few indications left of this condition of things. Material and prepared thread are more cheaply obtained from the steamer flats, and by consequence the local industry is rapidly giving way to imported fabrics."

There are, however, one or two reports that differ somewhat in their tone.

Thus in the Lower Chindwin the industry is said to be large and to employ a large number of families; though it is added that the cultivator finding his jowar and paddy-fields give him a more satisfactory outturn, usually relegates his cotton to the inferior classes of soil.

In the Ruby Mines district the industry is confined to supplying home wants, and there is occasional enterprise in local, but not export, trade. Further, more cotton was grown and more looms employed formerly than now; but the cause of the fall-off is not apparent, as it is said that "the influence of imported fabrics on the local industry may be set down at almost *nil*, for at present the effect is not calculated to make the Burman abandon producing what he believes and knows to be both cheaper and more durable." And again, "it is proba-

ble that it will always be a domestic industry, unless and until, which is very unlikely, the imported manufactures are brought to the doors of the people at from 25 to 50 per cent. below the present rates for their coverlets and *lungyis*."

In Mandalay the industry is resorted to only by the poorer classes for domestic use and not for the purposes of trade. Professional weavers generally work in silk, but occasionally take to cotton when the price of silk falls. Cotton is bought ready spun and dyed at Rs. 5 per hundred bundles, a bundle containing seven skeins.

It is remarked, however, that "imported fabrics do not in any way influence the local industry: those who can afford it indulge in them in preference to those of local manufacture, which provides material only to the poorer class." It is perhaps doubtful, as will be seen later on, whether, under these circumstances, the influence of imported fabrics can be so completely discounted.

From Meiktila the raw cotton is exported to Myingyan, and from thence to Bhamo and Rangoon. "The bulk of the yarn used for weaving purposes in the district is made locally, only a comparatively small proportion being imported, while the consumption of ready-made cotton clothing in the form of *pasos*, *lungyis*, &c., of European manufacture is of quite unimportant dimensions. There has probably been an increase since the annexation in the amount of European ready-made clothing imported into the district, but the increase has been chiefly confined to Meiktila and some of the larger towns. Apart from this, there is little evidence to show that imported fabrics are ousting locally made materials, except perhaps in the finer qualities. Imported yarn is some $3\frac{1}{2}$ times dearer than locally made white and dyed yarn." In Thayetmyo it is stated that in the past 12 years there has been a certain amount of progress in the industry owing to the introduction of mill-made goods, with which the Burmans have to compete. During the last three years also a trade has been opened up with the Chinese from Bhamo, who buy the white cloth and dye it and make it into clothes in China.

The declension of the industry does not therefore seem so rapid or so marked in the Upper Province, though it is not difficult to see that, even where the reports are most favourable, there are signs of the coming change.

In the Southern Shan States a considerable quantity of cotton is exported in pressed bales to Yunnan, and caravans from China coming round with wares, collect cotton and European and Indian cot-

(iii) *The Southern Shan States.*

ton fabrics for their return journey. These latter are bought principally in Burma, but the raw cotton is obtained from the hill villages and local bazaars at the rate of Rs. 25 per 100 viss. Sometimes one, sometimes two, trips are made in the year. In the Kēngtūng State cotton is grown almost exclusively by the hill tribes. They make their clothes of it and sell their surplus to the Shans of the villages and to the Chinese caravans.

In Shan villages nearly every house has a loom, and the women clean, dye, spin and weave their own cotton. The hill people, the Shans of the more remote villages, and generally the poorer sort, still wear clothing of home manufacture: there can be no doubt, however, as to the popularity of the finer imported stuff.

Indian and Manchester white cotton cloth is likewise imported, dyed locally, and made into clothes, and when improved communications reduce the price of imported cotton fabrics, their use will be largely extended. Further, money is by no means plentiful. With more ready money larger purchases of imported fabrics may be looked for.

Speaking of the effect of customs on the people, it is stated:

"In Kēngtūng State tribal custom prescribes a certain style of dress, and especially the women have a distinctive costume, as have also the Shan-Chinese community, and the Lü men and women. Such dresses are now homespun, but custom will only delay, not prevent, the use of imported fabrics, as soon as traders can sell them at a less cost.

"Already the people of the Kēngtūng valley have adopted imported stuff for turbans, and the Lü women freely use imported fabrics for their jackets, after dyeing them to their own taste. So far, the Shan-Chinese have adhered to their homespun, but this is due as much to economy as to conservatism. When imported stuff is as cheap and as good as the native cloth, they will probably buy it."

In the Hsipaw State the villages on the main roads used to weave their cloth, but now most people buy the cotton goods which come up from below. There was formerly a finer sort of *hpyin* manufactured for making jackets and *thingans*, but now that the finer cloth can be easily obtained in every bazaar, only the coarse *hpyin* is woven. There is a considerable amount of cotton cultivation round Lashio, but clothes are often made from imported calico of Manchester manufacture, and the cotton yarn used for weaving is not always locally produced.

(iv) The North-
ern Shan States.

There can be little doubt that, as the Shan States are opened up, European goods will eventually drive the Shan articles from the market. The Palaungs of Taungbaing buy their threads already dyed from the hawkers, or traders, or in a bazaar. Imported fabrics have certainly reduced the amount of weaving done, and as the country becomes more civilized the weaving will still further decrease.

The locally made cloth being infinitely more durable, it is cheaper to wear clothes made from it, but the richer Palaungs of Namsan and surrounding villages that are nearer civilization, prefer some thing finer in appearance. It is only amongst the poorer classes that weaving is now done.

(b) The census returns. How far are these conclusions borne out by the census returns of 1881 and 1891?

It will be seen by a reference to the introduction written by Mr. Eales to the latter report that there were 229,185 persons engaged in the cotton industry in all Burma in 1891, of whom 39,142 were males and 190,043 were females. It is, he says, essentially an occupation pursued by women, chiefly in the rural tracts, as shown by the local returns, and notwithstanding the excess of population in Lower Burma, far fewer weavers are found there than in the Upper Province.

For the year 1881 we have only census returns for Lower Burma, and Mr. Eales points out that, owing to the difference of classification in the two reports, it is not easy to institute a comparison: considering, however, the increase of the female population, the number of women weavers in Lower Burma may be calculated to have decreased by 13.19 per cent. during the last decade, the total number in Lower Burma being only 35,412 in 1891. These figures include silk-weavers also; but as he is further of opinion that the Burmans were largely giving up cotton for silk garments, the ratio of decrease among the cotton-weavers would be still greater.

It is interesting also to further examine some of the district reports now received in the light of the census of 1891.

In Bassein and Tavoy, it is said, there is now no cotton industry; but the census of 1891 gives a total of 9,983 persons engaged in the cotton industry in Tavoy and 3,728 in Bassein. Similarly in Upper Burma, in the Kyaukse district there were 5,935 persons employed thus in 1891, now there are reported to be none. The census was taken in November 1891. If then these latter reports are accurate, all this has happened within five years—a declension so rapid as to be scarcely credible.

