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COTTON FABRICS

IN

BRITISH INDIA AND THE PHILIPPINES

By

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DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, December 5, 1907.

SIR: I have the honor to transmit herewith report of Special Agent W. A. Graham Clark on cotton fabrics in British India and the Philippines, in compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ended June 30, 1907, approved June 22, 1906, which directs that results of investigations by special agents to inquire into trade conditions abroad shall be communicated to Congress.

Respectfully,

OSCAR S. STRAUS, *Secretary.*

The PRESIDENT OF THE SENATE.

NOTICE TO MANUFACTURERS.

Many samples of cotton cloths of almost every description were collected by the special agents of the Department of Commerce and Labor in the countries visited by them and are now in possession of the Bureau of Manufactures. These samples represent the fabrics in use by the people for clothing and household purposes, and are accompanied by full data explaining countries from which exported, size and quality of fabrics, peculiarities of manufacture and packing, popularity of patterns, wholesale and retail prices, etc. In addition to cloths, the Bureau of Manufactures is in possession of samples of yarns, braids, towels, handkerchiefs, laces, etc. Collections were made in Africa, Australia, Brazil, China, England, India, Italy, Japan, and Turkey. The samples will be loaned to manufacturers who may apply for them. Applications should state country in which interested and class of samples desired.

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COTTON FABRICS IN THE PHILIPPINES.

LETTER OF SUBMITTAL.

BOMBAY, INDIA, *May 1, 1907.*

SIR: I have the honor to transmit herewith a report covering my investigation of trade conditions in regard to cotton products in the Philippine Islands and also on the cotton industry of the Indian Empire.

For a long while cotton textiles have been the largest single import of the Philippines, excepting only rice. The import of rice is simply a temporary matter until agriculture revives and the islands are again able to feed themselves. There is no possibility of their being able to clothe themselves, and the textile trade is an expanding one, well worth the attention of American manufacturers. The trade is not only worth going after for its own sake, but once thoroughly intrenched in the Philippines American manufacturers will have a base from which to attempt the larger trade of Asia itself.

The American textile trade in the Philippines was hampered under the tariff of 1905 by a discrimination which was corrected by Congress in February, 1906. This explains why the American sales dropped from $764,990 in the fiscal year 1905 to $278,890 in the fiscal year 1906, while exports of cotton textiles from the United Kingdom to the Philippines during the fiscal year 1906 were valued at over $3,000,000. The recovery in the American trade which began in June last year has continued, so that for the calendar year 1906 the shipments of cotton manufactures from the United States to the Philippines amounted to $572,268.

It is desirable to have it known that India is both a great cotton-producing and a great cotton-manufacturing country. It is also worthy of note that hand looms still enter very largely into the industry, and that yarns are the chief manufactured product which is exported, cloths being imported in very large quantities from Great Britain. The United States hitherto has made practically no effort to enter this valuable market, the heavy cloths manufactured for the Far East not being in demand in India. But since the United States is

now beginning to compete with Great Britain in the manufacture of light cloths there is no reason why we should not have a share of this choice Indian market.

I submit suggestions regarding prominent agents and other means by which the introduction of American cotton manufactures into the Philippines and India may be secured.

Respectfully,

W. A. GRAHAM CLARK,
Special Agent of the Department of Commerce and Labor.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.

THE COTTON INDUSTRY IN BRITISH INDIA.

INTRODUCTION.

The results of exhaustive investigation of the cotton industry in the Indian Empire, and also of India as a market for cottons, are set forth in a series of reports by Special Agent W. A. Graham Clark.

In reviewing production and manufactures the special agent notes that while, after the United States, India is the greatest cotton-producing country in the world, the fact is not so well known that it is also one of the great cotton-manufacturing countries, not only manufacturing a much larger proportion of its cotton crop than does the United States, but actually exporting more pounds of cotton in the manufactured form. According to the latest statistics India has 217 cotton mills, with 5,279,595 spindles and 52,668 looms. The total capital stock of the mills is approximately $55,000,000. Though the industry has suffered many vicissitudes, it has gradually progressed till a profitable basis has been reached. The tendency is for yarn mills to add looms, because the cloth market, being farther removed from the raw material, is more stable than the yarn market. China is the chief buyer.

While on yarns the Indian mills have a substantial monopoly for home consumption, on cloth the conditions are reversed, the English mills controlling this trade. The cloths imported into India in largest quantities are shirtings, dhooties, saris, and scarves. The total import of piece goods for 1906 amounted to 2,463,232,479 yards, of the value of $119,729,342. Of these piece goods 1,348,836,146 yards were of gray cloth, 572,749,710 yards of white, and 541,646,623 yards colored, printed, or dyed. The value of the cloth imported from Great Britain was $115,223,931. The piece goods produced by the Indian mills are shirtings and long cloths, dhooties and chadars, T-cloths, domestics, and sheetings.

An interesting description of a typical Indian yarn mill is given by the special agent, which serves to explain the buildings used, the machinery employed, and the relation of the operatives to the industry. Men and boys do all the spinning, while reeling is the only work in most Indian mills that is considered to belong to women. The wages, according to the American standard, would be considered very low.

In the methods of dyeing, the poverty of the natives and their manner of living have to be taken into account. The desire for variety is satisfied by dyeing the same garment over and over, a different color being used each time. Aniline dyes are supplanting the vegetable dyes, and the importation of mineral dyes is increasing, the value now being about $2,500,000 annually. Preference in colors varies according to locality, and importers pay special attention to these peculiarities. While the native dyers like foreign dyes that are not too fast, nevertheless all foreign dyed or printed goods must be fast in order to obtain a permanent market. In producing patterns some of the methods of the dyer and calico printer are very primitive, and a few are exceedingly ingenious.

In India, even more than in Japan and China, the hand loom flourishes. The last census showed 2,700,000 hand-loom weavers, while the power looms numbered only 52,668. Out of $4\frac{3}{4}$ billion yards of cloth used in India in 1906 the hand looms produced 34 per cent, and in some years the product amounts to 40 per cent. Cloth made by the cheap labor on the hand loom is more expensive per yard than cloth made by higher-priced labor on the power loom, and if it were not for the power loom many thousands of the natives who are now decently clothed would be in rags. Nevertheless, though the hand loom is giving way to machinery, many years must pass before it takes second place. A large amount of the hand-woven cloth is household manufacture for the use of the weaver and his family. The possibility of improving the hand loom is attracting attention. Its importance can be understood from the statement that more than 6,000,000 people depend on it for their living, and over 100,000,000 inhabitants, or one-third of the total population, are clothed by it.

There is practically no American textile machinery in India, England having an absolute monopoly. It is the belief of Mr. Clark that the sale of American machinery while difficult is not impossible. More mills are seeking to produce finer goods and are installing finishing processes, and in this line American machines have been shown to be more efficient than the English machines, for some of which the same patterns are employed that were used twenty years ago.

India mill owners object strongly to the fiscal system, which compels them to pay a countervailing tax equal to the import duty on cottons. This tax is $3\frac{1}{2}$ per cent ad valorem and is imposed for the protection of the Lancashire mills. The revenue from the internal tax imposed on the product of the Indian mills in 1906 amounted to $900,000. Besides the objection to the countervailing tax on Indian cotton-mill cloth being in the interest of Lancashire, the Indian mill owners object to it because the mills in the native States escape this tax, their products entering British territory free of all taxation.

In the export trade of India, as has been noted, the chief dependence is on yarns for China. In the fiscal year ending March 31, 1906, India exported cotton manufactures to the value of $46,738,000; while the exports of the United States for the fiscal year ending June 30, 1906, amounted to only $52,944,000. The manufactures sent out by India were mainly yarn, while those from the United States were cloth. The demand for both yarn and cloth in India is growing yearly, and the imports of foreign piece goods increase proportionately. Intelligent and thorough study of foreign opportunities is made by the Indian mill owners. Though the export of Indian piece goods is much smaller than that of yarns, it also is increasing. It is expected that in the future Indian mills will make a more determined effort to capture their own market on some of the medium lines. Little has been done by American mills toward entering the India market. In the province of Burma, where the importations of piece goods approximate $6,000,000 annually, the amount credited to the United States in 1906 was $930.

Reviewing the whole Indian Empire, it may be said that this is the choicest field in the world markets. The English control the trade of India because they work for it. A share in it can be captured by permanent American agents carrying a good line of manufactures. Intelligent soliciting is necessary, while various local peculiarities must be observed and respected. Pattern cards are demanded by the Indian buyer, and this is one of the minor reasons why American mills do not more actively seek this market.

The conclusion Mr. Clark reaches is that in drills, prints, shirtings, even in dhooties and saris, the United States could do a large business with India. At present the textile exports of the United States go mainly to the Far East, which takes heavy goods. In India the demand is for light goods, but the United States soon will be competing with England in fine goods and should gain a foothold in India on which to build.

BRITISH INDIA.

MANUFACTURE AND CONSUMPTION.

Next to the United States, India is the greatest cotton-producing country in the world. This is well known. It is not so well known that India is one of the great cotton-manufacturing countries, ranking sixth in the list of such countries. It is exceeded in the total number of spindles only by Great Britain, the United States, Germany, Russia, and France, and is ahead of Austria, Spain, Italy, Switzerland, and Japan. India not only manufactures a much larger proportion of her cotton crop than does the United States, but actually exports more pounds of cotton in the manufactured form. According to the latest authoritative figures obtainable, those of the Bombay Mill Owners' Association of June 30, 1906, India had at that date 217 cotton mills with 5,279,595 spindles and 52,668 looms. The figures for the last three years ended June 30 are as follows:

STATISTICS OF INDIA COTTON MILLS, 1904–1906.

Mills and equipment.	1904.	1905.	1906.
Total number of mills	191	197	217
Mills with spindles	188	193	209
Mills with spindles and looms	85	88	100
Mills with looms only	3	4	8
Number of mule spindles	2,038,157	1,978,632	1,915,649
Number of ring spindles	3,079,964	3,184,854	3,363,946
Total number of spindles	5,118,121	5,163,486	5,279,595
Total number of looms	45,337	50,139	52,668
Average number operatives employed	184,779	195,277	208,616
Pounds yarn produced per spindle	113	112	129
Pounds cotton worked	683,948,272	736,663,648	793,218,272
Equivalent in 392-pound bales	1,744,766	1,879,244	2,023,516
Equivalent in 500-pound bales	1,367,896	1,473,327	1,586,436

The figures reported for the capital stock were given as $44,954,985 in 1906, but as 37 of the 217 mills failed to state this item the figures given are approximate. If the average of the mills not reporting is the same as those reporting, the total capital stock is about $55,000,000.

INCREASE OF LOOMS.

These figures show that for the last two years the operatives employed increased at the rate of 12,000 a year and the bales of raw material worked at the rate of 139,000 a year. They also show that the number of looms is increasing at a faster rate than the number of spindles and that mule spindles are being replaced by ring

spindles. As in Japan and other countries, the tendency seems to be for yarn mills to add looms, for the reason that the cloth market, being farther removed from the raw material, is a more stable market than the yarn market. At times the yarn mills make much larger profits than ever fall to the lot of the weave mills, but when the reaction comes the yarn mills usually feel it first. Thus in 1905 and part of 1906 Indian yarn mills simply coined money, while the weave mills made only moderate profits. At this time (April, 1907) the yarn mills are running short time and the weave mills are making about the same profits as before. The greater steadiness of the market, together with the fact that it has been found there is a good opening for cheap Indian cloths in China as well as in Africa, has caused many of the yarn mills to order looms. It is well known that lower-grade yarn can be better spun on the mule than on ring frames, and for a while it was considered that only the mule was suitable for Indian spinning. But the great improvements made, added to the fact that ring spinning takes up so much less space, thus making first cost of building less, and also the fact that ring spindles on an average will get off nearly 10 per cent more production at a less labor cost, have combined to cause most of the new mills to adopt ring spinning and also have caused old mills to substitute ring frames in place of their mules.

BEGINNING OF THE INDUSTRY.

The cotton mill in India dates only from 1854, when a Parsee merchant named Cowasji Davur built a small mill at Tardeo, near Bombay. The industry has been more or less under the control of the Parsees ever since. At the time the foundations were laid for this first mill there were more spindles in Lancashire than there are in the United States to-day, but the industry thus inaugurated has developed until it has not only closed the yarn trade of India to England, except on the highest counts, but has also reached out and captured from it the yarn trade of China, with the result that Lancashire manufacturers have been driven to make cloth and not yarn their main export. When the first mill was built there was only one railway 20 miles long in all India, and that was the line called the Great Indian Peninsula Railroad running from Bombay to Thana. The growth of the railroads and of the mills has been parallel, until there are now some 217 cotton mills and about 30,000 miles of railway.

All the first mills, as in fact all the mills since, were patterned after the English, and all the columns and other ironwork and even the foundation stones for the engines were imported from England. Up to 1880 the mills all used toothed gearing and spur wheels, but rope driving was introduced about that time and was universally

adopted. The Indian mills as a rule use rope drives, not only for the main drive but also for the main counters. Wide belting is little used.

RESULTS OF IMPROVED MACHINERY.

At first the mills made coarse yarns only, but soon began making coarse cloth about 44 by 48, using average 16s warp and 22s filling, obtaining a production of about 9 pounds per loom per twelve hours. About 1885 the mills found that with the improvement in machinery they could make finer yarns, and the standard was raised until to-day it is given at about 52 by 56 cloth made of average 22s warp and 30s filling, with a production of some 14 pounds per loom per twelve hours. In some places, especially Ahmedabad, 26s warp and 38s filling are used, and the finished cloth has up to 35 per cent size. Ordinarily Indian cloth is now sized about 20 per cent, as against 10 per cent formerly used. Up to 1885 the mills made only gray goods, but striped and checked goods were then manufactured in a small way, and this line was greatly aided in the nineties by the advent of the cheap German dyes. The German houses not only sold the dyes, but sent out experts to get the mills started on them.

The great advantage of Indian mills is the cheapness of their raw material and labor, and the great disadvantage is the quality of their raw material and of their labor. Either one separately would limit the mills to coarse work, but especially when the two are combined. The cotton mills have grown by starts. In 1855 there was one mill; in 1865, thirteen; 1875, thirty-six; 1880, fifty-six; 1885, eighty-seven; 1890, one hundred and thirty-seven; 1895, one hundred and forty-eight; 1900, one hundred and ninety-three; 1905, one hundred and ninety-seven; and 1906, two hundred and seventeen.

VARIOUS VICISSITUDES.

The Indian cotton manufacturing industry has suffered from as many ups and downs as fall to the lot of the industry in other lands, and has had to stand several special drawbacks incident to India, such as plague and famine. The year 1885 seems to have marked a turning point in the upward climb, and with the great improvements in cotton-mill machinery introduced into India about that time, such as ring spinning and the revolving top flat card, the mills began to make finer yarns and cloth and of more variety and to reach out after new markets for their goods. In the five years from 1885 to 1890 there were added an even fifty mills, which marks the time of greatest expansion. There was a fairly good business and healthy expansion up to about 1897, when the plague struck Bombay.

In October, 1896, the population of that city was estimated at 846,000. Within six months it dropped to 450,000. The cotton-manufacturing business was almost paralyzed through the great number of operatives who either fled or succumbed to disease. Since that time the plague has never left the city, and during each "cold-weather period," from October to March, it scourges with terrible virulence. During the past 4,000 days the plague has claimed in this one city alone an average of forty lives a day, and it is still raging with almost undiminished violence. It has become so familiar to the people that it no longer interferes with business, as at first.

This condition of affairs is necessarily a drawback to manufacturing, however, and necessitates the breaking in of many green hands. In 1899–1900 the failure of the cotton crop and later widespread famine in India and the disturbed condition of their main market, China, together with the fluctuations of the silver exchange values, prevented the mills from having any but the most temporary spurts of prosperity. On top of this came the great cotton speculation in America, which forced the price of cotton all over the world to such a point that there was no profit in the manufacture, and here, as elsewhere, the mills had either to run short time or shut down. India supplies cheap yarn and fabrics, and her customers could not pay the high prices that would have been necessary to make manufacturing profitable. All margin of profit disappeared, the Indian mills curtailed their production and ran half time, and many mills failed or changed hands, with total loss of capital. From 1900 to 1905 only five mills were built and one was burned, so the net gain was only four.

VALUE OF THE CHINA MARKET.

The great curtailment of India's yarn output left the China market bare of stocks, and when cotton dropped back to normal again the pendulum swung the other way, and during 1905 and most of 1906 Indian cotton mills had the most prosperous period in their history. Some mills claim to have made as high as 77 per cent of their paid-in capital, but nearly all of them had been hard hit before, and a great amount of the profit thus made was necessarily used to recover previous losses. About 40 per cent was the highest actual dividend paid by any one mill. Some two dozen mills declared 20 per cent or over, and a large number declared 10 and 15 per cent dividends and used the remainder of their profit to put the mills in better shape. This great prosperity led the mills to push production to the highest point and to run as many hours a day as possible, so as to take full advantage of the flush period. The business was overdone, and as in the case of American cloth sales the capabilities of the Chinese market were overestimated and large stocks of Indian yarn began to

accumulate at Shanghai and Hongkong. Then followed a series of disasters in China, of which the basis was the extensive failure of the rice crop. America, India, and England were all hard hit—America in sheetings and drills, England in white and gray shirtings, and India in yarn and opium. English and American piece goods and Indian yarn piled up in the warehouses in China until they have become a drug on the market, and the end is not yet.

SHORT-TIME MOVEMENT.

This situation has been again met by the short-time movement, and beginning with April 1, 1907, many of the Bombay yarn mills started on four days a week. The cloth mills continue to run full time. Except for this yarn congestion there would just now be a great expansion of the mills in India, as the great profits of 1905 and 1906 have not only put the mills in much better shape than usual, but have interested the public in mill investments, and as soon as the present serious crisis is over there will be renewed mill building, especially of weave mills.

Indian mills usually spin 10s and 20s, but whenever a time of depression arrives their policy has been to attempt higher numbers, such as 30s, so as to keep their force together, yet use less raw material. In most cases on account of the fixed charges the loss is smaller when running on 30s than if the mill were shut down.

The effect of the present depression will be to put some of the mills on finer numbers, at least temporarily, and will also cause them to cultivate their home market more. Of some 550,000,000 pounds of yarn consumed in all India in 1906 (including about 325,000 bales estimated as hand spun), the Indian cotton mills supplied 68 per cent of the total, or 90 per cent of the mill yarn; but of the 4,750,000,000 yards of cloth consumed in all India in 1906 (including 1,650,000,000 yards estimated as woven on hand looms), the Indian mills produced only 13 per cent of the total, or 16 per cent of the cotton-mill cloth.

The following table shows the consumption of mill yarn in India during the years ended March 31, 1904–1906:

CONSUMPTION OF YARN IN INDIA, 1904–1906.

	1904.	1905.	1906.
	Pounds.	*Pounds.*	*Pounds.*
Indian yarn produced	578,759,075	578,381,275	680,918,581
British yarn imported	26,160,445	28,176,989	43,021,758
Other foreign yarn imported	1,856,120	2,398,866	2,754,984
Total yarn supply	606,775,640	608,957,130	726,695,323
Indian yarn exported	252,474,245	247,854,797	297,634,314
Foreign yarn reexported	1,160,618	1,299,680	890,253
Yarn consumed in India	353,140,777	359,802,653	428,170,756
Cloth woven by Indian mills	138,044,172	158,746,555	163,878,264
Yarn bought for hand-loom use	215,096,605	201,056,098	264,292,492

The native mills furnish the great bulk of the yarn up to No. 30s, but of the smaller quantity of finer yarns used nearly all is imported. Over half of the imported yarn is dyed. Of this dyed yarn one-half is turkey red, one-fourth is orange and yellow, one-tenth is green, and the remainder other colors. Of the yarn given below as mule and water yarns, about one-tenth is bleached and the remainder is gray. The foreign yarn imports for 1906 is shown in detail, as follows:

	Pounds.	Value.		Pounds.	Value.
Mule and water:[a]			Colored yarns—Continued.		
Under 25s	554,924	$94,916	26s to 30s	948,491	$204,004
26s to 30s	4,840,240	919,261	31s to 40s	17,217,760	4,211,333
31s to 40s	10,690,136	2,215,291	41s to 50s	950,864	291,927
41s to 50s	1,780,297	425,466	Above 50s	996,505	427,706
Above 50s	2,093,970	712,274	Unspecified yarn and others	2,782,765	914,323
Colored yarns:					
Under 25s	2,920,790	681,790	Total	45,776,742	11,098,291

[a] "Water" yarns are frame spun.

Owing to the growing output of the native mills, especially on numbers under 30s, the import of outside yarn is gradually decreasing. Of the 2,754,984 pounds of the above yarn that came from countries other than Great Britain, Italy supplied 1,029,465 pounds (chiefly colored above 30s); Belgium, 696,960 pounds; Austria, 622,384 pounds, and France, 199,930 pounds.

PRODUCTION OF INDIAN YARN.

Except for the higher numbers, the Indian yarn mills now have the monopoly of the home market and are also exporting enormous quantities of yarn. The following shows in detail the production of yarn in India for the last three years, each ending March 31:

QUANTITY AND COUNTS OF YARN SPUN IN BRITISH INDIA AND NATIVE STATES, YEARS ENDED MARCH 31, 1904–1906.

Count or No.	1904.	1905.	1906.	Count or No.	1904.	1905.	1906.
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
1	26,958	17,920	31,466	23	1,878,889	1,907,832	2,145,281
2	387,558	306,449	273,202	24	16,614,711	19,663,443	22,718,561
3	325,308	458,172	488,903	25	3,337,943	3,134,202	3,045,327
4	1,982,430	1,859,281	2,304,476	26	7,559,398	9,880,857	9,821,060
5	8,320	86,394	7,428	27	131,395	1,302,145	1,865,608
6	13,350,703	12,422,200	13,988,116	28	4,572,049	4,119,028	5,842,984
7	3,949,603	4,890,823	5,701,697	29	66,932	104,565	67,892
8	5,938,165	5,528,763	5,303,676	30	12,112,507	13,102,128	11,886,531
9	3,936,083	3,700,688	4,814,214				
10	121,481,970	132,313,744	166,066,232	Nos. 21 to 30	86,790,338	95,932,151	105,779,111
Nos. 1 to 10	151,387,098	161,584,434	199,029,410	31	248,557	501,631	145,829
				32	4,909,852	3,964,351	4,535,209
11	25,052,305	22,832,316	34,874,434	33	1,599,876	1,543,445	1,141,985
12	57,186,886	46,057,430	61,186,275	34	3,177,990	2,200,595	2,338,244
13	15,750,210	13,049,202	16,617,872	35	491,764	1,684,506	1,252,054
14	16,536,666	14,306,595	17,243,075	36	948,062	2,817,922	1,668,566
15	5,863,547	7,585,898	7,940,613	37	18,011	212,659	600,190
16	39,569,046	30,815,250	40,206,914	38	23,024	36,991	874,258
17	12,890,033	12,243,715	12,259,513	39	29,297	1,586	25,041
18	11,840,655	13,750,919	17,330,624	40	5,071,355	4,186,210	3,025,633
19	5,491,321	5,879,431	7,021,299				
20	132,940,867	135,916,125	144,682,955	Nos. 31 to 40	16,517,788	17,149,896	15,607,009
Nos. 11 to 20	323,121,536	302,436,881	359,363,974	Above 40	942,315	1,277,913	1,139,477
21	19,539,693	15,859,674	20,097,203	Total	578,759,075	578,381,275	680,918,581
22	20,976,821	26,858,277	28,288,664				

The foregoing figures include yarn woven as well as that sold. The bulk of the 10s, 16s, and 20s is export yarn and is sent mainly to China. The yarns from 6s to 16s are largely sold to the hand-loom weavers, who make coarse, thick cloths from them which are unsized and on most of which the cotton mills can not compete on account of the cheapness and the fact that pure sizing is required. From 20s to 26s are used in the mills in making shirtings, chadars, T-cloths, etc. From 26s up the yarn is used for dhooties, saris, etc., and part is used in the mills, but the larger portion by the hand looms, which use foreign warps and Indian filling.

ENGLISH MONOPOLY ON CLOTH.

On yarn the Indian mills have a monopoly, as shown, but on cloth the conditions are reversed and English mills have a monopoly. The cloths imported into India in largest quantities are shirtings and the typical Indian cloths—chadars, dhooties, saris, and scarves. Next to these the largest imports are nainsooks, then follow prints, jaconets, and mulls. The total foreign cloth imported in the fiscal year ended March 31, 1906, is shown as follows:

CLOTHS IMPORTED INTO INDIA, YEAR ENDED MARCH 31, 1906.

Cloths.	Gray.	White.	Colored, printed, or dyed.
	Yards.	*Yards.*	*Yards.*
Shirtings	605,792,616	109,621,696	80,408,642
Chadars, dhooties, saris, and scarves	565,765,943	59,077,936	73,507,499
Nainsooks	.....	229,132,841	.....
Mulls	17,518,330	103,711,695	1,883,658
Jaconets	103,046,175	24,898,142	5,347,999
Cambrics, twills, muslins, and lawns	24,158	11,390,007	79,156,528
Jeans, drills, and sheetings	28,389,701	9,399,658	7,338,646
Prints and chintz	.....	.....	184,878,833
Madapollams	18,849,803	.....	.....
T-cloths and domestics	8,801,099	.....	.....
Long cloths	19,931	2,881,388	.....
Checks, spots, and stripes	.....	5,416,700	.....
Unspecified	628,390	17,219,567	109,124,818
Total	1,348,836,146	572,749,710	541,646,623

The piece goods imported into India for the year ended March 31, 1906, by countries, were as follows:

PIECE GOODS IMPORTED INTO INDIA YEAR ENDED MARCH 31, 1906.

Country.	Yards.	Value.	Country.	Yards.	Value.
Great Britain	2,415,175,082	$115,223,931	Germany	2,771,867	$423,832
British colonies	1,897,785	124,069	France	1,749,950	150,114
Netherlands	16,273,733	1,178,294	Japan	260,097	21,141
United States	10,458,714	824,627	Others	111,516	8,962
Belgium	6,835,662	742,724			
Italy	4,518,384	594,452	Total	2,463,232,479	119,729,342
Austria	3,179,689	437,194			

The piece goods produced in India are mainly shirtings and long cloths, dhooties and chadars, T-cloths, domestics, and sheetings, as shown by the following table. The years are fiscal years ended March 31.

WOVEN GOODS PRODUCED IN BRITISH INDIA AND NATIVE STATES, 1904–1906.

	1904.		1905.		1906.	
	Pounds.	Yards.	Pounds.	Yards.	Pounds.	Yards.
Gray goods:						
Shirtings and long cloths	39,185,808	163,298,745	46,487,091	201,711,407	43,614,973	189,293,192
Dhooties	26,698,800	117,952,954	29,094,516	130,527,049	31,728,016	144,608,621
T-cloths, domestics, and sheetings	19,063,535	87,763,797	21,004,165	98,285,521	26,813,159	119,725,797
Chadars	14,061,194	39,940,416	14,256,040	40,266,481	14,604,765	42,367,477
Printers	4,041,360	18,634,138	6,509,639	30,769,760	7,639,992	31,876,460
Drills and jeans	1,852,710	5,661,611	2,981,985	9,267,089	4,234,099	14,517,551
Cambrics and lawns	96,490	776,386	141,773	1,146,488	167,549	1,144,992
Other kinds	7,347,889	26,516,226	9,582,215	35,739,186	5,848,064	19,322,084
Total	112,347,786	460,544,273	130,057,424	547,712,981	133,650,617	562,856,174
Figured and colored goods	23,276,291	.....	25,531,677	.....	28,497,306	.....
Hosiery	814,331	.....	759,402	.....	758,751	.....
Miscellaneous goods	1,605,764	.....	2,299,052	.....	971,590	.....
Total	138,044,172	.....	158,746,555	.....	163,878,264	.....

MILL CENTERS.

The cotton-mill centers of India are Bombay, Ahmedabad, Calcutta, and Cawnpore, followed by others such as Madras, Nagpur, Sholapore, Agra, Broach, and Delhi. The industry is spreading out, and there are now many cotton mills in all parts of India, and several are being built in the Native States. The first mill, however, was started in Bombay. This is the point most convenient to the best cotton fields of India, so the industry is still concentrated on the west coast. The Parsees, who have been most active in developing the industry, reside at Bombay, and the port of Bombay is the most convenient for obtaining machinery and mill supplies from Europe and for shipping the finished product. Against these advantages is the fact that mill labor is higher at Bombay, due to competition, also to the high price for fuel. Nearly all the fuel used in Bombay comes a thousand miles by rail from Bengal. At present over half the mills in India are on Bombay Island, and nearly three-fourths are contained in Bombay Presidency. Ahmedabad, in Bombay Presidency, is the second largest mill town and promises to become the fine-goods center.

AVERAGE OF SPINDLES AND LOOMS.

The largest mill in India is the Jacob Sassoon Mill at Parel, near Bombay, which contains 92,840 spindles and 1,810 looms. The next largest number of spindles is 86,040 in the Bengal Mill at Calcutta, while the largest number of looms in a single mill is 2,015 in the

Century Mill at Bombay. The average mill contains 25,000 spindles and the average weave mill about 500 looms. There are 21 mills that contain either 50,000 spindles or 1,000 looms each, all other being smaller. These 21 leading factories are as follows:

LEADING COTTON MILLS OF INDIA.

Company.	Location.	Spindles.	Looms.
Jacob Sassoon Mills	Bombay	92,840	1,810
Bengal Mills Co. (Limited)	Calcutta	86,040	.....
Dunbar Mills (Limited)	do	84,096	18
Victoria Mills Co. (Limited)	Cawnpore	75,050	900
Central India Manufacturing Co. (Limited)	Nagpur	74,924	1,384
Cawnpore Cotton Mills Co. (Limited)	Cawnpore	70,196	775
Gokak Water Power and Manufacturing Co. (Limited)	Gokak Falls	69,324	.....
Maneckjee Petit Manufacturing Co. (Limited)	Bombay	66,312	1,810
Bowreah Cotton Mills Co. (Limited)	Calcutta	63,994	.....
Goosery Cotton Mills Co. (Limited)	do	60,901	.....
Muir Mills Co. (Limited)	Cawnpore	55,168	1,251
Ahmedabad Ginning and Manufacturing Co. (Limited)	Ahmedabad	53,750	1,092
Century Spinning and Manufacturing Co. (Limited)	Bombay	51,920	2,015
E. D. Sassoon Mill	do	50,784	751
Sassoon Spinning and Weaving Co. (Limited)	do	48,506	1,063
Adamjee Peerbhoy Spinning and Manufacturing Mills	do	48,428	1,019
Swadeshi Mills Co. (Limited)	do	46,763	1,151
New Great Eastern Spinning and Weaving Co	do	45,350	1,082
Dinshaw Petit Mills	Mills	41,532	1,116
Standard Mills Co. (Limited)	Bombay	33,969	1,025
Rachel Sassoon Mill	do	.....	1,200

TEXTILE MACHINERY.

MANY REASONS FOR ENGLISH SUPREMACY.