Again, from the Kindat subdivision it is reported that "thousands and thousands who earned a living by the cotton industry have been thrown out of employment with the advent of goods of European manufacture." The total population, however, of the whole Upper Chindwin district in 1891 was only 75,785 persons, and it is further said in the report that "the local cotton industry was never on a large scale in this district," so that the statement above referred to must be exaggerated. In Mandalay the census returns show that in 1891 there were 37,469 people engaged in the cotton industry, being over 16 per cent. of the total male and over 33 per cent. of the total female population of the district, and in the Lower Chindwin district there were 24,307 similarly employed, being 4 per cent. of the male and 26 per cent. of the female population. It is now, however, reported from Mandalay that the industry is resorted to only by the poorer classes for domestic use, and not for the purposes of trade, and from the Lower Chindwin that the industry is a large one and employs a large number of families.

What is the inference to be drawn? Either that there has been a decline in the industry in Mandalay, and not in the Lower Chindwin, within the last five years, or else a widely different view has been taken in each case of the position of the trade. But Mandalay is just one of those districts which reports that "imported fabrics do not in any way influence the local industry," if then there has been a decline, to what is it due? Possibly to a larger consumption of silk clothing, or perhaps imported fabrics have had a larger influence than has been recognized.

It will thus be seen that the main conclusions arrived at are entirely supported by the census figures, though some of the reports seem open to correction on certain points.

A few quotations from the trade returns will further give some idea of the extent of the present importations and the general position of the Burma cotton trade.

Turning, then, to the report on the trade and navigation of Burma for the year 1895-96, we find that among the most notable increases in imports is recorded cotton twist and yarn 18½ lakhs, and coloured cotton piece-goods 15¾ lakhs, during the year, though there were indications that the trade was somewhat overdone.

The following figures are given :—

	Rs.
Imported from the United Kingdom during the year 8,934,339 lbs. of cotton twist and yarn, valued ...	45,87,322
From other foreign countries 226,360 lbs. ...	1,46,342
Total 9,160,699 lbs. valued at ...	47,33,664

In the previous year the total was —

	Rs.
3,830,594 lbs. valued at ...	28,99,925
In 1893-94 3,923,365 lbs. valued at ...	31,55,691

The value of the cotton piece-goods imported was Rs. 1,04,21,954 as against Rs. 87,53,277 of the year before, and Rs. 1,26,73,323 of 1893-94.

There was also a large increase in the importations of cotton twist, yarn and piece-goods from Bengal, Madras, and Bombay. These country yarns are said to have competed successfully with the foreign article, and sometimes to have replaced it, but it is doubtful whether this will be so now that the import duties on the latter have been removed. The importations of country yarn were—

	1895-96. lbs.	1894-95. lbs.
From Bengal ...	2,531,748	1,624,763
From Bombay ...	3,163,290	2,976,084
From Madras ...	2,431,600	1,279,700

—a substantial advance in each case.

The figures relating to cotton piece-goods from Bombay, Madras, Bengal, Sind, and the other Indian ports tell the same tale, except with regard to white bleached goods only, the imported quantity of which has fallen off.

The following statistics from the report on the trade of Burma with the adjoining countries will illustrate how the cotton trade stands in relation to neighbouring States.

Indian piece-goods were imported to the amount of Rs. 13,519 from the Shan States, China, Siam, &c., during the period from 1893-94, but in every kind of manufactured cotton, except European twist and yarn, there was a most marked advance in the quantity exported.

The totals exported in the two triennial periods were as follows :—

	1893-96. lbs.	1890-93. lbs.
Indian twist and yarn ...	1,053,826	282,906
European twist and yarn ...	493,100	506,810
Indian piece-goods ...	249,630	28,916
European piece-goods ...	4,813,899	2,749,295

The countries that have received these exportations are West China, the Northern and Southern Shan States, Siam, Zimmè and Karenni.

As these figures only include the exports sent by land, it is quite clear that yarn and cotton goods are conveyed largely through Burma to China, &c., and with the opening of the Mandalay-Kunlôn Railway a further increase may be anticipated.

Prominent among the reasons of the decline of the cotton trade is the slow and laborious native method of spinning and weaving as compared with the machinery used in the European and Indian mills. Below is a description of the process, as carried on in the Shwebo district, which is typical of the whole country:—

"The cotton boll having been gathered, is separated from the pod, and picked by hand: it is then put in the basket (*vide* Appendix, Figure 1). It is next separated from the seeds, which is done by pressing the boll between two small wooden revolving rollers, worked by hand (Figure 2). After pressing it, the cotton is placed in a basket which is funnel shaped, with the mouth towards the worker. This basket is made to revolve and the cotton is caught up on the string of a bow. By pulling and loosening this bow-string the cotton fabrics are separated out, and it becomes ready for preparing thread (Figure 3). Wound about small sticks, the cotton is now made into a cylinder with a small aperture (Figure 4).

"Figure 5 shows how with a spinning-jenny these small cylinders are converted into thread. A small piece of thread is attached to the roller, and the loose end held to the cotton cylinder, which winds off in thread.

"As the small balls of thread are wound off they are put into a basket, and are of the shape shown in Figure 7. The cotton has now to be cleaned.

It is thoroughly soaked in rice-water, and pressed out on a flat board, and then placed in the sun to dry.

After cleansing, the cotton thread is wound on a frame consisting of two horizontal bars, and combed to make it less coarse (Figure 8). The comb used is the inside of the fruit called '*sat-thwa-bin*,' which, when dried, is not unlike a dry hand sponge. The skein being thus roughly combed is wound on to a revolving circular frame (Figure 8), and thence on to hand-reels (Figure 2). The web is next prepared by winding the skein off two hand-reels round posts, as shown in Figure 9. The entanglement at the corner posts is of course intentional,

s when the web is attached to the loom (Figure 10) one set of threads must fall and the other rise.

In Figure 10 the actual process is not shown, but the shuttles in the basket, the loom, and the arrangement of the web are well represented. The shuttle is a small hollow piece of wood, containing a ball of thread which is thrown across between the two lines of thread composing the warp. A small medal is attached to each of the two bars of the loom, and these are pulled down by the foot alternately, as the shuttle is thrown across."

The Shans use much the same instruments as the Burmans; the Chins have a different process called "gyat-weaving," but no description of it has been sent. The Karen method, as practised in the Toungoo district, is of a very primitive character. The thread is prepared in the same manner as by the Burmese, but no loom is used. The two ends of the warp are simply fastened to some convenient fixture, and the loops in the middle passed round a rod of about 1 inch in diameter, the threads being arranged one by one to the full breadth of the warp, which is generally about 18 inches. The rod is fastened to the weaver's body by a cord fixed at each end of it and going round the body. The weaver sits on the ground pulling the warp tight towards him, and manipulates the shuttle and *gyat-thwa*.

The process is much slower than the Burmese method, but the cloth is of higher value, being thicker and more durable.

Of the dyeing nothing need be said, except that here also the foreign dyes, being cheaper and more brilliant, are entirely displacing the native ones. For particulars reference may be made to the monograph on dyeing compiled last year by Mr. Fraser.