There is practically no American textile machinery in India. There are over 5,000,000 spindles, over 50,000 looms, and the vast amount of other preparatory and finishing machinery for working up nearly 2,000,000 bales of cotton annually, but all of this machinery comes from England. England's monopoly is shown by the figures of the textile machinery imported for the fiscal year 1906:

Great Britain	$8,038,121	Austria-Hungary	$503
Germany	13,433	France	486
Belgium	10,522		
United States	3,918	Total	8,066,983

For American textile machinery to be sold in India in large quantities will be difficult but not impossible. The greatest difficulty is that the majority of the mills, whether owned by natives or by English, usually have English or Scotch headmen, and the majority of these have the comfortable conviction that machinery from the "old country" must of necessity be all right, while they "have their doubts" about machinery from any other country. The Parsees, who own the majority of the mills, are shrewd business men, however, and open to conviction. They have heard of "40 looms to a weaver," "spooler knot tiers," "drawing-in machines," etc., but are

not altogether certain whether the American invention lies in the machine or in the statement. While fairly well posted on English machinery, most of them have only a faint idea of what America is doing in this line. The head of one of the largest groups of mills in Bombay asked me if there were any cards made in America, stating that he understood United States manufacturers bought all their cards from England.

It is a question whether American manufacturers can compete here in price, but as a matter of interest I next give a few of the necessities and preferences of machinery buyers for Indian mills. The present is the best time that will ever come for American textile manufacturers to drive the entering wedge, for such is the congestion of the textile machinery manufacturers of England through the great boom in mill building there that in many instances they will not guarantee delivery within from twelve to eighteen months, and on account of the demand they have recently raised the price on many lines from 20 to 25 per cent.

CALL FOR PREPARATORY MACHINERY.

In the first place the Indian mills use a great deal of preparatory machinery, and willows and openers are common. Nearly every mill uses a Crichton vertical opener, which is very well suited to Indian cotton on account of its discriminatory action in clearing the excessive dirt and trash that are typical of Indian cottons. Regular dust trunks are not, as a rule, used, though most mills blow the cotton through a pipe from the opening room to the picker room.

A good many pickers and lappers are made to produce 44, 42, and 40 inch laps, respectively, which makes an even finisher-lap with smooth edges. Cards that are now being installed, however, are mostly 37 or 38 inches wide, and, of course, the lapper has to be narrower also. The managers claim that the flats of a revolving-top flat card can not be ground true on the card because of the sag, and so they are made of shorter length and are taken off and ground on a double-roller flat grinding machine. Most of the new cards have a slow-stripping speed for the doffer, and in some of the mills the cards are provided with an overhead shield to protect from damp. On account of the coarse numbers run most of the Indian cards are overworked. These produce 250 to 275 pounds on coarse work, say 49 to 60 grains per yard sliver, 12 to 14 ounce lap, in a 14½-hour day.

DRAW AND FLY FRAMES.

On draw frames the tendency seems to be toward longer frames, eight or nine deliveries, instead of the six ordinarily used. The

mechanical stop motion is preferred to the electrical on account of the help. Flat revolving-top flannel clearers, from which the lint is scraped at every revolution, are the rule. The bottom steel rollers are $1\frac{1}{8}$, 1, $1\frac{1}{8}$, and $1\frac{1}{8}$ inches diameter, respectively. Fluted steel-top rolls are not used. A manager gave as a reason that Lancashire did not use them much, and if Lancashire did not prefer them they could be of no use. A more sensible reason is probably the dampness of the monsoon season, which would tend to make them rust and cut.

On the fly frames the rolls are usually about an eighth of an inch smaller in diameter than in American frames, and on spinning frames the same. The shorter the staple the smaller the diameter of the rolls. The Indian mills formerly used the larger rolls, but as soon as they commenced using smaller rolls they found a great improvement both in quality and quantity of work turned out. The slubbing frame usually has 1, $\frac{7}{8}$, and 1 inch rolls; the intermediate frame the same, and the roving frame $\frac{7}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ inch. The spinning-frame rolls are usually $\frac{7}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ inch, or $\frac{13}{16}$, $\frac{3}{4}$, and $\frac{13}{16}$ inch.

ENGLISH SYSTEM ON SPINNING FRAMES.

On the spinning frame, instead of the usual American system of three leather-covered top rolls weighted from saddles, stirrup, and lever, the regular English system is universal, of having one weighted front roll leather covered, while the other two rolls are bare iron rolls and self-weighted only, the middle one being thirteen-sixteenths inch diameter and the back one 2-inch diameter. A round-top clearer is used in front and an under clearer, but no top clearer boards, the rolls being uncovered. Single roving is universal. There are only 6 deliveries between stands instead of 8, so the spindles to a frame are usually in multiples of 6 instead of 8, 252 and 300 spindles being common lengths, though some are much longer. The double cylinder is ordinarily used. On account of the staple the traverse is an inch shorter and the rings an eighth of an inch smaller diameter than would be used for American cotton on the same numbers. Running 20s warp in America, the ordinary frame would be 208 spindles, $1\frac{3}{4}$-inch rings, $2\frac{3}{4}$-inch gauge, and 6-inch traverse. In India for similar yarn the frames are ordered 300 spindles, $1\frac{5}{8}$-inch rings, $2\frac{5}{8}$-inch gauge, and 5-inch traverse.

Self-balanced metallic thread boards are not used. The separators are usually narrow and in many instances are simply horizontal strips of metal with semicircular spaces stamped out. They appear much inferior to many American makes.

MULES AND REELS.

The mules have the same size rolls as the ring spinning. The ring frames are superseding the mule frame on most numbers. The mules, however, are preferred on Indian cotton for numbers above about 26s, and are essential when spinning low-grade Indian waste yarns such as 3s and 6s.

The reels are all fitted with measuring attachments for knocking off at 120 yards, and are all 40-spindle. The bobbins or cops are placed in front, and for cops usually live horizontal spindles are used. The swift is the regular 54-inch reel. A great many hand-driven reels are used in the cotton mills of Bombay. These have a small pulley on the swift shaft driven by a short belt from a large handwheel, with handle fastened to one of the spokes. The yarn is sometimes put up in the 10-pound bundles by hand, but usually belt-driven yarn-bundling presses are used. The cost of these presses is high, being £23 ($111.93) each.

The loom preferred is the overpick. Very few underpick looms are to be seen. Warp stop motion is not suited to the Indian yarn, but a loom with a battery attachment would sell well on this market and be especially suitable on account of the short quills. It would not be so suitable, however, to mills making dhooties, where variegated headings have to be inserted by hand. Raw-stock dyeing machines would find no sale, for the reason that Indian mills use small quantities of any one color, and so prefer chain dyeing. More mills are trying to get on to finer goods and are installing finishing processes; and an American agent recently on this line found the prospect very encouraging, since American were in many instances so much more efficient than the English machines. The English machines are using the same patterns they used twenty years ago. He proved to the mill owners that it was economy to buy the American machine, and he also could give much quicker delivery than any English firm will promise at this time. On account of the class of work, the kind of help employed, and, to a certain extent, the climate, textile machinery in India depreciates much more rapidly than similar machinery in England or America.

MILL MACHINERY PRICES.

Prices of cotton-mill machinery vary at different times and to different mills. The following prices were taken from the machinery invoices of a Bombay mill that has installed a good deal of machinery within the last year and a half. This mill is so situated in regard to the machinery people that it probably gets the very lowest prices. The prices are those of 1906 (£1=$4.8665).

PRICES OF MILL MACHINERY IN INDIA.

Machine.	English currency.	United States equivalent.
	£ s.	
Crichton double beater opener	263 0	$1,280
Hopper feed	112 0	545
Finisher scutcher	107 0	521
Revolving top flat card	85 0	414
Double roller flat grinding machine	80 0	389
Traverse emery-wheel grinder	10 0	49
Draw frames, per delivery	8 0	39
80-spindle slubber	130 15	636
122-spindle intermediate	153 6	746
154-spindle fine frame	122 0	594
360-spindle spinning frame	148 0	720
40-spindle reel	10 0	49
Yarn-bundling press	23 0	112

These prices were c. i. f. Bombay and with 10 per cent off for cash.

The cost per spindle of an Indian mill varies greatly at different places, but the following are the figures given for a new 42,000-spindle Bombay mill just after starting operation (1 rupee=32.4 cents):

COST OF AN INDIAN MILL.

Item of cost.	Indian currency.	United States equivalent.
	Rupees.	
Building	292,000	$94,608.00
Sprinklers	33,340	10,802.00
Machinery and accessories	1,236,800	400,723.00
Electric lights	34,500	11,178.00
Stock and stock in process	397,300	128,725.00
Total	1,993,940	646,036.00
Cost per spindle		15.38

HAND LOOMS.

INDIA NOTABLE FOR THEIR EXTENSIVE USE.

In the United States a hand loom is a curiosity and is rarely seen outside of museums. In Great Britain there are a few hand looms, but their clack can not be distinguished amid the roar of the power looms. On the continent of Europe there are a great many, but their total production is very small indeed as compared with that of the power looms. In the East, however, the hand loom still flourishes, and the extent of this industry is not generally realized. The hand loom in the twentieth century is an anachronism, but it is probably not incorrect to say that of the portion of the world's inhabitants that wear clothes at least one-fourth are clothed in the product of the hand loom.

COMPARISONS WITH JAPAN AND CHINA.

In Japan there are some 85 mills, with 1,450,949 spindles and 9,136 looms, which produced in fiscal year 1906 375,000,000 pounds of yarn

and over 120,000,000 yards of cloth. The domestic demand for yarn was 276,871,000 pounds, leaving out any hand-spun yarn from Japanese cotton, which need not be considered, as most of the small amount of cotton raised in Japan is not spun, but used for batting, for padding winter clothes, etc. The regular cotton mills therefore supply but a very small proportion of the clothing requirements of the people of Japan, which is supplied by foreign nations, by the small native establishments run by water, oil, or electricity, and by hand looms. The hand looms are decreasing and the small power establishments increasing, but there are still over half a million hand looms in operation in Japan, and they probably produce at least one-third of the cloth used.

In China there are some 18 cotton mills, with 619,648 spindles and 2,250 looms, producing 100,000,000 pounds of yarn and a small quantity of cloth. This is only a trifle as compared with the imports of yarn and cloth; but while the native of China is adopting the foreign yarn where available, there are many stretches of China where it is not used and where the native sticks to his hand loom. While anything on this subject is more or less guesswork, it is probable that 60 per cent of the inhabitants of China are clothed in the product of the hand loom. There are a few other cotton mills in the East—for instance, one with 10,000 spindles and 300 looms in Manila and four or five yarn mills in Tongking, but their total production is small.

PRODUCTION OF INDIA HAND LOOMS.

In India the last census showed 2,700,000 hand-loom weavers, whereas the power looms only number 52,668. Adding together the yarn imported and the yarn produced by Indian cotton mills, and subtracting the exports of yarn and the pounds of cloth produced by Indian mills, the figures for 1906 show 264,292,492 pounds of mill yarn purchased by the hand-loom weavers. To this must be added the hand-spun yarn. It is estimated that there are 400,000 bales of cotton in India annually that do not find their way into the hands of the mills nor of the exporters, and that of this amount at least 325,000 bales, or, say, 130,000,000 pounds, are used to make hand-spun yarn. This, added to the foregoing figures, gives nearly 400,000,000 pounds of yarn used by Indian hand-loom weavers, and corresponds fairly well with the estimates made by a leading Indian authority, and generally regarded as correct, that the production of native hand looms is about 1,650,000,000 yards. In 1906 there were imported 2,463,252,479 yards. The Indian cotton mills produced in the same time a total of 163,878,264 pounds of goods, of which 971,590 pounds were put down as miscellaneous goods, 758,751 pounds as hosiery, 28,497,306 pounds as colored goods, and 133,650,617 pounds, or 562,856,174 yards, as gray goods. The cotton mill returns give only

the gray goods in yards, but after subtracting a total export of 91,974,962 yards the Indian mill cloth used in India falls under 600,000,000 yards. Of the total of about 4,750,000,000 yards of cloth used in India in 1906, therefore, the hand looms produced 34 per cent, and in years when the foreign import is not so large the hand looms produce 40 per cent or more of the total. These facts and figures give an idea of the importance of the hand loom in the East.

EXCESS OVER POWER LOOMS.

It will be noted that the hand loom in India produces between two and three times as much as the power loom. While gradually decreasing before the onward march of machinery, the hand-loom industry is still very large, and it will be many years before it takes second place, and many more before it becomes extinct. The position of the Indian hand-loom weavers in most cases is very bad, and the majority never have enough to eat from the day of their birth to the day of their death. In former times, especially the golden days of the great Mogul emperors, the emperor and the princes had weavers attached to their households and encouraged the work, so that very fine cloths were produced. Sure of a support from their masters, these weavers took no account of time and executed very elaborate patterns, but the increasing competition of the present has changed all that, and every year a few thousand more hand-loom weavers are forced out into other occupations. A great many weavers follow the trade as their hereditary occupation, and when it began to feel modern competition and the demand was not sufficient to keep the looms going, they simply sat down and starved rather than to seek a new calling.

SOURCES OF CLOTH SUPPLIES.

It is interesting to study the field of the hand loom and of the power loom in India and to see what cloths are made by each. The director of agriculture and industries of Baroda State in a recent paper estimated the cloth consumed in India and the sources of production as follows:

COMPARISON OF HAND AND POWER LOOMS.

Cloth.	Warp counts.	Filling counts.	Indian hand-loom supply.	Indian mill supply.	Imports.	Total consumption.	Percentage.
			Yards.	*Yards.*	*Yards.*	*Yards.*	
Coarse	6s to 16s	6s to 20s	900,000,000	60,000,000	300,000,000	1,260,000,000	26
Coarse medium	20s to 26s	20s to 40s	150,000,000	500,000,000	1,100,000,000	1,750,000,000	37
Medium	26s to 40s	30s to 50s	450,000,000	40,000,000	750,000,000	1,240,000,000	26
Fine	Over 40s	Over 40s	150,000,000	.....	350,000,000	500,000,000	11
Total	.....	.....	1,650,000,000	600,000,000	2,500,000,000	4,750,000,000	100

This gives a total consumption for India of 4,750,000,000 yards of cloth, of which England supplied 53 per cent, Indian power looms 13 per cent, and Indian hand-loom weavers 34 per cent. Figures in regard to hand-loom production are necessarily approximations, but estimates by various authorities range between two and three times the mill production. According to the foregoing table, which is believed to be approximately correct, the bulk of the coarse goods up to 16s warp and 20s filling are produced on Indian hand looms. Part of the yarn is brought from the mills, but in the country districts and off the railroad line it is still largely hand spun. The coarse cloths in this class, like the coarse "nankeen" made by the Chinese, are required to be strong and yet soft, and the Indian mills can not produce this class of goods without sizing heavily, which would make the cloth too harsh, so the hand-loom weaver with his cheaper labor still controls the trade in coarse cloths.

CLASSES OF GOODS.

The goods classed as coarse medium form over one-third of the cloth consumption of India and are mostly made in England. This class comprises chadars, T-cloths, shirtings, etc. The goods classed as medium are mainly the typical Indian cloths, dhooties and saris, the former being used by men and the latter by women as their main garment. Only American cotton is suitable for producing the quality desired in these garments and only in the cheaper grades do the Indian mills compete. A large quantity of these are produced on Indian hand looms using English yarn made of American cotton.

On fine and fancy goods Indian mills restricted to Indian cotton do not compete, and England supplies the bulk of the demand. About one-fourth of the fine goods are produced by Indian hand-loom weavers with imported yarn. The bulk of the imported fine goods are white mulls and nainsooks. On such goods the cost of labor is a larger factor than the cost of material, and if the native weavers were able to bleach and finish as well as the English the hand looms could compete, but as it is their methods are too slow and costly.

Cloth made by the cheap labor on the hand loom is more expensive per yard than cloth made by higher priced labor on the power loom, and if it was not for the power loom there would be in India many thousand more people wearing rags who are now enabled to appear respectable. The laboring class purchase mill-made dhooties made from of 30s to 40s yarn, 44 inches by 5 yards, at about 1 rupee 5 annas (say 42 cents) per pair. Hand-woven dhooties of similar counts and size would cost at least 1 rupee 9 annas (say 50 cents) a pair. A pair here refers to the two $2\frac{1}{2}$-yard dhooties that usually come in a 5-yard

length with a colored cut mark woven between them. The ordinary dhooty is worn day and night and lasts on an average three to four months.

METHOD OF BLEACHING.

The method used in India for bleaching fine cloths, such as Dacca muslins, takes about two weeks. The cloths are first washed, then steeped for some hours in a mixture of soap and fuller's earth. They are then half dried and steamed. For the latter process the cloths are twisted into loose bundles and arranged in circular layers around a bamboo tube connected with a boiler. The steam is then diffused through the cloths for a night. They are then again steeped in the mixture of soap and fuller's earth and again steamed. This process, which is the same as the English bucking and crofting, is continued for ten or twelve days. Finally the cloths are steeped in clean water mixed with lime juice. Bright sunshine is a great help. The advantage of this method is that no acids or corrosive chemicals are used, but the resultant bleach can hardly be as even as when obtained by more modern methods.

PRIMITIVE WAYS EMPLOYED IN PREPARING COTTON.

The primitive method used in India to make cloth from cotton, the method that was used centuries ago and that is in daily use by thousands all over India to-day, is as follows:

The cotton is picked by women, the pods exposed to the sun and the husks removed. The women remove all the immature and rotten cotton and then pick out all the free lint possible by hand. The majority of the lint is freed from the seed by a primitive ginning arrangement, consisting simply of two 1-inch wood rollers revolving together and turned by a small crank on the end of the lower roller. The crank is turned with one hand and the cotton fed between the rolls with the other. The rollers, which run tightly together, catch the lint and draw it through while the seed, being too large and hard to pass through, falls to the ground. This primitive gin is known in the vernacular as the "churka," and produces 6 to 8 pounds of cleaned cotton a day. Ten seers (20 pounds) of cotton in the seed is figured on to give 3 seers (6 pounds) of lint cotton and is an ordinary day's work for one man. The cleaned cotton is then put out in the sun to dry, after which it is "carded" by a simple contrivance known as a "dhunetta" or "dhania."

This operation is performed by means of a bow. The contrivance consists essentially of a bow of hard wood, to one end of which is attached a board of a quadrant shape. A bowstring passes over a bridge of wood attached to the other end of the bow and is tied to

the end of the board. A loop of string, under which the left hand is passed to hold the instrument steady, and a wooden mallet complete the contrivance. The bow is held with the left hand under the loop so that the string just touches the cotton, and the carder with his mallet twangs the string so that it vibrates and strikes the cotton at each twang. The fiber is thus separated, and its texture being loosened it flies off in a fluffy condition and the dirt and dust, which forms about one-twentieth of the weight, is knocked out.

ROUGH SPINNING WHEEL.

The next process is spinning. The machine is called a "charka," and is similar to the old spinning wheel used in America in former times, but more roughly made. It consists essentially of a horizontal spindle driven by a band from a hand wheel made with a hub from which project spokes. Every alternate spoke is on the right or the left side, and across the ends of these is stretched a cord that makes a circumferential track some 2 inches wide for the driving band to pass over. Cotton in the form of a wick or spool is presented to the point of the spindle and then spun into thread which is allowed to roll around the spindle. When the projecting point of the spindle is full the spun thread is removed and rolled around another machine commonly known as the "latai," which is nothing but a small conical-shaped frame of bamboo. When this pyramidal reel is full the thread is taken off and wound together in skeins and is ready for the weaver. From this point on the process is the same, whether the yarn is hand spun or purchased in hanks from the factory.

YARN STEEPING AND SIZING.

The yarn is usually steeped in fresh water for a day or so and then dried. This is done to strengthen it. The yarn is then sized, by being taken hank by hank and squeezed in a fluid until the threads are thoroughly permeated with it. In Bengal the fluid is usually made of roasted paddy (khoi) and tamarind, and in Madras of rice flour and gingelly boiled in water. The wet hank is then taken and placed around a "swift," and after this is rolled upon another framework called the "natai," and in going from one to the other is passed through the fingers of the left hand and cleaned of the superfluous size and water. This simple method of sizing enables the size to penetrate the yarn thoroughly and gives good results. As a rule there are no germicides or antiseptics used, since the climate, except in the monsoon season, is dry and the cloth reaches the consumer quickly after weaving. A good Indian size is made of 16 pounds rice flour, 4 pounds sago, 4 pounds gingelly oil, and 16 gallons water, boiled together until of the right consistency. It will be noticed that

rice flour or starch takes the place of the corn or potato starch used in the United States. Tallow, which is a common ingredient in such preparations in America, can not be used here on account of the religious prejudices of the people. The Hindoo religion touches every detail of their existence, and all ingredients are carefully examined to see if sanctioned by the laws of caste. In most sections of the country the higher castes of weavers can not use the starch of boiled rice without forfeiting their caste, and whatever starch they use must be of fried or parched rice, called "khoi" or "chira." On the other hand, the low-caste weavers would lose caste if they used either khoi or chira, and must use only the starch from boiled rice.

ADJUSTMENT OF THE WARP.

The warp is laid out by placing 10 stakes in a line, the two end ones being larger than the others and all about three feet high. The warper then holds the "natai" swift in one hand and with the other takes the thread from stake to stake, passing it inside one stake and outside the other and reversing this on the return trip. This is done until the total number of threads required for the warp is thus laid out, when they are left to dry and stretch. A wide comb, similar to an ordinary slasher comb, is then inserted into the warp at one end, the threads laid in two to a dent, and the comb moved along the threads to straighten and adjust them. As this comb is moved along the stakes are pulled up and the threads wound upon the end stake. Three of the intervening stakes are kept and wound around the central stake with the thread to act as lease rods in keeping the warp in order. The wound-up warp is then placed on the loom, the ends drawn in through the heddles and reed and the weaving started. The filling in the meantime has been wound on small quills by means of the spinning wheel and is placed in the shuttles. The shuttles used vary according to the section and the individual taste of the weaver, and are usually made of hard tamarind wood. In some places using the old throw-shuttle loom there is neither shuttle nor quill employed, but the yarn is wound from end to end of a short, oblong, wooden piece which has a short iron spike in each end. This is thrown through the shed from hand to hand and an amount equal to the length of pick is unwound each time before throwing. This is more used for weaving carpets, however, than for weaving ordinary cloth, though sometimes so used for the latter.

HOUSEHOLD MANUFACTURE FOR FAMILY WEAR.

A large amount of the hand-woven cloth is of household manufacture simply for the use of the weaver and his family. There is very little shipment of merchandise from hand looms between different sections, not anything resembling the great trade between Shanghai

and Manchuria in the Chinese "nankeen." Most of the cloth that is transferred from one section to another in India is either fine muslin or "bulbuls," or cloth that is only partially loom woven—that is, cloth decorated on the loom by needle. Usually only enough yarn is spun in a locality to meet the needs of that section, and it is the same with the ordinary cloth made.

The great part of the cloth woven by the professional weavers is sold in their own or the neighboring village. "Dalals" or brokers are the medium for effecting sales between the weavers and the shopkeepers in many localities, and for this service they usually charge 1 pice for every rupee of cloth sold, which is one forty-eighth, or say 2 per cent commission. Sometimes a weaver who is a little better off than his fellows buys up the surplus production of the village and retails it at the nearest hamlets or hawks it through the streets of a large near-by town, going from house to house and from store to store. Fine cloths are sold through dealers, and in the majority of cases are contracted for beforehand, the dealer supplying the cash in advance for buying the yarn and for wages and the weaver agreeing to make a certain number of yards at a definite rate per day.

VARIETY IN HAND LOOMS.

A great variety of Indian-made hand looms, some with very peculiar and crude ideas, is now being exploited on the Indian market. The best are modifications of the Japanese hand looms or of power looms, and are more or less automatic in action. At the annual Indian Agricultural and Industrial Exhibition that was held at Calcutta, one of the most prominent sections was devoted to the exhibit and advertisement of various hand looms. As a result of this many hand looms were purchased by visitors and shipped home to various parts of India. While all this seems very antiquated, yet this exhibition undoubtedly did good, for any kind of loom that tends to supplant the exceedingly primitive throw-shuttle loom will be an advantage to the masses of India.

The loom exhibited that would seem best adapted to the Indian native, who always prefers to sit or rather squat down to his work, was one in which all the motions of weaving were performed automatically by means of a handwheel at the end of the loom. The cost, however, was too high—being 150 rupees or about $50. There were several English hand looms, one being made of light iron, but here also the cost was prohibitive to the native.

IMPROVEMENTS PROPOSED.

This subject of improving the hand loom of India, on which over 6,000,000 people depend for their living, and which clothes over

100,000,000 inhabitants, or one-third of the total population, is attracting much attention from native editors and inventors, and also from Englishmen desirous of improving the condition of the masses. The native weaver, however, is in abject poverty and can not pay for an improved loom, and if he did, and made two days' wages in one, he would loaf every other day, so there is not much hope of improving his condition until the habits of the people have changed. Bad as are the conditions of operatives around Indian cotton mills they are better off than in their home village plowing or running the slow hand loom, and since it has been proved that the quick continuous action of machinery tends to make the machine tenders quicker in thought and action than the slower actions of farming and herding, there is no doubt but that cotton mills and similar establishments will do more to awaken and elevate the mass of the people than all the efforts, philanthropic or mercenary, in the direction of improving a decadent industry.

If the India power looms were worked to the efficiency of Western power looms the hand looms of that country would decrease much more rapidly than at present, but in both mill and cottage one weaver runs one loom and is equally absent-minded at his work. The average effective speed of Bombay power looms is stated to be not much over 100 picks a minute.

THROW AND FLY SHUTTLE WEAVING.

The hand looms used in India may be considered as of two kinds, the old Indian throw-shuttle loom and the newer fly-shuttle loom. The former is the simplest form of loom known, and as used in India to-day is exactly the same as it was centuries ago. It is weaving reduced to its essentials. It consists of a rough framework with an inverted lay swung from the top beam. The shed is formed by the feet working two treadles which, being attached to the heddles by cords passing over a beam, raise and depress them alternately. The shuttle is thrown through the shed with one hand and caught with the other, and the disengaged hand pulls the reed sley forward, beating up the filling. This is an extremely tedious form of weaving, and only some 20 to 30 picks can be inserted per minute. If the cloth being woven is wider than the stretch of the weaver's arms he has to employ another man at one side of the loom, and they throw the shuttle back and forth between them. When about six inches has been woven the operator has to stop and wind up the cloth.

The fly-shuttle loom requires less labor and puts in some 60 picks a minute, or double that of the older loom. This loom differs from the other in that it has a picking arrangement. There is a wooden shuttle box at each end of the lay containing an iron rod on which slides

a shuttle driver or "picker." The two pickers are attached to each other by a string slung over the lay, and in the center of the string is a handle by which the shuttle is jerked from one box to the other across the lay. In this loom the heddles are worked with the feet as before, but one hand works the lay while the other, by pulling the handle attached to the strings, causes the shuttle to be thrown first from one and then from the other side. In this loom also the weaver has to stop every little while to wind up his cloth, as the simplest form of automatic take-up motion is a novelty to the Hindoo. There are also no temples to keep the cloth to width as used on power looms, but their place is taken by two sticks, measuring slightly longer than the width of the cloth that are joined together and fixed in it. These sticks assume the form of a bow and are called the "mothee." They keep the cloth out to the full width of the warp in reed, and also keep in the selvage ends.

JAPAN AS A TEACHER.

The Swadeshi leaders and the Indian people in general seem to be looking to Japan as the country from which they can learn most in the use and adaptation of small industries to their needs. Japan and India are brought in touch with each other by the large business that is carried on in shipping Indian cotton to Japan for use in Japanese mills and by the large number of Japanese curiosity and hand-ware dealers that settle in all parts of India. Japan is the country whose wages and methods of hand manufacture most nearly approach those of India, but the Japanese artisan uses his brain much more than the Indian artisan and his work in many lines is more skillful and in all less laborious. The Indian is therefore copying Japanese machines and methods of work, and young Indians have been sent to Japan to learn matchmaking, glass work, soap making, etc. Among other things the Indian is now copying the Japanese hand loom and modifying it to his use, even though it is rapidly going out of use in Japan itself. It may be mentioned in passing that the Japanese wooden hand loom is also largely copied in China and many are shipped from Japan to China complete with heddles and shuttles. All looms that I saw at work in Peking were of Japanese make.

SUPERIORITY OF JAPANESE LOOM.

The old Indian loom can not be run over some 30 picks a minute; the Indian fly-shuttle loom only runs some 60 picks a minute, whereas the Japanese hand loom will run up to 120 picks and turn out evener cloth. The shedding, picking, and beating-up on the Indian loom are performed by the feet, right and left hand, calling for three mechanical motions of the body, and necessarily limiting the speed.

The Japanese looms only require two, and some of them only one motion. In their best loom the feet work all the motions combined, and in others the feet work the heddles and the hands the lay, the loom picking automatically. The Japanese hand looms have the lay supported on swords from the sword-rock shaft, the same as with the power loom, instead of the inverted lay swung free from above, as in the Indian type. The Japanese loom is therefore superior to the Indian loom and can be run from two to four times as fast as the looms ordinarily used in India. It is being introduced to a certain extent, but the cost is prohibitive to most Indian weavers, who live only from hand to mouth. The Indian throw-shuttle loom costs anywhere from 5 rupees ($1.62) up, and the weavers very often make their own looms at practically no cost. Certain classes of weavers who wander from place to place usually save the reed and the shuttle, can settle down at any point, and in half a day's time make as good a loom as they had before. A good Indian fly-shuttle loom costs about 50 rupees ($16.20), while a good Japanese loom, in India, will cost about 125 rupees ($40.50), and the more improved ones will run up to 175 rupees or over. This puts the Japanese loom entirely out of reach of the ordinary weaver. To a good many of them, accustomed to the simplest mechanical appliances only, the plain Japanese loom seems too complicated, and the mass of the weavers prefer their old familiar style of weaving, regardless of any inducements as to higher production and enhanced profit. On many of the fabrics now run on the Indian hand loom, too, the quality of the yarn is such, on account of its soft twist and irregular size, that a speed of 60 picks per minute is all it can stand.

SMALL OUTTURN OF THE INDIA LOOM.

It has been figured out that the average hand loom in India produces only about two yards a day, which is certainly not sufficient to maintain a weaver in luxury. Working on ordinary coarse cloth, the outturn per loom varies from 5 to 10 yards, very rarely exceeding the latter. A few make as high as 15 yards a day, and there are looms on the market advertised to run 20 yards a day, but such production can not be obtained under ordinary circumstances. The cottage weaver sometimes has to pay considerably above the market price for his yarn, owing to the several intermediates through which it passes between Bombay and his native village, but in the larger towns the agents claim to buy and retail on a 2-per cent commission.

India is not a favorable country for weaving either with power or hand looms. The hygrometric conditions in most places are very bad; in some parts of the year a dry heat of terrific intensity, and in

others a very wet monsoon season, interfering with all work. Such a variable condition is worse on the hand-loom weaver, as he has no 120-pound pressure humidifiers, such as are possessed by most mills, with which to correct the humidity. As a rule, the cotton fiber, to withstand the strain of manufacture, should contain at least 8 per cent of its weight of moisture. The Indian hand-loom weaver in many places—they say this was also true of the old Dacca muslin weavers—places his loom in a pit in the ground and keeps the dirt floor moist, but this is only a makeshift, and no fixed humidity is attainable. This fact hampers production considerably.