It must now be abundantly plain that the cotton fabric industry has no immediate future before it in Burma. To quote the words of the Sub-divisional Officer of Shwebo: "Commercially speaking, the industry is quite unimportant, and it is rather from the quaint character of the manufacturing implements, some of them almost identical with those in vogue in Homeric Greece, from the glimpse it gives us of the state of trade in pre-British times—in short, it is as a survival rather than as a living industry that cotton fabric manufacture of this description derives its interest."

A retrospect of what has been written shows that the reasons of this decay are the introduction of imported articles, the length and tediousness of the native method, and its unremunerative character, and these are but three aspects of the same cause. Probably the imported articles are cheaper, though the quotations made from some of the reports would appear to contradict this. Most, however, state it definitely, and in those in which the contrary is alleged, what seems really meant is that the native cloth being coarser and thicker, is more durable, and that the poorer classes do not purchase the foreign imported cloth since they have not money to do so, while they have sufficient means to buy the cotton seed and utilize their own labour in the manufacture of clothes. But this is no proof that the home article is really the cheaper, unless the cost of labour is to be counted in one case and not in the other, and how much more expensive the native method of production really is must be clear from the complete want of division of labour among the operatives. When one worker goes through every process of the task, he cannot accomplish it quickly: it takes days to do; and so it has come about that the men have neglected weaving and spinning, and it is now left entirely to women.

Nor does there appear as yet to be any prospect of mills being erected and machinery introduced into Burma. Labour is too scarce at present, and paddy planting is at once more profitable and affords more leisure: the Burman would not be content to work in a mill for wages that would enable the mill-owner to compete with outside manufactories.

Perhaps, as the population grows and coolie labour is imported in increasing quantities from India, mills may some day be established in Rangoon, but the time seems distant yet, unless the State should first be the pioneer with its supply of convict labour. Much would also depend on the amount and quality of the raw cotton to be obtained in Burma.

Cotton is grown in several of the Upper Burma districts, especially round Myingyan and Meiktila and also in the Northern Arakan tract of Lower Burma, for trade purposes. It is exported to India by sea, and to Western China, either up the river to Bhamo and from thence overland to Yunnan, or down the river to Rangoon, whence it is shipped *via* the Straits to the ports on the Chinese sea-board.

This trade is almost entirely in the hands of Chinese agents resident in Burma, some in Rangoon, some in Myingyan, &c.

They learn from friends in China the price of cotton in the various markets there, and thus decide whether they are likely to realize more profit by shipping it from Rangoon to South China, or by sending it from Bhamo to Yunnan. That sent down by steamer is pressed before shipment by English firms in hydraulic pressing machines, of which there are said to be two only at present in Rangoon. It sometimes happens that cotton which has been despatched to Rangoon, after lying there some weeks, is finally taken up again to Bhamo and sent by the land route to China in obedience to the latest intelligence.

The trade returns show that 8,555 cwt. of raw cotton were exported by sea in 1895-96, as against 4,489 cwt. in the preceding year, though in 1892-93 the figures reached 20,434 cwt. Most of this went to China and the Straits Settlements, there being a decrease in the shipments to Bengal.

By land 111,983 maunds were sent to Western China and the Northern Shan States in the years between 1893-94 and 1895-96, as against 126,926 maunds in the preceding triennial period.

There were 242,196 maunds sent from Upper to Lower Burma, and 15,306 maunds from Lower to Upper Burma during 1893-94 to 1895-96, and in each case the amounts far exceed those of the previous years. This up and down traffic is probably partly due to the reason given above, and now that the Railway Department have reduced their rates for cotton, a further stimulus will doubtless be given to the trade.

The figures are some index of the surplus raw cotton production in Burma, as there were no importations from outside, except an insignificant amount of 39 maunds from the Northern Shan States. To obtain the total outturn must further be reckoned the amount grown and consumed on the spot by the women weavers of the house, for which there are no figures.

It would appear then that, if mills were established in Burma, there would be no difficulty in obtaining cotton, and that there is a better prospect for a raw-cotton industry than for the manufacture of cotton fabrics in Burma, as now carried on.

The cotton here is similar to that grown in most parts of India and has the same drawbacks: it is too short in staple for some machinery, though this does not prevent it being used in many kinds of fabrics, and it is so badly cleaned that its value is much lowered.

V.—The raw cotton trade in Burma.

(a) The quality of Burma cotton.

The first defect has probably been much exaggerated, as it has been found possible in many cases to use Indian cotton as a substitute when the supply of American cotton has failed or the price has been unduly high. The Indian cotton is said to be best suited for the lower numbers, 20 and under, and it is these that are being mostly imported into Burma now. Whether longer staple cotton could be introduced into Burma can only be proved by experiments. The very few which have been made in Lower Burma, I believe, have not been favourably reported on, and the climate has been described as unsuitable in most parts; but such was the case also in India at first, though it was subsequently admitted that, when these failures had brought experience, later efforts met with a large measure of success.

Now is there any reason to suppose that the climate of
(b) The climate of Burma, as a whole, is less suited than that of India to the cultivation of cotton?

Although it is reported from Arakan that, if cotton were planted under a regular system, it would grow plentifully there, Lower Burma generally is not well adapted for it, because the ground being mostly level, the water stands on it and swamps the young plants; but in Upper Burma, where the rainfall is less, and the land more sloping, drainage is quicker, while there is a moistness about the atmosphere which is favourable to their growth.

Further, it has been found in America that cotton succeeds best in those parts where the temperature varies little and is not too hot, and there are many such places in Burma.

Moistness and equability of climate—the two chief requisites—do not seem to be wanting, and the necessity for irrigation, which formerly hampered so many of the experiments in India, would not exist in so large a degree here.

Dr. Forbes Watson in his report on the cotton experiments in India, published now some years ago, speaking of Burma, states that there were fair prospects for the future. This, however, only applied to Lower Burma, where the conditions probably are the least favourable.

Next, as to the cultivation itself. Hitherto so little attention has been paid to it that it can scarcely
(c) The method of cultivation. be claimed to have had a fair trial. The cotton is now sown principally on *taungyas* or hill clearings, the poorest class of soil, and mixed up together with the paddy, scarcely any choice of sites being made. There has been no real manuring of the land, the rudest kind of plough

is employed, which does little more than scratch the ground. No division of labour is seen between pickers, cleaners and planters, and practically no experiments with exotic seed have been made. The cotton often hangs long after it is ripe, and when plucked remains days on the ground, mixed with the dirt and accumulating sand and stones. Most of this it would not require an expert to remedy. The cotton is sold raw by weight: the amount of dirt increases this, and is so much waste when the cotton comes to be used. Carelessness in the collecting and housing is the chief cause, and it should be brought home to the cultivator that the price of his cotton is materially reduced because he will not trouble to clean it.

Still, in spite of all this, cotton has been produced for exportation, and the merchants in Rangoon say that, if it were better cleaned, the demand for it would be greater than it now is.

The objection occurs that the people do not trouble about cotton-growing because it pays them better
VI.—Is it desirable to encourage cotton-growing? to grow other things, especially paddy. Is it then desirable to encourage cotton cultivation?

Doubtless cotton is not grown largely, but it does appear that increasing quantities are being exported, and that there are certain parts where it is specially sown. These districts are those in which the paddy crops are liable to fail for lack of rain, for cotton does not require so much water as paddy, e.g., Myingyan, Meiktila, Yamethin, and the parts in which there is little paddy-land but mostly hilly ground, and the cultivation is on forest clearings. In districts of the latter kind, e.g., in the Ruby Mines, it is a problem what is to be done as the forest becomes more and more exhausted by *taungya* cultivation, and attention is being directed to some alternative crop that can be grown in places which are unsuitable to paddy, or, in rotation with it, on the same area. It would seem that cotton is one of these, and one to which the Burman naturally takes. If it has been grown successfully on the *taungyas* in conjunction with paddy, there is little doubt that, when planted separately and more carefully attended to, it would be more productive.

Cotton growing need not then compete with paddy cultivation: it can be carried on in alliance with it—a condition which is pointed to by the present relation which they have naturally assumed toward one another.

There is, however, one class of paddy-growers who might even adopt cotton planting in preference to their present occupation. Every year a number of men, when the paddy season comes round, leave their homes and go southward to cultivate land, generally for hire, in another district. From Upper to Lower Burma, and from one Lower Burma district, where there is no vacant land, to another where land is to be had, as in Myaungmya, Ma-ubin and Bassein, there is an annual migration, the men returning at the end of the cultivation season.

With the growth of population in the lower districts it will become increasingly difficult for them to obtain land, and many of these emigrants would doubtless prefer to stay in or near their native villages, could they grow some profitable crop in situations unsuited to paddy. Hitherto they have evidently failed to find one, but if cotton cultivation were improved, and it were shown to be capable of better returns, some of them might be induced to try it. To effect this, it might be worth while to experimentalize, either with a view to introducing the American and Egyptian cotton, or to render the native plant more productive in future.

Assuming then that it is desirable to encourage cotton growing, at all events in some parts, what facilities for the raw-cotton trade. facilities are there for the raw-cotton trade? Probably, as now cultivated, it could not be transported to England and sold with much profit, but Burma is practically independent of the English market—which is regulated by the uncertainties of the American cotton supply—because she exports chiefly to China. Here she has a market of her own, ready at her doors, and, with the improvement of railway and other communications, it will become more and more accessible to her. This is an important advantage. The uncertainty of prices in the English market is always great, and merchants in India are often shy of buying up large quantities of cotton beforehand to send to Liverpool.

Some raw cotton is exported also from Burma to India, but this is for home consumption there, and the price that it will realize can generally be ascertained exactly. There is no reason why this trade should not grow, considering the enormous quantity of cotton required in India locally and for exportation, and there were signs that the Rangoon firms would have increased their shipments this year had not the plague in Bombay paralysed all transactions.

It is on the China side, however, that the prospects are best.

From the artistic side there is little to be said of the cotton fabrics of Burma. *Pasos, tameins, lungyis,* jackets, bags, blankets and *culagas* or curtains are the chief articles made by the Burmese, and there is not much variety in the patterns. Most are either stripes or checks, in which the tints are nicely blended, and they use all colours, uniting the imported red yarn with their own home made. But the best and brightest patterns are in the silk garments, and sometimes a cotton *paso* is shot with threads of silver or gold silk. The most elaborate designs are found in the curtains or *culagas* used for hanging on walls. Here the art advances to the pictorial stage, various scenes, figures, &c., being represented. Dark blue and indigo colours are those fancied by the Shans and hill tribes, but their sombreness is generally relieved by trimmings of red or some bright hue. Among the Shans of the Hsenwi State some curious sleeping-mats or cloths are made. They are described as being of a zig-zag or diamond shaped pattern, woven usually in black or red on a white ground, and carried out with the nicest exactness and regularity of detail.

Still more intricate is the Kachin work, both in the adornment of bags or pockets and the female costume. The ground work is usually dark blue with longitudinal blue stripes, but is sometimes seen all white, or made of equal stripes of red, white and blue, into which are woven at intervals little stars, crosses, or squares of various colours and irregular shapes.

The Lü women of the Southern Shan States wear a turban fashioned like a tea-cosy. It is always dark blue and ornamented with real or imitation gold and silver thread, which is interwoven with the cotton, and, when on the head, the ornamental portion is outside and to the front. Hitherto this has been preserved; but in the weaving of their embroidered petticoats and the border on the trousers of the Lü men pieces of coloured imported stuff are now added.

The attempts of English manufacturers to imitate such garments have been very few and not sufficiently like the original to satisfy the people. But there are signs that, struck by the brilliant dyed foreign stuffs, even these hill races are beginning to purchase them and introduce them into their native dress. Thus the tribal costumes will soon be wholly modified. If this should come about rapidly, the foreign manufacturer will not trouble to imitate what he foresees is not likely to be required;

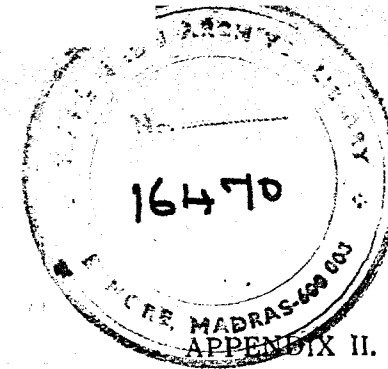
he will have set a new fashion with his imported goods, and will be largely responsible for the disappearance of the traditional raiment.

Before conclusion, let us take a last look at cotton-fabric making as it may now be seen in Burma. The statesman may regard it as a decayed industry without prospect of development, and the merchant may win from it no promise of wealth, but the artist and the lover of the picturesque will yet find something to admire. To turn, for a moment, from economic questions, from considerations of cultivation and trade, and all the interests of the market world, there is a simpler and more attractive side to the subject. The philosopher who first essayed to found his State by bringing together a husbandman, a builder and a weaver, and so presented to his hearers a city of mat dwellings and thatched roofs, where each should pursue undisturbed his allotted task, might have realized his ideal here in Burma—not amid the bustle of the towns, but in some quiet far away hamlet. There the labourer plants his cotton to supply the few wants only of himself and his neighbours; his surplus harvest he carries to the next village and rarely beyond it; he troubles little about the rise and fall of prices, but offers his store at the rate which custom has fixed, and to which he will adhere for many seasons to come.

At home the Burmese maiden stretches the cotton threads on the rude frame, and weaves the household garments, seated at a hand-loom, like Circe of old, speeding her shrill comb down the slender warp.

G. F. ARNOLD.

The 18th March 1897.



Burmese spinning and weaving terms (for figures, vide Appendix I).