METHODS OF DYEING.

CHARACTERISTICS IN COLORS AND PECULIARITIES IN CUSTOMS.

The average native of India is very poor and can afford but a garment or two, and a piece of cloth once bought is worn for months. The natural desire for some variety, which desire is especially strong with the women, is satisfied by dyeing the same garments over and over, using a different color each time. One of the most characteristic features of an Indian village is the lines of cloth spreading from one end of the village to the other, some being garments bleaching in the sun preparatory to dyeing and the others the many-hued new-dyed garments hung out to dry. Certain sections favor certain colors; some colors are peculiar to certain castes. For instance, Buddhists priests wear a peculiar shade of yellow that it is sacrilege for any other to wear, and distinctive colors are used at certain festivals and ceremonies. Thus, at one of the most noted festivals it is the custom for the orthodox to wear green. Green is not an ordinary shade in India, and the devotee probably can not afford a new garment, so he has his old one bleached and redyed a solid green—probably does it himself—and when the festival is over it is again bleached and dyed some ordinary color.

ANILINES AND ALIZARINES.

For such frequent dyeings as this it is necessary that a cheap dye be used and one that is not too fast. This condition is exactly fulfilled by aniline dyes, which are imported at low cost, are easy of application, fade readily, and can be used over and over on the same cloth without affecting the fiber. This has made imported dyes very popular with the masses and they are sold in large quantities. The figures for 1906 show the following mineral dyes imported:

DYESTUFFS IMPORTED INTO INDIA IN 1906.

Whence imported.	Alizarine.		Aniline.	
	Pounds.	Value.	Pounds.	Value.
Belgium	4,132,318	$714,178	3,197,978	$845,746
Netherlands	1,122,823	160,817	77,770	19,836
United Kingdom	1,019,903	157,806	219,036	67,457
Germany	22,381	4,031	558,838	128,560
Italy			687,145	180,095
Others	152	26	567,440	174,554
Total	6,297,577	1,036,858	5,308,207	1,416,248

This gives a total of 11,605,784 pounds of mineral dyes, amounting to a value of $2,453,106 imported in one year. Cochineal, saffron, indigo, and other dyes are imported in smaller quantities. The amount of indigo imported of course is small, as India is the largest producer of it, but indigo raising in India is a declining industry, as mineral dyes are not only superseding indigo in foreign markets but competing with it in its own home field. According to the import figures Belgium supplies over 60 per cent of the mineral dyes used in India, but it is probable that in this as in other cases the goods simply pass through Belgium and by rights should be credited to Germany.

As the figures given for the figured and colored goods produced in Indian cotton mills for the same year showed only 28,497,306 pounds of cloth under this heading, it is clear that the regular cotton mills use but a small proportion of the total dyes imported, and that the bulk of them are used by native dyers. Up to 1885 the cotton mills made only gray goods, and where colored borders were needed the dyed yarn was obtained from England. They then began to make stripes and checks, and this departure was later aided by the German dyes that began to come in in large quantities in the nineties. The mills find that they can not size the colored goods as high as they can the gray, and so do not prefer them unless the price is extra good, and over 80 per cent of goods made by Indian mills are gray goods only. Practically all dyeing is done in the yarn, and the mills do not use raw-stock dyeing. This is due to the fact that comparatively small quantities of any one color are used.

INCREASE OF IMPORTATIONS OF DYES.

The amount of dyes imported and used by the native dyers is yearly increasing and the old native dyes are becoming a thing of the past. Before the aniline dyes came into use Indian vegetable dyes were used, but were more costly and troublesome. Some of these gave rich, subdued colors of exceeding fastness and made Indian dyeing famous all over the world. There are those who think all the new dyes are cheap and glaring and say that the introduction of

the cheap, bright, foreign colors has vitiated the natural taste of the Indian, who formerly preferred paler and more delicate tints. They consider the decrease of the old methods of dyeing as an artistic loss, but as a matter of fact it seems that the majority of the old dyes were very crudely made and were no faster than the modern substitute. It was only in certain centers of limited extent that the genuine fast Indian dyes were produced. High-class aniline colors are more beautiful even in shade, and also more permanent, than the best of the Indian vegetable dyes. However, the dyes that are not so fast are in more general use by the common people.

PREFERENCE IN COLORS.

The colors preferred in India vary with each section, and, allowing for individual taste, there are certain colors and shades that are typical of each division of the country. This "local color," as it were, probably owes its origin to the fact of a certain vegetable color being produced in a particular section in large quantities, and then, when the multitude of foreign colors was introduced, the natives selected as the predominant note the shade to which they were accustomed. In Bengal there is less contrast of colors than in most other parts of India, and white with a narrow black or narrow red colored border is the usual costume of the people. In going from Calcutta up country the change in the amount and variety of colors worn is very striking. More shades and louder and more violent contrasts of colors are seen until, at Jeypur, colors run riot. At this place not only are the clothes of every color of the rainbow, and the houses of a crushed strawberry tint, but paint and dye is used wherever possible; the oxens' horns are painted, the elephants' heads are decorated with the brush, the carts are striped various hues, and a good many men dye their beards red.

KALEIDOSCOPIC EFFECTS.

The finest dyeing in India is said to obtain at Alwar, in Rajputana, where a method of double dyeing is practiced, so that a piece of muslin may be green on one side and some other color, say red, on the other. Not only does a scarf so dyed show a different effect where a fold is turned over, but one dye may be seen through the other, giving a kaleidoscopic appearance. Another very fine effect is produced by using warp and filling of different colors, say a purple warp and pale green filling, so that the cloth shows the one or the other color, according to the angle from which seen.

In Assam and the border countries nearly every tribe has one or two colors, the method of extraction and use of which is peculiar to the tribe. Thus, the Nagas possess a peculiarly brilliant red that they use mainly to dye the human hair that floats in tufts from their

spears. The tribes nearest the Chinese border are partial to the blue, which is the distinctive color used throughout China. The Punjab, Amritsar, and Kashmir residents are famous for the brilliancy of the yellow, magenta, and purple colors which they use in silk and wool dyeing, especially those used for women's skirts and shawls. In the central provinces the people prefer a rich dark-red, and in Madras Presidency a full deep-red is the favorite.

PECULIARITIES CATERED TO BY IMPORTERS.

Peculiarities such as these are well known to the importer of dyestuffs, and are catered to accordingly. In importing colored goods the same regard has to be paid to the colors preferred by the various sections. It may be noted also that while the native dyers are partial to foreign dyes that are not too fast for the reasons heretofore given, yet all foreign dyed or printed goods must be fast to obtain a permanent market. This is for the reason that prints and fancy borders, etc., if they fade, can not be renewed as in the case of the native solid dyed fabrics, and since the natives wash their garments nearly every day, because of possessing so few, it is necessary for the colors to be fast enough to stand their rough methods of washing without fading or running.

It is of interest to note that only recently the collector of customs at Calcutta proposed to make stringent regulations against goods that came in marked " fast colors," if it was proved that such colors were not fast. It was proposed to make this departure June 1, 1907, but so many interests protested that it has been deferred until it can be considered by the various interested bodies in India and England, and some decision arrived at as to what shall constitute " fast " color. Some dyes are fast to washing, but not to light, and dyes can be tested for " fastness " in a dozen different ways, so the question is a wide one.

Not only do the colors tend to localize, but the different sects prefer different colors and variations. As a general rule, it may be said that the Mohammedan prefers white or stripes, while the Hindoo prefers vivid contrasts. In the saris the Mohammedan woman prefers white, with a narrow fancy border, while the Hindoo woman selects saris dyed or printed all over, usually contrasts of red, yellow, and purple, with a deep contrasting border.

HOW PATTERNS ARE PRODUCED.

Both the dyer and the calico printer are numerous in India, and they use many and various methods, most of which are very primitive, nearly all very laborious, and a few exceedingly ingenious. In some cases very elaborate patterns, as clear-cut as printed patterns, are produced by piece dyeing with the use of various " resists," which seem

to have been known in India for a long time. Among the common resists are castor oil, beeswax and khakhan oil, lime and gum, and fuller's earth and gum. To produce a white pattern on a colored ground the desired pattern is stamped on the cloth with a resist paste and the cloth dyed. The resist paste being removed shows the white pattern on the dark background. By dyeing once, printing on this a second resist pattern, and dyeing again there can be made patterns with red and white on a black background, and so on.

Dyeing with various resists is known to skilled dyers in all lands, but India practices one form of elaborating patterns by means of piece dyeing without using any resists. That is typical of India alone. This is the method of tie dyeing, sometimes described in connection with the bandana handkerchiefs. In fact, it is frequently referred to as bandana work, but cloth so dyed is known in the vernacular as "chunri."

DESCRIPTION OF BANDANA WORK.

Suppose, for example, it is desired to produce a "chunri" with a black ground ornamented with small concentric circles showing white, yellow, and red. The cloth is folded and refolded until about a foot square and two or three folds thick. Only short lengths can be dyed by this method. The folded cloth is dampened and then pressed down on a design made by pins or small pointed nails stuck upright in a board or block. These leave small raised places in the cloth. The folded cloth is then handed to a girl known as the "bandhani," who does the tying up, and for this purpose allows the nails of her thumb and forefinger to grow long, so as to act as a pair of pincers. With these she deftly seizes the raised portions, grasping the several folds at the same time by means of her long nails, wraps a string around it, thus making a hitch knot, and carries the string on to the next raised place. After all these minute raised places have been tied in this way the dyer takes the cloth and immerses it in a bath of yellow. It is then returned to the bandhani, who makes a second series of tie-ups a little farther down the portions raised up by the first tying. The cloth is then dyed red, a third series of tie-ups made by the bandhani, and the cloth then dyed black. The strings are tied tightly, so the dye does not penetrate beneath them, and each tie-up preserves at that point the ground color at the time of its tying. When the strings are untied and the cloth opened out, there are shown small concentric white, yellow, and red circles on a black ground.

SKILL IN PATTERNS.

By impressing the successive tie-ups on different blocks and by skillfully seizing the minute portions of cloth so that they crinkle in a certain way, very elaborate patterns are produced, which at a little

distance can scarcely be distinguished from embroidery. Squares, stars, flowers, and even animals and human figures are thus reproduced. Some of the bandhani, by continuous work on one pattern, get so skillful that they do the work instinctively and will make elaborate patterns without using blocks at all.

Stripes and zigzag lines are also made by folding the cloth lengthwise and tying patches at the required distances. Sometimes broad stripes are produced, and in other cases an almost invisible hair-line effect is secured. This art is practiced in Gujarat, in Bombay Presidency, and in central India and Rajputana, and also to a small extent in Madras Presidency. Yarn is also dyed in this tie-up fashion by tying bands around portions of a skein at intervals, then tying other bands and dyeing again, etc., after the manner practiced with the cloth as heretofore described. Sometimes the warp and filling are both so dyed by tying at irregular measured intervals bands of varying widths and dyeing various colors. This warp and yarn is woven into a cloth on the loom, or rather on a framework, so as to produce a definite pattern. Each particular point on the filling yarn has to meet a particular point on the warp for the colored pattern to show up correctly, and cloth so made exceeds embroidery in the labor involved, but a weaver duplicating one pattern only gets in time to be expert at it and produces it faster than would otherwise be deemed possible.

LIMITED CAPITAL AND SMALL ESTABLISHMENTS.

While some very fancy dyeing is carried on in India, the major part is simply solid-piece dyeing, and most of it is carried on by very small establishments. There is no such thing as privacy in the East, and it is a common sight to see the dyeing carried on in the little open shops, or even out on the sidewalk itself. After dyeing, a couple of boys will take hold of the ends of the long strips of cloth and fan them up and down until dry or else hang them along the eaves of the houses or along the wall. Most of the dyers are very poor, and some of them, like the weavers, are really employees of men a little better off than themselves, who give them so many pieces to dye, advance them the money beforehand so they can buy the dyes, and only allow them enough out of the work to live on. Like all other occupations in India, dyeing is hereditary with one class of men, and in many places the dyers never teach their daughters certain parts of their trade for fear they may marry husbands that it might not be desirable to take into the craft.

SYSTEM OF IMPOSTS.

COUNTERVAILING DUTIES TO OFFSET IMPORT TARIFF.

The import tariff of India is for revenue only and is usually 5 per cent. India is the market to which, however, England ships the largest proportion of her stupendous cloth production, and in order to interfere as little as possible with the steady flood of gold that is sent to England in return therefor cotton goods are given the lowest rate and only assessed at 3½ per cent. Manufactures of cotton form regularly over one-third of the total imports. In 1905–6 they were $137,524,900 out of a total of $339,933,500, or 40.5 per cent, so this is the lowest rate to which the tariff could be reduced without seriously interfering with a large source of revenue. If English mills had to pay 3½ per cent duty to get into India, this would give the native mills 3½ per cent advantage over them in selling margin. To place Manchester and Bombay on a level in this respect, therefore, a countervailing tax of 3½ per cent is levied on all goods made by Indian cotton mills, whether exported from the country or consumed locally.

Under the provisions of this act each mill has to make sworn returns of the cloth produced each month, and this has to be sent to the collector of customs within seven days after the month closes. As the value of such cloth produced varies at different places and at different times, a uniform value is placed on each kind of goods. This list is revised once a year and new values fixed for the ensuing year. As showing the classes of goods manufactured in India and the general prices, it may be of interest to study this list. The values given herewith were fixed by the governor-general in council in December, 1906, as the values at which goods produced by Indian cotton mills are to be rated for the purpose of levying this excise tax for the calendar year 1907.

The tariff values in annas and pies and the nearest equivalent in cent is given in the following table (12 pies=1 anna; 1 anna=1 rupee; 1 rupee=32 cents):

VALUES FIXED ON COTTON GOODS IN INDIA FOR EXCISE PURPOSES.

Kind of cloth.	Tariff value per pound.	
	Indian currency.	United States equivalent.
Gray goods, plain or bordered.[a]		
	Ann. Ps.	*Cents.*
1. Bed covers, bed sheets, and chadars, twilled, not having borders over ⅛ inch.	8 6	17.21
2. Chadars and bed sheets, plain or with borders not over ¼ inch	8 0	16.20
3. Dangari or Kadi cloth	7 0	14.175
4. Dhooties, cholas, dupattas, and lungis, plain or with borders not over ¼ inch.	9 3	18.23
5. Dhooties, cholas, dupattas, and lungis, plain or with borders over ¼ inch, but not over 1½ inches	9 6	18.235
6. Dhooties and patals with headings over 4 inches wide and colored borders	9 9	18.24
7. Domestics, T-cloths, shirtings, long-cloth sheetings not having borders over ¼ inch	8 6	16.21
8. Drills and jeans, plain	8 6	16.21
9. Fents	7 3	14.18
10. Printers	8 9	16.22
11. Printers (bhagavad)	8 3	16.205
12. Shirtings, twilled, unbleached	10 0	20.25
13. Shirtings, twilled, bleached	11 0	22.275
14. Tent, sail, commissiariat, and double-threaded cloth (dosuti)	8 0	16.20
15. Zanzibar cloth	8 6	16.21
Figured or colored goods.		
16. Bed covers, quilts, and tablecloths, with borders not over ⅛ inch	8 9	16.225
17. Bed covers, quilts, tablecloths, twilled sheets, and chadars, colored warp or weft	9 3	18.23
18. Bed covers, quilts, tablecloths, twilled sheets, and chadars, colored warp and weft	10 6	20.265
19. Ordinary susi check sheets, gray ground	10 6	20.265
20. Bed ticking, plain or drilled	9 0	18.225
21. Chadars, twilled, colored (shawl checks)	11 0	22.275
22. Chadars, not twilled, colored, calico wove, shawl pattern	10 3	20.26
23. Cholis and saris (colored)	12 0	24.30
24. Cotton tweed, commonly called hunting cloth, plain or striped, including leheria, Thana susi, Thana twill, and Thana check	10 0	20.25
25. Other cotton tweeds and English checks, trouserings and coatings	11 3	22.28
26. Drill and jeans, striped	9 0	18.225
27. Drills and jeans, checked	9 6	18.235
28. Drills and jeans, dyed	12 0	24.30
29. Tent cloth, blue and red	9 3	18.23
30. Tent cloth, khaki	10 3	20.26
31. Fents	8 6	16.21
32. Lungis, unbleached, colored, striped and borders	8 9	16.225
33. Lungis, colored	11 0	22.275
34. Napkins, unbleached	9 6	18.235
35. Napkins, bleached	10 6	20.265
36. Susi, ordinary, colored stripes, gray ground	9 6	18.235
37. Susi, ordinary, colored weft	10 0	20.25
38. Ordinary susi checks, gray ground	10 9	20.27
39. Ordinary susi checks, colored warp and weft	11 3	22.28
40. Fancy dobby pattern checks, colored warp and weft	11 3	22.28
41. Flannel pattern susi and dobby susi, gray weft	9 9	18.24
42. Flannel pattern susi and dobby susi, colored weft	10 6	20.265
43. English susi check, gray ground	11 0	22.275
44. Check gumchas and glass checks	11 6	22.285
45. Towels, Turkish, unbleached	10 6	20.265
46. Towels, Turkish, bleached	11 6	22.285
47. Towels, Turkish honeycomb, unbleached	9 0	18.225
48. Towels, Turkish honeycomb, bleached	10 0	20.25
49. Zephyr cloth	9 9	18.24
50. Zephyr, striped and checked	11 3	22.28

[a] For calendered gray goods 3 pies (½ cent) is added to these values.

Any of the goods specified in the foregoing lists, when woven with borders of silk, are assessed ad valorem.

The following table shows the revenue derived from this excise tax on Indian cotton mills for the years ended March 31, 1904 to 1906, and is of interest as showing the distribution of the mill cloth woven in India:

REVENUE FROM INDIAN COTTON MILLS, 1904–1906.

State or province.	1904.	1905.	1906.
Bombay	$571,807	$662,201	$738,209
Madras	20,201	21,183	35,946
Bengal	3,534	3,865	3,617
United Provinces	28,897	31,334	42,886
Panjab	358	845	1,667
Central Provinces	42,893	46,491	48,496
Berar	5,503	5,792	6,167
Native States of Indore, Mysore, Baroda, Nandgaon, and Bhavnagur	19,022	21,812	.....
Total gross tax	692,229	793,523	904,036
Total net tax	678,828	777,916	892,127

OBJECTIONS TO THE COUNTERVAILING EXCISE TAX.

The imposition of the countervailing tax on Indian cotton-mill cloth is very much opposed by the Indian mills. This is not only on the ground that it is a measure in favor of Lancashire over Bombay, but that the mills in the Native States that are not directly controlled by the Indian Government escape this tax. It may not be generally known, but it is a fact, that goods coming into India not only pay the regular import tariff duty to the Indian Government, but also have to pay another tariff duty upon entering a Native State that is not under the direct control of England. Cloth from these independent Native States not only pays no excise duty but enters British territory free of all taxation, while goods made in British-owned India have to pay a 3½ per cent excise duty and an additional duty on entering the Native States.

EXPORT TRADE.

CHIEF DEPENDENCE ON YARNS FOR CHINA.

In the fiscal year 1906 India exported cotton manufactures to the value of $46,738,620. In the fiscal year 1906 the United States exported cotton manufactures to the value of $52,944,000. India has 5,279,595 spindles and 52,668 looms, while the United States has 23,687,495 spindles and 559,781 looms. India exported more pounds of cotton in the manufactured form than did the United States, but that sent out from India was mainly yarn, while that from the United States was mainly cloth. Of the $46,738,620 of manufactures of cotton exported by India in the fiscal year 1906, $40,136,107 was

yarn, $6,045,426 was piece goods, and the remainder, $557,087, consisted of handkerchiefs, shawls, hosiery, canvas, and sewing thread.

The demand for both yarn and cloth in India is yearly increasing, and the import of foreign piece goods increases correspondingly. On the other hand, the export of Indian mills is increasing faster than their production. This is due to the fact that the bulk of the cloth used in India is light goods and made of yarns above 30s. Indian yarn, while not suitable for making fine shirtings, nainsooks, and jaconets, such as are woven of American cotton and shipped here by the English, is yet well suited for the coarser grades of the "nankeens" woven and worn by the Chinese. Some 40 per cent of the yarn produced by Indian mills is therefore regularly exported, and as the production has increased, this foreign export has more than increased in proportion. The great bulk of this goes to China.

COMPETITION FOR THE CHINESE MARKET.

At one time India supplied considerable yarn to Japan. Starting in 1875 the Japanese takings increased by 1889 to 62,220 bales, but since then it has gradually dwindled to nothing. On the other hand, with the increase of production in Japan, that country has made great efforts to capture the China market from India, and at the present time Japanese yarn, while commanding a higher price than the Indian, is proving a sharp competitor in Chinese markets. The market in China is an ever enlarging one, and Indian yarn, which in low counts is the cheapest in the world, is in great demand and is sold in increasing quantities every year. In 1905 the Indian yarn used in China amounted to 651,870 bales of 400 pounds each. There is a decline at present, but it is only temporary and caused by internal troubles in China. India is also yearly enlarging her yarn markets in other directions and cultivating such fields as the Philippines, Java, Siam, Persia, Aden, Egypt, Abyssinia, and Turkey.

STUDY OF FOREIGN OPPORTUNITIES.

The rapid increase in India's textile exports in recent years has been due in part to an intelligent study of foreign markets. For instance, about 1900 the secretary of the Bombay Millowners' Association collected samples and commercial data in regard to the textile markets in the Levant and exhibited them to the Bombay mills, which promptly began a campaign for this section of the world's yarn markets. At that time the coarse yarns, 4s to 8s, largely imported at Smyrna and other places in the Levant, were supplied by Italy, who had taken the trade from England and had held it for twenty years or more. In less than three years, however, India had almost driven the coarse Italian counts from the market and was shipping more per month than she was per year at the time the cam-

paign started. Indian yarn was followed by Indian piece goods. The great cotton crisis coming on just then forced the Indian mills to curtail, and then, in 1905, the China market was so attractive that it absorbed nearly the whole attention of the Indian mills.

With the present depression in China Indian yarn mills are again studying other fields, and there is talk in Bombay of a combination of mills for holding the Levant and the African trade somewhat along the lines that Japanese mills are now following in regard to Manchuria; that is, for a certain number of mills producing the same yarns to combine and ship so much yarn to these ports every month, whatever the price, and then to share the profit and loss together. This may be done, but Indian mills are extremely jealous of one another, and it is doubtful if they would hold together if the venture did not prove immediately successful.

LOOKING TO THE FAR EAST.

Before the days of the cotton mill the textile productions of India found their best western markets in Asia Minor, Egypt, and Europe. To-day, however, India looks to the East for her textile markets. As Japan is the best buyer of Indian cotton, so China is the best buyer of Indian yarn. In the fiscal year 1905, out of 247,854,797 pounds of Indian yarn exported, China took 229,107,329 pounds, or 92.4 per cent, and in 1906, out of 297,634,314 pounds, China took 282,095,892, or 94.8 per cent. The Indian yarns exported are nearly all 20s, 16s, and 10s, most of the other numbers spun in India being consumed locally. Formerly the main number was 20s, but it seems now to be 10s. Since these yarns are used by Chinese hand-loom weavers to make the narrow Chinese cloth, called "nankeen," the use of coarser yarn, thereby showing a demand for coarser and cheaper cloth, is not a sign of prosperity, and is probably, partly at least, due to the loss the lower masses of the Chinese have sustained in the last few years by the depreciation of the copper "cash," due to excessive mercenary minting by the provincial rulers. The fact of the Indian mills now shipping more 10s than 20s is also in large measure due to the increasing Japanese competition. India supplies over two-thirds of the yarn imported into China, and with the increased demand for foreign yarn she is shipping larger quantities every year.

The Japanese yarn, however, is tending to displace the Indian yarn on the higher numbers, and on both 16s and 20s commands a higher price on the market. On 10s the Indian mills have a monopoly. The Indian yarn finds ready sale because it is cheap, but it is more uneven and dirtier than similar Japanese yarn. This is, in large measure, due to the fact that the Japanese mills mix in one-fifth or more of American cotton, or else Chinese cotton, whereas the Indian mills use Indian cotton alone. The better grades of Chinese cotton, such

as "Tungchow," are much superior to the Indian cottons, being whiter, cleaner, and less harsh, and, though shorter, tending more to the silkiness of the American staple.

CHEAPNESS AS A FACTOR.

As both the Chinese and the American cottons are stronger and absorb dye more readily than the Indian, the only reason why yarn spun out of Indian cotton holds the field is on account of its cheapness and the fact that as yet the market is too big for Japan. Japan in her efforts to capture the Chinese markets makes a practice of running her cloth a little heavy and of giving full length or a trifle over in her skeins of yarn, which is a very good policy in starting out to do business with the shrewdest traders on the face of the earth. Indian yarn mills, some of them at least, according to statements of their owners, make a policy of short reeling for the China market; that is, running their skeins a little underlength and spinning about half a number coarser to make the weight come right. This is bound to tell against them in the long run.

The larger Indian yarn mills sell yarn in China and elsewhere through their own agents. The firm of Sir Currimbhoy Ebrahim & Co., which owns or controls the largest number of mills probably of any one company in India, having about 192,000 spindles and 900 looms, has a branch at Hongkong of fifty-seven years' standing, and also has branches at Singapore, Shanghai, Kobe, and other points.

Smaller mills usually sell through the agencies of larger mills or through other export firms. The usual commission is one-half of 1 per cent. This gives them quite an advantage over American mills, where the usual commission charged for selling yarn is 5 per cent. The following table shows where India finds her yarn markets and something of the tendency of the trade. The table includes the three years ended March 31, 1906:

EXPORTS OF YARN FROM INDIA, 1904–1906, BY COUNTRIES.

Country.	1904.		1905.		1906.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
China:						
Treaty ports	116,223,660	$13,181,111	131,475,225	$16,613,685	139,471,240	$18,970,969
Hongkong	119,738,220	13,395,966	97,632,104	12,504,311	142,624,652	18,863,644
Straits Settlements	4,571,632	601,158	6,869,124	1,033,643	6,490,200	993,548
Turkey:						
Asia	4,311,738	476,855	3,898,005	480,828	3,204,200	421,048
Europe	464,710	48,999	614,820	71,942	63,080	7,866
Persia	1,874,894	261,448	2,244,340	366,242	1,444,074	227,540
Aden	1,718,180	214,838	1,285,032	167,934	1,438,112	200,732
Egypt	1,741,040	207,804	1,524,012	199,158	836,800	109,506
Arabia	695,626	96,201	648,535	99,655	818,458	131,498
Philippines	116,525	21,924	120,500	22,203	296,200	43,631
Siam	97,100	14,400	107,600	18,354	292,100	50,307
Abyssinia	96,800	12,275	252,700	37,143	101,200	13,559
United Kingdom	319,788	37,461	251,297	33,731	9,340	1,090
Other Europe	85,770	9,016	336,805	41,711	70,360	9,035
Other countries	418,562	67,144	594,698	112,268	474,298	92,127
Total	252,474,245	28,646,600	247,854,797	31,802,808	297,634,314	40,136,107

It will be noted that, after China, India sells most yarn to the Straits Settlements, Turkey, Persia, Aden, Egypt, Arabia, and the Philippines, and that the takings of the Philippine Islands is steadily increasing. The shipments to the Straits Eettlements are distributed at Singapore to Java, Borneo, Sumatra, Malay Peninsula, Siam, and other points.

INCREASE IN PIECE GOODS EXPORTS.

The export of Indian piece goods is much smaller than that of yarn, but is increasing. On the very coarse unsized goods the hand looms of India have a monopoly, one reason being that the Indian power-loom weaver is inefficient, and another that the cloth desired, like the "nankeen" of China, is required to be soft and yet very strong, and the hand loom is better suited for such work than the power loom. On fine goods, mulls, madapollams, jaconets, light shirtings, etc., the Indian mills, because of the quality of their cotton and the lack of skill and experience of their operatives, can not begin to compete with England. The present local competition is therefore confined to medium heavy goods, such as T-cloths, long cloths, sheetings, and the coarser grades of dhooties.

The average cloth produced by the Indian mills is given by one of the leading managers as being about 52 by 56 and average 22s warp and 30s filling. The majority of the imported goods average above 32s, both warp and filling, and the yarn is much evener and stronger. Indian cloth therefore has to stand fierce competition with the flood of English cloth made of superior cotton, and for this reason Indian mills find it easier to sell their cloth in the foreign markets, to which they have been exporting yarns, than to sell in their home markets.

HOME-MARKET MOVEMENT.

It is probable that hereafter the Indian mills will make a greater effort to capture their own market on some of the medium lines, but so far they have not been able to do so. There is now in progress an agitation called the "Swadeshi" movement, which is practically the same as movements we hear of occasionally, such as "China for the Chinese" and 'America for Americans." The "Swadeshi" sentiment is "India for the Indians," and while its political side can not at present be of serious importance, the materialistic side of it is of a great deal of importance and will undoubtedly have a far-reaching influence on India. This movement came to a focus over the question of dividing Bengal into two provinces, a step that was undertaken by the English for convenience in governing, but that was very unpopular with the people, especially the Bengalese. The agitation was at first directed to boycotting all foreign goods, and this is still attempted in some places, but the leaders realize that this is imprac-

ticable until India can herself produce the articles she wants to replace. There has therefore been a great stimulus given to native arts and manufactures of all kinds, and native-owned cotton mills, machine shops, and other factories have been started in several places. The natives also started steamship lines to run from Calcutta to Rangoon and other places in competition with the English lines, but the latter reduced their fares until they carried natives free and froze out the smaller lines.

In extension of the idea of buying nothing abroad that could be made in India, the Bengalese ordered large quantities of cloth from Bombay and Ahmedabad mills. When the cloth arrived, it was found to be so coarse and inferior as compared with the English that the merchants sustained quite a large loss on it, and several thousand bales were finally sent back to Bombay to be exported. The Indian mills therefore do not at present make cloth suitable to the Indian trade, and it is probable that a large proportion of their output will continue to be exported for some time and the home market be left to England and whatever other nation, say the United States or Holland, that is able to compete therein.

EXPANDING THE CLOTH MARKET.

The fluctuations of the yarn market and numerous other causes are causing more and more mills to add looms, and this tendency just now is very marked. This increased output, for the reasons above given, will probably go in large measure to increase their exports rather than their home takings, and India may be expected to become a larger competitor in the cloth markets of the Far East. It is therefore interesting to note where the comparatively small export of Indian cloth is now sold.

India's best cloth market is in East Africa, where she is displacing English gray shirting and long cloth and American sheeting and drills. Both America and England have increasing sales of cloth in this market, but their increases are not so rapid as those of India, who with cheaper cloth and less freight rate tends to outstrip both. There are a good many Hindoo firms at Zanzibar, and the Indian mills are well represented at all the importing centers. India's next best cloth market is the Straits Settlements, then China, Ceylon, Turkey, and the Philippines.

Nearly three-fourths of the cloth exports consist of T-cloths and long cloths. The T-cloths go mainly to Zanzibar, Mozambique, China, and Abyssinia, while the long cloths go to Zanzibar, Mozambique, Abyssinia, Turkey, and Aden. The Indian T-cloths are 32 inches wide by 24 yards long, whereas the English T-cloths, which compete with

them in China and other places, are usually 32 inches wide by 40 yards long. Aden and Zanzibar are the main ports for the other piece goods shipped, such as drills, jeans, sheetings, and domestics. A small quantity of chadars and dhooties are also shipped to the same points, probably simply for the use of the Indians living there.