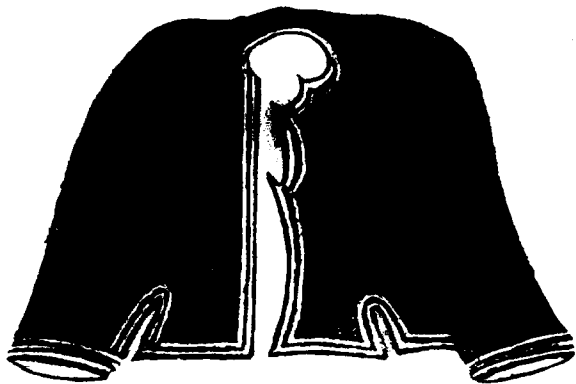
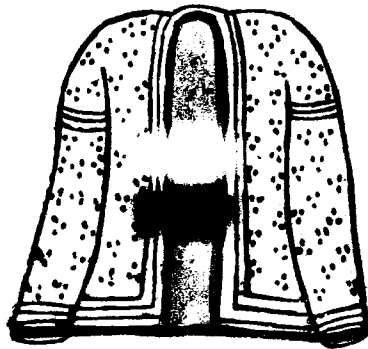
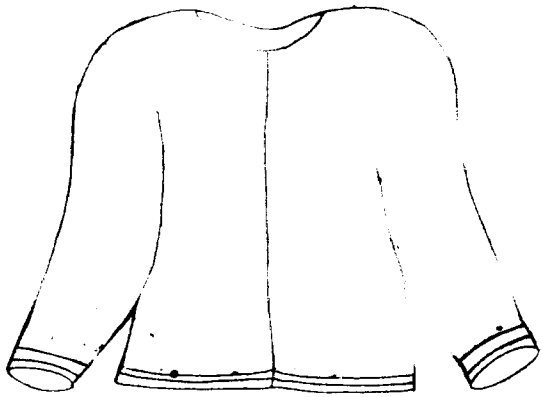
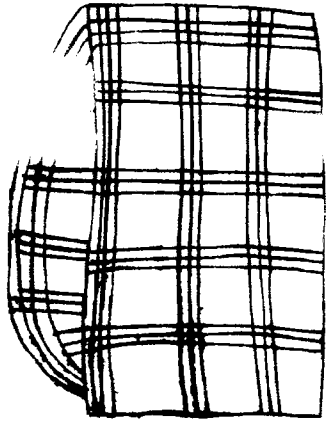
- Fig. I. ဝါးနံ့ = The basket in which cotton is first put.
 „ II. ဝါးကြိတ် = Wheel for grinding cotton before dressing, a machine which removes the seeds.
 „ III. ဝါးဝှံးဝတ် = Revolving basket in which cotton is put while it is being dressed.
 „ IV. ဝှံးဝတ် = Cylinder with small aperture for cotton rolling.
 „ V. ဝှံးဝတ် or ဝှံး = Spinning wheel.
 „ VI. ချည်သွပ် = Quill for winding off the threads from the spindle.
 „ VII. ချည်သွပ်သတ် = Machine for twisting skeins round and round to harden the thread.
 „ VIII. ချည်ချပ် or ချ simply = A swift, winding machine from which the cotton is wound off on a reel.
 „ IX. ယတ်ကန်းချည် = Frame for extending the threads for weaving.
 „ X. ယတ်ကန်းယတ် = Loom.

Some other terms.

- ဝါး = Raw cotton ဝှံး = Dressed cotton.
 ဝါးဝတ် = The bow for dressing cotton.
 ယတ်ထောက် = A stick to dress cotton on a bow-string.
 ယတ်သွပ်သတ် = A brush made of the skin of the screw-pine tree leaf, for smoothing sized thread.
 ခြား or ချတ် = A reel or spool on which thread is wound from the spindle.
 ချည်ဝတ် or ဝတ်ချည် = The spindle of thread.
 တည်သွပ် = A spool.
 ချည်ထိုး = A handle for a spool.
 ဝှံး = The shuttle.

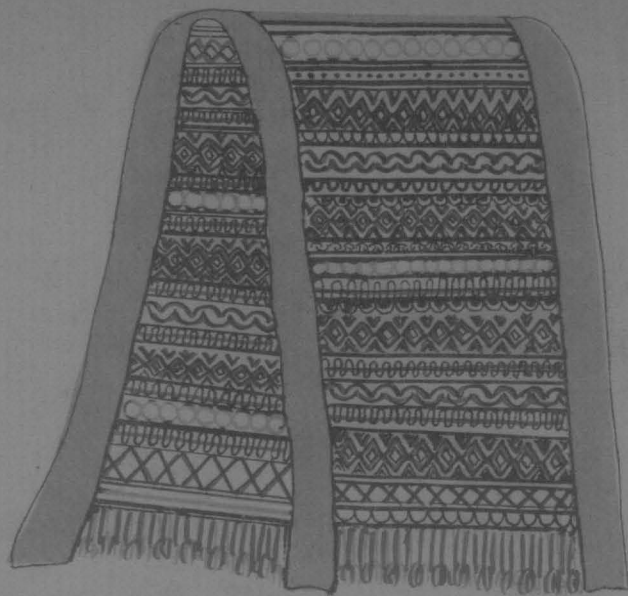
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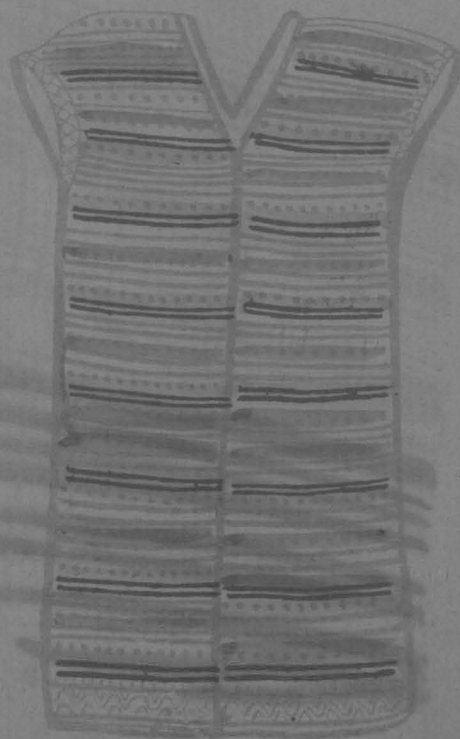