EXPORTS TO THE PHILIPPINES.

The Indian cloth exported to the Philippines consists mostly of the coarse cotton goods shipped from Madras and known as "Madras goods," being made of about 12s average warp and filling, the warp being white and the filling a blue, black, or brown and white mock twist. In the fiscal year 1906 India shipped more cloth into the Philippines than did the United States, being exceeded only by Great Britain, Spain, and Switzerland. India will also ship increasing amounts of T-cloths and sheetings to China that will come in competition with American goods. Their cloth sales were increasing rapidly in 1904 and 1905 until the floods at Shanghai damaged large quantities of American goods, which were thereby forced on the market at such low prices that for the time it checked even the low-priced Indian goods. Although much cheaper, the quality of the average Indian cloth is not such that it will be able to seriously compete with American cloth except in places and times where cheapness is the only consideration.

The principal countries to which India looks for returns from her cloth trade is shown as follows for the years ended March 31, 1904 to 1906:

EXPORTS OF PIECE GOODS FROM INDIA, 1904–1906, BY COUNTRIES.

Country.	1904.		1905.		1906.	
	Yards.	Value.	Yards.	Value.	Yards.	Value.
Straits Settlements	13,613,817	$1,413,640	12,446,214	$1,199,943	12,463,079	$1,362,926
Aden	14,626,192	705,298	9,796,416	485,823	11,433,355	586,044
China:						
Treaty ports	1,035,760	48,931	10,018,528	493,849	11,384,743	558,578
Hongkong	82,331	3,609	324,206	13,674	1,916,117	82,981
Ceylon	7,993,379	877,789	8,544,459	1,003,243	8,886,923	1,160,663
British East Africa	7,450,976	336,715	9,069,187	420,964	8,373,843	391,094
Portuguese East Africa	8,646,602	317,176	4,781,102	183,087	6,235,852	289,354
Turkey	3,670,819	157,649	7,546,066	326,278	5,615,542	265,376
Philippines	3,552,631	192,512	5,514,461	295,201	5,505,024	304,667
Arabia	2,748,516	161,785	2,565,377	138,237	3,961,139	212,403
Abyssinia	4,014,025	151,029	7,080,117	284,425	3,863,465	161,385
German East Africa	1,997,879	81,809	2,389,049	111,619	3,267,887	157,069
Siam	1,418,168	70,082	1,385,326	73,258	2,584,717	142,453
Egypt	1,261,729	63,194	1,443,614	77,855	2,263,533	123,876
Persia	1,116,513	62,384	1,519,933	81,802	1,514,587	88,409
Other countries	2,585,792	161,458	3,032,414	161,424	2,705,156	158,148
Total	75,815,129	4,805,060	87,456,469	5,350,682	91,974,962	6,045,426

OTHER MANUFACTURES.

Of the manufactures of cotton other than yarns and piece goods exported in 1906 the total came to $557,087. Of this, $296,533 were handkerchiefs and shawls in the piece, and these were mostly taken by England; $29,990 was sewing thread that went principally to Turkey, Arabia, and Persia; $24,746 was hosiery, pure and mixed, and was practically all sent to East Africa, and $2,690 was canvas, which was mostly bought by Turkey. The remainder consisted of miscellaneous articles that were not enumerated.

In the import of cloth into India, Calcutta takes over twice as much as Bombay, and in the import of yarn it takes a sixth more. In the export of manufactures of cotton Bombay is far in the lead. Of the yarn exported in 1906 Bombay shipped 93.3 per cent, Bengal 5.3 per cent, and Madras 1.3 per cent, with a trifle exported from Sind and Burma. Of the Indian piece goods exported in 1906, Bombay shipped 69 per cent, Madras 29.3 per cent, Sind 1.2, with a trifle only from Burma and Bengal.

CONDITIONS IN BURMA.

HEAVY IMPORTATIONS OF TEXTILES—TRADE IN YARNS.

In 1905–6 of $5,617,449 of cotton piece goods imported into Burma direct from foreign countries, Great Britain supplied $4,479,031, Holland $771,262, and the United States $930. The Burma market is a distant and in some respects a difficult one, but the United States in 1905–6 did not get one-thousandth part of the textile trade that it should. If Holland can do three-quarters of a million in cotton piece goods here in a year, the United States should do at least a round million. Instead of increasing, however, the small imports of American cotton piece goods are decreasing. For the year 1901–2 the value of American piece goods imported was $1,417; for 1902–3, $16,569; for 1903–4, $12,363; for 1904–5, $3,386, and for 1905–6, $930.

The decline has probably been accentuated by the fact that the New York Export and Import Company, the one American company that did a general business here, has withdrawn its branch at Rangoon and turned over the agency to a British firm, who handle no piece goods, and the American representative now makes only flying trips here.

Manufactures of cotton form by far the largest item of merchandise imported into Burma. In the fiscal year ended March 31, 1906, it constituted 29 per cent of the foreign imports, and it sometimes forms over one-third of the total from foreign countries. The total

cotton manufactures imported in the fiscal year 1906 is shown as follows:

MANUFACTURES OF COTTON IMPORTED INTO BURMA, 1906.

	From foreign countries direct.		From India.			
			Foreign manufacture.		Indian manufacture.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cotton piece goods:						
Gray (unbleached), yards	7,967,295	$391,265	4,749,751	$250,062	10,601,958	$596,261
White (bleached), yards	33,943,501	1,890,822	7,208,447	406,490	3,060,393	206,032
Colored, printed, or dyed, yards	44,229,306	3,335,362	7,910,846	578,810	9,677,386	672,936
Others:						
Thread, hosiery, handkerchiefs, etc	.....	827,088	.....	124,550	.....	155,712
Twist and yarns, pounds	5,220,211	1,344,827	1,264,618	373,438	9,271,281	1,281,424
Total	.....	7,789,364	.....	1,733,350	.....	2,852,365

This gives a total of $8,328,040 of cotton piece goods; $1,107,350 of other manufactures, such as handkerchiefs and shawls, and $2,999,689 of yarn, or a grand total of manufactures of cotton of $12,435,079. The goods mostly imported from India proper are chadars, dhooties, saris, and scarves, with some other coarse cottons, such as Madras goods and Bombay checks.

The cottons imported from foreign countries are shown in detail as follows:

COTTON GOODS IMPORTED INTO BURMA FROM FOREIGN COUNTRIES, 1906.

Articles.	Yards.	Value.	Articles.	Yards.	Value.
Gray goods:			Colored, printed, or dyed goods—Continued.		
Chadars, dhooties, saris, and scarves	503,874	$36,953	Chadars, dhooties, saris, and scarves	18,025,521	$1,438,667
Jaconets	56,220	3,178	Drills	1,128,526	88,078
Jeans, shirtings, and drills	1,558,211	80,885	Jaconets	36,724	3,776
Shirtings	5,327,558	241,745	Prints and chintz	15,478,744	986,328
T-cloths and domestics	435,322	19,983	Shirtings	3,398,367	210,500
Others	86,110	9,521	Others	4,498,330	427,852
White (bleached) goods:			Other cotton manufactures:		
Cambrics, twills, muslins, and lawns	2,971,944	195,944	Canvas	3,818	641
Chadars, dhooties, saris, and scarves	549,286	28,548	Handkerchiefs and shawls	[a] 503,188	21,653
Checks, spots, and stripes	1,441,746	63,864	Hosiery, pure and mixed	.....	219,032
Drills and jeans	582,225	38,235	Lace and patent net	42,878	4,395
Jaconets	4,571,367	294,570	Rope	[b] 5,165	1,308
Long cloths	63,124	4,679	Thread, sewing	[b] 203,129	184,335
Mulls	946,981	51,084	Others	[b] 1,840,253	395,564
Nainsooks	553,712	27,759			
Shirtings	21,930,432	1,162,220	Total, excluding twist and yarn	.....	6,444,635
Others	332,684	23,855			
Colored, printed, or dyed goods:					
Cambrics, twills, and muslins	1,663,094	183,402			

[a] Number. [b] Pounds.

This shows that the short-length goods classed under the head "Colored chadars, dhooties, saris, and scarves" form the largest item of cotton goods imported. Details in regard to these are given further on in these notes under "Cloths imported." The largest single item shown is "White shirtings" and the next "Prints."

The cotton piece goods came from the following countries: Great Britain, $4,479,031; Holland, $771,262; France, $131,335; Belgium, $101,981; Austria-Hungary, $26,000; Germany, $21,525; Italy, $18,294; Japan, $12,561; United States, $930; others, $54,530.

The yarn imported is nearly all dyed, ready for use by the native hand looms in making "lungi," "scarves," etc. This yarn trade is controlled by the United Turkey Red Dyers' Association of Glasgow. The yarn imported during the fiscal year ended March 31, 1906, was of the following description and price:

YARN IMPORTED INTO BURMA, 1906.

Twist and yarn.	Pounds.	Value.	Twist and yarn.	Pounds.	Value.
Gray:			Orange, red, and other colors—Continued.		
26s to 30s	144,210	$25,414	31s to 40s	978,155	$257,238
31s to 40s	67,800	14,175	41s to 51s	630,845	184,726
Orange, red, and other colors:			Above 50s	396,769	152,850
1s to 20s	1,274,497	300,676	Unspecified	186,340	47,518
21s to 25s	1,386,720	326,050			
26s to 30s	154,875	36,178	Total	5,229,211	1,344,825

The above goods were imported from the following five countries:

Whence imported.	Pounds.	Value.
United Kingdom	4,624,064	$1,202,856
Belgium	216,917	44,551
Austria-Hungary	187,600	48,245
France	170,420	43,678
Netherlands	21,210	5,495
Total	5,220,211	1,344,825

CLOTHS IMPORTED.

The cloths imported into Burma are white shirtings, prints, dhooties, saris and chadars, jaconets, muslins, and gray shirtings. About one-fifth of the total is white shirtings. The largest proportion of goods, however, is colored, printed, and dyed goods. The Burmese like gay colors, and colored cloths are worn to an even larger extent than in India proper. Taking a view of the cloth market as a whole, the most marked tendency just now is for cloths resembling silk. The richer classes wear silk, and all the others desire to wear clothing resembling silk as much as possible.

WHITE SHIRTINGS.

White shirtings form the largest single item of cloth imported into Burma. In 1905–6 out of a total of $5,305,305 of cotton piece goods imported direct, $1,162,220, or one-fifth, was white shirtings. The white shirtings imported into this market are nearly all 40 yards long, 34 to 36 inches wide, and made from 32s and 36s yarn. The most popular finish is a soft, fine one resembling the ordinary jaconet finish. Each piece of shirting has stamped at the top the name of the importing firm in English, and underneath this the firm's name in the peculiar round letters of the Burmese. There is pasted on the cloth a gorgeous colored lithograph, then the number of the style is stamped, say, "601," "W 10," "C 1897," "2633" (these are popular styles here), or some such mark, and at the bottom is stamped "40 yards," with ornamental work.

All white shirtings have a number to distinguish them. The name of the mill is never shown on white shirtings, as is customary in America with shirtings, drills, etc. I went through the bazaar at Rangoon with the comprador (buyer) of one of the largest piece-goods firms, and he picked out the four numbers (samples of which have been forwarded to the Bureau of Manufacturers) as the most popular styles on the market at present.

No. 601 is especially liked for its soft, pure-sized finish, and is considered the standard white shirting for this market. It is 35½ inches wide, 40 yards long, 88 by 80 ends per inch, and was retailing February, 1907, in the Rangoon bazaar at 9 rupees 14 annas ($3.20) per 40-yard piece, or 8 cents a yard.

No. "W 10," which is very similar, is 34½ inches, 40 yards, 84 by 68, and retails at 4 annas (8 cents) a yard.

No. 2633 is 35 inches, 40 yards, 80 by 72, and retails at 3½ annas (7 cents) a yard.

No. "C 1897," a little stiffer finish, is 35 inches, 40 yards, 76 by 68, and retails at 3¾ annas (7½ cents) a yard.

No. 872 is another popular design. This is 35 inches, 40 yards, 64 by 64, and priced at 7 cents a yard.

This last piece has stamped on it a fanciful design, in red, of a native riding a tiger at a jump over a stream from which rises the head of an alligator. Above this stamp on each piece of shirting is pasted a lithograph of a bearded Sikh horseman in scarlet uniform, holding his prancing horse with one hand and having a long sword in the other. Such designs help to sell the cloth, and should be in bright colors, and pertain to things with which the native is familiar, such as tigers, elephants, zebras, native cavalry, pagodas, or something similar.

The white shirtings are used for clothing, bed covers, pillows, etc. They are usually packed 40 or 50 pieces to a case.

WHITE DRILLS, JACONETS, AND MULLS.

There is a fairly good amount of white drills imported. These are the satin-weave bleached goods used for outing suits, etc. The most popular piece seems to be one branded "Pure Drill No. 1500," which has a coat of arms as a brand and underneath this, "Registered No. 17135." This is 27 inches, 40 yards, 80 by 64, retailing at 7 annas (14 cents) a yard. Cheap drills retail at 7 to 12 cents a yard.

Other bleached goods imported in quantities are jaconets, long cloths, cambrics, lawns, and mulls. Jaconets come in 10-yard lengths. A good many of them come nicely put up in flat pasteboard boxes, five pieces to a box. Some come in 20-yard lengths. Usually there are 100 10-yard pieces to a case. A popular jaconet is 52 inches, 10 yards, 72 by 72, and retails at 6 annas (12 cents) a yard. Jaconets are worn as clothing by Burmese men and women.

White mulls retail at 8 cents a yard, and come in 10-yard lengths. A popular mull is 45½ inches, 76 by 68.

Doria is a bleached goods made with a 4-leaf twill ground and satin stripes. It is usually 31 inches, 84 by 96, and retails at 12 cents a yard. A small amount of this is used as coats for Parsees, etc.

CASHMERES, CREPES, LAWNS, AND LONG CLOTHS.

The white woolen cashmere on the market retails at 1 rupee, or 32.4 cents, a yard. The usual width is 42 inches, 64 by 64 ends per inch. A cotton cashmere 54 inches, 72 by 108, retails at 13 annas (26 cents) a yard.

A cotton crepe that is imported from India, especially from the Buckingham Mills Company, at Madras, and is largely used for toweling, is bleached goods, and is 28 inches, 24 yards, 64 by 44, retailing at 7½ cents a yard.

A considerable quantity of white lawn is imported, which sells from 2 rupees (65 cents) per 10 yards up. The lengths are all 10 yards. The most common lawn is 42 inches wide, 80 by 60 ends per inch, and retails at 8 cents a yard.

White cambric retails at about 8 cents a yard and is mostly 35¾ inches, 88 by 64.

Long cloth, like the ordinary white shirting, has a tinsel woven heading made of a few repeats of tinsel picks and a few heavy picks. It is put up in 40-yard lengths and a common construction is 76 by 68. The width is 36 inches and price 4 annas (8 cents) a yard.

WOVEN LUNGIS.

Colored "lungis" are one of the largest imports of piece goods. This is spelled in various ways, "lungis," "loongies," "loongyis," etc.

It is a garment worn by men. It is worn as a skirt, differing from the Indian "dhooty," which is a loin cloth.

The natives have an idiosyncrasy about the way they want these skirt cloths made that is worth noting. The finished width desired is 46 inches, but they do not want the cloth woven 46 inches wide. The cloth is woven 23 inches wide, 154 inches long, and then cut in two and sewed together, making the finished garment 46 inches wide and 77 inches long. Why they should want it this way is strange, as the seam does not usually show, but it is a fact that the 46-inch widths, of which there are some also imported, are not nearly so popular as the 23-inch widths that have to be cut and sewed together after buying. The only explanation given is the conservatism of the Burmese, which equals that of the Chinese. The old hand looms of Burma could not weave 46-inch goods, so the cloth had to be woven in half widths and the custom thus started is still clung to by them. This garment, like most Indian and Burmese garments, is worn without any modern fixings, such as buttons, hooks, or other fastenings. It is simply folded around the body and the end tucked in on the right-hand side.

MANNER OF WEAVING.

It is usually woven so that the back shows a different color from the front; usually a darker color. As an illustration of this take one of the common patterns, say, 76 by 48 ends per inch. The warp is arranged 32 ends of red, 4 of white, 32 of red, 2 of white. The selvage border—some are made with a selvage border and some not—was in this case 22 white ends (the 4 outside threads run two to a heddle eye), 4 black, 2 white, 56 black, being the same on both edges. The regular filling pattern was arranged to pick 26 red, 4 white, 26 red, 2 white. The darker filling pattern was arranged to pick 22 black, 2 red, 22 black, 2 white, 2 black, 2 white, 2 black, 2 white. There were 6 repeats of this, then 144 ends or 3 inches of black, and then 6 repeats again. This gives about 20 inches of the darker weave. Considering the 154-inch length bought by the Burmese, the cloth shows 10 inches of the lighter woven cloth, then 20 inches of darker woven, then 94 inches of the lighter, 20 inches of the darker, and 10 inches of the lighter color. This cloth, 23 inches wide, is cut in two after purchase and sewed together so the dark stripes fit. The finished garment, therefore, 46 inches wide by 77 inches long, shows 10 inches light color, 20 inches dark color, and 47 inches light color. As the garment is folded from the right around the back, brought around the front, and tucked in on the right side, this is why the lighter colored portions are of unequal lengths. This style of lungi, which is the regular style of skirt lungi worn by the Burmese, is

often called a "sarong;" in fact, when shipped in this length this, according to the importers, is the correct name for it.

Each piece of 154 inches is folded into about 5 inches by 12 inches and tied near each end with a few strands of red yarn. Twenty of these pieces are tied together in a bundle, or as it is technically known, a "corge." This is the shape in which the Mahommedan wholesaler, who obtains it from the foreign importer, sells it to the bazaar stall keeper, and the wholesale market price is based on this "corge" of 20 pieces. A case contains 20 "corges," or 400 pieces, which is about 1,700 yards. An average price is about 1 rupee (32.4 cents) a 23 by 154 inch piece, or 400 rupees a case.

Another form in which this "lungi" is put up, in which shape it is referred to as a "lungi" instead of a "sarong," is in 12-yard lengths, about 120 to a case. Every 2 of the 12 yards are woven like the half length of the sarong already described, and a few white picks show where the cloth is to be torn apart to make separate lungis. In the 12-yard lengths the cloth is usually woven wider, so that each piece makes six lungis. The widths run 38 to 46 inches for men. As before stated, however, they are not near as popular as the 23-inch widths that have to be sewed together. Some 36-inch widths are imported for women's use, but these are mainly the Burmese women, while the "saris" is the garment the Hindoo women mostly use. For children the lungis are imported in three standard widths, 24, 27, and 30 inches, and sold in 3-piece lots at 5 rupees 8 annas, or $1.78 (present market price).

PREFERENCE FOR GAY COLORS.

The Burmese, more than the other inhabitants of India, prefer gay colors, and especially red, purple, and green. The lungis are almost entirely checks and plaids with a predominance of red and green, and with black, white, or purple lines forming the design. A small check at the present time (March 25) very popular is constructed 6 red, 2 black, 6 red, 2 green, being the same both ways; another pattern is 12 white, 10 red, 8 green, 10 red, 12 white, 12 black, 60 white, 12 black, 2 yellow, 32 red, 2 yellow, 12 black, 60 white, 12 black, 12 white, 10 red, 8 green, 10 red, 12 white, 60 red, 24 green, 60 red. The first is a lungi 39 inches by 12 yards, 80 by 68 ends per inch, and 11 cents a yard, or 22 cents a lungi of 2 yards. The last was a 23-inch sarong, 154 inches long, 76 by 48, and bringing 1 rupee 2 annas, or 36 cents, which is about 8.4 cents a yard.

Printed cotton lungis are not as well liked as the woven. When worn by the men, they are mainly satin woven, say, 84 by 120 ends per inch, and with flowered designs. The check and plaid designs are preferred for ordinary wear, and the flowered printed satin lungis

are only used in place of silk for special occasions. The price will run as high as 25 cents a yard.

Ordinary grades sell for 8 to 9 rupees per 12 yards, which is 21½ to 24 cents, but the market is considerably overstocked with printed lungis just at present, and they are being sold at half price, or 4 rupees apiece, which is about 11 cents a yard. The cheap, plain-printed lungis are only worn by the natives who come from India, the Burman wearing the satin prints when prints are worn at all.

A woman's lungi is 1¾ yards and a man's 2 yards long. A 12-yard piece makes 7 of the former or 6 of the latter. Men's are mostly 40 inches wide, and women's 36 inches.

SARI WORN BY WOMEN—CHECKS AND BUCKRAMS.

The sari is the women's garment, corresponding to the lungi worn by the men. It is usually 7½ yards long. It is worn as a skirt by the native women of India, but not by the Burmese women, who use the women's lungi. The men's lungis are almost invariably plaid and check designs, but the women's "saris" have a deeper border, more elaborate designs, and more variety of colors. The difference between the women's lungi and the saris is that the lungi for women is worn as a skirt, hanging straight from under the arms, and is usually about 1¾ yards long, while the saris is used to fold around the whole body and to bring up and cover the head and face, and is 5 to 7½ yards long. A common sari is 40 inches, 7 yards, 60 by 44, and sells at 56 cents apiece.

Checks are imported in fairly large quantities, mainly from India, and used as men's coats. A common check is 27 inches, 72 by 52, and retails at 8 cents a yard. A few cotton-raised woven checks are imported, being woven checks that have stripes scratched by machinery so as to raise a nap. These are also used for coats.

Buckram comes mostly 24 inches, 40 by 40, and retails at 14 cents a yard for brown or 12 cents a yard for white or black.

HOLLANDS, CRETONNES, GAMBROONS, TICKINGS, AND GRAY SHIRTINGS.

Of the Hollands imported the most popular is a 28 inch, 52 by 48, fabric retailing at 3½ annas, or 7 cents, a yard. This has white warp and mock-twist blue and white filling and is used for men's coats.

Cretonne is used for door curtains, hangings, etc., flowered red and yellow designs on a green ground seeming to be most common. A usual piece is 42 inches wide, 48 by 32, and sells at 8 annas, or 16 cents, a yard.

Gambroons used for door hangings, for making men's coats, and especially Punjabis. It is a heavy, plain-woven fabric, using mock-

twist filling and with 2 warp ends to a heddle eye, 2 blue and then 2 black, etc. A usual width is 26 inches, construction 56 by 56 ends per inch, and price 4 annas, or 8 cents, a yard.

The ordinary ticking for mattresses is imported to a small extent. The blue-striped ticking is the most common. A 36-inch, 80 by 40, retails at 12 cents a yard, a common pattern being 2 blue, 2 white, 2 blue, 3 white, 8 blue, 3 white, 2 blue, 2 white, 2 blue, 10 white warp ends in a repeat, and all white filling. A cheaper grade of ticking sells for 8 cents a yard.

A good amount of gray shirtings is imported and sells at 6 to 8 rupees ($1.95 to $2.60) per piece. The widths are 36, 38, 42, and 46 inches, mainly the 36-inch, and the lengths are 37 to 38 yards. Any length over 38 yards is not counted in paying.

MUSLINS, CHADARS, AND DHOOTIES.

Book muslin is a very coarse fabric, 35½ inches, 36 by 28, coming in 10-yard lengths, that is used to some extent as shirt waists by the native women. It is imported 10 pieces to a bundle and 200 pieces to the case, and retails at 1 rupee 1 anna, or 27 cents, for 10 yards. Most of it is white, but some colored, chiefly blue.

Art muslin is also imported for use as door and window curtains, draperies, etc., and is mostly 37½ inches, 60 by 40, retailing at about 12 cents a yard.

A "chadar" is simply a gray shirting cloth that comes in retail lengths. It is used as bedclothing, and by the poorer classes as a garment somewhat like a lungi, but is wound around the waist and then carried up over the head, protecting the whole body. An ordinary chadar is 50 inches wide, 52 by 48 ends per inch, and retails at 12 annas, or 24 cents, per 2½-yard length. Pieces come put up in 5-yard lengths, but with cut marks between. At each end of a 2½-yard chadar is a heading of a few picks of coarse filling and three or four picks of red; also on each edge is a border made of a few alternate picks of coarse and light filling.

A dhooty is in India usually a loin cloth for men. In Burma it is used for this purpose and occasionally for skirts for some classes of women, especially Madras women. The usual dhooty is plain with a narrow red selvage and red cut mark. A popular width is 42 inches, construction 68 by 68, and price 1 rupee, or 32.4 cents, per 5 yards. The cloth comes 10 yards, with cut marks showing it to be a double length. Another common dhooty is plain, without colored borders, 44 inches wide, 3 yards 22 inches long, weighs 11½ ounces, and retails at 24 cents per piece.

COTTON PRINTS, BLANKETS, UNDERSHIRTS, AND TOWELS.

The cotton prints used are all 32 inches by 24 yards. A 30-inch print is favored in Japan; the American 24-inch print is largely used in the Philippines, but only a 32-inch print will suit in Burma. These are all supposed to be 32-inch, but by actual measurement I found them to vary from 31 to 33 inches. They are all 24 yards long and are put up 60 pieces to a case. The constructions run from 16 by 14 up to 18 square per quarter inch. The yarns are 28s and 32s up to 32s and 40s. Fine cambric prints using Egyptian yarn run about 22 by 24 ends per quarter inch. A "lungi" print is 36 to 38 inches wide and 12 yards long. This print is put up 120 pieces to a case. The cases are always tin lined. Most of the prints are used for women's skirts and are cut up into $1\frac{3}{4}$ yards when sold. Prints are bought by the importer in three-case lots; not under. In England a printer will not set up a pattern or change his color for less than three "lumps" of 120 yards calico each. A smaller quantity would not pay for the trouble. A lump of 120 yards will make 5 pieces of 24 yards each, which gives 15 pieces as the minimum to a color or design. As there are 180 pieces in a three-bale lot, this limits the number of patterns to 12.

Cotton blankets are imported in considerable quantities. They come packed 300 to a case and are sold by the importer in 10-blanket lots. The market price between importer and native wholesale merchant is based on this. At present the price is 7 to 9 rupees, say $2.25 to $3, per 10 blankets. The blankets are nearly all 48 inches wide and the lengths from 60 inches up, a usual length being 78 inches. Red blankets are the favorite and retail at about 1 rupee 2 annas each, or 36 cents. Similar woolen blankets retail at 75 to 80 cents. The end stripes are mostly black on red and yellow, and blue stripes on gray.

Cooton undershirts are mostly bleached and come from Spain and Germany. Prices range from 2 to 14 rupees (65 cents to $4.50) a dozen, but the cheap shirt, say 4 rupees a dozen, is the one most bought by the native.

The single towels are mostly Turkish or huckaback, while the Japanese towels are in pairs, 12 pairs to a bundle. Ordinary small towels retail at 4 to 8 rupees ($1.30 to $2.60) per dozen pairs. The white Turkish towels, 45 by 22 inches, retail at 20 cents each.

AMERICAN CLOTH AND DRILLS.

It is significant of the slight amount of American goods on the Indian and Burmese market that the tariff for India refers to one

kind of cloth as "American" colth. By this is meant "Peperell Jeans," the jeans made by the American company of that name. This is in fact practically the only kind of American cloth well known in India. It retails at present at Rangoon at 4 annas 2 pies, or 9 cents, a yard.

The gray drills imported come from England, with some from India. They are 28 inches wide. The Burmese market prefers this width, and 30-inch drills do not sell as well. The length is 40 yards, and the price 6 to 8 rupees a piece, or, say, 5 to 8½ cents a yard.

Khaki drills sell at 8, 10, and 12 annas, or 16, 20, and 24 cents, a yard, according to quality and finish.

The regular Indian tariff applies to Burma also. The duty on most articles is 5 per cent, but on cotton piece goods the rate is 3½ per cent. The cotton goods are specified by name in customs circular No. XIV, issued December 21, 1906, by the government of India.

POPULAR TASTE VARIABLE.

In cotton piece goods the import trade is practically a retail trade and relatively few lines of goods are imported in wholesale quantities. In prints, for example, a three-case lot will contain as many as twelve designs; a bale of "lungis" may have twenty packages, each of a different color or pattern, etc. Not only is it in this sense a retail trade, but there is no stability to the market, since the tastes of the people are continually changing, and within their limits the Burmese are as eager to keep up with the latest style as is a Parisian. In Burma, however, the cut and style of the clothing is fixed, and this restlessness takes the shape of running after new patterns and new finishes. In "lungis" a merchant may introduce a small green and red check; it strikes the popular fancy, becomes the rage; the merchant sells every yard he has at a good profit; his competitors wire for similar goods to be made up, and the demand seems insatiable. Suddenly another merchant throws a purple, white, and pink barred design on the market. There is a rush for this, and the green and red check is forgotten. Perhaps before the change it is selling at 8 rupees apiece; afterwards it drops to 5 rupees. If there are large shipments of this on the way, on arrival they are out of demand, and perhaps sell at half price. So it goes, first one pattern and then another having a run.

DIFFICULTIES WITH FINISH.

In the finish it is the same. A year or so ago lungis, saris, etc., were finished with an ordinary starch finish. Then a demand arose for a mercerized finish in imitation of the silk goods worn by the richer classes. To-day the regular finish is sold at a heavy discount,

and to bring the market price all goods have to be "silk finished" or "mercerized." It is so referred to by the shopkeepers, but as a matter of fact to make the regular mercerized goods the yarn itself is usually mercerized, which would make too high priced a cloth for this market. The finish is really a fine "Shreiner," made by using a fine-lined steel roller, which gives a fine silk-looking, medium stiff-finish piece of goods. This is all the go now, but the taste may change at any time. In the "lungis" there is usually a half-inch selvage stripe woven of some dark color on each edge of the goods. Sometimes a demand springs up for a white selvage border and again for no selvage stripe at all. Other instances might be given to show the frequent changes in popular taste. Once the demand changes, the old goods are as unsalable as last year's Paris hat. From the foregoing a slight idea is obtained of one reason why this is a rather difficult and unsatisfactory market.

MANUFACTURERS MUST BE VIGILANT.

In Manchuria the people wear American 2.85 and 3 yard drills from January to December, and to hold the market the American manufacturer has simply to make the same kind of goods he has been making and not allow the quality to deteriorate. To win a foothold in the Burma market, however, a manufacturer has to use more brain work, to be more wide-awake and enterprising; and to hold his ground when a foothold is gained, he has to sleep with one eye open. In piece goods it will be very difficult for the United States to get much trade, for four reasons, viz, (1) the lack of direct steamships to New York; (2) the lack of an American bank; (3) the character of the market, the quick fluctuations, and long time demanded; and (4) the variety of designs demanded in small lots.

These are difficulties that have to be considered, and from my inspection of the bazaars and talks with native and European merchants it seems a rather difficult market, but one in which there is yet room for the right man with the right goods. On the very coarse goods, using 6s to 16s yarn and up to 20s warp, mainly coarse goods from Madras for the poorer classes, America can not compete, because the cheaper, coarser Indian cotton that is employed is satisfactory for the purpose and the labor cost of manufacture is also cheaper. On mulls, lawns, etc., few mills in the United States have as yet a large enough output of these goods to compete, and the English finishes are difficult to equal.

There are some goods on which the United States can compete in regard to price and quality. The market after all is not very large, some $6,000,000 to $8,000,000 a year, but by properly directed efforts the United States could probably get $1,000,000, or perhaps more, out

of it. Last year the Netherlands shipped here $771,262 of cotton goods, and if the Netherlands can do that the United States, which grows the cotton, certainly ought to be able to get at least $1,000,000 from the trade.

FEAR OF AMERICAN COMPETITION.

The buying for Burma is not done at Rangoon, but in London. American oil machinery and piping are bought in London from agents of New York firms, and the material is shipped to Liverpool and transshipped there for Rangoon. Most of the larger importing houses at Rangoon are simply branches of London houses and in charge of a junior partner or an agent, while the real control of the business is centered in the hands of the senior partner in London. With most of the importing houses at Rangoon there would not be much chance of an American drummer doing business unless at a materially lower price than the same goods can be bought in London. Most of the English firms are very conservative, and are jealous of any other nation getting a foothold here, seeming especially to fear American competition. A few of the firms are more progressive, and recognizing the popularity and superiority of American goods on certain lines are willing to handle them wherever the price allows competition with those of other nations.

The Italian Colonial Company, of Trieste, is one of the largest piece-goods importers and is willing to buy goods regardless of country of origin, the character of goods, prices, and terms being the controlling considerations. Under prevailing circumstances, when the jealousy of the majority of the English merchants makes uphill work for the agent of American goods, it will probably secure quicker returns if the goods are introduced through a well-established firm. If an agency is placed in the hands of a local importing house in this way, they will keep the American house informed as to the market variations.

PATTERNS FOR PRINT DESIGNS.

Patterns for print designs, etc., must be forwarded by local agents and printed in accordance therewith by manufacturers. These designs are produced locally, frequently copied from the latest patterns on silks, or chosen from patterns sent out from England. Very rarely is as much as a case ordered of any one design, and even then it will be ordered in two or three colors. Usually in a three-case lot of prints there will be eight to twelve varieties either in design or coloring. American houses have quoted assorted lots here, but the importers say that the lots as assorted were fixed and they could not get them to change. For instance, the American firm would submit

twelve samples as contained in a three-case lot—nine pieces of each kind. Perhaps four of the samples would be entirely unsuited to the Burmese market, but the other eight were all right, and the importer would want the three cases made up of the eight designs in varying number of pieces, say, nine of one, eighteen of another, etc., and perhaps one design in a different color. The American would decline to make the required changes and the order would be promptly snapped up by an English mill. As elsewhere noted, the English printer declines to print under 360 yards (nine 40-yard pieces) of any one design, but otherwise will make up cases as desired, and to get a foothold in this market the American manufacturer would have to do likewise.

IMPORTANCE OF BAZAAR SYSTEM.

The bazaar system holds an important place in the Burma trade and has to be considered. In Manila and Singapore certain streets containing clusters of small shops are referred to as bazaars, but in Burma the system is different, as the "bazaar" is contained in one large building. The bazaar buildings at Rangoon, Mandalay, and other places are built by the municipalities and rented to stall holders at a fixed rental. At Rangoon the bazaar building is a large one-story frame structure. The stands or stalls are raised platforms, about 2 feet above the dirt floor, and have lids and locks, so that the cloth can be locked up underneath at night. At the back of each stall, dividing it from the one on the other side, is a partition with shelves. The cloth is stacked here during the day and the shopkeeper sits crosslegged on the platform and exhibits pieces as desired. Narrow aisles cross each other about every 20 or 30 feet, and the building is not very well lighted. Thousands of dollars' worth of goods are kept here, and this is really the head and center of Burmese trade. Separate sections are assigned to each commodity—yarn, cotton goods, silk goods, hardware, jewelry, etc.—and the dealers in each commodity congregate in their respective sections. This has the effect of concentrating and to a certain extent unifying the trade in each line. Early each morning the importer or his comprador (buyer), if handling cotton piece goods, for instance, makes a tour of the piece-goods corner, ascertains if any new lines have been brought out by his competitors, what has been the buying tendency the previous day, and the market prices. He thus keeps an accurate tab on the market requirements far better than he could if the same shops were scattered all over town. Each stall keeper makes a specialty of some one thing. Thus a man will sell lungis and nothing else, the next man sheetings, and shirtings, the next only prints, etc.

The importers, as a rule, do not sell to the stall keepers, but to the wholesale native shops, which are mostly run by Hindus or Mohammedans, and in a few instances by Burmese. These shops also specialize. One of the largest I investigated sold only dyed lungis. On one side of the shop were great piles of men's lungis, 38 to 40 inches wide. On the other were lungis for women and children, women's 36 inches wide and children's 24, 27, and 30 inches wide. All these were folded and in 12-yard lengths. At the end of the shop was exhibited woven sarongs, which is a peculiar lungis woven 23 inches wide and afterwards sewed together to make lungis for men. These were in "corges," or bundles of 20 pieces, each 154 inches long.

SMALL MARGIN OF RETAIL PROFITS.

These people buy from the importer on sixty days' time and sell to the bazaar people on sixty, ninety, or longer time. The prices I obtained showed a very small difference between wholesale and retail prices, so their profit can not be large. An importer said that if he sold lungis at 3 rupees 12 annas ($1.54) per 12-yard piece he usually found it retailed in the bazaar under 4 rupees, say $1.58 to $1.62, or less than 5 per cent difference, and very often only 2 per cent difference. Several times where I obtained "office" prices from an importer and then priced the cloth in the bazaar I found only 2 annas, or 4 cents, difference per 12-yard piece, and in some cases the price was actually the same. The competition is usually very close, so that even an eighth of a cent a yard difference in the landed price may decide the question of profit or loss.

The bazaar building at Mandalay is much finer than that at Rangoon. It was recently erected, and is well adapted to its purpose. The building is of brick and stone, with tiled floors, 6-foot aisles, and cement elevations or platforms. The tiled roof is supported by iron I beams. The building is divided into four parts, separated by driveways, and each building is devoted to a separate class of commodities.

In the bazaars the predominance of women is very noticeable, and the women do a large share of the business of Burma. Contrary to the usual custom of the East, and in peculiar contrast to the Chinese and Hindu women on either side of her, the Burmese woman for practical purposes is the head of the family and very often the main breadwinner. Even where she does not carry on the business herself, important transactions are usually submitted to her for approval before consummation. She makes a pleasant, efficient saleswoman, and seems to have a much keener business instinct than the Burmese man.

EXTENT OF COTTON RAISING AND EXPORTS.

Cotton is raised in the central valley of the Irrawaddy, but the total crop is small, and the area under cultivation represents only some nine-tenths of 1 per cent of the total area under cultivation in India. Myingyon, Meiktala, Sagaing, and Thayetmyo receive the bulk of the marketed crop.

The exports for the past five years, including those to India proper, as well as to foreign countries, have been 10,256,512, 15,233,232, 13,396,768, 8,580,880, and 15,462,720 pounds, respectively. In the fiscal year 1906 the exports of cotton were to the following countries:

EXPORTS OF COTTON FOR LAST FISCAL YEAR.

Country.	Pounds.	Value.	Price per pound.
			Cents.
Japan	5,057,248	$454,555	9.0
India	4,426,128	322,991	7.3
Great Britain	3,526,656	278,975	7.9
China (Hongkong)	2,366,896	184,494	7.8
Other countries	85,792	7,133	8.3
Total	15,462,720	1,248,148	[a] 8.07

[a] Average.

This shows that the high-priced grades go to Japan, which takes a third of the crop, and that the remainder goes to India, Great Britain, and China, with a few bales to Germany, Italy, and Austria-Hungary. The government estimate for the present Burma cotton crop (1906–7) shows 186,202 acres, as against 189,000 acres last year, and the estimated outturn of clean cotton is 35,303 bales of 400 pounds each as against 37,000 bales last year.

A well-known firm at Rangoon has carried on experiments with several varieties of American seed with a view of improving the staple and quality of the cotton grown. Other private parties are experimenting with Pernambuco tree cotton, and others are trying to improve the indigenous variety of cotton. The government is also doing work along the same line. Despite a claim of some improvement here and there, the experiments so far have been of little value, and until the quality can be improved sufficiently to allow of a higher price there is no prospect that the cultivation will be extended.

A TYPICAL YARN MILL.

CHARACTER OF BUILDINGS, EQUIPMENT, AND EMPLOYEES.

Cotton manufacturing is an international industry that is continually enlarging and in which the methods of manufacture are continually improving. No one nation has a monopoly of the best

methods, and every manufacturer is interested in keeping in touch with what is being done by his competitors, whether at home or abroad. Methods of operation and styles of machinery that are suitable for one place are not always suitable for another, but everywhere the result desired is the same—a maximum of production at a minimum of cost. To note various methods used to obtain this result is of interest. A somewhat detailed description of an Indian yarn mill may not, therefore, be out of place.

The Kohinoor Mills Company, of Bombay, may be taken as a good type of the successful Indian yarn mill, both in equipment and method of operation. This is a 39,000 spindle mill making yarn chiefly for the Chinese trade. During 1906 it made 2¾ lakhs of rupees (about $91,000) on a capital of 1,600,000 rupees, or 17 per cent, and it has averaged about 2½ lakhs every year. American mills are usually constructed on the " slow-burning construction " principle, with heavy wood columns and beams, but the Indian, like the English mills, are constructed on the " fireproof " principle, and as little wood is used as possible.

DESCRIPTION OF CONSTRUCTION.

This mill is situated in a large compound surrounded by masonry walls topped with broken glass and with a watchman at each gate. The main mill is five stories high, 384 feet long, 104 feet wide, and is divided in the center by the double walls of the main drive from the engine room situated at the back. The mill walls are strengthened with pilasters and are very heavily built, in accordance with the requirements of the Indian factories act.

Cast-iron columns are used and these are spaced 11 feet lengthwise, while across the mill the bays are 15 feet in the middle and the outer ones 18 feet. Running across the mill steel I beams rest on the top of these columns. To allow for expansion and contraction, which is very necessary in this climate, the holes for bolting the I beams to the flanged heads of the columns are always made slotted instead of round, and for the same reason a 4-inch space is left in the brickwork at the ends of the beams. These large I beams support smaller I beams running longitudinally of the mill. These are spaced 2 feet apart and between each is built up a brick arch abutting at each end on a curved brick resting on the bottom end of the I beam. On top of each beam is a small wooden beam to the height of the brick arch, and powdered brick and cement are used to fill in to make arch and beam one solid level mass. The floor is then laid crosswise, being nailed to the wooden beams. This gives a fireproof floor and is the standard construction in India.

PROTECTION AGAINST FIRE—WAREHOUSE ARRANGEMENTS.

Though the building is fireproof, sprinklers are used throughout. Exposed rectangular steel tanks are located on a brick tower run up some 20 feet above the roof.

It is to be noted that all the brickwork, both outside and inside, is carefully plastered. This has to be done because of the severe climatic variation, which causes exposed brickwork quickly to crumble and disintegrate. Nearly all Indian mills are so plastered or stuccoed. Most Indian brick, which cost only some 12 rupees, or $4, a thousand, best quality, are poor in quality as well as cheap in price and absorb moisture readily. The roof rises in three peaks and is covered with tin. Some mills, however, use a flat cement roof with parapet, and in very hot weather this is flooded with water and proves a most efficient aid in making working conditions more bearable.

The cotton is stored in a separate one-story building constructed of rubble masonry, and is 25 feet high, with corrugated-iron roof. This building is divided into three compartments by masonry walls and fireproof doors. In the first is a bale press, where the 10-pound bundles of yarn which are delivered through a chute from the third floor of the main mill are put up into 400-pound bales. Each 10 pounds is in a paper-covered package, but an extra sheet of paper is laid on the top and bottom of the bale and a good quality of 30-inch 8-ounce burlap wrapped around this. Four 1-inch orange-colored ties are used and 1½-inch wood strips placed under the ties at each corner of the bale; also each buckle is wrapped with a small piece of burlap to prevent its catching on other bales. The finished bales were stacked up in this room.

NEATNESS IN STORAGE—STACKING THE BALES.

The middle compartment was for cotton storage, and the bales were stacked up in piles 20 feet high. A very noticeable fact was the neatness and closeness of the stacking that was permitted by reason of the uniform size of the square condensed Indian bales. There was twice as much Indian cotton contained in this compartment as would have been possible in the case of American bales, to say nothing of the fact that the insurance companies in America considered the American bale too dangerous to permit of one bale being stacked on another.

The third compartment was used for an opening and mixing room. There are many different kinds of Indian cotton, of varying quality, staple, and price, and an Indian mill would never think of using the same mixing for 20s as for 10s yarn. Frequently even for numbers as close together as 10s and 12s entirely separate mixings are used.

All bales on arrival at mill are stacked in separate piles and a memorandum kept of the staple, grade, and price. To make a mixing for 10s, for instance, the mixing may be of three different varieties, so the resultant mix gives a cotton of certain spinning qualities and of a calculated price per pound. To know the proportion of different cottons to use in order to secure good spinning for various numbers is one of the manager's most important qualifications. Three willows were used in this room and the cotton blown over through a pipe into the blow room of the main mill. This mill produces about 26,000 pounds of yarn a day, and to open and mix the cotton required and to handle the bales ten coolies are employed at about 10 to 12 rupees a month (say, 10 to 13 cents a day). Each mixing is kept in a separate bin and delivered through the willow and suction tube to the blow room as required.

MACHINERY AND OPERATIVES.

The picker or blow room, as it is called, contains four vertical openers and seven lines of scutchers. An opener is capable of supplying three lines of scutchers, so one is usually idle. Indian cotton is much dirtier than American and requires more thorough cleaning. The Crichton vertical opener is almost universally used in India and consists essentially of a tapered vertical beater surrounded by vertical grids. Some machines have one and some two beaters. The cotton is delivered inside the grids near the bottom and forced up and out near the top by an air current. As it rises it is struck by the beater blades and the motes and dirt thrown out between the grids. From the opener the cotton goes to the picker, then to the intermediate and finisher lappers (called by the English "scutchers"). Including the willow, the cotton, therefore, passes through five machines from bin to lap and is struck by five beaters. For similar coarse numbers in the United States most mills use only three machines—picker, intermediate, and finisher lapper—and subject the cotton to only three beatings.

That the Indian mills using such dirty cotton are able to run their spindles at as high a speed and to make the profits they do is owing to their careful preparation. Among the leading managers it is an axiom that the card should never be used to remove dirt, and that the finished lap must be free of dirt and leaf. Some managers claim that the best mills in India pay more attention to careful preliminary preparation than is done even in England. The additional machinery makes the first cost slightly higher and takes more horsepower, but pays for itself in other parts of the mill.

Machinery from Oldham, England, was used throughout this mill. Three-blade beaters were used, and the laps on picker, intermediate,

and finisher lappers were 44, 42, and 40 inches wide, respectively. This gradual reduction gives a uniform lap with smooth edges. The lap made on finisher lapper weighed 37 pounds per 48 yards. There were employed in the blow room eighteen men at about 10 rupees a month (10 cents a day) each.

CARDING AND STRIPPING.

The cards were drafted 95, giving about a 17-hank sliver, and production per card was about 235 pounds per twelve hours. The cylinder speed is usually figured here at 160 revolutions per minute, which is slightly under the standard American practice of 165. Each card had a tin cover bolted over the top to protect the flats from fly and damp, and this they claim makes for evener work as well. To look after the cards there were five separate sets of men—lap men, flymen, can boys, grinders, and strippers. For the 123 cards run by this mill there were employed seven lap men to bring in the laps, six flymen to remove the waste, fifteen can boys to handle the cans, one head grinder and eleven ordinary grinders to grind and set up the cards, and eleven strippers. These men get, respectively, 10, 10, 9, 12, and 12 rupees a month each, which corresponds to 13, 13, 11, 15, and 15 cents a day. The strippers have one of the hardest jobs in the mill, having to strip each card once every hour and a half, which keeps them stripping steadily. In addition to these men one oiler is employed at 10 rupees a month, or 13 cents a day.

DRAW FRAMES AND THEIR TENDERS.

The draw frames were six-delivery, using mechanical stop motions and leather-covered top rolls. Fluted steel top rolls seem rarely used in India. Flat revolving cleaner flannels were used, from which the lint was automatically scraped at each revolution. The draw-frame tenders were paid by the slubbing hank, and they make about 11 rupees a month, or say 13¾ cents a day. The fly-frame tenders run one frame each and are paid by the hank. The slubber price is 10¾ pies (12 pies equal 1 anna, or 2 cents) a hank, and they get off about 10 hanks a day. Intermediates get off about 9 hanks, at 13 pies a hank, and fine frames about 7 hanks, at 15 pies a hank. They therefore make about 17½ cents a day. The slubbers are 84 spindles each and fly frames 120. The bottom rolls throughout are about one-eighth of an inch smaller in diameter than corresponding frames in America running American cotton. The fly-frame tenders look after the running and creeling of their frames, but the doffing is done by doffer boys, who get about 10 cents a day.

RING AND MULE SPINNING.

This mill uses both ring and mule spinning, having 23,000 ring and 16,000 mule spindles. The numbers spun are 4s to 20s, but are mainly 10s and 20s warp yarn for the China trade, the average number being about 15s; 1.92 hank roving is used for 10s and 3.25 hank roving for 20s, which give short drafts on spinning frame of 5.21 and 6.15. Single roving is used for both, and this is the almost universal practice in Indian mills.

The spinning frames are spaced 6 deliveries between stands, instead of 8 deliveries as in America. The slope of the stands was the usual 35 degrees. The frames are 252 spindles, with a few 300. Two 10-inch cylinders are used, which is the style mostly preferred as giving less band breakage. The spinning bands are made on a special machine that makes a continuous length and plaits eight or more ends into one after the manner of a round shoe lace. The English system of top rolls is used on practically every spinning frame in India. This consists of one leather-covered front roll weighted, while the middle roll, $\frac{11}{16}$-inch diameter, and the back roll, 2 inches diameter, are uncovered and self-weighted only. The diameter of the bottom steel rolls were $\frac{7}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ inch, respectively, instead of the usual American practice of 1, $\frac{3}{4}$, and 1 inch. This of course on the well-known principle that the shorter the staple the smaller the roll required.

SPEED AND PRODUCTION—MALE SPINNERS.

The spinner gave the speed of front rolls as 142 revolutions per minute for 20s and 196 for 10s, the production per spindle per twelve hours being $6\frac{3}{4}$ ounces on 20s and 8 ounces on 10s. A seven-eighths inch roll running at 142 revolutions corresponds in circumferential speed to a 1-inch roll at 124 revolutions. The usual speed on 20s in America is over 132 revolutions, so the Indian speed is slower, which is naturally to be expected from the cotton used. For the same reason the diameter of rings was one-eighth of an inch smaller, being $1\frac{5}{8}$ inches for 20s and $1\frac{3}{4}$ inches for 10s. The gage was $2\frac{5}{8}$ inches and traverse 5 inches for both.

The twist seems to be one to two turns more per inch, being $12\frac{1}{2}$ turns per inch on 10s weft and 22 turns per inch on 20s twist. In some mills the Indian yarn is spun as soft or softer than the American standard, down to $18\frac{1}{2}$ turns for 20s twist, but it seems to be at the cost of production.

The spinning is all done by men and boys. Each spinner runs 252 spindles and is paid 11 rupees 8 annas a month of twenty-six days, or, say, 14 to 15 cents a day. The doffers get 8 rupees a month, or 10 cents a day. There is an average of $1\frac{1}{2}$ doffers to a frame, which is

at the rate of 1 doffer to every 168 spindles. The mules were 936 spindles long, 1⅛-inch gauge for weft. The bottom steel rolls were ⅞, ¾, and ⅞ inches, respectively. On 20s the production was 5½ ounces per twelve hours. For running each two mules of 1,872 spindles on 20s there was required one spinner, at 22 rupees a month—say 27½ cents a day; five piecers, at 12 rupees a month, or 15 cents a day, and two creelers, at 7½ rupees a month, or 9½ cents a day.

WOMEN AS REELERS.

Reeling is the only work in most Indian mills that is considered to be a woman's job, and in this mill, as in most others, all the reelers were women, but they were to be found nowhere else in the mill. This is the custom, which is strengthened by the fact that the law prohibits women working in mills after 6 p. m. As most of the mills work to 7.40 p. m. it would disorganize work if women were employed in card or spinning rooms, so they are usually confined to reeling only.

There were in this mill 300 reels and 600 women. It takes two women to every forty spindle reel. Every reel has an automatic attachment and knocks off at 120 yards. All were run by hand, being operated by means of a projecting handle on a large wheel belted to a small pulley on swift shaft. In the cotton mills throughout Bombay there are many reel rooms run by hand only, which is the strangest thing I have yet seen in Indian mills. The reason is simple, however. Each lea of yarn is supposed to be exactly 120 yards, and as this is sold to hand-loom weavers, who lay out their warp by hand, it is essential that every thread be exactly the same length. There are forty threads running on each reel, and as the machine knocks off at 120 yards it is clear that if one thread breaks that lea will be shorter by the distance run before the swift can be stopped to piece up. Belted power reels can not be stopped quickly as in the case of hand reels, which causes the use of the latter, and usually the hand-reel mills get a little higher price than the power-reel mills. This mill owes a good part of its profits to the fact that it has built up a reputation for exactness in length of skeins sold.

WAGES FOR HAND AND POWER REELS.

Hand-reel mills, however, have to pay a higher price for reeling. The price varies with the number of yarn, but taking 10s, for instance, the usual Bombay price is 4 annas (8 cents) for 20 doffs on hand reels and 4 annas per 30 doffs on power reels. Twenty doffs of a 40-spindle reel running 120-yard lengths is 96,000 yards, which, if 10s, is 11.43 pounds. The reeling wages are, therefore, 0.7 of a

cent for hand reel and 0.46 of a cent for power reels on 10s. It is curious to note that this is a higher price than is usually paid in America, where one-third of a cent for reeling 10s is considered high. The work is a little different, however, as in America the length does not usually have to be so exact, and full bobbins are reeled at each doff. In the mills here before doffing 7 leas (of 120 yards each) are tied together, forming an 840-yard skein.

MAKING UP HANKS—ABSENTEEISM.

Water bands are tied in and out to prevent tangling. Ten of these hanks are then made into one knot. Some markets require five-hank knots, and each market requires a special water band—white, red, red and white, orange, or some other color. Usually ten hanks go to the knot, and as each knot, therefore, contains 8,400 yards, it requires to make a 10-pound package exactly the same number of knots as the number of yarn used, 10 knots of 10s, 20 knots of 20s, etc. There are over the reel room three head women and two men overlookers, besides the reel-room master. The head women, called "nowghanes," were first used because when women began to work in the mills they would not speak to men; but they have since been retained because it was found easier to handle such large numbers of women through their own sex.

The Kohinoor Mill has 39,000 spindles and keeps 1,635 hands on its roll, of which 1,400 are on the active list. There are each morning 200 to 300 absentees, so it is necessary to always have a large surplus. Hands are paid off monthly and a month's wages always kept back to insure a notice being worked, but this has little effect. This mill at present is running on "short time," i. e., twelve hours. Mill starts at 6.30 a. m. and runs to 7 p. m., with thirty minutes, from 12.45 to 1.15, for lunch.

POWER EQUIPMENT AND MANAGERS.

The shafting and hangers in this, as in other Indian mills I have been through, are heavier than would be used in America; also, fully twice as much belting is used. Speeders and spinning frames are placed crosswise of the mill and their driven pulleys usually situated at the end farthest from the shaft. This gives a very long belt running to two guide pulleys and down at right angles to the spinning frame. The managers prefer long belts as lasting longer, but the first cost is excessive.

The Kohinoor follows the usual Indian mill custom of using rope drives from the fly wheel. The English system is followed of separate ropes for each groove. The engine is a 1,600-horsepower cross-compound, jet-condensing, and the boilers are the usual English

internal-fired type. The manager claims that his fuel consumption is only 1.4 pounds per horsepower hour, which, on a cross-compound engine and with Indian coal, is almost a record. The coal used in Bombay mills, with the exception of a small amount imported, comes from Bengal. The present price is 16 rupees a ton (2,240 pounds), which corresponds to $4.62 a ton of 2,000 pounds. It is a good coal, but with excessive ash.

In the organization of the Kohinoor and most other Bombay mills the manager, the carding and spinning masters, and the engineer are English. In some mills the room masters are natives, but practically all the managers are English or Scotch, even in the case of private-owned native mills. The second hands in each room are known as jobbers, for the reason that their wages are usually fixed at so much per pound of production. They are natives, and this stimulates them to keep up production. Yarn mills in India usually figure on 16 per cent waste. This mill is equipped with waste cards and two waste mules for making very low grade carpet yarn, so that a very small proportion of the waste made is sold as waste. The production is given as 26,000 pounds a day, and wages per month of twenty-five days as 19,000 rupees, which corresponds to 2.92 cents a pound labor cost.

CONCLUSION.

SUGGESTIONS FOR AMERICAN MANUFACTURERS AND MERCHANTS.

Great Britain leads the world in the manufacture of cotton goods, in fact, manufactures more cotton than all the rest of the world put together. In 1906 out of an international commerce in manufactures of cotton of probably $750,000,000 Great Britain supplied $484,723,900, or nearly two-thirds. Yet of the world population of 1,600,000,000 Great Britain has only some 40,000,000, or 4 per cent. This predominance is due to two things, her manufacturing ability and her marketing facilities. Her manufacturing ability enables her to produce the goods desired in large quantities at low cost. Her marketing facilities enable her to land the goods desired, in whatever part of the world they are needed, at a small addition to the cost of manufacture, and then to receive the payment therefor at home. These marketing facilities are based on two things, ships and banks. To-day the manufacturing ability of the United States in cotton goods equals if it does not surpass that of Great Britain, yet the marketing facilities of the latter keep her in possession of the textile markets of the world.

ENGLAND'S EVER EXPANDING CLOTH TRADE.

Only a small proportion of the English textile exports is now in yarn, and as India, Japan, and finally China increase their cotton mills this trade will be further curtailed. England's cloth trade, however, is an ever expanding one. The largest markets for British cloths are found in India, China, Egypt, Turkey, Argentina, and Australia, in the order named. Of all the countries to which she exports cloth India is by far the most important. Great Britain sells over twice as much cloth in India as in China; in fact, India consumes about a third of all the cloth exported from Great Britain. Great Britain could better afford to lose the trade of all her other possessions and colonies than that of India. American cotton manufacturers, who are just at the beginning of an aggressive campaign for world markets, should therefore consider India the largest and richest, if not the easiest, field among the first.

The English control the trade of India because their merchants have worked for it. It has been said that "India was taken by the sword and is to-day held by the sword," but both statements are incorrect. India was taken by British merchants and is to-day held by British merchants. They hold the trade because when they came out to India they settled down for long terms of years, learned the language, habits, and prejudices of the natives, and met them on their own ground. The English have settled into easier habits of life than they once led in India, and some of their mercantile houses are so old that cobwebs are commencing to gather.

Even to-day it is the custom for young men sent out as clerks, bookkeepers, etc., to sign five-year contracts. At the end of five years they get six months' leave on full pay or twelve months' leave on half pay. They then usually contract for three to five years more. After ten to twenty years, if successful, they go to London to manage the firm or retire on a competency. This five years' contract insures the employees becoming familiarized with Indian trade and life and makes for thoroughness. Such long contracts would hardly suit American employees, but the point is that Americans sent out here to build up a trade should be prepared to settle down and make a steady campaign; spasmodic effort will not do. No manufacturer locates a waterwheel on a stream that at times dries up, and no importer wants to connect himself with goods of which the supply may be shut off at any time on rise of prices or other occurrence at home.

PERMANENT AMERICAN AGENTS WANTED.

The Indian trade can only be captured by permanent American agents carrying a good line of manufactures, especially of the smaller

stock articles, at their Indian headquarters. Very often the native would prefer to buy the American article and would buy if sold from stock, but he will not wait four months for it. A most important consideration is the kind of agent sent out, as the whole campaign hinges on him. For India a young married man is to be preferred. He should be a married man to make him work and to keep him from drink, which is irresistible to the solitary exile in this hot climate. He should be young because an older man brought up in western ideas would not be pliable enough to fit into the essentially different customs of the East. A native likes to have a lot of palaver when he buys, wishes the whole thing explained to him over and over again, and wants to put it off several times before he finally decides to buy. Tact, patience, and a sense of humor are essential requisites for a salesman in India.

HUSTLING IN THE RIGHT WAY.

There is a strata of sense, based on long experience, in the idea that it won't do to hustle in the East; yet in the places where the American salesman has obtained a foothold it has been done by hustling, but in the right way. The English merchant in the East from Suez to Tokyo starts to work about 10 in the morning and works to, say 5 in the afternoon, with an hour for lunch and perhaps a leisurely cup of tea in the afternoon in his office. In many places you can find no one at business places after 4 o'clock. This five to six hours is regarded as a good day's work. The merchant sits in his office and the natives come to him. Usually the work of going around the bazaars is relegated to his babu, or head native employee. The American, as a rule, goes out to the bazaar after the trade himself, and where he does so in many instances he is enabled to secure part of the trade of the Englishman, for a bargain can be made much more easily between the two interested parties than through a third person, and a merchant's requirements can be much more easily sized up when his stock is seen. This is one reason why several American lines are beginning to get a good start in Bombay. As an instance, the gharriwalla, or driver, won't have a bell unless it is American make and has an eagle or some such mark on it as proof.

ADVANTAGES AND DRAWBACKS OF LONDON SYSTEM.

The system whereby the Indian merchant after a long experience in India goes home to manage the head office in London is a good one in that it provides men at both ends of the line who are thoroughly familiar with the trade; but it also tends to concentrate the whole management at the London end and to leave the Indian branch without the initiative and self-reliance essential to growth. These Indian

agencies are therefore simply a convenience to the London end in shipping and are concentrated at Calcutta, Bombay, Rangoon, Karachi, and Madras. Very few English houses have branches in the interior of India, even at such large cities as Delhi, Lucknow, Benares, and in many of the native States, even in the large towns, English merchants are not allowed to establish themselves if they want to do so. At the larger interior cities the trade is in the hands of the natives, who form connections with or act as agents of the English at the ports. These English houses concentrated at the seaports also send into these places very few drummers to show their goods and induce the native firms to buy; in fact the system of traveling men that obtains in the United States is not found in India. The English depend on the natives writing their requirements or else coming down to the ports to buy.

There are a comparatively small number of foreigners doing business in India, the Germans probably being the most numerous and successful. There are also Belgians, Italians, etc. The largest importing house in India is not English, but Greek. Dutch, French, and other shippers frequently arrange with a local English firm at Calcutta or Bombay to handle some special line, say blankets, agreeing to sell only through them and the local house agreeing to handle only their make of blankets. Bills of exchange are accepted at sixty days sight and the importer accounts for all moneys realized every three months.

TIME FOR PAYMENT.

The time demanded varies at different places, appearing to be longest at Calcutta and shortest at Bombay.