TAUNGYO WOMAN

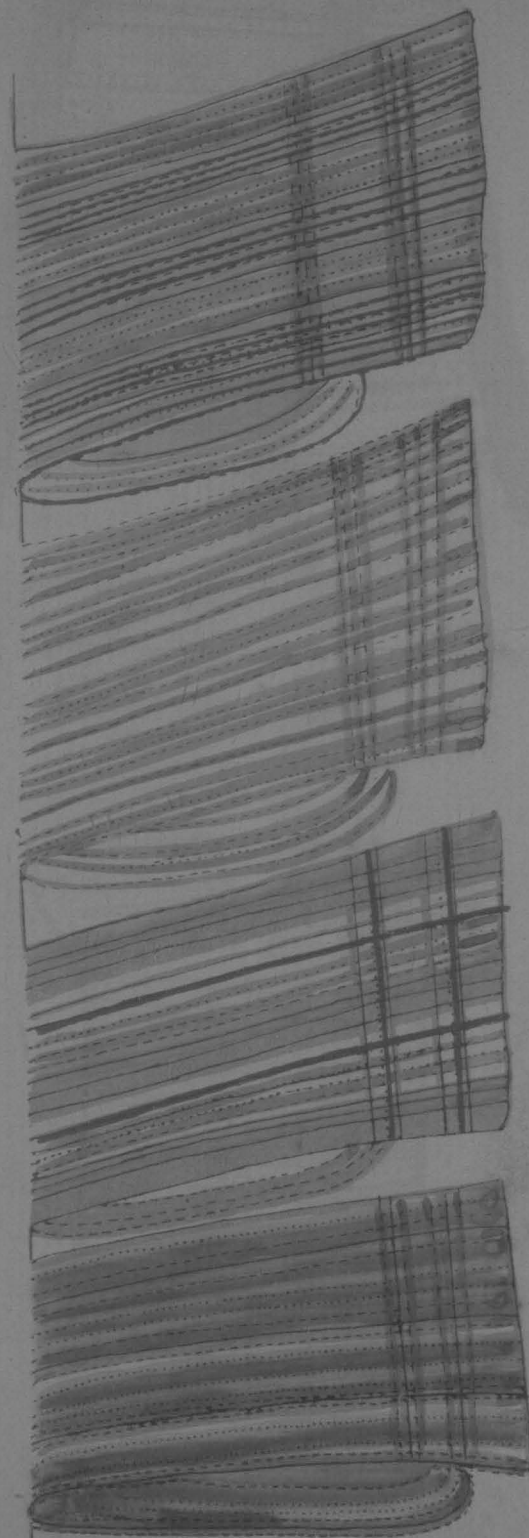




TAUNGYO TABET (*head dress.*)



TAUNGYO THINDAING



PATTERNS WAIST CLOTHES

Fig. I

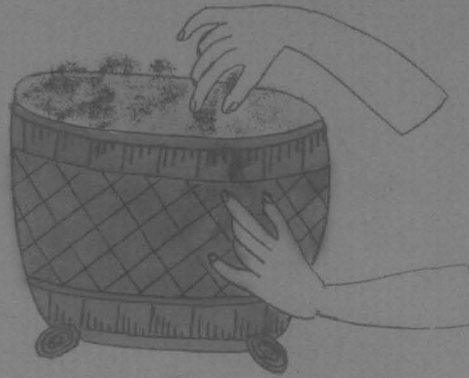


Fig II.