In Bombay most goods are supposed to be paid for within seven days after arrival. This is the rule, though longer terms are frequently required and allowed. In Calcutta in importing piece goods much longer terms are given. In fact a custom has grown up with many importing houses who order piece goods for native firms to store these goods free of charge for ninety days, and then after delivery to allow another forty-five days in which to pay. Suppose it takes forty-five days to get the goods from England and to land them, this makes six months from the time the goods leave the factory before their agent gets pay for them. In many cases it is the eastern disinclination to do to-day what you can put off until to-morrow and not the actual needs of the merchant that causes time to be asked. Some of the native firms consider it as derogatory to their dignity to pay cash when they buy a stock of goods, as the important man of a village would if required to pay cash every time he made a purchase at the village store.

NATIVES THE BUYERS.

India is one of the greatest buying markets of the world, and the people who do the buying are natives of India, not the handful of foreigners. The bulk of the traders are native, and to gain the market the idiosyncrasies and whims of these merchants must be catered to. Most of the merchants are square in their dealings, but, as stated, they are slow in paying, especially the Bengalese, and always want time whether they need it or not. The custom of discount is a special favorite with them. While usually honorably intentioned, the custom in India of a little squeeze is so strong that the Marwari dealer will often not pay until forced to do so, and then wants a discount for cash. Importing houses at Calcutta frequently charge 5 per cent more than they expect to get, and when, after waiting some time, they bring pressure to bear, they allow 5 per cent for paying up in full. The native is pleased at getting this reduction and is in the right frame of mind to continue to do business with the firm, while if charged 5 per cent more and forced to pay up in full he would be disgruntled.

PRACTICE OF GIVING GRATUITIES.

One custom that makes it unpleasant for new firms doing a general business in India is the amount of bribery that takes place. A slight instance of this is known of every tourist when his servant forces a shopkeeper to pay him 1 anna commission out of every rupee that his master spends. Neither the servant nor the shopkeeper sees anything wrong in this, as it is the custom, and the shopkeeper simply charges the tourist that much more to cover it. One anna out of the rupee, which is one-sixteenth, seems to be the usual "squeeze" or commission allowed in India, which is therefore higher than the "squeeze" practiced in China, which usually runs from one-half to not over 5 per cent. How the same system applies in general business, especially where large sales are made to the purchasing authorities of some of the native States, is quickly found out by the one trying to introduce his articles. An instance I came across was one where an importing firm sold an automobile for $15,000, yet the price to the purchaser was $25,000. A small importer related an instance where he endeavored to sell some machine shop supplies to a big manufacturing establishment and found there were four men who claimed 5 per cent each before any business could be done. These two instances were given by reliable men, and one hears enough unauthenticated tales to show that the system is widespread.

The custom of 1 anna out of the rupee commission has in some cases been recognized by the Government. For instance, in selling

sheets of undetached postage stamps the retail dealer has heretofore been allowed this customary commission. The Government only discontinued this practice in March and its action caused many protests.

CONSIGNMENTS BY FOREIGNERS.

A large business is done in India on the consignment principle, especially by foreigners introducing new articles. A consignment account is, as a rule, not favored by Americans, but in India in many cases it is the most advisable plan where a firm can not afford its own agent and wants to introduce a new article. The standing of an importing firm or small dealer can be easily ascertained through the banks, and thus the reliability of the goods assured. It is also usually safest to test the market in this way with small consignments before attempting large things.

A point worth noting is that goods should be quoted c. i. f. India, and also that the quotation should be preferably in rupees. The larger merchants at the Indian ports know the value of the American dollar, but are accustomed to think in rupees, and a proposition in rupees strikes them much more clearly than a proposition in dollars. It is the same as it would be with a New York merchant importing from India. He knows the value of the rupee, but prefers a quotation made in the money of his daily transactions.

BRITISH AND AMERICAN METHODS.

Speaking generally, it may be said that the difference between the American and the English cloth export methods is that America sells by cloth and England sells by design. America sells cloth that is woven and England sells cloth to be woven. The one plan favors the seller and the other the buyer. The English watch the Indian market, and if they see any popular design—in native cloth, say, a new native print or new combination of colors—immediately forward it to Manchester to be duplicated. Pattern cards of this design and with variations are then sent out and orders taken therefrom. Each native merchant has his own ideas of how the cloth should be made up and usually wants a particular heading with a certain number of tinsel and colored picks; also each section of India wants a particular kind of dhooty or sari or white shirting. This trade has to be catered to, and new patterns to be salable must first be submitted to the merchant for approval or change before making up the cloth. There must of course be a certain amount of cloth ordered of any one kind before the manufacturer will make a change, but in staple articles, like dhooties and saris, the volume of the business done in any good pattern is very large.

PATTERN CARDS NECESSARY.

Pattern cards are demanded by the Indian buyer, and this is one of the minor reasons why American mills do not more actively seek this market. Often these cards are very elaborately gotten up and are furnished in profusion. For instance, a merchant buying 10 bales of dhooties, with, say, 20 different styles of borders, may demand two or three pattern cards showing all the different headings. These usually come out before the goods, and frequently on the strength of the sample cards the merchant will sell the entire lot before arrival. Naturally therefore he clings to this custom. Where a staple article is sold or one pattern gets a hold on the market the merchant may sell bale after bale from the same sample card without necessity of getting new ones. This detail of pattern cards is one particular instance in which Americans must cater to the native customs, at least on all cloths like dhooties, saris, prints, etc. After all it is not a large matter. A New York house with half a dozen pattern-book styles kept in stock can delegate to the office boy the work of gluing in swatches when desired. Most of these sample books have stiff pasteboard covers, with an attractive picture on the outside and a folder inside, on which are pasted the ends of cloth and the edges covered with gilt paper. The whole is tastefully gotten up and gives the buyer a good impression of the goods before they are received.

In drills, prints, shirtings, even in dhooties and saris, America could do a large business with India. At present the textile exports of the United States go mainly to the Far East and practically none to the Near East. The main factor is that the former takes heavy goods and the latter light goods, but the United States will soon be competing with England in fine goods and will need a foothold here on which to build.

BUSINESS FOR DIRECT STEAMSHIP LINE.

To one who studies the trade between the United States and India it is clear that one of the main things needed is a direct line under the American flag. In 1905–6 the total trade between the United States and India amounted to 152,938,987 rupees, or, say, $49,552,232. Of this amount India sold the United States $42,215,439, while the United States sold India only $7,336,793, leaving $34,878,646 that the United States had to pay India in cash. If this large balance had been paid in goods it would have stimulated many American industries. Even considering that some American raw material (chiefly cotton) and that some American manufactures (chiefly machine parts) are forwarded from stock in Great Britain and not credited to America, India yet sells the United States over

five times as much as the United States sells India. If the American manufacturers were as eager after this trade as are the Germans these goods would have been in American bottoms, and American cottons, tools, and machinery would have more than filled the ships for the return trip.

BOMBAY AND NEW YORK.

Bombay is nearer New York than is Shanghai and the freight rate is less. Also the published rates on cotton piece goods, even under the present system of transshipment, is actually less from New York to Bombay than from Liverpool to Bombay, 20 shillings against 22 shillings, though more from New York to Calcutta than from Liverpool to Calcutta, 25 shillings against 23 shillings. As a matter of fact, however, the rate even to Bombay, except in very exceptional cases, is in favor of the English by reason of the many special rates and rebates that are named. The rates are varying continually, and depend not only on the time of year and the demand for cargo space, but also on many other things having little connection with the laws of supply and demand. The lines running to Singapore, Burma, and other places have rate wars and give special rebates amounting to 10 per cent or more to certain favored parties who agree to confine themselves to one combine. An instance of this at Bombay is that of the Bombay Native Piece Goods Merchants' Association, which imports only by the ships of certain lines, and for confining their imports to this group they get a rebate of 1 rupee a bale or case, of which the member importing gets 12 annas and the association 4 annas. Such instances are common, and much larger rebates are frequently given, but naturally little is published about it. Such associations of shipping interests tend to confine the trade to British goods, though not so stated, and to hamper sales from America, which are all transshipped in England.

COMPLAINTS OF PACKING.

Another evil of the system of making England the headquarters and distributing center for American exports to South America and India is that it necessitates much stronger packing. In transferring to lighters and then to holds of vessels goods are frequently slid down gangways and dropped some distance; and in cases of goods shipped by bulk crowbars are used to force the cases into the hold, or else a half a dozen men jump on top of a case and force it into place. The result is that in India there is much complaint of American packing, and whether due to original poor packing or rough handling it is a fact that a good deal comes out in a broken-up condition, as I have been personally shown by importers. A direct American line would also give much quicker time, and this would

help trade wonderfully, for the long time in transit and the various special rebates that British importers get give them an undue advantage over Americans. The few ships that do make trips from New York direct under the present system run irregularly and usually tack back and forth across the Mediterranean, so that it takes three to five months to reach Bombay; as long or longer than if transshipped in England. What is needed is an American line running to Singapore via Bombay and making fixed trips.

One other point is that the American manufacturer is not backing up the few American agents who are doing a pioneer business here. Take an instance I recently came across: An American agent has the sole agency in India for a well-known American fountain pen. He quoted what was presumably the maker's rock-bottom price, and sold the pen in the bazaars with a very small per cent commission added. He soon found that the same pen was being sold in the bazaars cheaper than he could sell it without any commission at all. It was traced to a German house, and it was ascertained that the pen was not an imitation but the genuine article. It was further ascertained that a house in Germany had offered the American firm a large order and secured a very low price, then shipped the pens to India from Germany and undersold the man having the exclusive agency. The American makers claimed they were not responsible, but in giving an exclusive agency to an American in India the makers should at least have protected their own agent by giving him as low a rate as they quoted his business rivals.

COTTON FABRICS IN THE PHILIPPINES.

MARKETS OCCUPIED MAINLY BY EUROPEANS.

During the fiscal year 1906 the imports of cotton textiles into the Philippines from the United Kingdom were valued at $3,006,140, against an import from the United States of $278,890, the American sales having dropped from $764,990 in the year previous.

According to both manufacturers and importers the decrease in American cottons in 1906 was directly due to an unexplained change in the Philippine tariff in 1905, whereby American textiles were discriminated against in favor of foreign goods. In this period the imports from the United States amounted to $227,786, while for the whole of the fiscal year 1906 the total was only $278,890. The United States bids fair in 1907 to reach the highest mark it has yet attained, probably 15 per cent of the total. It should not be forgotten, however, that England will still be supplying a large proportion of the imports.

The reason of this great increase from the United States is undoubtedly the effect of a recent correction of the slip in the tariff law of March, 1902, which was corrected by the act of February 26, 1906. The effect of this correction, however, was not fully felt in the actual receipts at Manila for some months of course; that is, until the beginning of the fiscal year 1907.

IMPORTS FROM VARIOUS COUNTRIES.

The following statement shows the imports of cotton textiles into the Philippines from the several countries during the fiscal years 1903 to 1906:

IMPORTS OF COTTON GOODS INTO THE PHILIPPINES, 1903–1906.

Countries.	1903.	1904.	1905.	1906.
United States	$389,303	$319,666	$764,990	$278,890
United Kingdom	3,124,518	2,216,776	2,867,882	3,455,862
Spain	861,800	761,576	886,697	885,206
Switzerland	288,414	358,206	360,837	484,303
British East Indies	328,411	357,715	348,650	372,259
Germany	576,058	277,684	313,190	279,559
China	143,414	150,803	268,529	239,915
Japan	131,890	191,526	230,464	220,191
Italy	89,512	67,130	90,421	122,829
Netherlands	78,736	38,822	52,052	101,073
France	118,630	89,875	59,284	91,083
Belgium	77,865	21,858	86,256	77,785
Hongkong	60,557	12,111	5,777	18,661
Austria-Hungary	10,813	4,541	11,892	12,827
All other	4,459	94,065	41	1,886
Total	6,284,370	4,962,354	6,346,962	6,642,329

This shows clearly the extent to which England preponderates in this trade, averaging as much or more than all other countries together. To ascertain if this proportion was still holding true in face of the revised tariff, the customs figures for the first four months of the fiscal year 1907 were consulted.

The following statement was made up according to the tariff classification and shows the total imports of the several classes of cotton goods imported during the four months ended October 30, 1906, and the imports from the United States in separate columns:

IMPORTS OF COTTON GOODS INTO THE PHILIPPINES, QUARTER ENDED OCTOBER 30, 1906.

Classes.	Total imports.		Imports from United States.	
	Pounds.	Value.	Pounds.	Value.
Closely woven cloths	2,900,339	$1,031,568	543,618	$201,605
Loosely woven cloths	1,018,948	330,630	51,905	16,599
Wearing apparel	20,576	13,742	3,018	2,621
Carpets	181	91	.....	.....
Yarn and thread	1,488,091	434,755	1,684	520
Quilting and piques	4,648	2,385	.....	.....
Velveteens and corduroys	2,251	1,351	.....	.....
Tulles and laces	8,445	13,600	.....	.....
Knit fabrics	442,357	236,764	2,314	1,666
Waste, etc	51,461	3,571	4,425	355
All other	153,415	78,507	6,441	4,420
Total	6,090,712	2,146,964	613,405	227,786

CUSTOMS CLASSIFICATIONS.

The closely woven cloth, which covers the bulk of imports, is cloth counting over 25 threads (warp and filling) per 6 square millimeters (millimeter=0.0394 inch), while the loosely woven has less than 25 threads per 6 square millimeters. The tariff classifications, while all right as a basis on which to collect duty, are very vague in their phraseology, and such a table as the foregoing, which is similar to the regularly published classifications, is of very slight value to a prospective exporter. Closely woven cloth may be anything from a mosquito net to a cotton Italian, and conveys no idea to a manufacturer's mind. Loosely woven is similarly vague and general. The world's model tariff reports, in this respect at least, are those of the imperial maritime customs of China. They are published quarterly and yearly. Such reports show in detail the names of all cloths imported, such as white shirting, gray shirting, 32-inch T-cloth, cotton duck, etc., the weight, yards, and value of each kind from each country, how much was reexported from each port, how much actually consumed in each district, etc. It gives detailed information as to what kind of cloth is bought at each importing center and who furnishes it, and this is valuable information to manufacturers seeking to start in this trade. To install such a system in the Philippines

might be too costly now, but at the next revision of the tariff some provision should be put in whereby the cloths should be listed under general names at least.

KINDS OF CLOTH IMPORTED.

A statement prepared by the director of customs, covering the imports into Manila during the month of October, 1906, gives a clearer view of the actual cloths imported than anything heretofore published. The following particulars of the imports from the United Kingdom and the United States during the month gives a sufficiently clear view of the trade:

KINDS OF COTTON GOODS IMPORTED INTO MANILA, OCTOBER, 1906.

Kind.	From the United Kingdom.		From the United States.	
	Pounds.	Value.	Pounds.	Value.
Gray shirtings	15,095	$3,423	348	$226
Bleached	294,984	95,485	.....	.....
Unbleached	170	25	2,019	622
Twilled, plain	27,281	8,469	.....	.....
Twilled, dyed	19,596	8,777	.....	.....
Plain, dyed	69,189	24,788	20,312	7,363
Figured and dyed	26,434	13,140	263	53
Printed	31,100	13,511	138,468	54,600
Handkerchiefs, plain, figured, printed, etc	4,424	2,202	.....	.....
All other	13	6	104	108
Total	488,286	169,826	161,454	62,972

Of the dyed twills 17,012 pounds, valued at $10,037, and of the printed cloth 31,100 pounds, valued at $13,511, came from Switzerland.

ORIGIN OF DIFFERENT CLASSES OF IMPORTS.

The foregoing statement shows that at present nearly all the cotton prints are coming from the United States. This, however, is only since July, 1906, for during last year very little came from there. It also shows that, with the exception of some $7,363 worth of plain dyed goods, there is practically nothing else imported from the United States. These plain dyed goods are mainly turkey-red shirtings.

The table shows that the bulk of the plain bleached cottons come from England, while none comes from the United States. These are mainly white shirtings, the largest single cloth imported. During the month of November there was brought in a good shipment of white shirting from the United States, and it is to be hoped that this will prove the entering wedge. In plain twilled cottons the producers are in England and Belgium. This embraces a good many different cloths, but the largest single item is white drills. Here also a blank follows the name of the United States. In dyed twills the

producing countries are England, Scotland, and Italy. Under this head come khaki drills, some dress goods, Italians, umbrella cloth, etc. In plain dyed cottons England leads, as usual, followed by India, the United States, and Spain. Under this head are turkey-red shirtings, cambrics, ginghams, crêpe, trouserings, checks, stripes, plaids, etc. In figured and dyed goods the leaders are Scotland, England, and Switzerland. This includes dyed brocades, woven fancies, Italians, umbrella cloths, etc.

Under cotton prints are the regular shirting prints, percales, printed lawns, muslins, flannels, sateens, etc. At present the United States leads, followed by England and Spain, France and Japan also sending a few. It is satisfactory to know that the proportion from the United States is not only increasing, but that the total volume is also heavily increasing. I was informed by the appraisers' division of the customs that for the single month of November, 1906, there was imported over $140,000 worth of American prints. Cotton blankets come from the Netherlands and Germany; cotton pile fabrics from Italy and Japan. That from Japan is the Bedford cord or pique. Ordinarily, however, under this head England and Germany will be found leading, the main pile fabrics imported being velvets and plushes.

Umbrella cloths are ordinarily a very much larger import than shown for the month in question and come from Germany and England. Cotton handkerchiefs come from England, Spain, Scotland, and France. Cotton trimmings come from Germany. The table shows that the United States is shipping to the Philippines plain shirtings, prints, turkey reds, and nothing else, leaving untouched the possibilities in other lines that it ought to control, such as white drills, duck, cottonades, cotton trousering, ginghams, plaids and checks, cotton flannel, etc.

FUTURE PROSPECTS.

The possibilities of the trade in cotton fabrics in the Philippines are great. The annual import has averaged some $6,000,000 for quite a while, and with a betterment of conditions in the islands and the tendency of the people to buy more foreign luxuries this trade will be over $15,000,000 in less than five years. In one year, 1901, a spurt was made up to $9,441,047. With the correction of the tariff slip of 1905 the proportion from the United States has rapidly increased.

In 1906 there was imported $6,642,329 worth of cotton manufactures. There is very little cotton cloth manufactured in the islands, and of the native cloths, made from the fibers of hemp, pineapple, etc., the total production does not exceed in value $1,000,000, and probably falls much below that. This gives less than $1 per capita

for a year's clothing. The Filipino, especially the Tagalog, is fond of fine clothes and display, and with increasing prosperity there will come, among the first demands, more textile imports. The control of the Philippine textile market by the United States will be of great advantage to American manufacturers as a basis from which to reach out after the vast trade of southern China and the East Indies.

MANILA COTTON MILL.

There is one cotton mill in the Philippine Islands. It is at Manila, is owned and operated by Englishmen, and uses English machinery. It is controlled by a large English importing house in Manila. This mill has 10,000 spindles and 220 looms. A few of these are dobby looms. The mill building is well suited to tropical conditions, having cement floor, light iron construction, with iron channel beams for posts, the tops and sides being of corrugated sheet iron.

The cotton used is mostly American, being mixed with one-fourth native. The native cotton comes in 250-pound bales, or rather packages, covered with coarse matting, tied with bynco rattan. The Philippine cotton seems to have a better staple than the average Chinese, and some of it would grade up well, but it runs very uneven. The present price at Manila is 9 cents gold per pound for native ginned cotton, while the American strict middling costs landed 14 cents gold. The mill makes its soft waste into candle wicks. The motes are cleaned and the cotton seed sold. Cotton seed is now worth about 24 cents per bushel of 32 pounds. The mill is run on the careful English system and no waste sold that can possibly be reworked. The preparatory machinery is from England, there being only two machines—an opener and picker and one lapper. The greater portion of the stock put through is white cotton, but for the colored raw stock dyeing is used. There are 32 cards, all English make, as are also the draw frames and fly frames. The processes of drawing used are slubber, intermediate, and fine frames. The spinning frames are of variable number of spindles, but are long, mostly with about 300 spindles. Hank clocks are used on every spinning frame, and the spinners are paid by the hank. The wages vary, but for No. 20s, for instance, the price is 7 cents gold a hank. One girl to a side is usual. The numbers spun are mostly about 20s, ranging from 12s to 32s.

The product of the looms is mainly coarse white shirtings with some convict-stripe cloths, and a few looms on chambray. The pay for weaving varies, but the average is about 17½ cents gold per 40-yard cut. The hours are from 6 a. m. to 5.30 p. m., with a half hour off for breakfast and another half hour for dinner. On Saturdays the

mill stops at 5 p. m. Even with this schedule there is great trouble in keeping the help. The Filipino is deft of finger, and on his hand loom at home makes very fine fabrics from unpromising materials; but steady work indoors, or out of doors for that matter, is not to his taste. Promptness in arriving on time is not one of his virtues. He makes a very unsatisfactory mill hand, and it is impossible to get most of them to work continuously. The mill has been in operation since 1896.

CLOTHS IMPORTED.

WHERE THEY COME FROM AND PRICES PAID.

Four classes of cotton cloths are now imported into the Philippines—white shirtings, white drills, betilles, and prints. The two first named come from England, betilles (also called Swiss muslin) from Switzerland, and cotton prints (since the tariff law was corrected) from the United States. In addition, cotton yarn is imported from Japan, England, Scotland, and Switzerland in about equal quantities, knit cotton undershirts from Spain, and hosiery from Germany. These are the main cotton textiles imported and the principal countries in each line. Details in regard to these, also details of other minor fabrics, are herein given, so that the American manufacturer can gather some idea as to whether it would pay him to attempt the market.

To ascertain this, the first object is to learn the prices at which competitors are selling. Retail prices depend on the individual seller's idea of profit and the competition in his section, so that retail prices vary greatly between two neighboring towns, or even in the same town. Wherever possible, therefore, invoice prices have been obtained, which show exactly what the importing merchant is now paying. The usual retail selling price is 20 to 50 per cent higher, as duty, charges, and profit must be allowed for.

Textiles are imported into the Philippines from all countries. There is not a manufacturing country in the world that is not represented on the market at Manila. In the box forwarded to the Bureau of Manufactures will be found textile samples from England, Scotland, Spain, France, Belgium, Germany, Switzerland, Austria-Hungary, Italy, India, Japan, and the United States. In giving the construction of goods it is customary in some cases to give the ends each way per quarter inch and in other cases per inch. The constructions are here given in ends for inch. As is customary, warp ends are given first; thus 60 by 56 means 60 warp ends per inch of width and 56 filling or weft ends (i. e., picks) per inch of length.

WHITE SHIRTINGS.

The tariff is based on weight, and thread counts per 6 square centimeters (centimeter = 0.3937 inch) and does not, as does the Chinese tariff, specify the different cloths by name. There is therefore no way of ascertaining the exact proportion of each cloth imported. There is no doubt, however, but that the largest single item is white bleached shirtings. This white shirting is very extensively used and is a large import, probably $1,000,000 worth a year. It is mainly used for clothing, especially in the provinces, where it is used for trousers, shirts, and underclothing, large numbers of the men wearing no other kind of cloth at all. There are many varieties of white shirting, but that mostly imported here is the medium, not the very heavy, starched goods.

In China a usual white shirting imported is 38½ inches wide and 38½ yards long. The white shirtings imported into the Philippines vary from 24 to 77 inches wide, from 20 to 50 yard lengths, and the constructions from 56 by 48 to 80 by 80 ends per inch. The most usual form of white shirting imported here is a pure size, rather soft (medium) finish, 34 to 36 inches wide, 40 varas (= 36½ yards) long, and, say, 72 by 56 ends per inch construction. The present invoice price on this is about 4½ cents a yard. Besides its large use for clothing, white shirting is used for sheets, pillow cases, and other domestic purposes. It is not sold, as are sheetings, by weight, the market price depending on the finish, amount of size, perfection of weave, width, etc., the general appearance and feel of the goods being the controlling factor. A few prices from recent invoices were as follows:

PRICES OF WHITE SHIRTINGS ON MANILA MARKET.

Width.	Ends per inch.	Length.	Price per yard.	Width.	Ends per inch.	Length.	Price per yard.
Inches.		*Yards.*	*Cents.*	*Inches.*		*Yards.*	*Cents.*
23½	72×60	35	3⅜	35	80×80	36½	5¾
24	72×60	35	3⅜	35	68×60	36½	5½
31	56×48	36	3½	35½	64×64	36½	4 9/10
34	68×68	36	5	36	76×68	36	6⅕
34	72×56	36½	4½	36	76×76	40	7⅞
34½	68×60	36½	5½	77	56×48	20	17½
35	72×56	36	5				

These are actual invoice prices from shipments received during November and December, 1906, and samples have been forwarded to the Bureau of Manufactures. All in the list came from England. From the United States there has been practically none imported, but small quantities are now beginning to come in, mostly 36-inch widths, and this large field should be cultivated by American manufacturers. In the Orient American bleaching is regarded as imperfect, but there has been a great improvement in this regard in recent

years and it is now almost, if not quite, equal to the English. As shown on their invoices the English charge about two-thirds of a cent per yard for bleaching.

LOCAL MEASURING SYSTEM—PACKING.

In the foregoing list of recent shipments it will be noticed that 36½ yards seems a common length. This is really 40 varas, and is so marked on the pieces. The vara is the Spanish linear measure, and is more widely used in the Philippines even now than the English yard or the meter. If one goes into a native or Chinese store in Manila and asks for 10 yards there are usually measured off 10 varas, as the "yardstick" used is a vara long. A vara is 0.927222 yard, or 33.384 inches, so in this case the buyer taking the Filipino yard loses 2.616 inches to the yard. Some of these white shirtings imported are simply the ordinary 36-inch, 40-yard sheeting bleached, and on these the price varies from 5⅞ to 7⅞ cents. A large shipment of these just in were 50 pieces, or 2,000 yards, to the case, and were marked as 548 pounds gross, 443 pounds net weight. These were therefore 4.5 yards to the pound goods. In this instance the tin-lined cases were charged for extra at $2.75 a case.

All of these white shirtings are shipped in tin-lined cases, and sometimes this is included in the invoice price and sometimes put down separately. The former method is much preferred by the buyers, as "extras" disarrange their calculations and are never favored by them. The charges for cases vary from 49 to 73 cents up to $2.92 gold, and the buyer never knows how much he is going to be levied on, as it is rarely the same on two consecutive shipments. These tin-lined cases are carefully soldered, and the boxes are stoutly made, ¾-inch plank being used, reenforced with two to four iron bands or with short iron ties crossed at the corners. Usually fifty pieces of about 36 yards are put in these cases, divided up into packages of five bolts each wrapped in tissue paper and then with stiff wrapping paper. Before these are put in the casing is lined with heavy wrapping paper, usually waterproof, so that the cloth is well protected.

NAINSOOKS, WHITE LAWNS, AND DRILLS.

Closely allied to white shirtings is the white cotton nainsook, which is practically a fine white shirting. This also comes from Manchester, and the main quality is a pure-sized, 30 to 31 inch, 108 by 96 ends per inch construction, coming in 18-yard lengths. The present invoice price is $1.07 per 18-yard piece, which is about 6 cents a yard. In China white is the badge of mourning, while most clothing is dyed some color, usually blue. The Philippines is more of a tropical country, and white is universally worn, and white goods, whether

shirtings, nainsooks, drills, cotton duck, lawn, or what not, is in much larger use than any dyed goods.

The white lawns imported include the ordinary goods, averaging about 72 by 64 ends per inch to Victoria lawns averaging about 92 by 92, or Persian lawns averaging about 100 by 100 or over. A white lawn, 29 inches wide, 10 varas (9.14 yards) in length, 60 by 56 ends per inch, is now invoiced at 3 cents a yard. Another, 25 inches wide, 9.14 yards long, 68 by 68, is invoiced at 45 cents per piece, or 5 cents a yard. This last is also heavily sized. The Victoria lawns, which are finer grades of lawns, are 24 to 26 inches wide, and the main constructions are 92 by 92, 96 by 84, 80 by 72 ends per inch, respectively. The 26-inch, 92 by 84, is now invoiced at 49 cents per 10 varas piece, or 5⅓ cents a yard. The main Indian lawns imported are invoicing at $1.99 per 24-yard piece, 30 inches wide, or 8¼ cents per yard, and at $2.25 per 24-yard piece, 36 inches wide, or 15 cents a yard. The Persian lawns also come in 24-yard lengths and are mostly 32 inches wide. The prices on white cotton Persian lawns range from 7½ to 10½ cents a yard, while on the white mercerized cotton Persian lawns, which are also 32 inches by 24 yards, the price ranges from 9 to 16½ cents a yard. These are all prices taken from recent invoices, and, roughly speaking, the retail prices are 40 per cent higher. They are nearly all imported from England. These all come carefully packed in tin-lined boxes, and for making up and packing the present charges, as shown on invoices, run from $2.92 to $14.60 a case. This includes case, tin lining, tissue-paper wrappings, special labels, etc. The weight of the lawns run from 10 yards to the pound or more, some of the heavier starched white lawns weighing about 13 yards to the pound for the Indian lawn, and up to 16 yards to the pound for some of the finer Persian lawns. Lawns fall under paragraph 118 of the tariff. An ordinary Victoria lawn, 23 by 23 ends per 6 square millimeter, would pay a duty of 50 cents per kilogram of 2.2 pounds, or, say, 2 cents a yard duty.

DRILLS FOR SUITS.

One of the most largely imported cloths is white drills, for men's suits. The climate is such that one weight of cloth can be worn all the year around, and a large proportion of the men in the cities, foreigners and natives, wear only drills. These are not the drills shipped by the southern mills in such large quantities to China, especially to Manchuria, which are gray goods, and all three-harness twills. The drills that are used so largely for clothing, taking the place of white duck, are not twills—that is, ordinary twills—but are satin weaves. In a regular twill weave every pick is interlaced with the warp in the same manner, but each successive pick commences one

end farther to the right or to the left, thus enabling each end to be bound into the cloth in regular order, which produces the diagonal effect or "twill." In satins the picks are arranged differently, as it is intended to obtain an even surface, free from the bold diagonal lines of a twill, and thus the points of intersection are more distributed.

A good many satin weaves are used for white drills, but the greater portion are made with five-harness, and the order of lifting is 1, 4, 2, 5, 3. Some are made with the straight draw 1, 3, 5, 2, 4. The figures refer to the order of lifting the heddles in weaving. In making these goods the proportion of warp to filling, or weft, is usually about two to one, as with the warp predominating a cheaper fabric is produced, less time being required to weave a given length. These drills are made in widths and lengths to suit the customer, but usually come 24 to 25 inches wide (61 cm.=24 inches) and in lengths of about 30 yards. The prices vary with the construction, weight, and finish, but some recent invoice prices were 7¼ cents per yard for some drills 24½ inches, 132 by 84 (warp and filling ends per inch); 7½ cents for some 25 inches, 132 by 80; 8⅝ cents for some 24 inches, 140 by 92; 8 cents for some 24 inches, 96 by 80; and 9⅛ cents for some 24 inches, 140 by 80. Generally speaking, the invoice prices are running from 7 to 10 cents a yard, and of course the retail prices are much higher. There is a very large quantity of this used, and nearly all of it comes from England.

BLUE, GRAY, AND CHECK DRILLS.