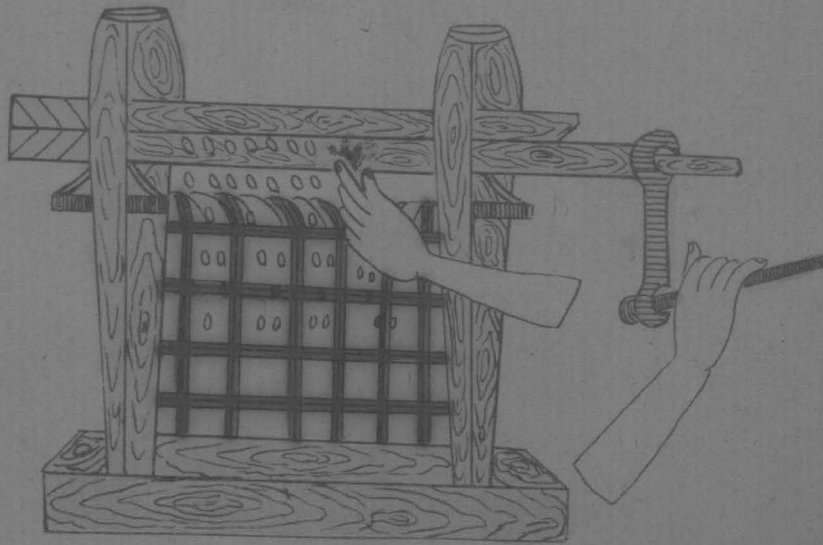


Fig. III



Fig. IV

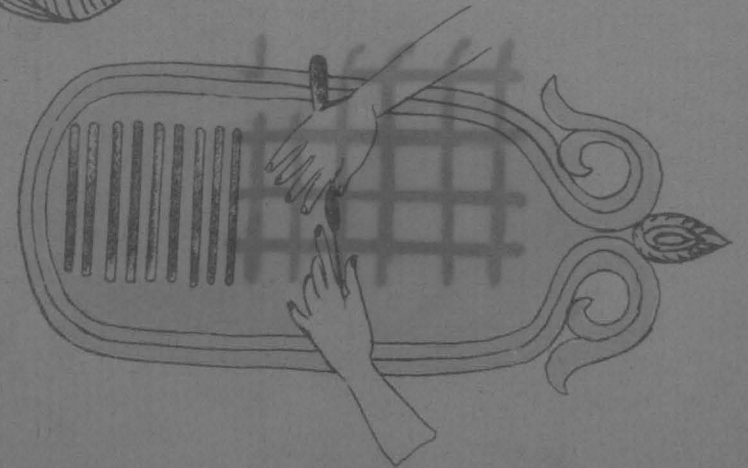


Fig. V

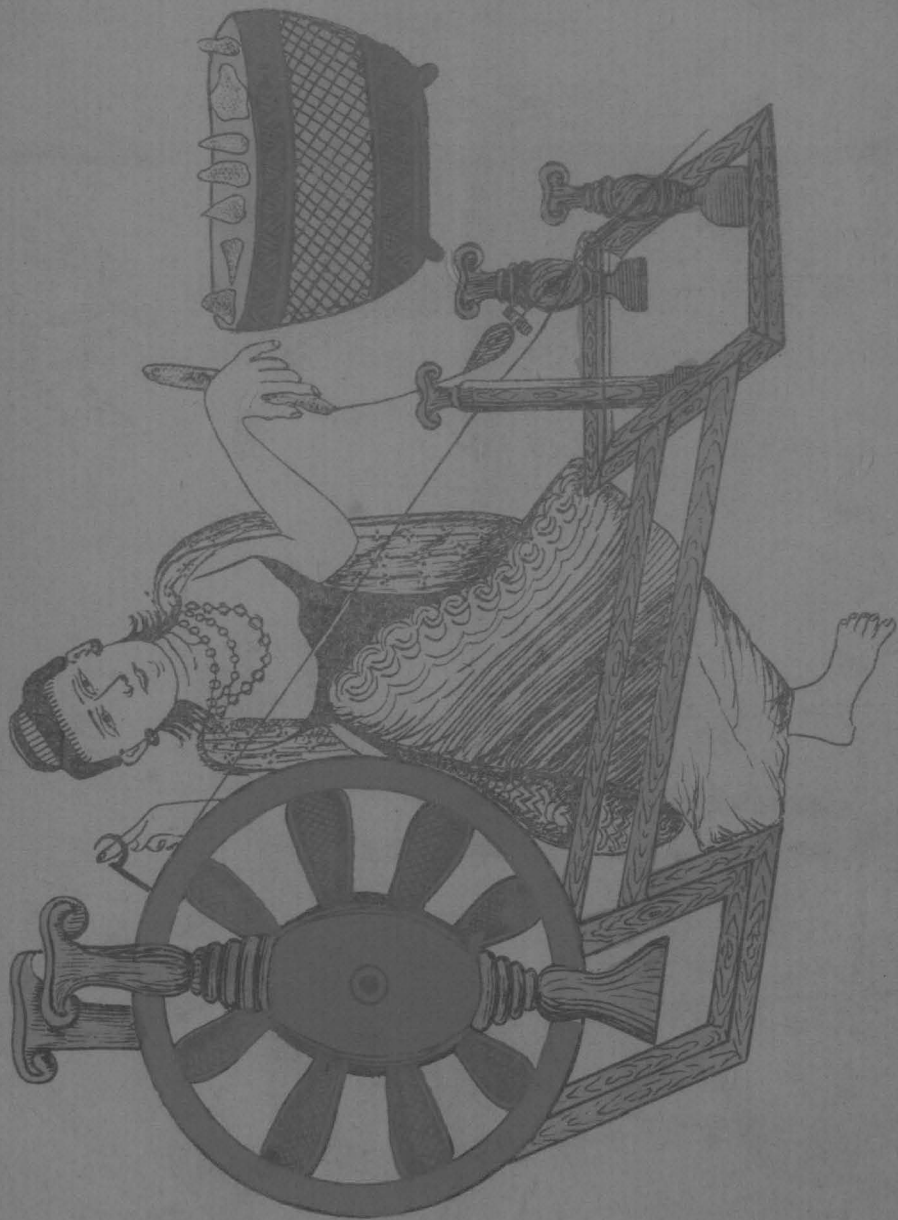


Fig. VI

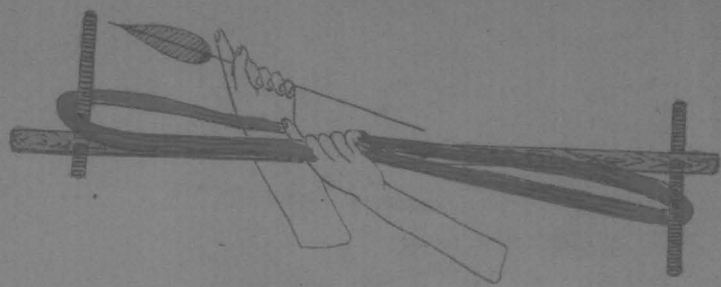


Fig. VII

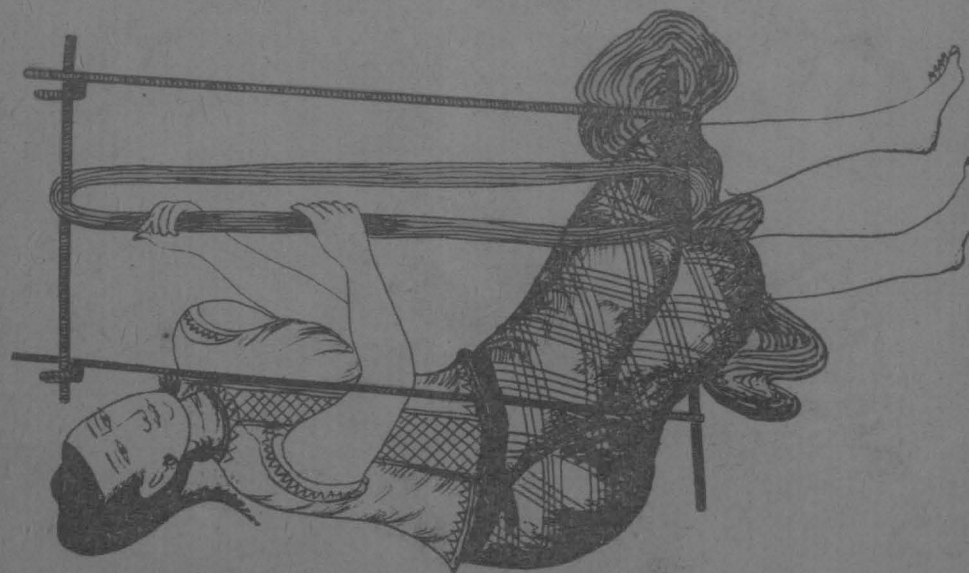
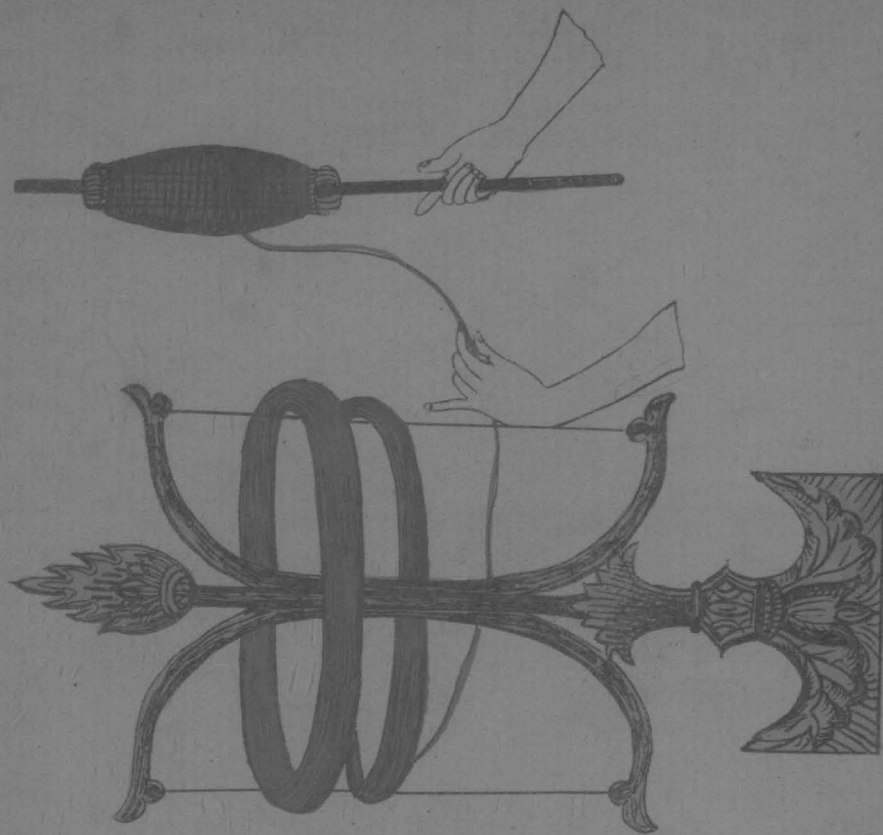


Fig. VIII



APPENDIX I-

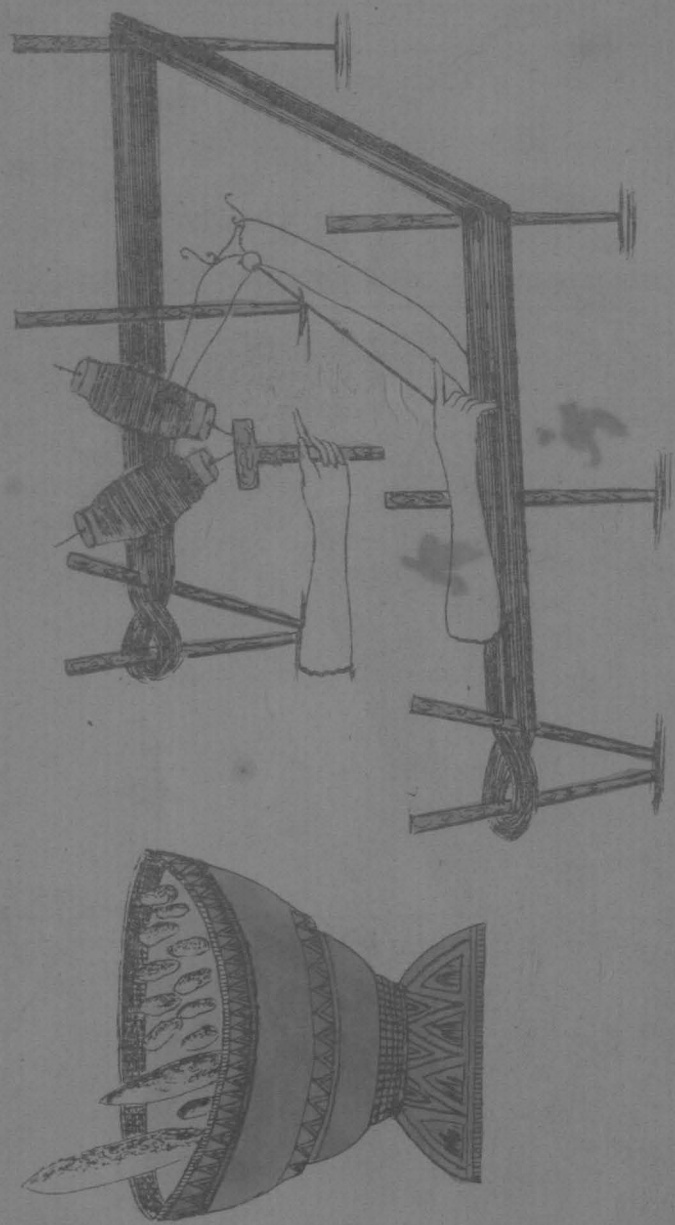


Fig. IX

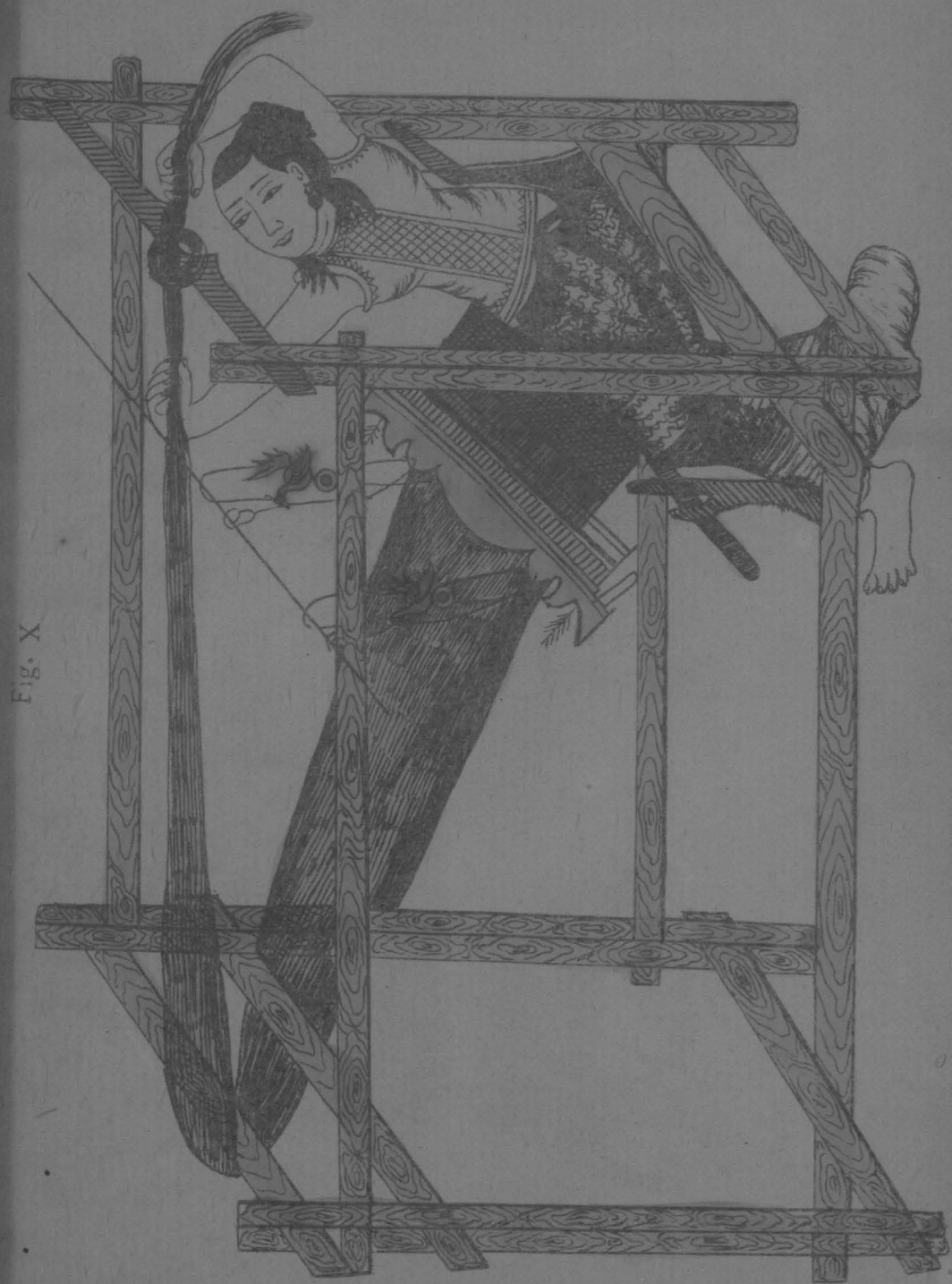
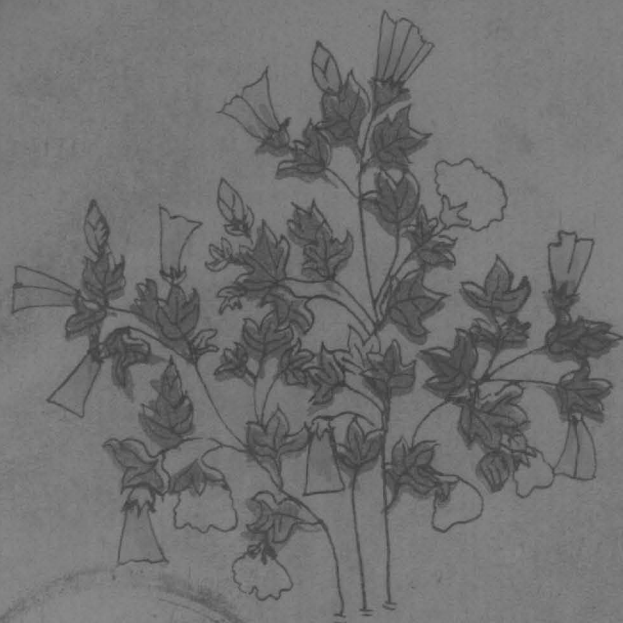


Fig. X



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COTTON PLANT