Of the regular three-harness gray drilling there is very little imported, and what is brought in comes either from Japan or England. The natives also weave some drills on hand looms, producing a small amount. In a Chinese shop at Manila I saw three pieces of 3-yard drills selling side by side—English, Japanese, and Filipino. The shop price was the same on all, $3.75 per 40-yard piece, or 9⅜ cents a yard. This was the asking price, but the native and the Chinese shopkeepers always have a sliding scale of prices, and how far down the scale the price is brought depends on the persistence and skill in arguing of the buyer, so the real retail price was probably somewhere between 8½ and 9 cents a yard. A recent invoice from the Miye Cotton Mill, Japan, of 3-yard drills gives an invoice price of 4.30 yen per 40-yard piece, which is only 5.75 cents a yard. To this was added 1 per cent commission paid the Japanese commission house, and, as freight and other charges have also to be added, the price landed at Manila was probably about 7½ cents a yard.

There are some gray half-linen drills, both gray and dyed in the piece, imported from Manchester. These are 24.6 inches wide, 56 by

44 construction, three-harness, and the invoice price is 9⅝ cents a yard. Some blue drills, all cotton, imported in January, came in cases (the boxes being 2 feet 11 inches by 2 feet 3 inches by 2 feet 7 inches, tin lined) of fifty 30-yard pieces, 1,500 yards each. These were 24 inches wide and invoiced at 9⅝ cents a yard. Some check drills came in cases of fifty 24-vara pieces, 22½ yards approximately, and were invoiced at 6 cents a yard. These were 30 inches, 56 by 48 ends per inch, and were 5.5 yards to the pound. Most of the three-harness drills imported are khaki drills.

KHAKI DRILLS AND COTTON DUCK.

These are three-harness drills dyed the peculiar brown shade known as "khaki," the genuine original color of which is a secret held by one concern in England, with a branch in the United States. These goods come in 27 and 28 inch widths and 30 and 40 yard lengths. Besides being worn by the troops they are largely used in the Philippines by civilians as suits for rough wear, hunting, or traveling in the provinces.

Of the three main brands imported the "Stockport" is considered the most durable color, and is used for the Philippine constabulary service. This is a 28-inch, 30-yard, 3.1 yards to the pound, 68 by 52 cloth, and is invoiced at present at 10½ cents per yard, less 3 per cent discount. A heavier grade of this brand is a 10-ounces to the yard, 82 by 48 cloth, invoicing at 17¾ cents a yard, less 2½ per cent. This comes in 40-yard lengths, 25 pieces or 1,000 yards to the case. The "Wigan" brand is also largely used. This is a brighter shade and slightly more dressy goods. It is mostly 27-inch, 2.50 yards, 72 by 48 goods, coming in 40-yard lengths and invoicing at 13 cents, less 2½ per cent discount. A heavier weight of the same color is 8.40 ounces to the yard, 27 and 28 inches, 92 by 56, and invoiced at 15½ cents a yard, less 2½ per cent. Another brand largely used is between these two in color, not being as dull as the Stockport nor as bright as the Wigan brand. It is usually sold 28 inch, 30 yards, 72 by 52, and invoices at 15⅜ cents a yard, less 2½ per cent discount. Practically all of these come from England.

White cotton duck, while not as popular for men's white suits as the white drills, is imported in large quantities. The duck is a heavyweight, close-woven fabric, of a stiff, hard feel, and has great wearing qualities. It is made of coarse two-ply yarns, and is a plain woven cloth. It is used in general for sails, tents, awnings, outing suits, etc., ranging from 7 ounces to the yard, 27 inches wide, to 25¼ ounces to the yard, 60 inches wide. That mostly imported into the Philippines is the white cotton duck, and is the 28-inch, 96 by 72, 30-yard, 7 ounces to the yard quality, and is used for men's white suits.

The present price is 13½ cents to 15 cents a yard f. o. b. Liverpool. For these suits the cloth is made of bleached yarn, and it is heavily starched afterwards. Practically all of this cloth comes from England, but this trade should go to the United States. Of 7-yard gray duck unbleached, imported, the present invoice price on 24-inch, 30-yard, goods is $2.19 per piece, which is about 7⅓ cents a yard. This comes 60 pieces, or 1,800 yards, to a case. Most of this white duck is 28 or 28½ inches wide. Some comes in lengths of 30 yards, but most of it is 70 to 80 yards long and 10 pieces to a case. The lengths are very variable; for instance, one case noticed had 10 pieces of 66, 66¾, 67, 68⅛, 76, 77, 78, 78½, 79, and 79⅛ yards, respectively. It was invoiced at 22.305 kilograms per 100 square meters, which is about 5⅓ ounces to the yard.

BETILLES.

Betilles is a Swiss muslin of large mesh, and is one of the four main textiles imported into Manila. Immense quantities are brought in. It is not difficult to make, and would be a new line for American manufacturers. At 10 cents a yard for 44 by 32 end goods, even considering the bleached yarns, it should pay. It is evidently paying the Swiss and British, and if carefully figured out it might, even with higher labor, leave a good margin of profit to Americans. These goods are called "betilles" on the invoices received from Zurich, and are so known to the Spaniards, but the Chinese shopkeeper here usually refers to them as "Swiss muslin," or muslin for mestizas. Mestizas usually means half-breed, but is here used as meaning the waists and scarfs made of this kind of goods and worn by the women.

Practically speaking, this betilles is a mosquito netting stiffly starched. The construction is the same both ways, and consists of three threads and then a space, then one thread and then a space, and then three threads again. The three threads running each way form open squares about ⅛ inch each way, which are split into four smaller open squares by the single threads. This is the construction of the great bulk of these goods. Other constructions have stripes formed by the warp for a space being closer reeded, giving a close and then an open construction. Others have figured work, dots, circles, small birds, etc., formed of colored threads over the main body. The ornamentation of a fabric, where the ground weave is a plain weave and a thick colored end, in forming figures on the surface, is done either by means of lappets, where the figures are inserted by means of extra warp threads that form the figures and then float underneath until the next figure is to be formed, these floats being afterwards cut off, or else by means of swivels, where extra filling is used for forming these patterns, and which is inserted by means of small

shuttles about 4 inches long that are attached to the slay cap and lowered into the warp at intervals by means of a rack and pinion.

These betilles are either plain white, piece dyed, striped, checked, printed, or ornamented as stated. The larger part comes from Switzerland, but recently England has begun shipping large quantities of the printed betilles, and most of this kind are now imported from Liverpool. England is also shipping a good deal of 48 by 48 printed muslin—that is, split goods about 20½ inches wide—and though it looks more like a cheap openwork shirting print than a betille, is, on account of its cheapness, coming into use to a certain extent as a substitute. This is regularly reeded and picked, while the betilles, as heretofore noted, have squares made by three and then one thread each way.

SPLIT GOODS—DYED AND PRINTED MUSLIN.

The regular betilles are all made 104 centimeters (about 41 inches) wide. They were coming in 52 centimeters wide (about 20½ inches), but were split goods, and as split goods now pay 100 per cent surtax their importation in the narrow split widths has stopped. They come now in the full widths, which is really preferred by the natives, as it gives them a better chance to cut their patterns in larger size to suit themselves. The lengths are always 5 varas, which is a 4½-yard piece. Each piece comes neatly folded and labeled, and is sold in the bazaars and stores only in these short pieces—never by the yard. The usual construction is about 46 warp ends and 32 picks per inch, though of course this varies. The number of pieces to the case also varies from 350 to 550, averaging probably about 450 of the 4½-yard pieces, say 2,050 yards to a case. These goods run from 6.75 to 8.5 yards to the pound.

The plain piece-dyed muslin is mostly pink or yellow, also some blue and blown. It now invoices at about 27 to 32 cents per piece, which is about 6 to 6½ cents a yard. It retails at about 35 to 40 cents per piece. Striped muslin is made with dyed yarn, at least the stripe effect. The Swiss invoice this as "betilles rayees," at about 34 to 38 cents per piece. If the stripes run both ways, forming check or plaid designs, the Swiss call them "betilles a carreaux," and the invoice prices now run from 36 to 40 cents per piece. There is also a good deal of the "betilles crodees," which is the figured muslin, made with lappet or swivel weaving, forming floats on the main body of the weave. This invoices at from 35 to 50 cents per piece, and retails at from 45 to 60 cents per piece.

Of the printed muslin, of which there is still some on the market 20½ inches wide and 9 yards long, all now coming in is 41 inches wide and 4½ yards long, the invoice price from England runs from 25 to 35 cents, according to quality, and the retail price runs from

about 30 to 45 cents. This is for a 4½-yard piece, the few 9-yard lengths being double this. These betilles are used by the native women as shirt waists, and are usually worn with an extra V-shaped piece, made of the same material, thrown around the neck like a knotted handkerchief. The fabric is always stiffly starched, and, this making the bodice and the wide sleeves stand out, a woman in full dress takes up quite considerable space. The wearing of cotton print skirts, with a "surang" overskirt tucked into the belt, and this betilles shirt waist, now forms the distinctive dress of the Filipino women.

As noted elsewhere, the natives weave piña and other cloths that resemble betilles, but are usually of higher quality, made from hemp, pineapple, and other fibers These open muslins have somewhat the look of mosquito netting, and as they are worn stiffly starched, standing out from the bare shoulders and arms, it serves the same purpose, and was probably originally used for this reason.

MOSQUITO NETTING AND NETS.

In a tropical country like the Philippines mosquito netting is almost a necessity and is largely used. All of this comes from Manchester and is made from bleached yarns. The favorite mosquito netting is one having a bar effect, five picks, then a space, and then five picks again. This comes in cases of 50 36-yard pieces to a case. Some comes in 9-yard lengths and 200 pieces to a case. The widths are various, but usually 34 or 42 inches. The price ranges from $1.34 to $2.56 per 36-yard piece f. o. b. Manchester, which is 3½ to 6 cents a yard. A sample of the average-priced mosquito bar netting forwarded is 42 inches wide, comes in 36-yard pieces, is 44 by 26 ends per inch, and sells for $1.50 f. o. b. Manchester.

White cotton nets for wearing purposes, made into outer shirts, have small hexagonal spaces and invoice for 3½ cents per yard, less 15 per cent discount. These are made in England and come mostly in 27-inch widths.

COTTON PRINTS.

Cotton prints is the sole textile import in which the United States predominates in the Philippines, with the possible exception of Turkey-red shirtings. One reason of this predominance is that yard for yard American prints are better value to the consumer, honestly made of good cotton, not so heavily sized, faster colors, and as cheap as the English. Some complain of the too glaring designs on some of this, and, in fact, a plain print in bright red, yellow, and sickly green is not elevating, but I have canvassed the whole market and know that as a whole the American designs are better than those of any nation competing here. An exception should be noted in the case of the French, who, however, ship here only the finer grades.

The main reason given by several native merchants for buying American prints was that the colors were faster.

Another reason of the present predominance of American prints is the favoring tariff. Last year, through some error, the tariff was made to discriminate against American prints, which were unable to get in, but this has been changed and now the sales of American prints are increasing rapidly. For the last six months of 1906 there were more prints brought in here from the United States than in the whole of the previous year. Nearly $150,000 arrived during the month of November alone. Before the tariff change the English and Spanish imported large quantities of what are known as "splits." These were prints woven on the loom, 47 inches wide, and then split down the center into two pieces. This made them cheaper to manufacture. For the purpose of guiding the splitting or tearing down the middle usually two or four warp threads were omitted at this point. A false selvage was usually given the split cloth by the warp threads for a space on either side of the split being doubled up; that is, run two ends to a heddle eye and four to a dent. Under the law recently promulgated (act of February 26, 1906), "splits" are regarded as cloths improved in condition, and are liable to a 100 per cent surtax. As the regular duty on prints runs from 25 to 35 per cent of the value, this, of course, is prohibitory, and the goods must keep to the full width; and for wide goods to get the lowest duty they must weigh at least 10 kilograms per 100 square meters, so they have had to size heavier to come up to this requirement, and this has deteriorated the quality.

Under the head of cotton prints there is a wide range of goods, from the ordinary printed calico to others, such as printed T-cloths, printed Turkey reds, shirtings, drills, lawns, muslins, cambrics, flannels, crapes, sateens, reps, lenos, etc., and there are many and various finishes. The ordinary shirting print, 24 and 25 inches, comprises the bulk of the prints imported. These are used largely for shirts, and in fact printed calico skirts, sarong overskirt, and a Swiss muslin shirt waist is the regular costume of the Filipino woman.

COLORS AND PATTERNS.

These prints come in various lengths, usually from 30 to 40 yards. Prints in which red predominates are well liked, and such designs as horseshoes, fans, tennis rackets, large dots, vine effects, blocks, stripes, etc., are very common. Of the extracted prints, the solid black with white flowers and scroll design are common. On Turkey reds the main designs seen are horseshoe and anchors and scroll designs. The horseshoe pattern especially is seen everywhere, and Turkey-red prints are worn both by the women for skirts and the men for trousers. Red is a favorite color in the Philippines in any goods. Blues are

also popular. Check and plaid designs printed on calico come mostly from England, also prints in imitation of madras. The French prints are mostly delicate shades and largely sateens.

The cheapest prints, 24 inches, 64 by 40 ends per inch, are from Japan, and the finest, 30 inches, 112 by 112 ends per inch, from France. Manchester touches both extremes, shipping 20.6-inch goods, 52 by 40, at 3¼ cents a yard, and 30-inch, 100 by 88, sateens at 11 cents a yard. The American prints invoice at 3 to 5 cents a yard. According to invoices from England, the average cost of printing is about seven-eighths of a cent a yard for 24-inch calico. Samples of some of the most popular prints now on the market have been forwarded for inspection. Included in these are a few split prints, but of these there are very few now being brought in. The "Garner" finish is liked the best. Sateen prints are preferred, but are too high priced for common use; this finish, giving a soft, somewhat satiny feel, is very popular. As illustrating the range the following are some of the prints that came in during November and December and that are popular patterns:

DESCRIPTION AND PRICES OF PRINTS ON MANILA MARKET.

Description.	Where manufactured.	Width.	Ends per inch.	Invoice price per yard.	Yards to the pound.
		Inches.		*Cents.*	
Plain prints:					
White ground, red dot stripes and horseshoes.	United States.	23¾	68× 52	3.05	7.35
Black ground, white star dots	.....do.....	24	68× 52	3.15	6.33
Blue ground, white ⅛-inch dots	England.....	24	64× 48	3.62	.....
Lavender ground, wavy design and 1-inch circles.	United States.	24⅛	72× 58	3.65	6.85
Black ground, small leaf and yellow dot figures.	.....do.....	24	68× 56	3.70	7.00
Blue bars and flower design	England.....	29½	68× 64	4.00	.....
Varying width red stripes with black and white dots.	.....do.....	24	60× 56	4.15	.....
Red and white bars and zigzag effects with dots.	.....do.....	24	60× 56	4.15	.....
Fine red line plaids broken with bouquets.	United States.	24¾	72× 56	4.25	7¾
Plaid effects	England.....	28	68× 60	5.00	.....
Red dots, star effects, on white ground	United States.	25	72× 56	4.3	7½
Blue and black circles and leaves on a white ground.	Scotland.....	23½	52× 52	6½	.....
Fancy prints:					
Lavender ground with wreaths and white bars.	England.....	20⅜	52× 40	3¼	(a)
Pink ground, green and red scroll work	.....do.....	30	76× 64	7⅛	.....
White ground, blue and black designs and blue border.	.....do.....	31½	100× 88	7¼	.....
Diagonal broad red stripes and small leaf stripes.	.....do.....	30 9/10	80× 72	7⅛	.....
White, drab stripes with narrower white, red, and dot stripes.	.....do.....	31½	84× 76	8.00	5.90
Green ground, red and white flower effects.	France	31 7/10	84× 72	8.00	.....
Blue ground with white dot scroll designs.	England.....	32	88× 72	8.00	.....
Sateen prints:					
Pink ground with black and white flower effects.	.....do.....	25¾	76× 72	9½	7½
Lavender ground, red and écru flower effects.	France	30	112×112	11¼	.....
Others:					
Printed cotton pongees	England.....	30	.....	8⅜	.....
Printed cotton paste sateens	.....do.....	29	.....	12.00	.....
Printed cotton lawns	.....do.....	29	.....	11¾	.....

a Split goods.

COST OF THE TARIFF MISTAKE.

The effect of the tariff mistake of 1905 was most unfortunate. The American mills had succeeded in building up an extensive trade in American prints against commercial opposition in Manila, and it had taken much thought and effort to capture the market. As soon as the law containing the blunder went into effect the Americans lost what it had taken years to build up. The loss of half a million dollars' worth of trade in one year is a matter of concern when that comprises two-thirds of our textile trade in the Philippines, but the real loss was much more than that, being a loss of customers. Now that the law has been corrected, men who had spent years in building up this trade have had to start their work anew. They are having great success if the few months of the fiscal year can be considered as a criterion. It is a fact that, count for count and inch for inch, the American prints are superior, and the merchants here who are pushing other prints will privately admit this. There has been quite a desire for American prints ever since they came into general use here, and now that the discriminating duties against American prints have been removed, the trade has rapidly increased. During November there was imported over $140,000 worth of American prints, while for the fiscal year ended June 30, 1906, the imports of all kinds of American cotton textiles amounted to only $278,796, as compared with $764,088 in 1905.

SCARVES—SHIPPING EXTRAS—RED SHIRTINGS.

Large handerchiefs and scarves also come printed in lengths and are then cut apart. A piece that is forwarded is 30 inches wide and 26 feet long, containing 12 large squares, with red-flowered borders and red dot and circle centers. Each square is 26 by 24 inches and the construction of the cloth is 64 by 56. This retails at 75 to 90 cents per 12-scarf piece. In shipping prints the English charge for the case and for packing, and sometimes the Americans do also, 2,000 to 5,000 yards being shipped in a case. The American cases usually contain about 2,500 yards. In 7-yard prints the net weight is 357 pounds and the gross about 435 pounds. A recent charge on such a case amounted to $7.23, viz: Cooperage and cartage, 50 cents; stamps and petties, 5 cents; freight prepaid, $3.20; marine insurance, $1.56; bank commission, $1.92. On the English 5,000-yard case the charge for making up and packing runs from $12.15 to $17, averaging about $13.75. As the importing merchant frequently has to figure very close on these goods he dislikes these varying extras that can not be calculated, and prefers a delivered price, or at least a f. o. b. ship price free of such charges as cartage, petties, etc.

The Spanish percales that are brought in are mostly 24 inches wide, some 22½ inches wide, and come in 50-piece cases of 50-meter lengths, or 54.7 yards each. The constructions are mostly 60 by 56 and 60 by 52 ends per inch. The weights run from 9 to 10 yards to the pound. The price is given on the invoices of a recent shipment of 24-inch, 60 by 56 percales, as 27½ silver centimes a meter f. o. b. Barcelona. A gold peseta is 19 3/10 cents, and the present rate between the gold and silver pesetas of Spain would make this price about 3⅗ cents a yard. This is f. o. b. Barcelona, Spain. The market price is about 5 cents a yard, ranging from 4½ to 6½ cents.

TURKEY-RED SHIRTINGS AND CAMBRICS.

Red is a favorite color with the Filipino, especially solid reds. They wear these red shirtings as outside shirts, with white trousers. Filipinos have a disinclination to gird themselves in, so they wear these red shirts outside their trousers, sometimes almost down to the knees. Another favorite combination is red trousers and white shirt. These red shirtings are dyed in the piece, come in widths of 28, 29, 30, and 31 inches, and in various lengths. Turkey-red shirtings come from various countries—England, Scotland, and Switzerland especially—but they are beginning to come in large quantities from the United States. Some recent invoices from Switzerland, with the price per yard, were as follows: 28-inch, 80 by 52, 4½ cents; 28-inch, 56 by 44, 4¼ cents; 28¾-inch, 56 by 48, 3⅓ cents. Invoices from Hongkong were: 31-inch, 64 by 60, at 5 cents per yard. Turkey-red cambrics or solid dyed plain scoured cambrics seem to come mostly from England and Scotland. A recent Scotch invoice shows 30-inch, 64 by 60, 22¼-yard length, at 5¼ cents a yard.

GINGHAMS, CHECKS, AND PLAIDS.

Gingham, one of the most universally known cloths, is a plain woven product having from 50 to 72 ends per inch in the warp and 20s to 40s cotton yarn in both warp and filling. It is a wash fabric, made in an endless variety of colors in both check and warp patterns. In America it is used mostly for summer outing dresses and for aprons. In the Philippines it is used for women's skirts, and some varieties for men's trousers. Nearly all of these goods are stiffly starched after weaving, then run through drying cylinders, tentered, and then passed through hot calender roll, which gives the desired glaze on the face of the cloth. Samples of some of the popular designs have been forwarded. The American ginghams are usually 29 inches wide, but those imported here are in various widths, the greater portion being wide cloths, coming from Spain and England. Those from Spain appear on the invoice as Vichy, but are the same as our

gingham. A recent design from Spain, 5 black, 18 red, 5 black, 9 white, 18 red, 9 white ends in a repeat of the weave (the same each way), 52½ inches wide, 76 by 64 ends per inch, came in 35-yard lengths and was invoiced at 12½ cents a yard. One from Amsterdam, in a blue, black, and white large check design, 48 inches wide, 72 by 52 ends per inch, invoiced at 10⅞ cents a yard, less 2 per cent. Another from Spain, 50 inches, 60 by 56 ends per inch, in a more elaborate pattern, using red ground and white, blue, yellow, and black check effects, invoiced at 15 cents a yard. One of the few American ginghams on this market is 29-inch, 60 by 48, 6.8-yard goods, and invoiced at 4½ cents. This is 10 black, 4 white, 2 red, 4 white ends each way. Another that is very popular is a 29-inch, 60 by 56, 7-yard goods, invoiced at 5¼ cents, and constructed 4 green, 2 red, 4 green, 6 white, 4 green, 8 white, 2 black, 8 white, 4 green, 6 white, each way.

FANCY AND COARSE GINGHAMS.

Of the higher priced fancy gingham from Barcelona a favorite pattern is made with warp 14 ends purple, 2 white, 14 purple, 2 printed black and white, 6 white, 1 printed orange and white, 1 printed green and white, 6 white, 2 printed black and white ends. The filling is 6 purple, 4 white, 6 purple, 12 white, 2 purple, 12 white ends. This makes a pretty dress pattern resembling madras. It is 52 inches wide, 72 by 68, 4½ yards to the pound, packed fifty 36-yard pieces to a case, and invoices at about 16¾ cents a yard.

There is a good deal of cloth invoiced here as "carranclanes" that is practically a narrow gingham. These are mostly 24 inches, though a few invoiced as carranclanes are 50 inches wide and are made in both check and plaid designs. A favorite pattern is a plain check consisting of 18 white and then 18 colored ends each way, the usual colors being red, blue, or yellow. This 24 inch, 60 by 44 ends per inch, invoices from England at 4¼ cents a yard, and 60 by 60 at 5½ cents a yard. Some of the fancier effects are made with printed yarns and invoice as high as 15 cents a yard for the wide 50 inch. The usual length of these carranclanes is 20 varas, or about 18.5 yards.

Of the coarse cotton plaids a usual width is 40 inches, 52 by 44 ends per inch, and invoice price 7 cents a yard. The widths vary, however, a good many being imported 23 inches wide. Lengths vary also, but the most usual length is 20 varas, or about 18½ yards. The 23 inch, 60 by 48, invoice for 58 cents per piece, or 3⅛ cents a yard. These plaids come in fairly large quantities from Amsterdam and Manchester, with a few from Vienna, Barcelona, and other places. The fancy checks are mostly from Manchester, 28 inches wide, fifty 24-yard lengths to a case, 48 by 44 ends per inch, about 10 yards to the pound, and invoiced at 7 cents c. i. f. Manila. A cotton Arabia

check that is often seen consists of two red and two white ends each way, but each end is woven separately, giving somewhat of a star check effect. This is 23¾ inches wide, 60 by 52 ends per inch, and invoices at 95 cents per piece of 24 yards, or about 4 cents a yard. Oxford checks, 28 inches, 56 by 40 ends per inch, invoice at $1.09 per 24-yard lengths, or about 4½ cents a yard.

POPULARITY OF COTTON STRIPES.

Coarse cottons in stripes of various styles are well liked. A blue and white stripe that is perhaps the most common of all is a plain woven goods with 2 blue and 2 white warp ends, solid blue filling, and usually an eighth of an inch red or white selvage. The English invoice this as blue striped cottons, 24 inches, 24 yards, 84 by 52 ends, at 6 1/16 cents per yard. Similar goods from Spain are labeled regrettas, 25 inches, 27 yards, at 4¾ cents a yard (a little coarser construction), and the Swiss invoice it as rayadillos, in 48-inch widths, 20 varas (18½ yards), at about 12 to 14 cents a yard. Various styles and weights of this pattern are used for trousering, dress goods, furniture coverings, etc. Red striped goods are also greatly used for trousers, shirts, women's skirts, etc. A 2 white and 2 red warp end, solid red filling, coarse cotton goods, from India, retails at 5 cents a yard and is 29 inches, 40 by 40 ends per inch. A favorite red striped pattern that is often seen has solid red filling, with the warp arranged 25 red, 4 white, 4 blue, 25 red, 2 yellow, 4 black, 1 white, 2 blue, 4 black, 1 white, 2 blue, 4 black, 1 white, 2 blue, 4 black, 2 yellow ends in a repeat. This comes from Amsterdam, is 40½-inch, 45-yard, 52 by 48 goods, and invoices at 10½ cents a yard.

"Hollandas," stiffly starched, coarse, striped cottons, are made with white filling, and such patterns as 9 white, 2 black, 9 white, 4 black; or 7 white, 1 blue, 1 red, 1 blue, 1 red, 1 blue, 1 red, 1 blue. These are 24 inches wide, and mostly 64 by 44 construction, the present invoice price from England being 4⅛ cents a yard f. o. b. Liverpool. A small amount of convict stripes comes from England, but the cotton mill at Manila now makes most of this. The invoice price from England is 5½ cents a yard for 28-inch, 52 by 44, 50-yard goods. The stripes are 1-inch filling stripes, the warp being solid black, and the filling alternately 44 white and 44 black picks.

SARONG PATTERNS AND GRAY CLOTH.

"Sarongs" and "patadeones" are words that the average American manufacturer never heard of, but they are familiar terms in the Philippines. The Filipino women wear skirts of cotton prints, but outside these they throw around them a "sarong," as the Moros call it, or "patadeone," as the Tagalogs usually call it, which is simply

a loose fold of cloth tucked in at the belt and usually with one corner tucked up. The cloth used for this is sometimes a check, but usually a striped pattern, and comes from Spain. These usually come cut up in 6-yard lengths with stitched edges, but are sometimes shipped in the piece and made up afterwards. There are usually 200 sarongs or 1,200 yards to a case.

A sarong pattern that is often seen has a dark-red filling, and warp arranged 4 black, 8 purple, 24 black, 8 purple, 4 black, 2 yellow, 4 black, 4 purple, 4 black, 4 purple, 4 black, 2 yellow ends, or 72 ends in a repeat. This has a 2-inch black warp border on each side and a 3 white, 2 red, 3 white selvage woven with double ends. This cloth is 4½ inches wide, 60 by 40 ends per inch, and weighs 161 kilograms per 1,200 yards, which is about 4.75 yards to the pound. The present invoice price at Barcelona is about 11.75 cents a yard.

"Gris," or gray cloth, is imported mostly from Manchester, and is a favorite cheap dress goods. It is made with solid white warp and blue or black filling. It comes 30 inches wide, 24-yard lengths, 100 pieces to the case, 76 by 68 ends per inch, and invoices at 5 to 6½ cents a yard. A finer grade of this, made with solid blue warp and white filling, has finer yarn and is tentered and given a glazed finish on the calender rolls. It is invoiced from Manchester as cotton lusters, at 6¾ cents a yard.

DYED BROCADES—UMBRELLA CLOTHS.

Brocades and damask fabrics are imported to a certain extent, mostly from England, for dress goods, upholstery cloth, table covers, towels, etc. Dyed mercerized cotton brocades are imported as dress goods. They come in widths of 23½ to 25 inches, and recent invoices show 8⅞ cents a yard in 23 inches, 108 by 80 end; and 10¾ cents in 23½ inches, 128 by 108 end constructions. These were the usual leaf, flower, and bud designs, and the colors are light delicate pinks, greens, blues, and yellows. A solid blue 44 inches, 112 by 88, was invoiced at 14½ cents from England. A rich brown dyed brocade from Vienna, 44 inches, 120 by 84, was invoiced at a price corresponding to 18½ cents a yard, less 3 per cent. The foregoing were all lightweight dress goods.

In black-dyed cotton brocades a 28-inch width was invoiced at 12 cents and a 43¼-inch width at 19 cents. These were not mercerized but had the usual brocaded patterns. A good many black brocades are also imported for umbrella cloth.

Umbrella cloths are, comparatively speaking, a large importation, and are usually made either of long staple Egyptian or mercerized cottons. They are either dyed mercerized brocades, dyed cotton Italians, black satins, black figured, twilled, or simply plain cotton um-

brella cloth. The black brocade cotton umbrella cloths are mostly 75 or 90 yard lengths, 37½ inches wide, and invoiced in England for $13.32 per 90-yard piece, or 14⅘ cents a yard, less 2½ per cent in the gray, with an additional charge of 4 cents a yard for dyeing.

Black satin umbrella cloths are in 75-yard lengths, and either 37 or 44 inches wide. The 37-inch invoices in the gray at $7.53 per 75-yard piece, or 10½ cents a yard, less 2½ per cent, and the dyeing charge is 2½ cents a yard. The 44-inch invoices in the gray at $8.51 per 75-yard piece, or 11⅓ cents a yard, less 2½ per cent, and the dyeing charge is 3 cents a yard. The dyed Italians are made for umbrella cloth up to 42 inches and invoice at 12 to 19 cents a yard. The black twill cotton-umbrella cloth costs, in 44-inch widths, $10.22 per 75-yard lengths, or 13.6 cents per yard, less 2½ per cent in the gray, with a charge of 2 to 4 cents a yard for dyeing.

ITALIANS, WOVEN FANCIES, ETC.

Dyed cotton Italians, especially the plain, fast black Italians, the figured, and brocaded, are very popular in China, but are little used in the Philippines. Even the Philippine Chinese discard it for white clothes, and the total amount imported is not large. The largest importation seems to be of a cheap grade, invoicing at 5¼ cents for a 24.8-inch width and 6¾ cents for a 31-inch width.

There is a moderate quantity of woven fancies imported, mostly for women's shirt waists, etc. A favorite pattern consists of a white bleached cotton ground and mercerized pink or yellow stripes of plain, basket weave, or twill design. A sample forwarded is 26.6 inches wide, 84 by 68 ends per inch, and invoices at 9 cents a yard. Printed yarns of various colors are also largely used in these designs in connection with the mercerized stripes. A figured mercerized fancy, solid light green, that is used for upholstery purposes, being really a damask, 24 and 25 inches wide, 100 by 44 ends per inch, put up in sixty 30-yard pieces to a case, invoices at 13¾ cents a yard. Figured piques are also used for dress goods. These come mostly 29 inches wide, in 30-yard lengths, and invoice at 15 to 16 cents a yard, less 2½ per cent. This is the finer quality. Cheaper piques invoice as low as 7 cents a yard. A "pique" or "Marseille" is a quilted weave, being a double cloth with a face of close, plain weave, and back of open, plain weave. It has a corded effect, and is frequently known as Bedford cord. Bedford cords are also made with one beam, using 16 heddles on a dobby loom. Piques, plain and figured, are used for dress goods, vestings, counterpanes, etc. A bleached pique, with double corded effect every half inch, invoiced at 14½ cents a yard. A fast aniline black cord pique, 27 and 28 inches, 30 yards, about 3½ yards to the pound, invoices 14¼ cents a yard.

A black mercerized leno and brocade fancy, 27 inches, 38½-yard length, 4¼-yard goods, invoices from England at 15 cents a yard.

Cannette, which is a fine corded dress goods from Milan, comes in 50-inch widths, and is invoiced at 25 cents a yard. Merinos are mostly 25 and 25½ inch widths. A fine quality, 120 by 96 ends per inch, from Milan, invoices at 14 cents a yard, less 5 per cent, while a coarser, 64 by 36 merino from Amsterdam was invoiced at 8½ cents a yard.

MADRAS.

There is a small amount of madras brought in from Spain and England. Madras is a staple goods that is used for men's shirts, shirt bosoms, ties, etc., and by ladies for summer skirts, shirt waists, suits, etc., also for drapery. It is a light-weight cloth, the yarns ranging from 26s to 80s, and is known by the plain white ground and fancy colored narrow stripe warp effects. Frequently along the edges of these stripes are one or two warp ends of printed yarn. This is a wash fabric, so fast colors are necessary.

The majority of the madras is made with plain weave, and the stripes are also plain, but colored, while others have stripes made by doubling up in the heddle and reed, putting two ends to a heddle-eye, and four or six to a dent. Other fancier designs have narrow twill stripes. The stripes are usually delicate shades of blue, pink, green, lavender, etc., and for hair-line effects somewhat richer colors, such as cherry red, dark green, black, etc. There is not a large importation of such goods, but the usual weight is about 4½ yards to the pound for wide goods, 52 inches, or about 10 yards to the pound for 27-inch goods. The retail price is about 15 cents a yard for the narrow and 25 cents a yard for the wide goods, but as the varieties vary these prices vary correspondingly.

Indian madras is not the light-weight, narrow-striped, fancy shirting known as "madras," but is heavy, coarse cotton goods imported from Madras, India, and invoiced simply as madras goods. Most of this is about 10s to 14s warp and filling, and made with white warp and a solid blue, black, gray, or a brown and white mock-twist filling. A heading or cut mark is usually woven at the end of each piece, of two to four filling stripes an eighth of an inch wide, either of red, white, or yellow filling. It also comes in check and plaid effects, the latter practically being the same as an osnaburg. The cloths imported as madras goods are all coarse cottons, but vary in width and price considerably. The lengths are mostly 24 yards. Some recent invoice prices show a 28-inch, 8-ounce, plaid effect, 44 by 40 ends per inch, at 5½ cents a yard; a white warp, blue filling, 29½ inch, 44 by 40 goods, at 4½ cents a yard; a 31-inch, 56 by 48 goods, at 6 cents a

yard, made with white warp and mock-twist brown and white filling, and a 50-inch, 40 by 36, white warp and dark-blue filling, at 9 cents a yard.

COTTON CREPES—A JAPANESE INVOICE.

Cotton crepe is a light-weight wash fabric, a single cloth, the peculiar feature of which is an all-over crinkly or rumpled effect, which the cloth retains until worn-out. Sometimes this is produced by the weave, but usually it is a plain cloth and this wrinkled appearance is produced by using extra hard-twisted filling, about 40 per cent more twist than usual being put in. What is called standard twist is usually taken as 3.25 times the square root of the number of filling, but for crepe the constant 5.50 is used instead. Thus, the regular 6s filling has 13 turns twist to the inch, but for crepe it is made about 22 turns to the inch. The warp is spread out about 30 per cent wider in the reed than is desired in the finished-cloth width, and the hard-twisted filling draws it down to the right width and produces the seedy, crumpled appearance. The cotton crepe imported into Manila comes mostly from Japan, with some from England, and is either white, piece dyed, or striped. The regular width is 29 or 30 inches and length 20 or 24 yards. Usually about 50 pieces are packed in a case. A recent invoice of bleached cotton crepe from England was 30-inch, 24-yard, 72 by 48, goods, at 6½ cents, and the same goods from Japan (the bleach is not quite as good, however), were invoiced at 6 cents a yard.

From Japan cotton crepe dyed in the piece, 30 inches, 20 yards, 76 by 44, 4½ yards to the pound, was invoiced at 7¼ cents a yard, while another brown-dyed piece, made of finer yarn, 29 inches, 24 yards, 68 by 68, was invoiced from England at 9¼ cents a yard. Striped cotton crepe from Japan, 30 inches, 20 yards, 68 by 36, was invoiced at 8 cents a yard. The ordinary stripes used are such effects as 16 red and 16 white ends, or 6 blue, 4 white, 6 blue, 4 white, 6 blue, 12 white, 1 blue, 12 white, 1 blue, 12 white, 1 blue, 12 white ends, the filling in both cases being white.

SAMPLE JAPANESE SHIPMENT.

A recent invoice of cotton crepe from Kobe, 20-yard lengths, shows the number of extras that an importing merchant sometimes finds himself liable for and which can not be calculated in advance. Some European extras are even more multitudinous, but this from Japan is given simply because it is in concise form.

The invoice was of 10 cases of striped cotton crepe from Kobe. Four cases white crepe, 200 dozen pieces, $314; 2 cases of cotton crepe, 100 dozen pieces, $159; 4 cases of striped cotton crepe, 200 dozen

pieces, $284; total invoice value $757. The charges were as follows: Boxing and cooly hire, $1.74; biscum income tax, 76 cents; Chinese club fee, 76 cents; clerical fee, $1.49; consular fee, $2.51; marine insurance, $7.40; freight paid at Kobe, $13.26; commission agent's fee, 1 per cent of the invoice value, $7.58; revenue stamp, 1½ cents; total, $35.50.

In addition the duty is always paid by the importer. The above were mostly about 4½-yard goods, about 68 by 36 ends per inch, and so fall under paragraph 117 B of the Philippine tariff and pay 14 cents per kilogram plus 30 per cent. The surtax of 30 per cent is added on account of the dyed yarn stripes. This comes to $182 (1.84 cents a yard). Adding, say, $4.98 for unloading and drayage, etc., at Manila and we have: Original invoice price, $757; charges, $35.50½; duty, $182; costs at Manila, $4.98; total, $979.48½; that is, say, 30 per cent above the original invoice price that the goods cost the importer on his shelves. Allowing 10 per cent for the cost to the merchant of carrying these in stock, interest on his money, store costs, etc., and 15 per cent clear profit, the merchant therefore has to sell the goods at least 55 per cent above the invoice price. The invoice price was $757 for 10,000 yards, or 7.6 cents per yard; so the selling price in Manila will be, say, 12½ cents a yard. I priced striped crepe of apparently the same quality in the Manila retail stores and found it quoted at 11¼ to 15 cents a yard, proving the above to be approximately correct.

IMPORT OF COTTON TROUSERINGS.

Large quantities of cotton trouserings are imported into the Philippines, mostly from Zittau, Germany; Zurich, Switzerland, and Manchester, England. These come in various lengths, 24 to 40 yards, but are practically all 48 inches wide. A dark-colored check from Manchester, 64 by 64 ends per inch, is now invoiced at 15 cents a yard. A black-and-white check, a favorite pattern, from Germany, 64 by 56 ends per inch, invoices at 16 cents a yard, less 3 per cent and 2 per cent. A dark plaid effect, also from Germany, 68 by 48 ends per inch, invoices at 18½ cents a yard, less 4 per cent. From Switzerland, what we know in America as the common "pin-head" check, 68 by 58 ends per inch, invoices at, say, 14 cents a yard. A finer and smoother pin-head check, 84 by 76, invoices at 15 cents a yard, less 5 per cent.

The samples of trousering that have been forwarded show the present range of designs fairly well. These are all imported from Europe, though at present prices the United States could well afford to compete. Some of these trouserings are napped on the underside, and some are woven with a quarter-inch green selvage; others, however, are nothing but cheap cottonades, and others, again, classed as

trouserings, are very similar to the 4-yard plaids and cassimeres that are made in large quantities by some of our southern mills. The cheaper pin-head check pattern is exactly the same as that which is used in the United States in large quantities for overalls. These goods are 48-inch, but at prevailing prices a good many of them (not all, as some are very cheap) could be made in the United States and shipped here at a good profit, and it would pay American mills to put in wider looms and try some of the wider class of goods that are in demand in the Orient. At present very few American mills make as wide goods as these.

Most of the cotton trousering is plain woven. A few are fancy patterns. Some are plain weave with twill stripes and others are made with warp and weft checks made by the weave instead of with colors. Granite weaves and spot-figured weaves are also used, but the greater portions are plain woven cottons.

PURCHASES OF LASTINGS, LININGS, AND DRESS FABRICS.

Dyed cotton lastings are imported in moderate quantities, and used for various purposes—linings, etc.—and a good portion of them, also of the Italians, for trousers for the Chinese. Those so used are mostly the stiff glazed or satin woven varieties. Plain cotton lastings 24 inches wide, 27⅓ yards long, 64 by 52 ends per inch, 100 pieces to the case, invoices at about 3.25 cents a yard in Barcelona. This is the cheapest grade of lastings. Black-satin lastings from England run from 8¾ cents a yard for a 27-inch, 40-yard lengths, to 19½ cents a yard for 54-inch, 20-yard lengths. Printed cotton lastings from France seem to be mostly the 31½-inch widths, 43½-yard lengths, and contain 20 or more 43½-yard pieces in a case. These are 76 by 76 ends per inch, 6½ yards to the pound, and invoice at about 8⅓ cents a yard.

Printed cotton linings are mostly 30 inches, say, 76 by 52 ends per inch, and invoice for about 5½ cents per yard less 2½ per cent. They come from England. Used for about the same purpose as the glazed colored percaline or dyed embossed shirting; these come in various colors and are mostly 60 by 60 ends per inch, 30 inches wide, and invoice at 5¼ cents per yard.

Tussores is a fine dress fabric with a lustered corded effect. Most of these use mercerized yarn, and the corded effect, the weave being plain, is produced by using filling twice as coarse as the warp, and then constructing this cloth with twice as many ends per inch in the warp as in the filling. It is mostly 25 and 26 inches wide, 72 by 36 ends per inch, and comes from England. The present invoice price is 19½ cents per yard. It is also constructed with narrow basket-weave stripes, 27 inches wide, 112 by 100 per inch, invoicing for 12½ cents per yard.

Repp is a high-grade dress goods, and like the tussores has a lustrous corded effect, but is made of finer yarns. This cord is also produced by using coarser filling and twice as many warp as filling threads. Nearly all the repps used are plain goods, and there is little of printed repps imported. The usual cloth runs 35.8 inches, 48 yards, 100 by 48, and 15 pieces to the case. Present invoice price is 17 cents per yard, less 4 per cent and 2½ per cent.

COTTON VELVETS.

The cotton velvets come from Germany and England. The total quantity is not large—not over $500 per month. These are mostly black and red, also some other colors, such as blue, yellow, purple, and claret. These velvets are 22 inches and under, running mostly 20½, 21½, and 22 inches wide. The lengths vary greatly; thus one shipment of which I saw the invoice had pieces of lengths of 23, 23.67, 23.82, 24, 27.27, 32½, 33.12, 34, 34.54, and 37 yards, respectively. It will be noticed that the lengths are figured down very closely. The average length is about 30 to 35 yards, and 670 yards or thereabouts to the case. Velvets, as is well known, are woven wide and then split into two or three pieces. This brings them under the head of split goods and doubles the tariff rate. As velvets are not made in the United States, except to a very limited amount, this enhanced cost does not help the American manufacturer, and if anything it does him harm, as it diminishes by that much the ability of the native to buy goods that he otherwise might from the United States. The present invoice on ordinary English velvets 20½ inches wide, split down one side—the ordinary silk-finished velvet—is 11¾ cents a yard. To this are added freights and other costs, such as marine insurance, boxing, etc., making net cost to the importer, say 15 cents a yard, so this velvet sells on the market at about 17½ to 20 cents, or more, a yard. A little finer finish invoices at 14 cents a yard from England. The printed cotton velvets nearly all come from Germany, especially the metal prints. Like English velvets, they vary greatly in length, mostly 29½ to 38½ yards. Widths are mostly about 21¼ inches, and usually 20 or 21 pieces to a case. A black scroll-printed velvet, simply a hot-press design, invoices from Crefeld, Germany, where most of the velvets come from, at 18 cents a yard, in 22-inch width. Another having small green bronze dots printed on a black velvet 19½ and 20 inches wide was invoiced at 20 cents a yard, less 2 per cent discount. Another 19½ and 20 inch velvet, in 24-yard lengths, colored and bronze printed, invoiced at 20 cents a yard, less 2 per cent for one bronze, and the same goods at 24.7 cents a yard, less 2 per cent for two bronzes. In the first case the design, which was small leaf effects on a blue ground, was stamped in silver color, and in the last both gold and silver colors were used.

TRADE IN PLUSHES.

The cotton plushes are usually about 24 inches wide; lengths mostly 32 to 37 yards, averaging probably 35 yards; weight per yard, 1 to 1¼ pounds, a case of 700 yards usually weighing about 174 pounds. The present invoice price of the better grades of German plush is about 45¾ cents a yard. On most of these velvets not only is there a charge for the boxing, but also a charge for labels and wrappers; the labels often being made to order and being ornamented gilt work are charged for separately. This usually runs $3 to $4 a case, which is added to the above invoice price, making, say, half a cent a yard more. Besides their use in furniture, etc., these plushes are mainly used for making slippers. The Filipinos, both men and women, wear these plush slippers constantly as their regular footgear, though the men are beginning to discard them for the American shoe.

Schappe plush, 24.8 inches wide, was marked in a recent invoice from Crefeld at 32 cents a yard, less 1 per cent discount. Another invoice of half-silk plush, of which there is a good deal used, 18 inches wide, was invoiced at 34.8 cents a yard, less 4 per cent.

COTTON FLANNELS AND FLANNELETS.

Cotton flannels are imported in fairly large quantities for outing flannels, for bed clothing, curtains, etc. The largest proportion is probably from England, with Japan and Spain next. A moderate amount comes from the United States, but it does not, as it easily could and should, monopolize the trade. Cotton flannel is a soft woven fabric, either plain or twill weave, and napped on one side, sometimes on both. The twill weave, having longer floats, gives a better surface to raise a nap; the filling is slack twisted, and the warp very lightly sized. For winter wear the 3 up and 1 down twill is ordinarily used, and for summer wear the 2 up and 1 down twill; this for the reason that the longer floats on the first permit of a longer nap. The cotton flannels mostly imported into the Philippines are light-weight outing flannels. They come in 25-inch widths, plain and striped. A 25-inch, 64 by 48 quality, bleached, is invoiced by Manchester at 5 cents a yard, and a 24.8 inch, 72 by 72 quality, striped, is invoiced at 6⅞ cents a yard. A dressy, twilled, mercerized cotton flannel, striped, 25 inches, 80 by 68, invoices from Manchester at 7¾ cents a yard.

Flannelet is a soft, narrow, light-weight fabric, with a light nap on both sides. The filling is very soft and fine. Bleached yards are used, but the flannelets mostly imported here are solid colors, being piece-dyed, delicate shades of sky blue, rose red, salmon, lilac, light

green, etc. A small amount is printed. Flannelet is used for wrappers, kimonos, etc., and is a wash fabric. Recent Amsterdam invoices show a price of 6 cents a yard for piece-dyed, 25-inch, 52 by 48 flannelet.

BLANKETS AND TOWELS.

Being a tropical country, heavy woolen blankets are not ordinarily needed in the Philippines. The nights are moderately cool, however, so light blankets are used, and for this the cheap, light-weight cotton blanket is the best, and these are imported in good quantities. They come mostly from England and Spain. These are mostly piece-dyed, but some are striped and some are in plaid designs. For the solid dyed the favorite color is red, then gray, khaki, blue, salmon, etc. The lightest varieties are practically flannelets, while the heaviest kinds are only medium weight. Forty-eight by 60 inches is an ordinary size, though longer lengths are used. Forty-eight inches is the regular width. On the piece-dyed medium-weight cotton blankets the present invoice price from Rotterdam is 25.7 cents. These blankets retail at 50 cents each. The striped blankets are invoiced at present at 32 cents gold, and retail at 50 to 75 cents each. There are scarcely any American cotton blankets on this market, but the trade is growing and worth looking after. Filipinos who formerly were content to sleep on matting now aspire to a couple of blankets for their bed, and the demand is gradually increasing.

On towels the market is divided between England and Japan, the cheaper toweling coming mostly from Japan. A cheap, soft, woven cloth that is imported from Japan is 40 by 32 ends per inch, comes in pieces 13 inches wide and 22 yards long, and invoices at 45 cents per piece, plus all charges, freight, etc. This is retailed in the piece at about $1, and afterwards cut up into towels about a yard long. Some of this is also imported 18 inches wide. Most of this is plain bleached, but some is printed about every yard with a large star or anchor in the center. Some white pique towels, 22 by 48 and 24 by 52, are brought in from England at $2.25 per dozen, but are rather too stiff and not very popular. The regular Turkish towel is imported from both Japan and England. This cloth has two rows of loops, formed by warp of yarn, in regular order on both sides of the fabric. These come in solid bleached towels, having side and cross border color effects, stripe and plaid designs, etc., the favorite colors being pink, red, blue, and green. These invoice at 50 cents to $1.30 a dozen and retail at 15 to 50 cents apiece. The usual size is about 19 by 38 for fringed. The smooth-finish English towels invoice at 25 to 75 cents a dozen and retail at 5 to 15 cents apiece.

WOOLEN SHAWLS, GRENADINE, CASHMERES, AND MOHAIR.

The Japanese, Chinese, and other Eastern women wear no head covering. To a certain extent this is true of the Filipino women also. In damp or windy weather a light shawl is thrown over the head. A good many of these shawls are imported from Germany and Austria, and they come mostly in solid colors—orange, pink, blue, gray, etc. A recent lot of shawls from Reichenberg, Austria, 39 by 43½ inches, square, fringed, packed 50 dozen to a case, was invoiced at $2.03 a dozen and were retailed at 37½ cents each.

A small amount of voiles grenadine is imported from Switzerland, coming in 36 by 50 inch sizes and invoicing at $9.65, less 20 per cent a dozen. This is 96 by 68 ends per inch, with a heavy, close-woven, 3-inch border. This stuff is used by women for scarves, dress materials, etc.

A case received in December of 20-piece black cotton cashmere from Liverpool, 828 yards, 43 and 44 inches, weighing 2¾ yards to the pound, was invoiced at 23¼ cents f. o. b. Liverpool per yard. These were made up in dress folds, wrapped in white lining paper, with blue gray outer paper tied with pink tapes. Lengths were stamped in gold, also marked on hanging tickets.

Mohair dress goods imported are of cotton and wool, and show raised figures on either a plain or a "rep" ground. The color is mostly black, though blue and other colors are also used. The width is 44 to 46 inches and the weight, say, 3⅓ yards to the pound. Most of this fabric is brought in from Gera, Germany, and the invoice price is 27 to 31½ cents a yard, less 2 per cent. The yarn used in this fabric is 30s cotton and 40s 2-ply mohair. The black mohair figures come either from Germany or England. A recent case from England was invoiced at 43.4 cents a yard for 42-inch widths.

COTTON HANDKERCHIEFS.

There is a large market for cheap cotton handkerchiefs, also a smaller market for fine qualities. The market is controlled by England, with smaller quantities coming from Spain, Scotland, and Germany, and a few of the cheapest varieties from Japan. Figures, specially made up by the Philippine customs on request, showed $3,432 worth of cotton handkerchiefs imported in the month of October, 1906, so the total yearly importation is probably over $40,000, and worth looking after. These handkerchiefs come plain, scalloped, figured, printed, twilled, dyed, handworked, etc. A dozen samples illustrating the range have been forwarded.

The largest quantity imported is the ordinary bleached cotton handkerchiefs, 17 by 17 inches to 18½ by 18½ inches, and ranging in price from 40 to 70 cents a dozen. Some mercerized kinds, 24 by 24

inches, invoice as high as $1.50 a dozen. Next to the plain white the printed handkerchiefs are most largely imported, coming in sizes 13 by 13, 14 by 14, 15½ by 15½, 15½ by 16, 17 by 17, and 17½ by 17½ inches. Some are printed without borders, simply the edge stitched back for an eighth of an inch, and invoice from 18 to 36 cents a dozen. Others with the regular 1-inch border, with white ground and only the border printed, invoice from 30 to 40 cents a dozen, and still others printed all over, usually flowers on the border and block designs inside, invoice from 45 to 60 cents a dozen.

Dyed handkerchiefs are mostly 15½ by 15½, 17 by 17, or 17½ by 17½ inches and invoice from 40 to 50 cents a dozen. The usual shades are delicate pink, lavenders, or green. Dyed handkerchiefs with twill stripes or with damask woven borders invoice from 40 to 70 cents a dozen and run from 15½ by 15½ to 19 by 20 inches, the larger sizes being frequently used for men's scarves. Bleached handkerchiefs, ornamented with colored flower work, mostly hand stitched, invoice from $1.25 to $1.75 a dozen, 24 by 24 inches, and are used mostly for men's scarves.

KNIT COTTON UNDERSHIRTS.

There is a very large field for knit goods in the Philippines, especially for knit undershirts. These are worn by everybody, and vary in construction from very close knit goods to others so open that they look like mosquito nets. At present this trade is almost entirely monopolized by Spain, with small lots from Germany and England. The bulk of this trade is cheap goods. The usual invoice prices run from $1.50 to $4.50 a dozen. There are some invoiced at 75 cents or under a dozen. It is to be doubted if the United States can compete on the low-priced goods, but there is a good demand for higher grades, and these should be supplied by American mills.

In connection with this matter a couple of merchants related a peculiar incident. The Americans here as elsewhere have a firm conviction that foreign goods are shoddy and that the only genuine articles are produced in the United States. In deference to this opinion the foreign merchants at Manila some two years ago ordered large quantities of American socks and undershirts. When these arrived they were found to be in German boxes and with German labels, some with English labels. The Americans always examine the boxes to see if the goods are genuine, and finding German and English labels thereon refused to pay higher prices for them, and the merchants were left with shipments of high-priced goods on hand that they had to sell at a discount. This was related by two merchants and confirmed by a customs official. The manufacturers probably thought that German labels would help the sale of the goods in a market already opened by Germans, but in this case its effect was

exactly the opposite. If proper effort be made large quantities of American knit undershirts will find a good market in the Philippines. Undershirts come bleached, unbleached, and striped. A number of the usual styles are forwarded herewith. On one of these, a plain white undershirt, the invoice price from Spain was $1.30 a dozen, while the retail price was 30 cents apiece. To get retail prices that will furnish any idea of the invoice price is difficult, as the retailers, especially the Chinese, have a way of buying a stock of various sizes and various qualities, ascertaining the average value, adding so much for profit, and then selling them all at the same figure, regardless of the fact that some may be 30 or 40 per cent better or poorer than others. The average retail price in Manila for cotton undershirts is 40 to 50 cents apiece. One of the better grade of shirts from Zurich, a sample of which has been forwarded, was invoiced at $2.41 a dozen, and weighed 5.15 pounds to the dozen.

HOSIERY.

The cotton hosiery market is controlled by the Germans. The cheap colored socks in the Chinese shops retail from as low as 7½ cents a pair up to 25 cents. There is an increasing market for hosiery. Formerly both men and women pattered around in slippers held on by the toes and wore no hosiery, but shoes, and consequently hose are now being worn in increasing quantities. There is also a good market for the higher grades. The following shows present invoice prices and methods of invoice, being from a November shipment from Chemnitz:

CASE COTTON HOSIERY.

Net weight.						
With packing.	Without packing.					
						Kilos.
			Case No. 2077. Gross weight, 100 kilograms, 95 by 66 by 69 c. m. { Empty case			31.000
			Oilcloth			.390
			Parchment paper			.380
			Waste paper			.470
Kilos.	*Kilos.*	*Dozen.*	9. 9½. 10. 10½. 11	*Price.*	*Price, including charges.*	
12.84	7.24	20	Men's white lisle lace ½ hose ... 2. 4. 5. 6. 3½	$1.43	$1.57	$31.40
28.33	17.13	40	Men's black lisle lace ½ hose.... 4. 6. 11. 12. 7½	1.43	1.57	62.80
16.40	9.54	24½	Men's white mercerized lisle ½ hose..... 2. 4. 6. 3½	2.00	2.14	52.43
9.75	5.25	15	Men's black mercerized lisle ½ hose..... 4. 5½. 10. 5½	2.00	2.14	32.10
67.32	39.16	99½				178 73
			Less 4 per cent discount			7.15
						171.58
			Less 2 per cent discount			3.43
			Actual net price paid by purchaser.....			168.15
			Consular fee			2.50
			Part of inland freight paid by consignees			4.38
			Gross sum of invoice.....			175.03

Included in the charges are case, $1.67; 199 boxes, at 4½ cents, $8.96, and labor and packing materials, $3.58; making a total of $14.21.

Besides showing present invoice prices, this is a good sample of a German invoice. The figures were in marks, which have been changed to American currency for convenience in following, but otherwise the invoice is as made out by the exporter. It will be noticed that the Germans are particular in giving net and gross weights, size of box, weight of box, of oilcloth, of paper, extra charges, etc., in detail. The customs appraiser and the importer can ascertain every point about such a shipment at a glance. Very rarely is such an invoice received from the United States. Most German and other foreign socks have a seam down the back, while the better American grades do not, and this point is one that, according to a merchant in Manila, will, with the better quality of the American, make them increasingly popular on this market.

Bleached flax canvas comes in 24-inch widths and invoices at 18 to 21 cents a yard.

YARN AND THREAD.

The yarn and thread imported into the Philippines is increasing—being $641,164, $779,910, $907,519, and $1,092,563 for the years 1903, 1904, 1905, and 1906, respectively. The yarn and the thread are classed together, so it is impossible to distinguish between them, but the yarn undoubtedly forms the bulk of the trade. Over half of this comes from Great Britain, with Japan next, and then Belgium, Switzerland, Italy, Germany, Spain, India, and China, with smaller quantities from other countries, the United States being about at the bottom of the list. The greater portion of the yarn is shipped in 400-pound bales, containing 40 bundles of 10 pounds each. The finer yarns and fancy yarns are shipped in bales and boxes of various weights. A good deal of this yarn is dyed. Some is mock-twist yarn, made by running two rovings, one or both being colored, into one on the spinning frame; some is printed, usually in imitation of twisted yarn; while other yarn is mercerized or finished in some special manner. A good proportion of it is used for the stripe work in the native hand-loom woven-fiber cloths, so it is usually colored or fancy yarn; 60s in December, in 183-pound bales, were selling at $27\frac{3}{4}$ cents a pound.

There is ordinarily a fair profit, occasionally a very large profit, in the yarn business here. It is a question whether it would be attractive to an American export firm, owing to the great variety of the yarns used, necessitating shipments in each order of a few cases each of several different kinds. As a rule there is no big demand for any one number, being mostly assorted lots. This kind of business has never appealed to American firms, who prefer a wholesale business of selling several hundred-bale lots, but if there is a profit in it such prejudice must and will be overcome.

A New York house, kept in close touch with the market requirements by a Manila connection, which would cater to this market, could do a very profitable business here in yarn. The United States can not hope to control in this line, but on certain yarns, at times, would make a good profit, and if the natives were impressed with the fact that American cotton yarns were superior to the low-grade Indian and Japanese cotton yarns, American spinners could get part of the trade that goes to those countries, even at higher prices.

SAMPLE INVOICE CASE.

A good deal of the cotton goods imported into Manila comes in assorted lots, a few cases of one cloth, a few of another, etc. In a great many instances only a few bolts of each are shipped, and the English and Germans, unlike the Americans, will cheerfully fill any size order down to one case, and then arrange that one case as desired. A one-case invoice that I came across was packed and invoiced as follows:

SAMPLE INVOICE OF COTTON GOODS IMPORTED INTO MANILA.

[£1=$4.86; 1 s.=24 cents; 1 d.=2 cents.]

Description.	Net weight.	Net with paper, etc.	Width.	Pieces.	Yards.	Price per yard.	Total price.
	Kilos.	*Kilos.*	*Inches.*			*d.*	£ s. d.
White cotton fancies	17.60	18.60	27	10	395	6¼	10 5 9
Colored cotton grenadines	14.06	14.51	27	6	269	8¾	9 16 2
Printed cotton fancy cloths	45.81	48.08	27	26	1,105	4 5/16	19 17 1
Printed cotton pongees	21.32	22.00	30	10	438	4⅛	7 10 7
Gray cotton prints	29.48	29.94	31–32	7	371½	4⅛	6 7 8
Printed cotton furnitures (prints)	93.89	93.89	29–30	14	829	3⅞	13 2 8
Making up and packing							2 2 8
Bank commission, etc							10 5
Total for case	222.25	227.02					69 13 0

NATIVE WEAVING.

Considerable hand-loom weaving is carried on in the country districts of the Philippines, and some really fine work is done. The annual imports of yarn are valued at $750,000 to $1,000,000, in addition to that made by the cotton mill at Manila and by hand spinning. The greater amount of the weaving is not with cotton, however, but with the fiber of various plants and trees, such as hemp, pineapple, palm, etc. There are many of these weaves, but the most noted are piñn, jusi, and Sinamay. Samples of these have been forwarded to the Bureau of Manufactures. All of these cloths are narrow woven, from 16 to 24 inches, and are used mostly by the women for mestizas or shirt waists in place of the Swiss muslin. These native goods are woven in the gray or with stripe effect. The stripes are made with printed yanrs or silk usually.

A sample of jusi forwarded is 17½ inches wide, 20 yards long, 72 warp and 96 filling threads per inch, and retails at 30 cents gold a yard. It is made with narrow silk stripes down the warp. Some jusi sells as high as 75 cents a yard. Two samples of piña are forwarded, one very coarse, 19¾ inches, 40 by 28, retailing at 10 cents a yard, and another of medium grade, 19¾ inches, 84 by 72, retailing at 16 cents a yard. This is made from pineapple fiber, and some very fine grades of muslin, running as fine as the best Persian lawns, are made of this material. Some of it looks like silk.

Sinamay is woven from the hemp fiber. A medium coarse grade that is forwarded has stripes made of red and black printed yarns; the cloth is 18 inches, 40 by 52 construction, and retails for 25 cents a yard. A very large amount of hemp fiber is used locally in the manufacture of this cloth. The fiber for this purpose is specially prepared, the leaf stems from the center of the stalk are selected, and the fiber drawn several times under the stripping knife, which gives a fine, soft, white product. For the finer grades of textiles it is then placed in a wooden bowl and beaten with a mallet until the required fineness and elasticity are obtained. This process gives a fiber that is almost like silk, and the hand-loom woven cloth made therefrom is very fine.

The banana and other fibers used in the manufacture of the celebrated piña and jusi and other cloths are produced in substantially the same way. Some of the woven effects are very artistic. It may be noted also that embroidery of a very high order of merit is made in the Philippines..

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